



Australian Government

Bureau of Meteorology

Floods in South Australia 1836–2005

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DVD Editor: Keith Casperson

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Project under the direction of Chris Wright, South Australian Regional Hydrologist,
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Foreword

Of all the States and Territories of Australia, South Australia has the lowest rainfall, yet the State still experiences floods and until now had no consolidated record of its flood history. Presented here is a chronology of flooding in South Australia from European settlement in 1836 to 2005.

The idea for this book and DVD was put to my immediate predecessor as Parliamentary Secretary with responsibility for the Bureau of Meteorology, Dr Sharman Stone, in 2003. The potential value of such a record as a reference tool was evident, and discussions on its production were soon under way.

David McCarthy, a volunteer at the Bureau of Meteorology, was asked to undertake a feasibility study into the collation of flood information for South Australia, and he recommended the use of volunteers and participants in the Australian Government's 'Work for the Dole' Programme in the collection and recording of historical data to be included in a comprehensive publication. David had worked with unemployed people on other projects and was aware of the significant contribution they could make.

On the recommendation of the Director of Meteorology, Dr Stone gave the flood history project her seal of approval on 3 March 2004.

Dr Stone's responsibilities have since passed to me and I am proud to support the release of this multimedia publication. I am particularly impressed by the scope and quality of this project. In the research phase, more than 600,000 issues of South Australian newspaper publications were referenced.

It is a major undertaking to bring together nearly 170 years of scattered flood records in the one publication and after reviewing the book and DVD, I am confident that the flood history team has succeeded admirably in delivering a concise reference on an infrequent weather-related phenomenon in a user-friendly way. The tone and style of this publication make it accessible to anyone interested in flood-related matters. The efforts of everyone involved should be applauded.

As an historical record, and as a reference for students and researchers alike, the flood chronology contained in this book and DVD will prove invaluable.



The Hon Greg Hunt, MP
Parliamentary Secretary to
the Minister for the Environment and Heritage

Preface

Extreme or unusual weather conditions hold a fascination for many of us. Often, such conditions result in events which impact on our lives or livelihoods. One such event is flooding. Floodwaters can have a huge impact on our lives. They can be destructive and disruptive. Damage to property and land can sometimes be devastating. In some instances, people and animals die.

South Australia is, for the most part, a dry state. However, we do have flood events, some of which have been significant. The purpose of this book and the accompanying interactive DVD is to bring together, in one comprehensive package, nearly 170 years of flood records in this State. The information contained within should provide valuable reference to a diverse range of people, including historians, researchers, hydrologists and other interested readers. In excess of 20,000 hours of research, writing, editing, and designing has gone into the production of this package. All the information was sourced from newspapers, books, and manuscripts, dating back to the first European settlement in 1836. The inclusion of the DVD enhances ease of access to the comprehensive range of information on flood events.

The compilation of this book and DVD has been a considerable undertaking over five years. On behalf of the Bureau of Meteorology, I would like to congratulate all those involved in the project. Special acknowledgement goes to the volunteers who gave their time and expertise to ensure the project was kept on track and fully realised. Along with the contribution of their knowledge and skills, they also undertook supervisory roles. I acknowledge also all the Work for the Dole participants who contributed over 16,000 hours of time towards the project. The quality and array of skills they brought, from many disciplines, were considerable and invaluable.

The assistance of the Community Work Coordinators from 'Ask Employment and Training Services' in Port Augusta and 'Employment Options Incorporated' on Yorke Peninsula was very much appreciated. All coordinators worked closely with the project management team to provide skilled participants. Additional thanks go to the Commonwealth Department of Employment and Workplace Relations and to the Project Steering Committee. Everyone involved in this Flood History Project should be proud of the result. This book and DVD is a high quality package of a comprehensive chronology of flood events in South Australia over the past 170 years, and as such will endure as a significant contribution to the recent natural history of South Australia.



Andrew Watson
Regional Director
South Australian Regional Office
Bureau of Meteorology

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The History of Floods in South Australia Project

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 - Port Augusta Employment Services
 - Yorke Peninsula Employment Services
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- Work for the Dole Programme Participants
- Volunteer workers
- Volunteering SA
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- History of Floods Project Steering Committee
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- Bureau of Meteorology personnel from Melbourne HQ and SA Regional Office
- The State Library of South Australia
- The State Library of Victoria
- The Art Gallery of South Australia
- Local Government Authorities throughout South Australia
- City of Port Augusta and Flinders Ranges Council
- City of Victor Harbor, Alexandrina Council and Yankalilla Council
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- Kangaroo Island Council
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- The many pastoral leaseholders who provided flood information and photographs
- The many historical societies and groups that provided flood information and photographs
- The many people who, and bodies which, provided flood event information and photographs from their personal and business records

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About the Editors

David McCarthy is the manager of this history of floods project.

He has overseen all aspects of the operation, developing the procedures, recruiting researchers, writers and other staff and liaising with the Bureau and outside agencies. In fact it was his initiative that promoted the project to record the floods that had occurred since European settlement for the benefit of those that follow. In early 2002, David



was asked to advise an officer of the Department of Water, Land and Biodiversity Conservation on floods and the role of local government in their management. It was then that it was discovered that no government instrumentality or private group had ever kept a complete record of floods that had occurred in South Australia. Thus the project was born. Given the shortage of funds to attack the subject he suggested the use of the unemployed though the use of the Work for the Dole Scheme. In the past David had successfully addressed and completed many complex projects using a labour force recruited totally from those currently unemployed in South Australia. He believes that he has been part of another success.

David was born and educated in South Australia. After doing his primary studies at Finniss and Milang he travelled to Adelaide to tackle his secondary education. A focus on engineering at the University of Adelaide rounded off his early studies. During his 43-year engineering career, he was engaged by the Cities of Mitcham (SA), Henley and Grange, Unley and Elizabeth (later City of Playford). Later he gained an Associate Diploma in Recreation. David was awarded the 1980 Hockridge Fellowship and studied waste management in Germany, England, Scotland, USA and New Zealand. In 1980 David was also awarded the British Empire Medal for service to the community in the Henley and Grange area.

Tony Rogers was born in England, educated in Canada and joined the history of floods project in July 2004 with the specific task of editing the comprehensive South Australian flood events chronology. As book editor, he has worked with a small group of sub-editors on all aspects of the book. In addition to writing and editing, his team has collated and verified all the research data.

Tony graduated from the University of British Columbia (UBC) in 1968. He taught in Vancouver schools for six years before teaching for the Canadian Department of National Defence in Germany. He was later principal of a school in the Gulf Islands, off the west coast of Canada. In 1982 he returned for graduate work at UBC, where he also lectured. He was later a senior lecturer at the University of South



Australia. His Master's thesis was in the field of curriculum theory and his PhD was in educational history. His major research includes a comparative study of the effects of colonization on the art and culture of selected Aboriginal peoples in Australia, Canada and Taiwan.

Keith Casperson has been responsible for management of a small team involved with production of the DVD and its content.

Keith was born and educated in Canada. He graduated from the University of British Columbia in 1964 with a Bachelor of Science in Honours Zoology. Since arriving in Australia in 1965 he worked for the Division of Wildlife Research, CSIRO and between 1976 and 2003 was employed by what is now the Department of Environment and Planning in South Australia. During his time with the CSIRO he participated in ecological studies of emus and feral rabbits and gained experience in data analysis using mainframe computers. Upon moving to South Australia he was first employed as a project officer and as such was involved with assessment of environmental impact statements and later assisted in the development of vegetation clearance guidelines. At that time he continued to develop his interests in computers and established a database on CSIRO Net which was accessed in Canberra via remote terminals in Adelaide. The experience gained during this time formed the foundation for his future involvement in the development of the State's databases which hold survey records relating to flora and fauna. This work involved the collection, collation, analysis and presentation of data.



A major advance in the area of presentation was the advent of geographic information systems (GIS), first on mainframes and later desktop computers. The ability to produce digital and hard copy maps depicting the relationship between the distribution of flora and fauna and the bio-geography of the State greatly facilitated the understanding of the status and management issues relating to conservation of the State's biota.

Keith joined the flood project in March 2004 and from that time has used his expertise in databases and GIS systems to supervise compilation of the database relating to flood events as reported in newspapers and to make this information available both through a mapping interface and a text query tool.

Keith's experience and knowledge of database design and geographic information systems has been a valuable contribution to the production of this book.

Introduction

As South Australian Regional Hydrologist I had long felt that there was a pressing need for an integrated, systematic and complete record of floods in South Australia. I was not alone in this. Planners, local council officials, engineers, realtors, and many others sought such information. However, despite the comprehensive records that have been maintained over the years by the Bureau of Meteorology, a specific record of flood events did not exist. This book, *Floods in South Australia: 1836–2005*, and its accompanying DVD is a response to that need.

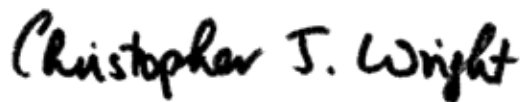
Government support and committee guidance has provided impetus and direction while the Bureau of Meteorology has provided systems and premises for the project's human resources. The Hydrology Section of the Bureau of Meteorology is very fortunate that David McCarthy, a retired engineer, volunteered his services to administer the project. He gathered a team of other interested people, many of whom are identified elsewhere in this book and over a period of four years, this publication has been developed.

From the perspective of the flood researcher, the book is of great value; while the database is a major additional asset to the book, and offers broad flexibility. Together they provide an invaluable resource to all who are concerned with water and flood risk management. At this time it is particularly useful when there is much current discussion about future water management.

It seems to me that the writing of the Flood History for South Australia has been a challenge for all those involved—from its conception, through its growth and, finally, its delivery. It was not possible for all who contributed in its earliest days to be there at the finish, but everyone's help in the process has been invaluable.

For me, the satisfaction comes from seeing an idea form, watching it grow, seeing so many problems overcome and, above all, seeing such a variety of people and interests learning to work together towards a common goal.

I hope this book gives much pleasure and interest to those who read and use it.



Chris Wright
South Australian Regional Hydrologist
Bureau of Meteorology



Flood Commentaries

The following papers discuss flood topics which are complementary to and associated with the events detailed in this book.

David McCarthy—The Flood Chronology and its Application

Tony Rogers—Writing History

Keith Casperson—Data Collection, Collation and Presentation

Kim Read—The Nature of Floods

Graeme Furler—The Meteorology of Floods

Jill Kerby—The Environmental Effects of Flooding

Linton Johnston—Good Floods

Kim Read—Flood Mitigation

Chris Wright—The Financial Impact of Floods

Snowball et al.—Palaeo-hydrology: the Science of Identifying Large Flood Events Prior to Written Records, Based on Physical Evidence



Flooding of the Gawler South River at Eudunda 1917. May refer to chronology entry for 19–24 July 1917. Courtesy of the State Library of South Australia. B46501



Camels drawing a buggy cart across Cooper's Creek during a flood ca1920. May refer to chronology entry for 16–19 February 1919. Courtesy of the State Library of South Australia. B32222/68

The Flood Chronology and its Application

David J McCarthy BEM, JP

Floods in South Australia: 1836–2005 is the first chronological listing of flood events reported in South Australia. Each flood record contains a brief synopsis of the event extracted from newspaper references. The synopsis is a concise and accurate description of the flood event referenced by the newspapers sourced.

The information contained in this publication and its presentation will enable its use as a reference source for a diversity of disciplines. Researchers will be able to identify floods by the location and synopsis for each event. Additional flood attributes may be found on the accompanying DVD. Use of the references from the chronological index will enable a subsequent search to be conducted by accessing the references listed.

The chronological record of floods in this dual publication will facilitate research from source documents giving immediate access to the actual flood event or events for which information is sought for floods which have occurred in South Australia from 1836 to 2005. In addition to the extensive chronology of the floods identified, the book contains a series of short papers describing the nature of the catalogue and its application, several commentaries on natural and physical issues associated with floods and many outstanding photographs taken at times of flood. The accompanying DVD contains a wide range of photographs collected by the project team and several newsreel clips of TV flood footage taken during flood events in the last 30 years provided by courtesy of Channel 7, Adelaide. The DVD also contains instructions on how to make further use of the flood event information by the use of various search engines. The DVD is particularly oriented toward the use of GIS software.

While it cannot be guaranteed that all floods which have occurred in South Australia since European settlement have been reported, every effort has been made by the editors and their team of researchers to find reference to and report as many floods as could be identified in the source material researched. This catalogue of floods has been set out in chronological order covering some 169 years and contains a brief synopsis of each flood event recorded.

The flood reports have been sourced from the large range of newspapers in circulation within the State during the period of the research. The researchers have found that floods occurred in more than 1,200 unique locations.

Every issue of a number of best-known newspapers was searched to detect reports of floods in South Australia. In all, well over 200,000 newspaper issues were read by a team of researchers employed by the project. Not all of the newspapers published in South Australia could be reviewed, but the editors believe that most of the floods which occurred since European settlement and were reported in newspapers have been identified.

The document is not a work of historical review or a comment upon historical events but an index to floods which have been reported to have occurred in South Australia during the period researched. It is an inventory presented in chronological order of those floods that the researchers have identified in the range of sources used—principally newspapers that are readily available from the collection housed in the State Library of South Australia. This dual publication (book and DVD) will enable any researcher from a wide spectrum of disciplines to access selectively the newspaper resources used by the project researchers to further their knowledge of specific floods that have come to pass in South Australia.

This project is the product of a coordinated undertaking involving a team made up of persons engaged from the ranks of the unemployed through the auspices of the Work for the Dole Programme and a dedicated group of volunteers working within the Australian Government Bureau of Meteorology. Considerable support

was forthcoming from all staff of the Bureau, several of whom actively participated in the project.

This book with its accompanying DVD contains a catalogue of floods in South Australia which have been identified, recorded, written up and published by the team described above. The catalogue will be used by a wide range of people working in an assortment of skills, some of which are included in the table set out hereunder. From a quick perusal of the list readers will appreciate the extent of those who will make use of this valuable new resource.

Potential users

Engineering and hydrology—engineers, hydrologists

Science—meteorologists, botanists

Land management—planners, valuers, land managers, residents, horticulturists, realtors

Water management—water conservationists, water storage managers, natural resources management boards, stormwater disposal managers, stormwater managers

Insurance management—disaster managers, emergency service managers, emergency service personnel, police

Infrastructure management—transport managers, building managers, local government authorities

Education—lecturers, teachers, students, trainers

Press—reporters, editors

History—historians, authors, sociologists

Other—photographers, interested readers



Flash-flooding in Adelaide. The corner of Wright Street and Stamford Court in 1913. May refer to chronology entries for 12–13 February or 22 December 1913. Courtesy of the State Library of South Australia. B3537



A group sheltering from flooding in Mannum. May refer to chronology entry for 7 October 1917 to February 1918. Courtesy of the State Library of South Australia. B53139



The reading of photographs is a useful research skill to develop, but there can be problems. The upper photo purports to date from 1917 and the date is written on the picture itself. The lower photo has been identified by the Mortlock Library as dating from 1925. However, a careful study of the two views makes it clear that both are taken of the same flood event from opposite ends of the street. Two of the boats moored outside the Motor Garage can be seen in the same relative positions, the sandbagging outside the shops is identical, and so on. Therefore one of the pictures is incorrectly dated. Courtesy of the State Library of South Australia. Top: B16621/6; above: B2801.

Writing History

Tony Rogers BEd, MA, PhD

The nature of history

History is an interaction between the past and the present. Something that is ‘done’ in the present using data from the past and taking full advantage of a most useful historical tool, hindsight. However, history is not simply ferreting out facts from which ‘the truth’ about the past may be determined, nor is it the mere gathering of historical evidence. History is the use of that evidence to interpret and explain past events. This can be of great help in understanding why and how we got to where we are in the present. It can also assist us in making informed plans and choices for the future. But history does have its limitations. It cannot, and doesn’t, provide blueprints for the future.

People are sometimes confused at the way that history seems to change. An event that happened in the past cannot be changed, so how can the history be rewritten? The answer is really quite simple. The questions we ask about the past change, so the answers and the interpretations are different. The questions reflect the viewpoint and interests of the present. We did not think to ask them twenty years ago. No doubt in twenty years time historians will ask different questions again.

Historians have many different views and many different aims or may work from a particular theoretic standpoint (for instance, meteorology, feminism or marxism) that will direct both the questions asked, the data sought and examined, and the interpretation eventually offered. Such a particular, possibly all-consuming, interest is called bias. There is nothing wrong with forming research questions from a biased viewpoint so long as the bias is not allowed to distort the evidence. We all have our biases. It is important,

however, to recognise them. So long as they are not uncontrolled or emotional they can enhance history writing.

The starting point in writing history

There are many good reasons for writing history. Understanding past events may help with present practice or future planning or the writer may have simply discovered some interesting historical data and be intrigued to know more. This paper provides some starting points for thinking about history and for writing history.

The first thing that must be done is to clarify the reason for writing history. This will provide the topic and determine the focus. Then specific questions can be formed. The answers to these questions should elucidate the general problem or situation under investigation. Most researchers will also say what they will not do. This helps to keep the task to a reasonable size. History is essentially about people and the things that they have done. Each historical event will have involved a number of people, directly or indirectly, and each individual will have had his or her own viewpoint. Consequently, even the simplest story can have the most complex ramifications which may be interesting. Much history has failed to be written because the researcher got diverted onto other fascinating trails!

It is important not to try to do too much when writing history. For example, at a very superficial level, it might be possible to attempt a history of floods in South Australia. However, because the topic is huge, it would end up as a recounting of selected facts with no questions posed or answered. It might resemble this chronology which is not, in itself, a history. Refinement by a combination of limiting factors is needed. A particular time span could be considered, or the social implications, or effects on legislation. Whatever questions the researcher poses, the potential answers must have appeal and be relevant to the researcher. This may sound obvious, but a major reason that histories get abandoned is that the researcher loses interest. Another major reason they are abandoned is because the topic is too interesting and the researcher gets sidetracked. It is almost inevitable that, as soon as the research is started, further questions (and topics) will proliferate.

These must be ignored unless they are directly related to the topic.

Sources of evidence

There are many sources of historical evidence. Much of this evidence will be from primary sources. This means the evidence is directly related in time and place to the events being questioned. Contemporary newspaper reports, diaries, letters, pictures, and so on, are all primary sources of information. Other evidence will be from secondary sources. These could be books written later about an event, stories told by others who were not directly involved, and so on. For example, this book is a secondary source that shows researchers where many of the primary sources about floods may be found. Whenever possible it is usually better to go back to the original primary material. Sometimes, though, this is not possible. On occasion, secondary sources can lead the researcher to unlikely sources of evidence too, so it is good to keep an open mind.

Oral history is another source of evidence that can be valuable. It is popular with social historians but should be approached with caution. In using oral sources the researcher must take into account the fallibility of human memory and possible biases or limitations of knowledge on the part of the interviewee as well as the biases and skill of the interviewer. A researcher who relies only on a respondent's memories may be unintentionally misled. He/she will need to cross-check the information with that from other people who experienced the events as well as with documents generated by the institution and by the government. Only then will he/she be able to hazard an interpretation of the events.

However, such a caution about the weakness of oral history may not apply to Australian Aboriginal peoples. Aboriginal cultures are essentially orally-based and there are social structures within them to ensure that knowledge is passed on accurately from generation to generation. Even today, essential knowledge is not written down but remains reliable. Much of this knowledge may not be available to the historian, but that which is should be treated with respect.

Interpreting the evidence

This book is valuable for the historian because finding evidence is often a very time-consuming task. Some people think that this phase is the major part of the work. However, once the evidence is collected, the historian's job has only just begun. The data needs to be interpreted in order to answer the questions posed about the past. Different sorts of evidence have varying strengths and weaknesses and the researcher constantly needs to evaluate the validity of the material. Sometimes a single piece of evidence will be sufficient, but it is better if it is supported by additional data. If a particular piece of information can be gleaned from several disparate sources, then it is more likely to be valid. However, having suggested that several sources are better than one, it doesn't necessarily mean that any of the sources are correct. For example, one trap that historians sometimes fall into is that they look at official policies and assume they translate into practice. Anybody who works for a large or government organisation knows that, in reality, there can be a huge gulf between policy and practice.

Writing

The actual writing up of the history is the final step of the process, but the researcher needs to know from the start the nature of the target audience. This will govern the writing style and presentation and the type and difficulty of the language. Is it the general public, students, a small specialist non-academic group, or a general or a specific academic audience? Whoever makes up the audience, the history should be interesting. The writing of history is essentially story-telling—the telling of a story with the researcher approaching as closely as possible to the truth.

Historians footnote, or endnote, quite extensively and use a wide range of sources. They do this to indicate their many primary and secondary sources, for justifying or explaining a point, for leading the reader to supplementary sources, for making further inferences outside the scope of the paper, for cross-referencing, and so on. If all this was included within the main body of the paper, it would lead to turgid prose and confuse the tale being told or the

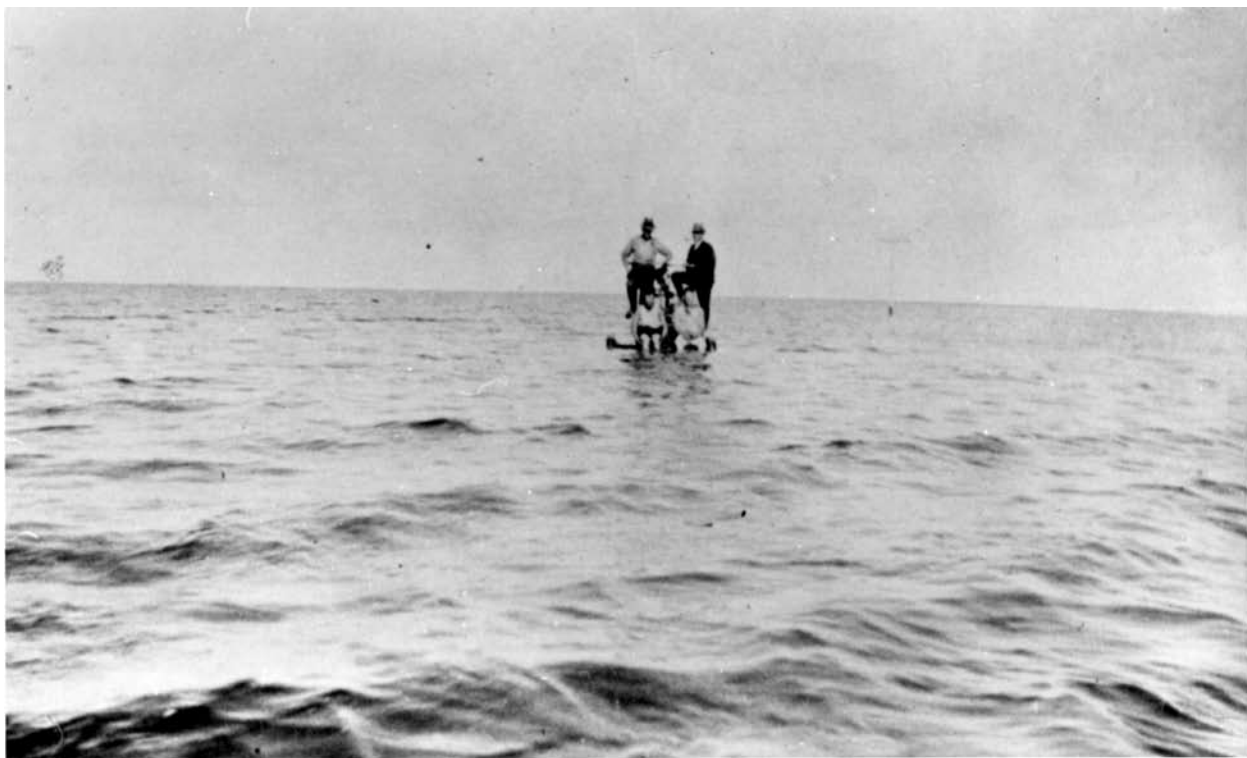
argument put forward. Consequently, historians often use a style, such as that propounded by the University of Chicago, where all references and any additional information is given in footnotes or endnotes. This enables the reader to enjoy the text—and there is no reason why scholarly writing in general, and historical writing in particular, should not be enjoyable—while at the same time giving easy access to the extra data or argument that the writer wishes to include.

History writing can be difficult, it can be frustrating, it nearly always takes twice as long as expected. But it can also bring immense satisfaction and it can help others to have a deeper understanding of the past.

Using this book

This book, and its accompanying data, can save the researcher many hours of searching. The chronology will lead directly to many of the newspaper reports of floods. While newspapers are sometimes criticised for inaccuracy, or even for disregard for the truth, the newspaper reports listed in this book were all contemporary with the events. This sort of report is usually reliable simply because the original readers had direct knowledge of what happened. Any flights of fancy would have been immediately picked up.

The editors have attempted to include every event which the newspapers have described as a flood, but it is inevitable that some have been omitted. They have also given brief synopses of many flood events. While these can give an indication of what is in the newspaper reports, the brief nature of any synopsis ensures its inaccuracy. They should not be used as a substitute for going back to the original source material. In addition, the chronology also provides a date reference to most of the flood events since European settlement of the state making it easier to locate other historical evidence, not included here.



A flooded railway line near Tarcoola 1921. Refers to chronology entry for 20–27 February 1921. Courtesy of the State Library of South Australia. B35702



Men struggling to save a horse and cart in flooded Willochra Creek near Quorn 28 February 1921. Refers to chronology entry for 20–27 February 1921. Courtesy of the State Library of South Australia. B61546

Data Collection, Collation and Presentation

Keith Casperson BSc(Hons)

The initial concept for this book was the documentation of flood events as reported in South Australian newspapers published between 1836 and 2005. While it was impractical to review them all, our research teams have read over one million pages and we are confident that we have identified most of the flood events. However, it became apparent readers would find it useful, perhaps essential, to correlate the hard copy with additional data. Therefore, it was decided to include a DVD reference disk which supports and enriches the chronology. We do not claim that the data on the DVD is all-encompassing, but we do believe it will provide a valuable and extensive resource to enrich the printed data.

The DVD disk includes:

- a listing of newspapers cited
- a listing of useful sources
- flood footage supplied by Channel 7, Adelaide
- an album of flood photos and a listing of photos available
- data download of the flood event database in csv format
- data download of a spreadsheet characterizing flood reports
- a digital, map interface to the flood data
- a text base tool for querying the flood data
- a copy of the flood chronology in pdf format
- a compilation of websites relating to floods
- a selection of synoptic charts depicting weather patterns associated with some major floods in SA
- a table listing rainfall gauges within catchments
- a compilation of maps depicting the Natural Resource Management areas within SA and

the incidence of floods by month over the past 169 years

- a listing of flood locations and their coordinates
- a graphic depicting the Torrens Catchment in SA

Data collation

Reports of flood events were transcribed from newspapers onto a form listing items of information to be detailed for each report. The information on these forms was then transferred to a database in which each record represented a flood event as reported in a newspaper. Each record is identified by a unique alphanumeric which relates to the researcher who compiled it and to the report in the newspaper.

The collection of all records into a relational database facilitated the collation of flood records by date and the association of data relating to the locations of floods. Each flood event has also been assessed and characterized using attributes which give some indication of the flood's nature and impact (table 1). Each flood location as reported in a newspaper article has been mapped using geographic information software which has facilitated the collating of flood locations by Natural Resource Management, catchments and sub-catchment areas. In addition to newspaper reports, photographs of floods from multiple sources and television footage of news reports, made available by Channel 7 Adelaide, have also been collated into databases. Where possible both photos and flood footage have been linked to flood events as reported in the newspapers. An attempt to characterize photos and flood footage was made using the attributes listed on the DVD.

Data presentation

Flood events recorded in the database have been made available in a variety of formats. Persons interested in researching floods for a given location may use a map interface which allows the selection of flood events through either clicking on the location, entering a location name or selecting a number of locations within an area using the cursor. A similar facility is available via a text-based enquiry tool which allows for the

retrieval of flood reports by a number of attributes such as location, dates or flood characteristics or newspaper (see DVD). Each of these tools provides a means of extracting a file based upon the query into a comma separated (csv) file which can subsequently be loaded into spreadsheet or database software. The data has also been made available in formats which enable the user to import it into other software with which they may wish to view the results and/or carry out further analyses (see downloads on the DVD). Actual flood footage as provided by Channel 7, Adelaide may be viewed using a DVD player. A brief synopsis of each of the clips is available on the DVD. With the aid of geographic information software the flood locations can be related to geographic features such as rivers, catchments and sub-catchments.

Impact number	Impact code	Impact definition
1	HK	Loss human life
2	HI	Persons injured
3	AK	Animals injured
4	LP	Personal property loss
5	LI	Public infrastructure loss
6	LA	Agricultural property loss
7	LC	Loss and/or damage of commercial/industrial facility
8	RN	Rainfall not recorded
9	RY	Rainfall recorded
10	AN	Areal extent: not stated
11	AL	Areal extent: local
12	AY	Areal extent: flood area recorded
13	AS	Areal extent: flooding from sea
14	AO	Areal extent: flooding from other causes
15	DN	Duration: not stated
16	DF	Duration: flash flood
17	DY	Duration: recorded
18	XX	Nature and effects not recorded
19	ZZ	Not a flood

Table 1: Codes used on the DVD to characterize individual flood records.



Flood at Burra, ca1899. May refer to chronology entry for 24–27 March 1899. Courtesy of the State Library of South Australia. B11558



Flood around the Robertstown Hotel, ca1910. May refer to chronology entry for 2–3 September 1910. Courtesy of the State Library of South Australia. B46668



Flood at Renmark, ca1910. May refer to chronology entry for 2–3 September 1910. Courtesy of the State Library of South Australia. B28211



Sturt Creek floodwaters at corner of Brighton Road and Pier Street, Glenelg, ca1918. May refer to chronology entry for 19–24 July 1917. Courtesy of the State Library of South Australia. B20677

The Nature of Floods

Kim Read OAM, FIEAust, CPEng

What is a flood?

The word flood means different things to different people. To dwellers along the River Murray it can mean waiting for weeks for a minor rise in the water level that is a nuisance or it can mean a major event with buildings inundated and communities living behind levees where a failure would lead to inundation of a whole town. To dwellers near to the Gawler River it can mean being waist-deep in water in a matter of hours after rainfall.

For this paper, a flood has been defined as follows: ‘a flood is said to occur when the flow in a channel, natural or artificial, exceeds the capacity of the channel and water spreads over the adjacent land’. As an extension of this definition, sheet-flow over country that is normally dry, and which is without formal drainage channels, can also be considered a flood.

What causes floods?

The most common cause of a flood is run-off after a period of rain. However there are instances of floods caused by failure of a dam and by high tides overtopping or breaching sea walls.

While the latter, dam failure and sea wall failure, can be catastrophic, the probability of this sort of flooding is low and is not further considered in this chapter.

Types of floods

The more common flood, that is the one caused by rainfall run-off, can be split into two categories, ‘flash’ and ‘non-flash’.

A flash flood is one in which there is a very short period of time between the onset of rain and the flood. In Australia, the boundary between flash and non-flash events is set at six hours. To

put this into a local context, flooding on First to Fifth Creeks, the Glen Osmond – Keswick Creek System and Brownhill Creek will occur much less than six hours after the onset of rain. Accordingly, floods on these creeks are termed flash floods.

On the other hand, floods on rivers such as the Onkaparinga, Torrens and Gawler may occur long after the six-hour boundary has passed and as such are defined as non-flash floods.

The rainfall run-off process

To gain an understanding as to why floods occur, it is necessary to know something about the rainfall run-off process. In everyday conversation, rain is described as light or heavy. In more scientific terms what is being described is the intensity or rate of rainfall. This is normally measured in millimetres per hour. The rate of rainfall is only the first part of the picture. The length of time, or duration, of the rainfall is the second part. By combining the intensity and duration it is possible to derive the total depth of rain that falls in a rain event. For example, if rain falls at the rate of 20mm per hour for half an hour, the depth of rain as would be measured in a simple rain gauge would be 10mm.

When rain falls on a surface some of the water may soak into the surface, some will appear as run-off. In some cases, especially in urban areas, the amount of water that soaks in will be small. For example, rain falling on a concrete pavement will appear, for practical purposes, entirely as

run-off. In rural areas, under some circumstances, all the rain falling will soak into the ground and there will be no run-off.

The above examples illustrate the concept of ‘degree of imperviousness’ or ‘Run-Off Coefficient’. Hydrologists also use the concept of ‘Initial loss and Continuing loss’ to estimate the amount of rainfall that will appear as run-off. For simplicity, the use of the Run-Off Coefficient concept is used in this chapter. A Run-Off Coefficient (ROC) of 1 means that all the rainfall will appear as run-off. A ROC of .5 means that half of the rainfall will appear as run-off, and so on.

The ROC is influenced by the type of surface upon which the rain falls. Concrete, bitumen and similar surfaces will have a high ROC while sand will have a low ROC. In natural surfaces the situation is further complicated by an additional factor. A natural surface that is dry will generally have a lower ROC than one that is wet. Hydrologists use the Antecedent Precipitation Index (API) that is based on the rainfall in the period prior to the rain event to estimate run-off by adjusting the initial and continuing losses.

Will a flood occur?

It is possible to generate some rules to predict whether a rain event is likely to cause a flood. The factors that need to be considered are:

- Rainfall Intensity
- Rainfall Duration
- Run-Off Coefficient

Rainfall intensity		ROC		Rainfall duration	Flood outcome
Low	▷	Low	▷	Short	No flood
Low	▷	Low	▷	Long	No flood
Low	▷	High	▷	Short	No flood
Low	▷	High	▷	Long	Flood unlikely
High	▷	Low	▷	Short	Flood possible
High	▷	Low	▷	Long	Flood more possible
High	▷	High	▷	Short	Flood probable
High	▷	High	▷	Long	Flood highly probable

The table illustrates the way in which the factors can be combined.

The table gives an indication as to whether a rain event will lead to a flood. It is not precise but is useful in that it gives an indication of the risk that a flood will occur and alternatively, that the possibility of a flood can be ruled out under some conditions. This table is extremely simple. There are other factors that will influence the probability of a flood. For instance, the slope and shape of the catchment above the point of interest will have a bearing on the probability of a flood occurring. Also, a catchment that is heavily urbanised, with a high ROC, may be more prone to flooding. The table, however, does not give any indication as to how often a flood will occur.

How often will a flood occur?

The table shows that a flood is possible for a number of combinations of rainfall intensity, rainfall duration and catchment conditions. Thus, while there is an obvious relationship between frequency of intense rainfall and flood potential, this relationship is not a direct one and whether a flood will occur is influenced by the rainfall duration and the state of the catchment.

There are two basic ways of determining how often floods will occur. The first and most accurate way is to examine a historical record of flooding. Provided there is a reasonable length of record it is possible to derive a mathematical relationship between the size (peak flow) and frequency of flood events. A flood event can be described as a 1 in 'Y' year event, that is, on average a flood of the magnitude chosen will occur once in every 'Y' years. An alternative description based on the probability of a flood occurring in a given year is sometimes used.

A flood frequency relationship developed using this method can be carefully extended beyond the length of record. For example, if a 50-year record of floods is available it is possible to derive a relationship that will enable the 100-year average recurrence interval peak flow to be estimated with confidence. While the peak flow for more rare events *can* be estimated there will be decreasing confidence in the result as the event becomes rarer.

The second way to determine how frequently a flood will occur is to develop a mathematical rainfall run-off model for the point of interest.

A rainfall run-off model is a mathematical representation of a physical catchment that calculates flow at the point of interest. A rainfall run-off model requires the user to input various parameters such as catchment size, catchment slope, rainfall intensity and duration, and Run-Off Coefficient or rainfall loss.

Using an appropriate model, an experienced modeller can generate a theoretical flood frequency curve that can then be used to determine how often a particular flood will occur.

The physical impact of floods

The physical impact of a flood can vary from a minor nuisance to a major disaster. The significant factors which influence the impact of flooding are the nature of the channel and surrounding floodplain.

If the floodplain is well-defined and of limited extent, minor channel overspill may lead to a significant depth of water over the floodplain with major impacts. Conversely, if the floodplain is extensive, a major overspill may lead to a limited depth of flow over the floodplain with only nuisance impacts.

Development on the floodplain

The impact of a flood on a floodplain where there is dense urban development will be more severe than the impact of a flood on a well-grassed floodplain used for stock grazing.

The urban flood—a special case

In the preceding sections, it has been shown that the degree of imperviousness, or ROC, for a catchment is one of the variables controlling the likelihood of a flood occurring.

In urban areas, the ROC will be high as a result of roof, paving and other hard surfaces. Urban catchments respond very quickly to rainfall. That is, run-off commences very shortly after the onset of rain. As a consequence, there is often little warning that an urban flood is about to occur and given the nature of the urban catchment,



Flooding of the Onkaparinga River affects Verdun businesses, October 1992. Photo courtesy of The Advertiser.

the impact of an urban flood can be quite severe in terms of disruption to transport, damage to property and even danger to life.

The South Australian experience

South Australia does experience flooding from time to time. The River Murray is subject to non-flash floods, the last major one being in 1956. Communities along the river had weeks to prepare for the flood.

Floods occur relatively frequently on the Gawler River affecting suburban housing and market garden areas around Virginia and north of the river towards Two Wells. It is estimated that a flood of a 10-year average recurrence interval will cause quite widespread inundation of the floodplain with the path of the overflow

governed by the location at which the flood levee is breached.

Floods on the Onkaparinga River affect communities in the Onkaparinga Valley with flooding of businesses at Verdun attracting attention. Other communities at risk are Balhannah and Old Noarlunga.

In the urban area, flooding at Mile End from the Keswick Creek has the potential to inflict major damage on industry, while further downstream, residential development is at risk. Glen Osmond Creek overflows in Fullarton on a regular basis affecting residences, businesses and traffic on Unley Road.

This list is not exhaustive but serves to show that floods are a common occurrence in the State.

The Meteorology of Floods

Graeme Furler BSc, Dip
Meteorology

General mechanisms define the development of heavy rain events and resultant floods, but, in particular, the synoptic situations and mechanisms important to the local South Australian context will be considered here.

Floods result from rainfall heavy enough to allow an accumulation of water which exceeds the normal holding capacity of a catchment, river or locality. Water holding capacity varies with the antecedent conditions (recent rainfall) and the nature of the soil. If the catchment is wet from prior rain, it has less capacity to absorb subsequent rainfall and if it is steep and rocky, little absorption will occur. Rainfall that causes flooding can vary in intensity, duration and/or spatial distribution and does not necessarily occur at the location of the resultant flood.

Rainfall generally occurs due to cooling and saturation of the atmosphere which causes the moisture in it to precipitate out. Four conditions are necessary for the production of *heavy rain*:

- a lifting mechanism to produce cooling
- a mechanism to produce condensation of water vapour and formation of water (cloud) droplets
- a mechanism to produce growth of cloud droplets to sizes capable of falling to the ground against the lifting mechanism
- a mechanism to produce sufficient accumulation of moisture to account for heavy rain.

The lifting mechanisms can be provided by flow over topography and dynamic uplift produced by convection, cold/warm fronts, low level convergence (e.g. produced by low pressure systems, topography), or upper level divergence (e.g. produced by jet streams).

Condensation and growth of cloud droplets results from cooling of moisture in the atmosphere and updrafts, particularly in thunderstorm clouds which hold the droplets aloft and enable them to accumulate before falling as heavy rain.

Orographic uplift

Air flow over topography where a moisture-laden moderate to strong airstream blows across a mountain range has potential to produce a flood situation. For example, a persistent moist west to southwest airstream across the Mount Lofty Ranges can produce uplift that results in continuous precipitation on the windward slopes. Enhanced repetitive cloud development caused by convergence in 'gullies' and/or the presence of an upper level jet stream can focus heavier rainfall which produces flooding.

Convective vertical motion

Convection occurs when air becomes buoyant and unstable and continues to rise (producing cooling and moisture condensation) until stability is reached. Convective cloud usually forms when the air is heated from below. With sufficient moisture and sustained up motion, water droplets grow to precipitable size. Large cumulus and cumulonimbus clouds can produce moderate to very heavy rainfall. Variation of rainfall rate in space and time is largely determined by variations in vertical motion (both updrafts and downdrafts) within the cloud and by the time the clouds spend at the locality.

The intensity is also related to the vertical extent of the cloud, the moisture content of the surrounding and entrained air and the degree of shear in the cloud from base to top. The heaviest rainfall rates occur with severe thunderstorms associated with cumulonimbus clouds.

In South Australia, thunderstorms in the summer can produce very large rainfalls, often greater than 100mm within one or two hours. However, their potential to produce flooding depends on the rate of movement of the storm across a catchment and the size of the thunderstorm. Sometimes floods are caused by a thunderstorm that remains stationary and sometimes successive storms can be generated over a single catchment.

'Flash-floods' are most often the result of thunderstorms and can occur regardless of the antecedent conditions at a locality, as the rainfall is so heavy it runs off at a rapid rate before being significantly absorbed by the earth.

Frontal and banded vertical motion

In southern parts of Australia, the passage of cold fronts associated with low pressure systems are responsible for most shower and rain events. Of significance is the degree of (tropical) moisture in-feed into the frontal system. A major feature of active fronts is that they are characterised by significant 'northwest cloud bands' that originate in the Indian Ocean off northern Western Australia and extend across the continent as a broad rain-producing band.

Some northwest cloud bands move across the State without being associated with a front; these may or may not produce rain.

Low level convergence/upper divergence

Large scale synoptic features such as surface lows and upper level cold lows can provide rain-producing systems. The air that spirals around a low pressure system tends to flow (converge) towards the centre of the low and then ascends. The extent and depth of associated cloud systems depends on the degree of upper level outflow (divergence) and available moisture.

Where cloud systems are slow-moving, and if the underlying topography has propensity for flooding, large volumes of water may accumulate. Meteorologically this can occur if the overlying wind field is weak and the clouds move slowly, or the system is such that moist air is continually being advected in and the rain bearing cloud remains quasi-stationary over an area. This is particularly the case where there is a slow moving mature low pressure system in an area with an associated frontal system that has become occluded and the spiral 'hook' with rain producing cloud, persists over a location.

Occasionally persistent lows inland during summer, cause tropical moist air to move southwards resulting in lifting and cooling and significant rainfall that produces flooding. The extensive floods of 1974 were a good example of this process.

A combination of this tropical moisture advection and an unstable atmosphere producing thunderstorms is a good recipe for significant flooding.

On rare occasions, moist broad upper-level north or northwest flow from the tropics can be lifted to produce a deepening upper level trough above a surface high pressure system. This can result in the unusual situation of widespread rain with South Australia dominated by a high pressure system.

Storm surges

Flooding occasionally occurs in coastal areas when sea level rises well above astronomical tide (the normal tide variation due to the moon). Storm surges occur due to the combination of a deep low (air) pressure system, which in itself allows seawater to flow towards the area of lower pressure and causes sea-level to rise and very strong onshore winds that cause a 'piling up' of seawater along the coast and in estuaries.

If the system is accompanied by heavy rainfalls that increase stream flows in estuary areas, the combination of these factors increases the potential for flooding, particularly if they combine at the time of expected high astronomical tides and at the time of year when tides are normally highest, especially in spring.

Seasonal variation

In the outback or pastoral areas, floods are often caused by tropical cyclonic depressions (former tropical cyclones) that drift over South Australia bringing huge quantities of moisture. These generally occur during the hot months of December to March. Storms or continuous heavy rainfall can continue for days, stimulated by the summer heat.

In the Mount Lofty Ranges, winter and spring are the most likely times for flooding. This is because the small earth dams and large reservoirs are usually full and the soil is saturated, both of which mean that any rain that occurs will tend to run-off rapidly, leading to flooding. The winter-spring season also tends to produce active weather systems.

By contrast, flash-floods, generally associated with thunderstorms, can occur in any season.

Even if the soil is dry at the start of the storm, the high intensity rain does not have time to soak into the ground and runs off quickly into streams, carrying soil and debris with it.

Often floods occur as a result of repeated storm events, over the same location, or due to repeated synoptic patterns. The cumulative effect of a number of small events can lead to a large flood.

Influence of the El Niño Southern Oscillation

Long-term seasonal forecasts for Australia produced by the Bureau of Meteorology and other climate modelling groups make use of the changes that occur in sea-surface temperatures and atmospheric pressure across the Indian and Pacific Oceans, the latter associated with the El Niño-Southern Oscillation (ENSO). Unfortunately the correlations with wet and dry weather patterns are not very strong for South Australia, which makes long-term seasonal forecasting difficult.

However, in strong La Niña situations (the opposite phase to El Niño) more than average rainfall can occur, with flooding possible. The inflow of water to Lake Eyre from Queensland (where there is a stronger rainfall correlation with La Niña), and the Lake's filling, is more closely correlated with La Niña. Heavy rainfalls can also be a feature associated with the breakdown of an El Niño event.

Flooding associated with the River Murray occurs many months after the precipitation has occurred, generally with the melt of snow that has fallen on the Australian Alps in the winter before.

Rainfall forecasting

Forecasting rainfall that will produce flooding requires the ability to not only estimate the amount of rainfall that will occur, but the exact location/distribution and duration. Rainfall forecasts by the Bureau of Meteorology are based on global atmospheric models which are run on super-computers. At the present time, these models are quite good at predicting the onset of a rainfall event and the total rainfall amount, in general terms. They are useful for giving early



Flooding in Gawler Place South after the downpour of 6 February 1925. See also photograph of Victoria Square, p. 103. Photo courtesy of The Advertiser.

warning of flood potential over a region, but are not good enough in themselves to be used for flood warning. As a result of this challenging problem, flood forecasting systems depend significantly on measuring rainfall that has fallen, measuring stream-flow and using the information for flood prediction. Enhanced radar systems are providing an additional capability, as are higher resolution computer models that are continually being refined.

Very severe thunderstorms can occur when one thunderstorm decays and feeds moist air into a second thunderstorm. Sometimes thunderstorms

combine to produce heavy downpours. As happened over Adelaide in February 1925 when 125mm of rain fell in less than three hours. The outflow from a decaying thunderstorm can produce ‘mini Cold Fronts’ that breed more thunderstorms. All of these different possibilities make the whole process of rainfall prediction difficult.

By contrast, the long lead-time (weeks or even months) that applies between precipitation and run-off in the River Murray provides a greater capacity for flood prediction.

The Environmental Effects of Flooding

Jill S Kerby BA(Hons), DipEd,
GradDipAg, PhD

Introduction

Just like bushfire, flood is a product of the unpredictable Australian climate and landscape. The ‘disaster’ element is generally the label we use to describe loss of life, property, and infrastructure associated with these events. But flooding also plays an important role in the ecological health of waterways, allowing movement of genetics for plants and animals, as well as acting as the stimulus for the opportunistic breeding cycles of aquatic flora and fauna.

Aquatic flora and fauna

Floods (or at least periods of high flow) are important for the continued existence of many of our unique species of aquatic life. They are an important breeding cue for many of our local fish species. Some species, including the iconic Murray cod, only breed on flooded floodplains. Also, many of our local fresh water fish species need to spend part of their life cycle in the marine (salt water) environment and, once again, floods can act as a cue for some species to move out to sea and also to move back into the river systems. Without floods, such species can be in dire trouble.

High flow or flood events help to maintain the channel structure and shape of our creeks and rivers. This is important because some species of fish, and macro-invertebrates such as the yabby, need to take refuge over summer in deep permanent pools. Without flood events, these deep pools are likely to fill up with sediment over the year and be unavailable as what we call refugia. This could lead to local extinctions of some species. Similarly, estuaries and river mouths can often silt up without flood events to

keep them open. This would obviously impact on those fresh water species mentioned above.

Floodplains

Almost all Australian creeks and rivers have floodplains along part of their length and, when a river over-tops its banks, it is these floodplains that temporarily hold floodwaters, releasing them slowly downstream. The effect is a reduction in peak flows and flash-flooding downstream.

More importantly, much of our native floodplain flora require occasional inundation for their survival. For example, the disconnection of the floodplain from the River Murray caused by flow regulation (the many dams, weirs, and water extraction mechanisms) is cited as a major feature in the species decline of that system. The red gum floodplains around Chowilla are currently being artificially flooded in an attempt to halt their slow decline over many years. Scientists now believe that these red gum floodplains need to be flooded at least every 10 years to keep them alive, and every three years to keep them in optimal health.

Floods are the mechanisms that link streams to their floodplains and this is critical because, for living streams to stay viable, they need to have periodical influxes of material from their floodplains (such as native leaf litter, woody debris). This material, called allocthanous input, forms the basis of many of the food chains which sustain our aquatic ecosystems.

The link between the landscape and flooding

Flooding occurs when large volumes of water running across a landscape enter watercourse channels at a faster rate that the channel can disperse the water. Historic and current land uses have changed the behaviour and frequency of floods, leading to much conjecture as to how we might avert further change and costs to society.

For example, the Adelaide Hills have experienced vegetation clearance on a massive scale over the last 150 years, with something less than 10 per cent of the original vegetation remaining today. Where the land is largely cleared, any rainfall is offered less resistance by the landscape and therefore moves more quickly

down the catchment. Consider the difference between water flowing across a smooth concreted area as opposed to a garden bed. The latter has the capacity to absorb water and reduce the quantity and rate of run-off into the nearby gutter.

Recent work carried out by the Cooperative Research Centre for Catchment Hydrology has demonstrated that well-vegetated catchments and watercourses deliver water more slowly to receiving watercourses, and attenuate peak flows more effectively. This effect is most pronounced where upper reaches of catchments retain good native vegetation cover or have been revegetated.

Where catchments, and particularly higher channels, are well vegetated, surface water resulting from rainfall takes longer to move through the landscape. The net result is the same total amount of water moving through a downstream channel, but over a longer period. Therefore, water levels during moderate rainfall events do not get as high because the channel can disperse the water faster than its inflow rate.

Watercourses lined with healthy native vegetation are also much more stable during peak flows, both as a result of the physical protection offered by the vegetation itself and because the vegetation slows the water and reducing its erosive force.

Problems arise where floodplains have been developed, or cut off from watercourses, by levee banks or with fill. This displaces water, forcing it to back-up upstream and push downstream faster, increasing the risk of flooding in these locations.

The Onkaparinga Catchment—a case study

The Onkaparinga River flows from its hilly upland reaches near Mount Torrens in the Mount Lofty Ranges, into Gulf St Vincent at Port Noarlunga. At approximately 95km in length, the river is part of a system of around 2,000km of watercourses that drain 560km² of land. Known collectively as the Onkaparinga Catchment, this land includes animal grazing, horticulture, urban areas, water supply reservoirs, and conservation parks.

The Onkaparinga River Catchment is one of the principal water supply sources for metropolitan Adelaide, supplying around 30 per

cent of demand in an average year. Additionally, there are around 2,700 dams in the catchment that store and supply water to people in rural areas for their domestic and agricultural needs.

The river is a vital component of the environment of the Mount Lofty Ranges, providing water and habitats for a variety of fauna and flora. In the past, this environmental need (or environmental water requirement) has been overlooked, as the diversion of water for human needs has intensified. For example, the Onkaparinga River downstream of Clarendon Weir flows less than 10 per cent of the time it did prior to water being pumped to Happy Valley Reservoir, and the reduced flows have led to the accumulation of silt and sand in the Onkaparinga River Estuary at Noarlunga. Under natural conditions, river flows would have flushed sediment out to sea and kept the encroaching sand dunes at bay. With the mouth of the river at the estuary close to closing, the life-giving passage of fish between the river and sea is being obstructed.

In addition, the damming of water from watercourses and the replacement of native vegetation with crops and pasture has upset the natural pattern of watercourse flows. As a consequence, the river has suffered the overall loss of native habitat diversity and a number of aquatic native plants and animals, and reduced water quality.

Nevertheless, fish surveys conducted over the past decade have revealed a total of 22 fish species, over half of which are native (e.g. gudgeon, congollii, common jollytail, and mountain galaxis) and the rest are introduced species (e.g. redfin perch, brown trout, and goldfish.) The most recent study in 2001–02 concluded that ‘the abundance and distribution of fish species varied greatly throughout the study area, possibly attributable to a variation in availability of suitable habitat at each site.’

Floods in the Onkaparinga Catchment

Floods are part of these natural processes and can result from quite moderate rainfalls. In August 2004 for example, high rainfall in the Adelaide Hills caused flooding in the main channel of the Onkaparinga River and as far north as Lobethal and Lenswood, as well as along its

main tributaries such as Cox Creek, which runs through Bridgewater.

Bureau of Meteorology records show that in the 24 hours prior to this flooding, falls of between 55mm and 80mm occurred across much of the Adelaide Hills. Falls of this magnitude are expected at least annually, and falls of twice this magnitude are not considered rare. Nevertheless, widespread flooding occurred, probably as a result of two factors:

- the catchments were already saturated from previous winter rains meaning that whatever rainfall occurred was quickly discharged into creeks and rivers; and
- most of the catchments in the Upper Onkaparinga have been extensively cleared of natural vegetation.

These relatively unexceptional rainfall events should serve to remind us all of the benefits of well-vegetated, stable catchments, with functioning, undeveloped floodplains. It is clear, from a catchment management perspective, that we need to encourage landholders with watercourses on their property to retain what remnant native vegetation they have, replace at least part of the vegetation that has been lost (particularly along watercourses), and resist the temptation to try and prevent floodwaters spilling onto natural floodplains. This will have the multiple benefits of reducing flood frequency, reducing erosion, improving water quality, and protecting biodiversity.

Conclusion

There will always be flooding during the truly exceptional rainfall events (like the one in five, 20 or 50 year events), regardless of catchment condition. The best way to keep the damage bill from these events down is to keep development out of known floodplains. Flooding, like erosion, has been exacerbated by historic and current land-use practices. Nevertheless, flooding is a perfectly natural phenomenon and has major benefits to the environment.

Prepared with the assistance of Caroline Dorr, Michael Garrod, and Steven Gatti, of the Onkaparinga Catchment Water Management Board.



Not all floods are bad.

Flooding plays an important role in the ecological health of waterways allowing movement of genetics for plants and animals. See preceding article.

For well over a century wine growers at Langhorne Creek have relied on flooding for summer irrigation. The accompanying inconvenience is tolerated by adults and enjoyed by children. See following article. Photos courtesy of The Advertiser.

Good Floods

Linton Johnston
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Introduction

As long as rain has been falling on land, flooding has been a natural and vitally important element within the hydrological cycle.

Most often today, however, the prevailing images of flooding depict devastation, financial ruin and loss of life. Floods are generally considered as negative, and something to be avoided.

The reasons for this are related to modern society's conflict with nature. Floodplains are valuable land, and among the most biologically productive and diverse ecosystems on earth (Tockner et al. 2002). Consequently they are often the prime choice not only for cultivation but also for residential and other intensive development. The continual increase in human population has resulted in ever more frequent and intense occupation of floodplains for purposes fundamentally at odds with the natural design.

In this context floods become at best a nuisance, and at worst a disastrous threat to human activities.

While the concept of a 'good flood' is foreign to most modern people's understanding and experience, the many benefits of flooding cannot be denied. In his discussion of environmental hazards, Smith (1996) observes that 'more than any other environmental hazard, floods bring benefits as well as losses'. Floods are important for a multitude of environmental reasons. It follows that there are related economic benefits to humans in terms of primary production, conservation and tourism.

The key to a 'good flood' seems to lie in a community's attitude to flooding, solid prior planning and recognition of the net value to be gained from this most natural of processes.

Good floods and the environment

It is widely acknowledged that periodic flooding contributes to the health of waterways, floodplains and estuarine environments as well as terrestrial components of our ecosystems.

Large floods in rivers and creeks serve to scour channel beds, clearing out sediment and vegetation accumulated during years of low flow. From a physical viewpoint, this action purges choked waterways and helps maintain pool and water hole depths, sustaining suitable environments for the range of aquatic plant and animal life. Nutrient rich sediment mobilised during flood flows is re-distributed to downstream areas and floodplains. This supplies the basis for a fertile environment capable of sustaining rich biodiversity.

Floodplain ecosystems have evolved, over millennia, a dependence upon periodic flooding. As a flood-wave progresses downstream and water breaks out of the defined river channel, the surrounding land (or the 'floodplain') becomes inundated. This provides the stimulus for a pattern of rejuvenation in the lifecycle of many plants and animals living within the floodplain. Floodplain inundation can be followed by a proliferation of aquatic invertebrates, promoting rapid breeding in frog and insect populations. It can act as an important trigger for breeding cycles of fish. The benefits of flooding are thus transferred up the food chain as predators capitalise on the surge in resources.

The importance of floods to the productivity of dryland rivers is investigated in a recent paper by Davies et al. (2003). He describes the 'ecological economy' of arid zone rivers of central Australia as one of 'boom and bust', corresponding to extended dry periods and major flood events when the river is transformed into a 'vast, slow moving wetland'. In a dramatic example of the impact of a recent flood on the Cooper, models estimated 'the amount of algal carbon produced on the floodplain during a single day of inundation was equivalent to 82 years of aquatic production in the permanent waterholes during the dry' (Davies et al. 2003).

In dryland river systems, floods provide temporary connection between waterholes, facilitating migration of fish and other aquatic

species. This physical connection between isolated groups promotes genetic mixing and leads to more healthy populations.

The spread of floodwaters over vast areas of land also serves to replenish underground water storages. This water is a resource in the intervening dry years to support sensitive environments such as mound springs.

Good floods and primary production

Whether past or present, floods are a key contributor to the fertility of much of our prime agricultural lands. Productive market gardening areas in Virginia, north of Adelaide, continue to benefit from thousands of years worth of nutrient rich deposits, sourced from within the upper catchments of the Gawler River, including the Barossa Valley. Farmers near Murray Bridge have capitalised on the local floodplains of the Murray River to cultivate feed for a productive dairy industry. In these and countless other examples, the presence of naturally available nutrients supplied to the plains by flood events reduces the need to add chemical fertilisers, making for a healthier and more profitable agricultural industry.

Langhorne Creek

Apart from enriching the soil of floodplains, floods can provide a valuable source of irrigation water for agricultural pursuits.

Langhorne Creek is a characteristic, though regrettably rare, example of a South Australian township that has developed in harmony with the natural cycle of floods. The town of Langhorne Creek lies on the floodplain of the Bremer River, and from the early days of European settlement, in the 1850s, it was recognised as desirable agricultural land. With that in mind, the first plots were cultivated with wheat and, within 10 years, vineyards were established on 'dark brown and black soil' in areas 'periodically enriched as a result of the flooding of the Bremer' (Verrier 1977).

The area continues as a wine growing region to this day, and flood events are still eagerly anticipated. In his brief history of Langhorne Creek, Verrier (1977) describes how the growers have always relied on floodwater to carry the vines

through the summer months. With an annual rainfall of only 380mm, the absence of floods can mean hard times, and increased reliance upon pumping of water from the channel bed. A network of levees and flood control gates assist farmers to direct smaller river flows throughout the vineyards.

Verrier (1977) comments that ‘floods are generally an exciting time for all who live in [Langhorne Creek]’. The prevailing attitude of the town toward floods seems to remain positive, despite the obvious interruption and temporary inconvenience caused. This is reflected in an article from the *Southern Argus* which records the events of a flood in 1883, one of the earliest large floods in Langhorne Creek. Despite stock losses and large areas of inundation, the article speaks of an ‘ultimate profit’ even amidst ‘present loss’.

Fisheries

Freshwater fisheries require healthy rivers, and a key aspect of a healthy river is periodic flooding. Active floodplains play important roles in the life of freshwater fish, providing areas for feeding and shelter as well as breeding grounds. Concerning cycles of flooding and drying, Patrick McCully (2001) notes that many species depend on seasonal flood cues to start reproduction, hatching, migration or other lifecycle stages. He goes on to describe how floods sweep fish eggs into floodplain backwaters and lakes where they hatch and grow before joining the river with the next flood event. Deprivation of regular floods will have long-term impacts on the freshwater fishery industry.

The impact of floods upon fisheries is not restricted to inland rivers and lakes. Some 80 per cent of the world’s fish catch comes from continental shelves (Rozengurt 1991, in McCully 2001) and it is noted that the timing and magnitude of floodwater discharges, with the associated freshwater and nutrient load, is critical to the survival of many of these fish populations (McCully 2001).

Good floods and tourism

The spectacle of a significant flood can provide valuable income to an area through an influx of tourism. This is especially the case when flooding

initiates a dramatic transformation of land from dry barren desert to vast wetlands.

Lake Eyre

Lake Eyre, situated in outback South Australia, is an immense salt lake that drains a massive 1,140,000km²; one of the largest areas of internal drainage in the world (Kotwicki 1986). Major tributaries which drain to the Lake include the Diamantina River and Eyre Creek (joining to become Warburton Creek) and Cooper Creek to the east. In the last 60 years there have been over 20 flood events, the most spectacular fillings occurring in 1950, 1974 and 1984 (Kotwicki 1986).

The transformation that arrives with these floods is spectacular, bringing parts of Australia’s arid inland alive. The event of a flood in Cooper Creek or the Diamantina River adds to the growing appeal of these outback tourist destinations.

Accompanied by broad scale national media coverage, floods provide an enormous boost to the local tourism industry, from accommodation and hospitality through to light aircraft and tour operators.

It was estimated that, during the most recent flood flows to reach Lake Eyre, several thousand tourists passed through the township of William Creek (with a permanent population of only 14) en route to the lake (ABC report 2004).

The spectacle of the Coongie Lakes in flood is another event which presents a major tourism drawcard.

Good floods turned bad

The negative impacts on rivers and ecosystems where floods have been controlled, or removed from the natural cycles altogether, serve to highlight the benefits of floods.

As discussed in earlier sections, the industries of agriculture and fisheries are naturally attracted to productive floodplain environments. Graham and Harris (2005) observe with some irony how these activities have brought with them the motivation to construct weirs and dams and have thus interrupted the very history of floods, which first gave the land its appeal.

Dams

Damming of the Nile River is a tragic example of loss resulting from the interruption of flood cycles. The Nile River originates in the highlands of Uganda and Ethiopia, where many millions of tonnes of sediment are sourced annually. McCully (2001) records that, following the construction of the High Aswan Dam in 1970, more than 98 per cent of the Nile's sediment is retained at the reservoir. The loss of this silt has had detrimental effects on the fertility of Egyptian agricultural land, particularly in the Nile delta. In addition, the health of ecosystems in the Mediterranean Sea at the mouth of the Nile have suffered from the elimination of annual flood flows. The chain of impacts begins with the marked reduction of nutrients flushed from the river mouth. The resultant decline in plankton stocks has directly impacted on catches of sardines and shrimps in the area which fell to less than 20 per cent and 33 per cent respectively of pre-dam levels (McCully 2001).

The Murray River in Australia travels across three states over 2500km with a combined floodplain area of about 1,000km² (Tockner et al. 2002). However, there have been dramatic changes to flow regimes in the river over the past century as a result of lock and weir construction. Thirteen weirs, incorporating locks, are in place between Yarrawonga in Victoria and Goolwa in South Australia, built in the 1920s and 1930s to improve navigation and to reduce the effect of droughts and floods on agriculture. Consequently the occurrence of small and medium floods has been reduced (Graham and Harris 2005), profoundly altering sensitive wetlands and floodplains along the river.

The regulation of the Colorado River in USA with the construction of a massive dam at Glen Canyon in 1966 (216m high wall) has impacted negatively on the fragile ecosystems of the Grand Canyon. Here, attempts have been made to investigate the lost benefits of natural floods through the creation of a series of artificial flood events. The Bureau of Reclamation released high flows from the dam in 1996 and again in 2004 and extensive monitoring was conducted on the downstream impact of these artificial floods

on native fish species and river morphology. The 1996 artificial flood was relatively small in magnitude compared with pre-dam flows, yet it was shown to greatly increase areas of backwater nursery habitats, vital for local native fish species, at least in the short-term (Schmidt et al. 2000).

Inappropriate development

Innately beneficial floods can be devastating when development has taken place in the floodplain or, worse still, across the watercourse. It must be a fundamental principle of floodplain management that we plan our communities such that some land is still allowed to flood in order to keep other land dry. By maintaining areas of flood storage, appropriately zoned floodplains will benefit from periodic inundation and flood mitigation will be enhanced during large flood events.

Conclusion

Floods have always been a part of life. Most native environments have developed over the millennia within natural cycles of flooding. It becomes a clear corollary that species and environments have developed complex inter-dependencies upon floods for their survival.

Human populations are not exempt from this dependence, and societies must carefully count the cost before interfering with floods and flow regimes.

There are countless examples of where our attempts to impact on flooding cycles have been shown to have long-term disastrous consequences.

While there are often recognised short-term dis-benefits resulting from individual flood events, the net value of floods cannot be understated.

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Torrens Weir in flood 1917. May refer to chronology entry for 19–24 July 1917. Courtesy of the State Library of South Australia. B53107



Flooding at Swan Reach 1931. Refer to chronology entry for 9 July – 29 August 1931. Courtesy of the State Library of South Australia. B31864

Flood Mitigation

Kim Read OAM, FIEAust, CPEng

What is flood mitigation?

Flood mitigation is a term which is used generically to describe how a flood can be reduced or mitigated as well as how the impact of a flood can be reduced or mitigated. In the latter case there is no change in the magnitude of the flood. Rather, the change is in the way the flood affects the community.

Why flood mitigation?

Ready access to a water supply has been a driving factor in the establishment of post nomadic settlements. As well as providing the source of drinking water, rivers have become trade routes and have acted as territorial boundaries to be defended, while floodplains have been valued as fertile ground for agricultural pursuits.

As a consequence, all over the world communities have been established on the banks of rivers. Often the development is intense and this development has occurred with little regard to the inevitability and consequence of flooding. Inevitably, flood mitigation assumes a significant role in the life of many communities.

Flood mitigation

Flood mitigation, in the strict sense, implies a reduction in the magnitude of a flood at the point of interest. There are two ways of achieving flood mitigation. The first is to provide sufficient temporary storage capacity upstream of the point of interest, with the stored portion able to be discharged over time at a maximum flow rate which will not exceed the downstream channel capacity. The second is to provide an alternative flow path away from the point of interest.

In both cases the peak flow that reaches the point of interest is lower than would have

been observed if no physical intervention had occurred.

Flood impact mitigation

Flood impact mitigation does not affect the magnitude of a flood at the point of interest, rather it seeks to reduce or mitigate the impact of the flood. Flood impact mitigation can be ‘structural’ or ‘non-structural’. As the terms imply, a flood impact mitigation solution that relies on a built object is termed ‘structural’. Examples of structural solutions are flood levees and channel capacity enhancements.

In a ‘non-structural’ solution there is no reliance on construction, instead, an action is required to mitigate the flood impact. Examples of non-structural solutions could be the provision of a flood warning service, the purchase of flood insurance, or in some cases, the demolition of flood prone properties.

Flood mitigation—to implement or not?

The decision as to whether a flood mitigation strategy should be implemented is not always a straightforward one. In very simple terms, if the benefits of a flood mitigation strategy outweigh the costs, then there is a valid case for implementation. It must be noted that ‘benefit’ does not imply monetary benefit exclusively. Social benefits, such as community well-being, have a legitimate place alongside monetary benefits.

Flood mitigation—which option?

Once the decision to implement a flood mitigation strategy has been made, the choice of method needs to be determined. There are advantages and disadvantages associated with all options.

A flood control dam and dedicated flood storage has significant benefit in that the magnitude of the flood is reduced. While a flood control dam will be designed to cater for a particular return period flood, it will provide benefits even in a flood more severe than the design case. However, a flood control dam and the associated land that will be inundated during a flood are capital expensive. As a result, a flood control dam will only be cost effective when the cost of floods is significant.

A relief channel that diverts part of the flow away from the point of interest has similar advantages and disadvantages.

Flood levees are simple and relatively inexpensive. However, once a levee is overtopped the flood impact is likely to be similar to or worse than the impact had there been no levee. A levee will actually raise the height of the water it is containing. Should a levee be breached (as opposed to overtopped) the sudden inflow of water into the previously protected area can be devastating. A flood levee can engender a false sense of security in a community.

Channel capacity enhancement is likely to be more expensive than levee construction, due in part to the likelihood of land acquisition costs. Once the channel capacity is exceeded water will spill onto the adjacent floodplain in a similar fashion to the overtopping of a levee. Channel capacity enhancement avoids the potentially disastrous situation that can occur after a levee breach.

A flood warning system, while not necessarily overly expensive, will only be of benefit if the warnings reach those in the flood zone, the warnings are accurate (that is ‘false alarms’ are minimised), and the warnings are timely, providing sufficient time to allow the community to move valuable belongings onto tables, to lift rugs, to protect or move animals, and to generally prepare themselves for the flood.

Flood insurance, if obtainable, allows those affected by a flood to repair flood damage with minimal financial impact.

The purchase of flood prone properties can be a viable option especially when only one or two properties are at risk.

Often it is sensible to combine different flood mitigation strategies.

The South Australian experience

Various forms of flood mitigation have been used, are in place, or are planned in South Australia.

Levees were used with great success around the town of Renmark during the 1956 River Murray flood.

Levees are used with questionable success along the Gawler River, downstream of the town of Gawler. A major flood control dam is proposed

for the North Para River above Gawler. This dam will reduce the risk of flooding from the Gawler River downstream of Gawler. Further protection is provided by some flood storage in the South Para Reservoir and by a flood warning system. In common with other rivers that discharge into Gulf St Vincent, the capacity of the Gawler River channel reduces towards the coast and the channel becomes perched, that is, it is above the surrounding ground, which means that once overspill occurs the water that has left the channel will not flow back into the channel after the peak of the flood has passed. Rather, it will reach the sea as overland flow.

The River Torrens channel has been engineered to provide a 200-year average recurrence interval level of protection through the metropolitan area. In the western suburbs the Torrens channel is an engineered structure rather than a natural channel and, in design conditions, the level of the water in the channel will be well above the surrounding land. As with the Gawler and other rivers of the Adelaide Plains, once the channel capacity is exceeded and overspill occurs, the water that has left the channel cannot naturally flow back into the channel. There are a number of pumping stations that lift water back into the channel. However, these are designed to deal with the run-off from the urban areas adjacent to the channel rather than overflows from the channel.

A flood control dam on the River Sturt at Flagstaff Hill protects suburbs along the River Sturt channel downstream of South Road. The dam is designed to limit flows to the capacity of the engineered channel that has replaced the natural channel through the south-western suburbs. While the design level of protection is 100 years, the dam will also provide benefits in more severe flows.

The Little Para Reservoir provides some flood storage that helps to protect the City of Salisbury, which is built on the banks of the Little Para River, while a number of dedicated flood control dams on minor creeks that discharge into the Northern Adelaide Plains protects communities along the banks of those creeks.

A flood warning system is in place for the Onkaparinga River. Major channel capacity improvements were constructed through the town of Balhannah in late 1991 early 1992. These were put to a practical test in November 1992 when a major flood having an Average Recurrence Interval of around 100 years occurred. The flow passed safely through the town. Homes, that in previous less severe floods had been inundated, were unaffected.



Flooding at Swan Reach 1931. Refer to chronology entry for 9 July – 29 August 1931. Courtesy of the State Library of South Australia. B30605



Floods at Mannum 23 August 1931. Refer to chronology entry for 9 July – 29 August 1931. Courtesy of the State Library of South Australia. B6166

The Financial Impact of Floods

Chris Wright MAI, MEngSci

Introduction

If floods occurred regularly and reached the same level each year, human beings could cope with the problem by getting out of the way. But this is not the case. Minor floods are common and major floods, rare. We are prisoners of our own experience. When a flood occurs, the tendency is to think it is the biggest flood that could ever happen—until a bigger flood comes along. In the early days of settlement, Adelaide residents built their homes beside the River Torrens, but periodic floods destroyed their houses, drowned stock, swamped market gardens and washed away bridges. Thus, they learned that it was safer to live further back from the river-bank.

Floods are a natural consequence of rain. Rivers are contained within their banks for much of the time, but when heavy rain occurs, they spread out across the floodplain, bringing much-needed water and depositing sediment that provides an ideal bed for plants to grow. The problem is created when human beings choose to occupy the floodplains, making use of the flat ground for buildings and the fertile soil for agriculture.

Risk analysis

Floods can be large or small. Over the years, the Bureau of Meteorology has developed a standard way of describing them so that when warnings are issued, people will be able to understand their damage potential. The standard classifications are:

Local flooding: Used where intense rainfall could be expected to cause high run-off in restricted areas but would not lead to significant rises in main streams.

Significant river rises: Used when it is not certain that initial flood levels will be exceeded in main streams, but when appreciable rises are expected. Landholders should be alerted to possible removal of pumps and irrigation equipment and planned evacuation of stock.

Minor flooding: These floods cause inconvenience and the closure of minor roads and low-level bridges.

Moderate flooding: Low-lying areas are inundated, requiring removal of stock, equipment and evacuation of isolated homes.

Major flooding: Higher areas are inundated, with isolation of towns and properties and causing extensive damage.

In South Australia, hydrologists have found that in general terms, major floods in a river have less than a two per cent chance of occurring in any year. Comparative figures are given below:

- Minor flooding—10% or 1-in-10 Years Average Recurrence Interval
- Moderate flooding—5% or 1-in-20 Years Average Recurrence Interval
- Major flooding—2% or 1-in-50 Years Average Recurrence Interval

It must be remembered however, that floods much greater than these can and do occur. Such floods can be catastrophic when they impact on people and their homes and towns. An example of such a flood is the Barossa storm of March 1983, a deluge that produced up to 300mm of rain in less than five hours and flooded the town of Nuriootpa.

Risk summary

South Australians are fortunate on the one hand, that severe floods are relatively infrequent, but this means on the other, that when they do occur, the community is ill prepared for them. In our more critical river systems, severe floods are categorised as ‘Major’ by the Bureau of Meteorology and have a risk of occurrence of about 1-in-50 years or greater. This risk can be expressed as ‘once in a lifetime’ and it means that when a flood occurs, few people will have experienced such an event. Most of those affected will not have lived through such a flood and may not react appropriately to save themselves, their families, animals and possessions, nor will

they be mentally prepared for the trauma. It is therefore the task of the specialist to know the risk and extent of flood from each river and the potential for damage.

Risk

One of the problems we face with flood damage is that contemporary buildings and facilities have become more vulnerable. If one looks back at urban Adelaide during the period up to about 1960, house construction was of solid brick or stone. Doors and windows were timber, often of hardwood while floors were of timber or stone. Carpets were loose-fitted and could be rolled up quickly. By comparison, modern houses are constructed of high-grade but water-vulnerable materials. Timber is softwood or particleboard and tends to swell and degrade when wet. Gyprock plasterboard will not stand wetting and must be replaced. Modern homes contain sophisticated electronic technology. This has made our communities more vulnerable and this means that when floods occur, the damage can be very expensive.

Calculating the risk

Hydrology, which is the engineering science of floods, has developed strongly in the past 50 years and it is feasible to calculate the magnitude and extent of floods with reasonable confidence. Flood inundation mapping is available for:

- Gawler River—from the town of Gawler downstream
- Onkaparinga River—from its source to its mouth
- Torrens River—from its source, through Adelaide to the Gulf
- River Sturt—upstream areas as far as Darlington
- Brownhill and Keswick Creeks (except for Glenelg/Patawalonga)
- Numbered creeks (First to Fifth Creeks)
- Dry Creek
- Little Para River
- River Murray (the flood of reference is the 1956 flood)

Flood mapping is also available for specific flood risk locations such as Clare.

Flood maps allow us to determine, for any location in the floodplain, the risk of a flood occurring and its approximate depth and velocity. This information enables us to estimate the risk of damage and therefore to work out ways of keeping the risk to a minimum. For the most part in South Australia, the damage potential is due to water less than one metre deep. We are fortunate in that, with the exception of parts of the River Murray, there are few if any situations where the flood could be sufficiently deep and fast-flowing for it to destroy whole buildings.

Cost to business and residential property

The damage caused by floods can be very extensive. It has been estimated that a 1-in-100 year flood in Keswick Creek would cause damages worth more than \$150 million. In this case the damage potential is high because flooding will affect many commercial and industrial premises. Modern industrial facilities are very vulnerable to flood damage due to the high cost of electronic machinery and controls. In a sterile food processing plant, the last thing you would want is a flood of dirty, stinking water. Secondly, some commercial premises contain valuable goods for sale at ground level and will inevitably experience heavy flood damage. Often the flood damage bills increase long after the flood has gone. Interruption to business, delays in obtaining new stock and long waiting times for supply of new equipment increase the cost associated with flood. In some cases these costs can lead to financial collapse of a business.

Flood damage to residential property, although traumatic and costly, generally amounts to less in dollar terms than commercial and industrial property. However, along with financial pain, the greater cost to residents and their property often lies in the major stress and trauma experienced when they find their comfortable homes suddenly transformed into a chaotic mess of floating debris, surrounded by brown, dirty water that smells of sewage. The trauma can be greater still when the family puppy is found dead and bloated in a drain nearby.

Loss of life

A common cause of flood damage and loss of life occurs because motorists drive into flooded river crossings. South Australia is fortunate in not having suffered recent loss of life in this way. In 1992, a girl was drowned in Callington after she got out of her car to push it clear. A few months earlier, a motorist drove into the Onkaparinga River at Oakbank during a major flood. The State Emergency Service drove a heavily loaded truck into deep water to rescue him. The truck engine was severely damaged during the process and cost several thousand dollars to repair. In 2004, a motorist in a utility was washed off the causeway at Yaldara, after driving into the flooded North Para River. He was rescued by helicopter. Two youngsters were stranded in floodwaters at Murray Bridge later that year after attempting to drive through what they thought was shallow water. People in vehicles seem to be overwhelmed by a false sense of security and keep on driving.

River Murray

The River Murray catchment has been heavily modified by tree clearance, grazing pressures, irrigation, dam construction and control of its flow regime. The frequency of flooding has been reduced significantly, at least in respect of smaller floods. However, the risk of major floods remains. The last really big flood was the 1956 flood and its level is shown on the topographic maps as the flood of reference. Much of the damage potential is due to flooding of pumps, irrigation facilities and orchards. If a flood occurs in the summer months, the unfortunate situation may arise that, despite the huge amount of water in the river, it will not be possible to irrigate thirsty orchards because many of the pumping stations will be disabled due to the floods. When the next flood arrives, much work will need to be done to repair and raise levee banks and protect valuable assets. Fortunately, such floods take weeks to reach South Australia and there is time available to prepare the defences. It is worth noting however, that research work has brought to light evidence of floods that occurred within the last 300 years including some that were more severe than the 1956 Murray River flood.



*Flooding at Waikerie 1917. May refer to chronology entry for 7 October 1917 to February 1918.
Courtesy of the State Library of South Australia. B34016*



Flooding at Parakylia Station ca1942. Courtesy of the State Library of South Australia. B44482

Palaeo-hydrology: the Science of Identifying Large Flood Events Prior to Written Records, Based on Physical Evidence

Derek Snowball, Joan Gibbs, Robert P Bourman and Neville F Alley

Flooding is a natural phenomenon. It is a recurring process in river ecosystems that for millions of years has been responsible for moulding landscapes by both erosion and deposition. For example, the Adelaide Plains has evolved by the coalescence of alluvial fans built up by flood events at the bases of fault-line escarpments. Flood deposited sediments have in-filled former valleys to develop floodplains that were later abandoned by stream down-cutting to form river terraces such as the terrace on which Adelaide Oval is situated.

Floodplains are integral parts of river systems. Floodwaters spreading out onto floodplains reduce the peak height of floods and extend the time of floodwater rise. The gradual return of water from the floodplain to the stream allows filtration through surface vegetation and into the ground and maintains the base flow of the streams for longer times as well as recharging ground waters. Floods flush salt from the streambanks, deliver nutrients downstream and revitalise riverine ecosystems. Floods can trigger breeding events such as spawning of native fish on the inundated floodplains and can be related

to the breeding habits of birds such as pelicans. Rivers and their associated floodplains provide a diverse range of habitats for plants and animals.

Floods are perceived as disasters/problems when people build on active floodplains and become involved in flood events. It is possible to identify flood prone regions and avoid these areas as sites for building permanent structures. Where development does occur on flood prone areas, expensive engineering works are required to ameliorate the effects of flooding.

The longer the flood record, the more reliably the relationships can be established between flood size and frequency. In South Australia, a maximum of only 170 years of flood records is available to identify the re-occurrence of floods of particular magnitudes, so we should assume the possibility of floods much larger than the ones so far recorded. It is therefore important to identify the timing and magnitudes of pre-historic floods (commonly called palaeofloods). These palaeofloods can be investigated by examining river sediments and by looking for flood debris such as tree trunks and branches, stranded high above normal river levels. However this information needs to be interpreted with care. Stranded sediments and flood debris may not identify the precise height or stage of a particular flood event. The actual peak flood water surface could have exceeded the elevation of the river sediments and particularly flood debris because they may have been deposited at any level during the falling stage of the flood.

Example 1

On the River Murray, the biggest flood since settlement is the 1956 flood, which hydrologists expect has a return interval of about 170 years. At Swan Reach, flood debris appears to have been progressively carried into a cave approximately 8m above river level, which is much higher than the 1956 flood. Consequently, the floods which deposited this debris reached at least the 8m level and may have exceeded it. The estimated age of the flood debris is up to 2,500 years, suggesting that there have been several floods during that time that were at least as large as the 1956 flood.

Example 2

In the Northern Flinders Ranges, there is further evidence of a flood much greater than has been recorded since settlement. Large, heavy red gum tree trunks flanking the main channel of MacDonnell Creek, occur up to 0.5km either side of the stream and were probably stranded close to the fringe of the floodwaters. A consistent trail of flood debris, deposited similar distances from the main channel, together with the dimensions of the logs makes it likely that they would have been deposited near the maximum flood level rather than during the falling stages of the flood.

A reliable flood indicator along the River Murray is provided by lines of black box (*Eucalyptus largiflorens*) trees, which germinate at the maximum flood fringe, where floating black box seeds are deposited. The 1956 flood had an estimated discharge rate of 3,956 cubic metres per second (cumecs) or 341,000 megalitres/day. After this flood, it was found that lines of black box trees germinated on the fringes and in fact varied from the actual peak flood level by only a few centimetres. This is strong evidence to support their value as palaeoflood indicators.

A prominent line of black box trees at Overland Corner stands approximately 2m above the level of the 1956 flood. Calculations indicate that the palaeoflood was almost twice as large as the 1956 flood and reached 7678 cumecs (664,000 megalitres/day). It had an estimated recurrence interval of 1,000 years. Radiocarbon dating and other information suggest that this megaflood occurred around 1760. Widespread wet conditions for two years, and near synchronous flooding in the Murray and Darling Rivers preceded the largest record flood event of 1956 in the River Murray in South Australia. Similar conditions were almost certainly associated with the palaeoflood of circa 1760. The incorporation of palaeoflood data into flood history extends the flood record and increases the reliability of flood magnitude/frequency relationships. This information is very useful to us in planning major developments, dams and bridges that need to be built above the highest flood. A more detailed and scientific discussion of this significant topic may be found immediately preceding the appendixes.



The Chronology: Floods in South Australia: 1836–2005



The Company's Bridge, Hackney by James Shaw (Britain/Australia 1815–1881). The heavy rainfalls of 27–29 August 1863 led to flooding of the Torrens River and subsequent damage to the Hackney Bridge. Bequest of Mary Ayling 1961 Art Gallery of South Australia, Adelaide.



Hackney Bridge later in the century after it had been reinforced to withstand flood damage. Courtesy of the State Library of South Australia. B364

Scope and Limitations of the Chronology

Tony Rogers

Newspapers have been published in South Australia since the earliest days of European settlement. They are a valuable source of information about past events and public attitudes at the time. They are often the only consistent consecutive contemporary records of current events in the State. This is certainly the case with regard to floods in South Australia of which there were no continuous specific records. As a result, teams of researchers from the Bureau of Meteorology in Adelaide have, during the past three years, searched the newspapers published in the State for reports which identify or describe flood events. It has not been practical to read every newspaper, but every issue of a number of the major newspapers has been surveyed as well as many of the minor ones.

The resulting chronology is a bibliographical listing of newspaper reports which refer to, or otherwise identify, flood events in South Australia since European settlement. The editors do not claim that these are flood events, but simply that the newspapers label or describe them as such. We do claim that each newspaper report cited exists, was published on the date given and appears on the page given in the particular newspaper. We also assert that each newspaper report cited has been viewed by a research assistant and later verified. We are confident that the references given here are accurate.

It has been the intention of the editors to include as complete a listing as possible of flood event reports. However, we accept that there may have been omissions. If a report is not included, this does not mean it does not exist. Also, when there has been a major flood event, some newspapers have been full of small

snippets of flood-related news in addition to their major articles. Occasionally there have been so many that to include them in the chronology would have been impractical. In those few cases, their existence is acknowledged without further bibliographical details.

Synopses which accompany listings of flood events are, by their nature, brief. They are intended only to give researchers useful clues as to what might be included in the original primary material. These synopses should not replace the original material and should not be quoted as authoritative summaries of the primary material.

There has been a deliberate attempt to avoid interpreting events, that is a job for the researcher using this resource, but it is inevitable that some interpretation has been necessary. In particular, we have had to make decisions, on occasion, as to whether a described event is flood-related or not. We have also had to make decisions as to the extent over time of a particular event and whether we are describing a single event or a series of events. It has also been necessary to interpret terms used by newspaper reporters. For example, 100 years ago the term ‘running a banker’ was popular. This could mean that a creek was running high within its banks or that it was overflowing. In the latter case, the term describes flooding, the other does not.

Flood-related deaths have proved particularly problematic. When poor Euphemia Messenger was washed from her employer’s arms as he struggled to lead her to higher ground in May 1893, the death was definitely flood-related. However, Mr Butcher, who drowned near Port Adelaide in June 1851, was removed from our records. It became apparent that he was attempting to walk home to Ethelton after spending the evening in the pub at Port Adelaide, fell in the creek because the fence had been removed and was nowhere near the location of flooded land. On the other hand, if someone was crossing a waterway at a ford and was washed away, was it flood-related or simply a result of misjudgement? We have usually included such a death if there was flooding in the immediate area and always included it when the newspaper report said it was flood-related. However, it is up to the user to make the final decision.

If a place is identified as being mentioned in relation to a particular flood event, we are confident that at least one newspaper report cited does refer to that place. However, places not so identified may also be mentioned in newspaper reports. Where many places are mentioned, we may use more general terms such as ‘Adelaide and its suburbs’, ‘the Mid-North’ or ‘the South-East’. We recognise that these are not precise terms indicating exact geographical locations, but we feel justified in using them because they are in common usage. Where place names are given, we use the spelling or name current at the time of the newspaper report. For example, ‘Gumeracha’ was often spelt ‘Gumerracca’; at the time of the First World War, ‘Petersburg’ became ‘Peterborough’ and ‘Grunthal’ became ‘Verdun’. In the index we use the current spelling for places, but list both names where there has been a deliberate change.

Occasionally newspapers may publish more than one edition on a particular day. In such a case, the edition mentioned in this chronology will be the one usually available for perusal in the State Library of South Australia.

Over time some newspapers have changed or amended the name on their masthead. Others have not. For example, *The Bunyip* was first published in Gawler on 5 September 1863 and is still published in the same community with the same name. Others have had several names which may reflect changes in ownership, amalgamations, or simply fashion. In the chronology we usually identify a newspaper with the name by which it is commonly known, in line with the practice used at the State Library of South Australia. At the end of the document may be found an appendix which lists, by date, the name which appeared on the masthead at the time, but we do not include sub-titles.

Each decade is preceded by snippets of general information related to the history of the State. They have been selected only to give an impression of the times and reflect the editors’ interests.

The editors welcome notice from readers of omissions and errors so that future editions may be corrected and expanded.

1836–1859

The new colony was to be a Utopia in the south, enjoying freedom from physical disease and avoiding the political ills and discriminations of European society. By design, this was to be a modern haven of societal advances and 1838 saw mandatory smallpox vaccination for settlers, refuge for Lutherans fleeing religious persecution, establishment of the first school and the Adelaide Chamber of Commerce. Foundations for industry, banking and mining quickly followed and by 1843, Ridley's Thresher was invented in Adelaide. British Government legislation enabling the Legislative Council to be partially elected created great interest and led to a lively election campaign in 1851. Shortly thereafter, news of the discovery of gold in Victoria led to a huge exodus of men from the State. The discovery of gold at Echunga created a local rush but soon petered out. The South Australian Parliament was established in 1855 and a new constitution was proclaimed the following year.

- | | |
|------|--|
| 1837 | Hospital opened on North Terrace |
| 1847 | First winery in Barossa Valley |
| 1850 | Immigrant population 63,700 |
| 1850 | Central Board of Education established |
| 1851 | First Legislative Council elections |
| 1852 | Gold discovered at Echunga |
| 1853 | Murray River navigation starts |
| 1855 | First SA postage stamps |
| 1855 | Adelaide/Port Adelaide railway built: carries 241,886 passengers |
| 1855 | First meeting of SA Parliament |
| 1855 | Aborigines Friends Assoc. founded |
| 1855 | Copper discovered near Wallaroo |
| 1858 | Real Property Act (Torrens Title) |



This is a listing of flood events as reported in newspapers and ordered by decades.

1842

3 October 1842

Late rains caused the River Torrens to rise 6 feet above its normal level. The bridge required extensive repairs. At the Reed Beds, water in the cornfields was more than 3 feet high.

The Adelaide Examiner

5 October 1842, 'The Torrens', p. 4.

The Southern Australian

4 October 1842, 'Torrens Bridge', p. 2.

1844

17–24 July 1844

Heavy rains for two to three weeks led to flooding of the Torrens washing away a considerable portion of the embankments.

The Register

24 July 1844, 'The late rains', p. 3.

31 July 1844, 'The Torrens and the bridges', p. 3.

21–22 September 1844

Torrential rain in the Hills caused flooding along the River Torrens from Gumarracca to the city and Noarlunga. There was extensive damage to bridges, dwellings and horticulture all along the river. Bridges at Hahndorf and at Noarlunga were swept away. Two dairies (at Chain of Ponds and at Hindmarsh) were swept away, and Shand's Brewery collapsed. The Reed Beds were several feet under water and a great part of the township of Noarlunga was also several feet under water.

The Observer

28 September 1844, 'Local intelligence', p. 4.

The Register

25 September 1844, 'Rise and overflowing of the Torrens', p. 3.

27 September 1844, 'Farther particulars respecting the inundations', p. 2.

1847

22 July 1847

In Adelaide, heavy rainfall led to flooding of the Torrens River. The newly built stone City Bridge gave way and Frome Bridge was badly damaged. At Gawler, one man was drowned in the flooded river and the North Para Bridge was swept away.

The Observer

31 July 1847, 'Local intelligence', p. 7.

The Register

24 July 1847, 'A clean sweep', p. 2.

28 July 1847, 'Local intelligence', p. 4.

1850

7 February 1850

There was serious damage at Kooringa when the Burra Burra Creek flooded. Thirty families evacuated to 'Robin's Stables'. Banks of the Burra Burra were swept away and 75 houses and grottoes were destroyed.

The Observer

9 February 1850, 'Local intelligence', p. 3.

1851

12 May 1851

At Kooringa, the Burra Burra Creek suddenly became charged with water. Two waterspouts burst over the township turning the main street into a river and washing away gardens (crops) and animals. Water rose to knee height.

The Observer

17 May 1851, 'Destructive flood at the Burra Burra township', p. 4.

The Register

15 May 1851, 'Destructive flood at the Burra Burra township', p. 2.

8 June 1851

The township of Kooringa was awash with the main street becoming a river when the Burra Creek burst its banks. Many homes were washed away. A widower with three children, William Box, drowned. Banks of Burra Creek caved completely in. The bridge across Burra Creek to the Schneider Smelter was destroyed.

The Observer

14 June 1851, 'Two more great floods at the Burra', p. 2.

The Register

11 June 1851, 'Another great flood at the Burra', p. 2.

12 June 1851, 'Further particulars of the great flood at the Burra Burra', p. 2.

17 June 1851

Parts of the embankment at Port Adelaide were

washed away by unusually high tides and ferocious northwest winds. This led to considerable flooding and loss of property.

The Adelaide Times

19 June 1851, 'Flood at Port Adelaide', p. 2.

21 June 1851, 'Flood at the Port', p. 2.

The Observer

21 June 1851, 'Extraordinary high tides and inundation at the Port', p. 4.

The Register

19 June 1851, 'Extraordinary high tide and inundation at Port Adelaide', p. 2.

21 June 1851, 'Late flood at the Port—public meeting', p. 3.

19 August 1851

Heavy rains led to extensive flooding of the Torrens and the low lands adjacent to its banks. A settler, Frederick Olrich drowned when he was washed away by the force of the flooded stream. The rains led to the flooding of Noarlunga and surrounding areas, Angaston, Gawler Town, Hope Valley and the Mount Barker district. Extensive damage was caused to property.

The Observer

23 August 1851, 'The Floods', p. 8.

9 September 1851

The River Torrens rose five feet between 10 am and 5 pm. This brought down trees and washed away portions of the road to the rear of Government House. It also caused havoc in Government House. There was a whirlwind and waterspout at Glenelg which inundated the area. The whirlwind removed roofs of cottages and one woman was injured. At Gawler, one man was drowned.

The Observer

13 September 1851, 'Another flood', 'Whirlwind and waterspout', 'Fatal accident at Gawler Town', p. 2.

1852

7 August 1852

There was continual heavy rain in the Clare area over a period of ten hours. This completely washed out all the houses at Clare and Stanley Flats. It was reported that a man named Harry James was drowned in the vicinity of Watervale.

The Observer

21 August 1852, 'Fearful floods in the north', p. 4.

1859

25 January 1859

Floods were reported at Koorunga. There was little rainfall but a large torrent of water came down Burra Creek, collecting huge amounts of debris. This ripped through the town leaving a large mass of debris and water. Local businesses and dwellings were destroyed or damaged with considerable financial loss. Many people lost their homes. River banks were washed away.

The Advertiser

28 January 1859, 'Koorunga', p. 3.

The Observer

29 January 1859, 'Koorunga', p. 4.

16–22 May 1859

Heavy rainfall led to 'local inundations, floods and minor disasters' reported in 'various places'. After a week of rain, the main street of Clare flooded. Gale force winds led to tidal flooding at Port Adelaide. Many houses were half submerged with residents being rescued by horse dray. There was no loss of life but several thousand pounds' damage was caused.

The Advertiser

20 May 1859, 'The rains', 'Port Adelaide inundation', p. 3.

21 May 1859, 'Port Land Estate—inundation', p. 3.

26 May 1859, 'Clare', p. 2.

The Observer

21 May 1859, 'High tide at the Port—inundation of the Port Land Estate', p. 4.

The Register

16 May 1859, 'High tide at the Port—inundation', p. 3.

30 October 1859

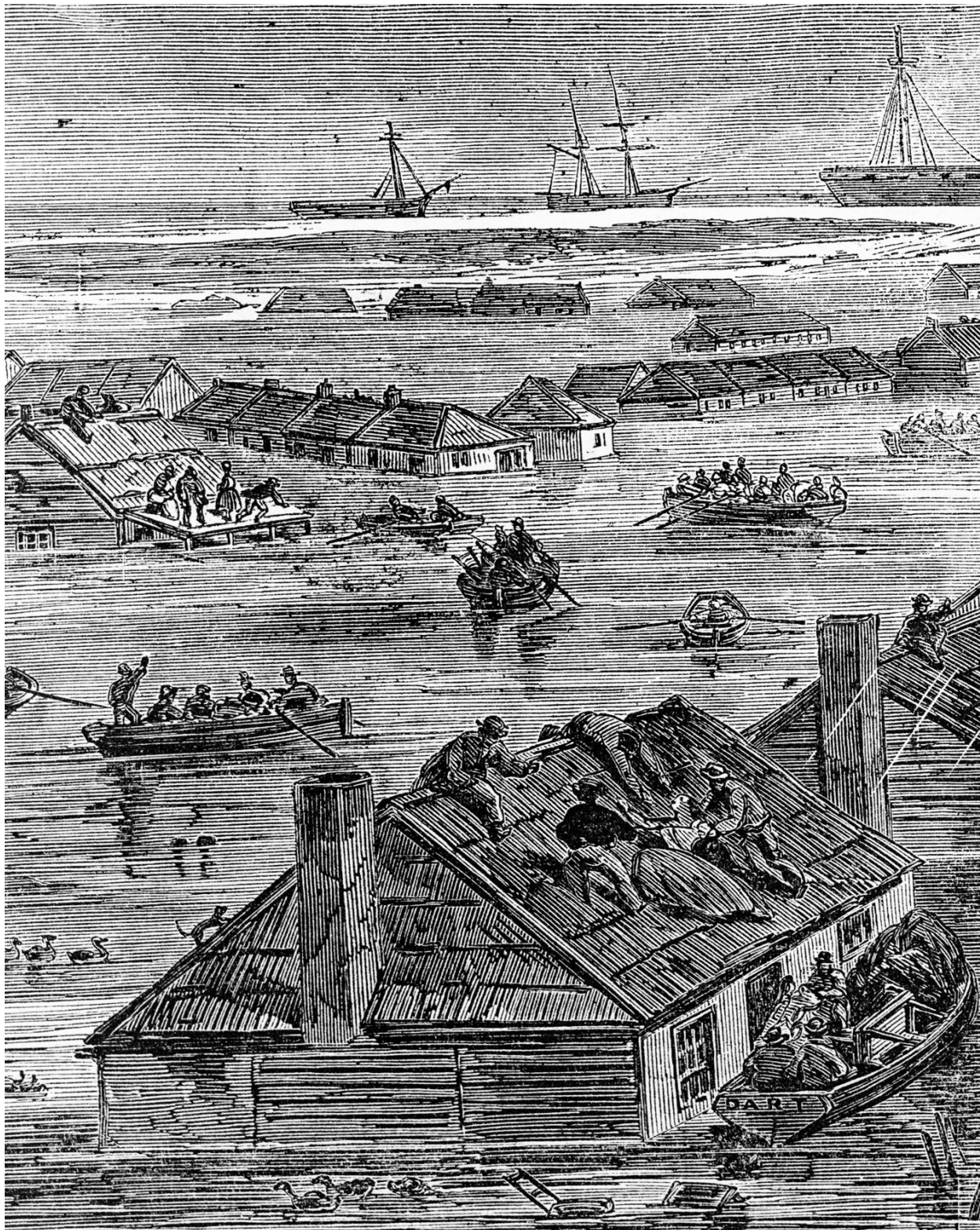
A heavy hailstorm at Kapunda led to flooding and damage. The foundation of a new store was flooded to a depth of six feet.

The Advertiser

2 November 1859, 'Terrific hailstorm at Kapunda', p. 2; 'Kapunda', p. 3.

4 November 1859, 'Belvedere', p. 3.

5 November 1859, 'Kapunda', p. 3.

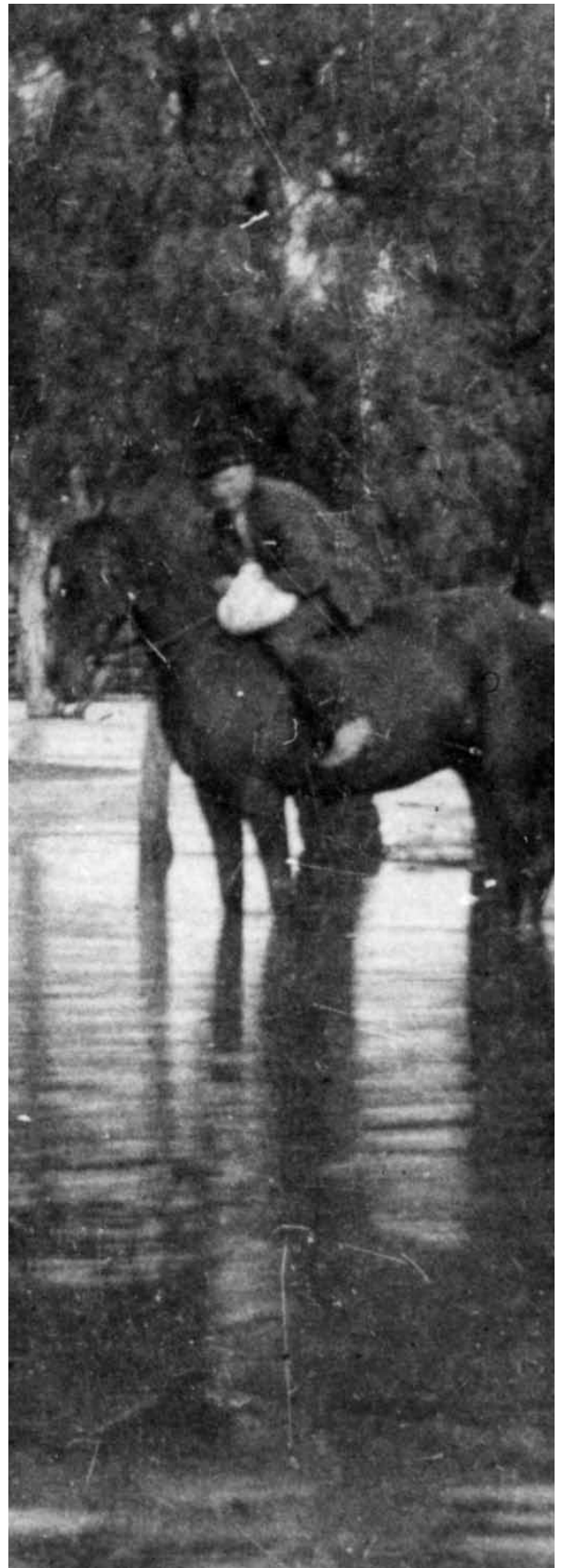


High tides in combination with a gale flooded Port Adelaide on 12 May 1865. WA Canthorne captured the event in a dramatic sketch bringing together all of the flood incidents into one compelling moment. This is just a portion of that picture. The whole sketch is reproduced on page 55 and was originally published in the Illustrated Melbourne Post.

1860–1869

The eighteen-sixties saw the flourishing of exploration in Australia. South Australia was at the cutting edge with McDouall Stuart's attempted transcontinental objectives and McKinley's unsuccessful rescue attempt of the ill-fated Burke and Wills expedition. While the building of churches by various denominations symbolised religious tolerance, 1862 saw the appointment of an Irish Catholic Premier whose hard-fought campaign had to overcome initial prejudice to his political impartiality. South Australia continued to be at the forefront of industrial development with gas lighting installed in Adelaide in 1863. The publication of Goyder's Line, also in that year, enabled a demarcation limit for land use from an agricultural perspective.

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|------|--|
| 1860 | First reservoir (Thorndon Park) completed |
| 1861 | Immigrant population 126,830 |
| 1861 | Women property owners vote in municipal elections |
| 1863 | Gas works established at Brompton; Adelaide shops lit by gas |
| 1863 | South Australia agrees to administer the Northern Territory |
| 1863 | Goyder's Line of Rainfall delineated |
| 1866 | Adelaide Town Hall opened |
| 1866 | Charles Mullen develops method of clearing mallee scrub |
| 1868 | Aboriginal Cricket Team goes to England; first Australian overseas sporting team |



1860

4 April 1860

Heavy rains in Adelaide led to flooded streets. Rainfall of 3.15 inches was recorded. Heavy rain and flooding was also reported from Kooringa and Kapunda, with some loss of property.

The Advertiser

6 April 1860, 'The late rains', 'Kooringa', p. 3.

7 April 1860, 'Kapunda', p. 4.

10 April 1860, 'The late rains', p. 4.

The Observer

7 April 1860, 'Kooringa', p. 8.

23–25 May 1860

Heavy rains in the 'Southern District' led to flooding in the Aldinga/Willunga area. Several people were washed away and subsequently rescued and there was some loss of property.

The Advertiser

26 May 1860, 'Floods in the south', p. 3.

31 May 1860, 'The late floods in the south', p. 3.

The Observer

26 May 1860, 'Flood at Port Willunga and providential escape from drowning', p. 8.

1861

11 May 1861

Torrential rains led to severe flooding in Macclesfield and Strathalbyn. There was significant loss and damage to property and infrastructure. The flood was so strong that fences and large trees were washed away and houses were flooded. Continuous rain over three days and nights in the Riverton district caused flooding of the Gilbert River.

The Advertiser

17 May 1861, 'Strathalbyn', 'Macclesfield', 'Riverton', p. 2.

26 June 1861

Heavy weather and rains afflicted the Guichen Bay area for several days. Roads were under water for six miles up to a depth of 3 to 4 feet, hampering the mail service.

The Advertiser

5 July 1861, 'Guichen Bay', p. 2.

2 July 1861

Continuous rains around Riverton flooded the Gilbert River and inundated cellars with some property damage. Farmers were pleased by the rains.

The Advertiser

5 July 1861, 'Riverton', p. 2.

22 December 1861

Severe storms caused minor flooding of low-lying land around Stockport.

The Observer

28 December 1861, 'Stockport', p. 6.

1862

25 May 1862

Heavy rains over the previous week in the Guichen Bay area caused the rising of creeks and swamps. Several streets in Robe were underwater to a depth of 9–10 inches.

The Advertiser

6 June 1862, 'Guichen Bay', p. 2.

29 May 1862

There was remarkable rainfall all week at Kapunda. A great deal of fencing was washed away and damage done to culverts, dams and bridges.

The Observer

31 May 1862, 'Kapunda', p. 2.

4 June 1862

Wet and stormy weather was reported at Port Gawler. Low land was inundated and unploughed stubble land almost impassable.

The Advertiser

6 June 1862, 'Port Gawler', p. 2.

22 July–1 August 1862

Long continuance (2–3 weeks) of very wet stormy weather caused considerable damage in the districts surrounding Adelaide with cellars flooded and property damaged. Kapunda main street was under water. It was reported that the proprietor of the Clare Castle Inn, James Glynne, and his horse were drowned in the flood as they attempted to cross the Light River at Baker's Flat.



The inundations at Port Adelaide on 12 May 1865. This picture appeared in the Illustrated Melbourne Post on 24 June 1865. The scene was drawn by Samuel Calvert from an original sketch by W.A. Cantthorne. This was then engraved by R Bruce. Copyright State Library of Victoria, Accession number IMP24/06/65/88.

The Advertiser

- 24 July 1862, no title, p. 3.
 25 July 1862, 'Gawler', 'Kapunda', p. 2.
 28 July 1862, 'Kapunda', p. 3.
 4 August 1862, 'Tanunda', p. 3.
 6 August 1862, 'Kapunda', p. 2.
 7 August 1862, 'Milang', p. 2.
 8 August 1862, 'Virginia', p. 3.

11–15 August 1862

Further exceptional rainfall, following weeks of rain, caused flooding in the Adelaide district. The Torrens, Sturt, North and South Para and Gawler Rivers all flooded, damaging bridges and roads. There was widespread damage to homes, crops and gardens. A man connected with the brewery at Kent Town lost his life in the flood and a young man drowned when he attempted to cross Virginia Creek. In the Willunga district, a child of four was drowned after she attempted to cross a flooded road and was swept away by the current.

The Advertiser

- 13 August 1862, 'Topics of the day', p. 2.
 14 August 1862, 'Willunga', p. 2.
 15 August 1862, 'Riverton', 'Kapunda', 'Willunga', p. 2.
 16 August 1862, 'Angaston', 'Port Gawler', 'Redruth', 'Virginia', p. 2.
 18 August 1862, 'Dangerous creeks', p. 2.
 19 August 1862, 'Auburn', 'Hill River', 'Gumeracha', 'Middleton', p. 3.

The Observer

- 16 August 1862, 'The floods', p. 8.

1863

19 May 1863

Heavy rain caused flooding at Gawler.

The Advertiser

- 23 May 1863, 'Gawler', p. 3.

19 July 1863

Rain, lasting 12 hours, fell north of Mount Serle in the Far-North, flooding many creeks.

The Advertiser

- 30 July 1863, 'Far North', p. 3.

24–25 July 1863

Heavy rain in the vicinity of Gumeracha caused

the Torrens in Adelaide to flood to a height 'not observed for years' and swelling of the Sturt River caused flooding of the Bay Road.

The Advertiser

- 27 July 1863, 'Topics of the day', p. 2.
 28 July 1863, 'Noarlunga', p. 3.
 31 July 1863, 'Redruth', p. 3.

30 July 1863

In the Guichen Bay district, it was estimated 9 inches of rain fell in July. Low land was inundated and the bridges covered. The main street of Robe was flooded.

The Advertiser

- 4 August 1863, 'Guichen Bay', p. 3.

27–29 August 1863

Heavy rainfalls resulted in flooding of the Torrens, Sturt, Onkaparinga, Gilbert and Wakefield Rivers with some damage to property.

The Advertiser

- 31 August 1863, 'Topics of the day', p. 2.
 4 September 1863, 'Riverton', p. 3.

The Observer

- 5 September 1863, 'The week's news', p. 4;
 'Lobethal', 'Woodside', 'Mount Torrens', 'Gumeracha', 'Langhorne's Bridge', supplement, p. 1.

1865

12 May 1865

Port Adelaide was flooded when an extremely high tide in combination with a gale broke the embankments, flooding the streets to a depth of 4 feet and trapping residents in their houses. No lives were lost due to the flood, although four men were drowned whilst attempting to board the mail steamer as a result of wild weather.

At Port MacDonnell, similar weather conditions resulted in severe damage to the jetty and the entire front street was flooded.

The Advertiser

- 13 May 1865, 'Telegraphic intelligence', p. 2.

The Border Watch

- 20 May 1865, 'Local intelligence', 'Port MacDonnell', p. 2.

1866

16 January 1866

Heavy rain caused flooding on a station in the Barrier Ranges. There was considerable damage to stores and wool and heavy losses of sheep.

The Advertiser

13 February 1866, 'Topics of the day', p. 2.

8 August 1866

In the South-East, near Lacepede Bay, the Maria Creek swamp overflowed.

The Border Watch

15 August 1866, 'Lacepede Bay', p. 2.

11–15 August 1866

Heavy widespread rains fell in the Adelaide area including McLaren Vale and 'severe flooding' occurred in the Hackham area. Very heavy rains in the Redruth district caused the Burra Creek to overflow its banks.

The Advertiser

16 August 1866, 'Hackham', p. 3.

17 August 1866, 'Koorunga and Redruth', p. 3.

1867

5–6 April 1867

Thunderstorms accompanied by heavy rain caused extensive flooding over a wide area with considerable property damage. Communities reporting flood damage included Kapunda, Tanunda, Stockport, Greenock, Kanmantoo, Riverton, Gawler, Blanchetown, Koorunga, Redruth and Aberdeen.

The Advertiser

8 April 1867, 'Country news', p. 3.

9 April 1867, 'Country news', p. 3.

11 April 1867, 'Country news', p. 3.

The Observer

13 April 1867, 'Stockport', 'Auburn', p. 3; 'Rhynie', 'Hamilton', p. 4; 'Nuriootpa', 'Gawler', 'Kapunda', 'Koorunga', 'Auburn', p. 5.

5–25 September 1867

Thunderstorms and torrential rain led to flooding in the Illinawortina district in the Far-North. The Torrens River, Gawler River and Cudlee Creek were impassable due to flooding. Flooding of the Finniss River led to an 'inland sea'. The Gilbert River flooded in Saddleworth.

The Advertiser

14 September 1867, 'Country news', p. 3.

21 September 1867, 'Country news', p. 2.

25 September, 1867, 'Topics of the day', p. 2.

30 September 1867, 'Topics of the day', p. 2; 'Country news', p. 3.

4–9 October 1867

Heavy rains in Adelaide and surrounding districts led to extensive damage to bridges and other property. The Torrens, Onkaparinga and Gawler Rivers flooded. Despite no local rain, a flash flood occurred at Langhorne Creek with waters rising 8 feet in 40 minutes. Other places reporting floods included Strathalbyn, Mount Barker, Clarendon, Port Elliot, Yankalilla and Clare.

The Advertiser

7 October 1867, 'Topics of the day', p. 2.

8 October 1867, 'Country news', p. 2.

9 October 1867, 'Country news', p. 3.

12 October 1867, 'Country news', p. 3.

The Observer

12 October 1867, 'Mount Barker', 'Gawler', 'Angaston', 'Inman Valley', 'Langhorne's Bridge', 'Noarlunga', p. 2; 'Oakbank', 'Macclesfield', 'Nuriootpa', 'Woodchester', 'Wellington', p. 3.

1868

6 July 1868

Heavy rain led to flooding of the Gawler and Torrens Rivers. There was limited damage to property. Flooding was also reported in Port Lincoln following 24 days of heavy rain.

The Advertiser

8 July 1868, 'Topics of the day', p. 2.

9 July 1868, 'Topics of the day', p. 2.

11 July 1868, 'Country news', p. 3.

1869

9–12 February 1869

At Moonta, the main street was impassable with water up to 4 feet deep. There was property damage both in the town and at the mine. Heavy rains led to various creeks overflowing in the Mount Remarkable area.

The Advertiser

15 February 1869, 'Moonta', p. 3.

The Observer

20 February 1869, 'The rainfall at Mount Remarkable', p. 7; 'The Moonta flood', p. 13.

22–23 November 1869

Torrential rain, hail and wind caused flooding with reports from Wilpena, Blinman, Kanyaka, Willochra, Port Wallaroo, Lewiston, Port Gawler and Flaxman's Valley, near Angaston. Crops and pastures were spoiled.

The Advertiser

24 November 1869, 'Topics of the day', p. 2.

25 November 1869, 'Topics of the day', p. 2.

26 November 1869, 'Topics of the day', p. 2.

29 November 1869, 'Topics of the day', p. 2;

'Country news', p. 3.

30 November 1869, 'Country news', p. 3.

The Bunyip

4 December 1869, 'The weather in the north', p. 3.

The Observer

27 November 1869, 'The week's news', p. 7.

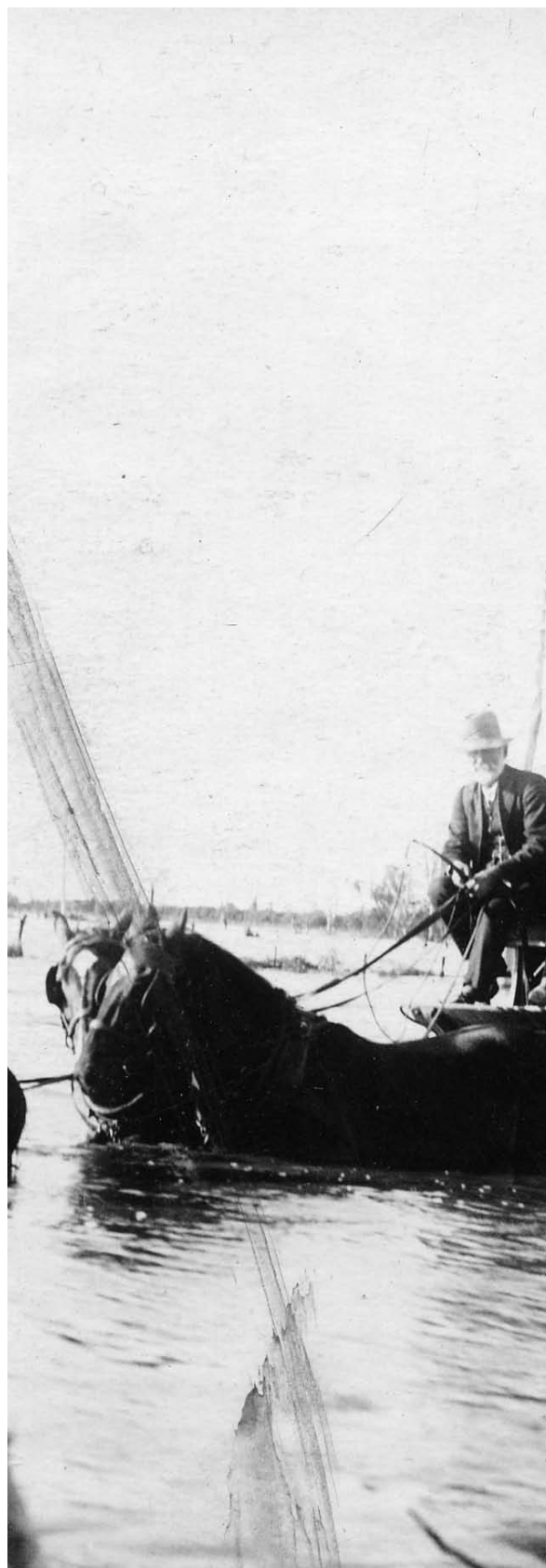


Early Mannum in 1871 with residences and waterfront buildings, an unidentified river boat under construction, and a small rowboat passing. It is unclear whether the waters are rising or receding, but what appears to be a high water mark is clearly seen on the building in the foreground. From Godson Collection. Courtesy of State Library of South Australia. PRG1258/2/766

1870–1879

Social legislation played a significant part throughout the decade. The first health act, establishing a Central Board of Health was passed and education became compulsory for children. At the time of settlement, all wastewater was emptied into open street drains, pooling first into storage tanks and then into the Torrens River which was used concurrently as the principal source of drinking water. Health was an issue of primary importance as water-borne diseases of dysentery and typhoid assumed deadly proportions. The problem led to innovation and development with South Australia becoming a leader in wastewater technologies. In the mid-seventies Adelaide University opened and at the end of the decade, the first public secondary school was established. The eight-hour work-day was adopted and South Australia was the first State anywhere in the British Empire to give legal recognition to trade unions. The population of the State exceeded 250,000 in 1878.

- 1871 Immigrant population 185,425; Aboriginal population estimated at 6,000
- 1872 General Post Office opens in Adelaide
- 1872 Overland telegraph connects Adelaide and London, UK
- 1873 Eight-hour working day adopted
- 1874 University of Adelaide established
- 1875 Education compulsory from age 7 to 13
- 1876 First territory in British Empire to legally recognise trade unions
- 1876 Stump-jump plough invented near Maitland
- 1878 Horse-drawn trams introduced
- 1878 First major long-distance telephone call in Australia is made from Semaphore to Port Augusta



1870

3 January 1870

Heavy rains and thunderstorms throughout the Mid-North caused flooding in a number of places including Kanyaka, Arkaba, the Kooringa district, Burra, Apoinga, Riverton, Saddleworth and Booborowie.

The Advertiser

4 January 1870, 'Topics of the day', p. 2.

10 January 1870, 'Country news', p. 1 (Supplement).

13 January 1870, 'Topics of the day', p. 2.

The Observer

8 January 1870, 'Floods', p. 3.

21–26 January 1870

Heavy rains and flooding were reported from around the State with much associated damage. Most of the area between Anlaby and Kapunda was flooded. Flood reports included Tarlee, Kooringa, Port Elliot, Port Wakefield, Port Augusta, Kanmantoo and in the City of Adelaide. There were several reports of disruption of the Overland Telegraph service.

The Advertiser

27 January 1870, 'Melrose', p. 2.

29 January 1870, 'Topics of the day', p. 2.

30 January 1870, 'Gawler', p. 3.

31 January 1870, 'The goldfields', p. 3.

3 February 1870, 'Topics of the day', p. 2.

4 February 1870, 'Topics of the day', p. 2.

7 February 1870, 'Country news', p. 3.

8 February 1870, 'Port Augusta', p. 3.

The Observer

29 January 1870, 'Telegraphic news', p. 6.

5 February 1870, 'The Far North', 'Peninsula flood', p. 5.

12 February 1870, 'Willochra rains', p. 4.

The Register

26 January 1870, 'Telegraphic news', p. 5.

27 January 1870, 'The floods', p. 5.

29 January 1870, 'The floods', p. 3.

5 February 1870, 'Willochra rains', p. 5.

15 February 1870

A waterspout at Nuriootpa reached a great height followed by heavy rain and some flooding.

The Observer

26 February 1870, 'Waterspout at Nuriootpa', p. 7.

2 April 1870

Heavy rain fell at Macclesfield causing floods at Long Valley and Doctor's Creek, although little or no rain fell at the actual location of the flood.

The Observer

9 April 1870, 'Heavy rain at Macclesfield', p. 5.

9–13 April 1870

Heavy rains were reported in the vicinity of Meadows and Nairne, causing flooding and damage to crops.

The Advertiser

16 April 1870, 'Meadows', p. 3.

23 April 1870, 'Nairne', p. 3.

27 June 1870

At Gumeracha, heavy rain flooded roads and filled the creeks and rivers. There was also flooding at Tothill's Creek and New Hamburg. At Booborowie, the plains were flooded.

The Observer

2 July 1870, 'Country letters', p. 4.

The Register

29 June 1870, 'Heavy rain at Gumeracha', p. 1.

30 June 1870

A letter dated 30 June, reported that 17 Aborigines in the Far-North at Kopperamana were drowned after camping near a creek that suddenly became swollen with waters rushing down from the Queensland floods.

The Observer

16 July 1870, 'The fatal floods in the Far North', p. 7.

2 August 1870

A heavy thunderstorm caused a flood in the Saltia Creek near Port Augusta which washed out a deep hole in the road.

The Observer

13 August 1870, 'Flood incident near Port Augusta', p. 8.

3–20 August 1870

Heavy rains, wind and hail over several weeks caused flooding in a number of areas around Adelaide and in the South-East. Roads were flooded from Naracoorte to Border Town and Kingston. The Torrens River, Angas River, North and South Para Rivers all flooded as did the Mosquito, Naracoorte and Morambro Creeks. Flat, unoccupied lands were flooded in Adelaide. Langhorne's Creek, Virginia, Bugle Ranges, Onkaparinga Valley and Meningie reported some flooding. There were many reports of damage.

The Advertiser

15 August 1870, 'Topics of the day', p. 2.

19 August 1870, 'The Torrens and the bridges', p. 2.

20 August 1870, 'Country news', p. 3.

22 August 1870, 'Country news', p. 3.

23 August 1870, 'Country news', p. 3.

25 August 1870, 'Topics of the day', p. 3.

26 August, 1870, 'Topics of the day', p. 2.

2 September 1870, 'Country news', p. 3.

3 September 1870, 'Country news', p. 3.

The Observer

6 August 1870, 'Gumeracha', p. 3.

20 August 1870, 'Floods at Langhorne's and Cox's Creek', 'Flood incident', p. 1.

27 August 1870, 'Barossa floods', p. 1.

The Register

20 August 1870, 'Gawler rains', 'Flood incident', p. 1.

22 August 1870, 'Floods near Virginia', p. 5.

8 August 1870

The flats at Blanchetown were flooded.

The Advertiser

13 August 1870, 'Country news', p. 3.

20 August 1870

The Tod River at Port Lincoln flooded, the country was saturated and travel impossible.

The Advertiser

25 August 1870, 'Country news', p. 3.

6–13 September 1870

Thunderstorms accompanied by heavy rain led to flooded creeks, impassable roads, submerged fields and damaged crops around Adelaide. The road from Flaxman's Valley to Angaston was

flooded. Twenty miles of floodwaters covered the flats on the mail route from Canowie and Booborowie to the Burra. At Morphett Vale, flash-floods occurred in several gullies.

The Advertiser

10 September 1870, 'Topics of the day', p. 2.

17 September 1870, 'Topics of the day', p. 2.

19 September 1870, 'Country news', p. 3.

The Register

9 September 1870, 'Flood at Morphett Vale', p. 5.

10 September 1870, 'Northern floods', p. 5.

10 September 1870, 'North mails', p. 5.

6 September–12 October 1870

High water in the Murray River led to some minor flooding of riverside communities. Reference was made to floods in Wellington, Mannum and Blanchetown.

The Advertiser

10 September 1870, 'Topics of the day', p. 2.

22 September 1870, 'Topics of the day', p. 2.

10 October 1870, 'Country news', p. 3.

12 October 1870, 'Heads of intelligence', p. 2.

The Observer

1 October 1870, 'River, station and flood news', p. 13.

The Register

28 September 1870, 'The Murray and Darling', p. 3.

8 October 1870

Heavy rains were reported at Wilpena, Springton, Mount Pleasant, Hamley Bridge, McLaren Vale and Port Wakefield. Creeks throughout the area flooded causing property damage.

The Advertiser

13 October 1870, 'Topics of the day', p. 2.

15 October 1870, 'Topics of the day', p. 2; 'Country news', p. 3.

17 October 1870, 'Country news', p. 3.

22 October – 2 November 1870

Stormy weather and heavy rains were reported from areas surrounding Adelaide including Angaston, Clare, Burra, Virginia, Gumeracha and extending to Port Augusta, Melrose, Port

Lincoln and throughout surrounding districts. There was considerable flooding as creeks and rivers overflowed with accompanying property damage. A woman drowned in the Hutt River at Clare. The Murray was also in flood with particular damage at Mannum.

The Advertiser

29 October 1870, 'Telegraphic news', p. 2; 'Country news', p. 3.

31 October 1870, 'Country news', p. 3; 'Topics of the day', p. 2.

3 November 1870, 'Topics of the day', p. 2; 'Country news', p. 3.

4 November 1870, 'Country news', p. 3.

5 November 1870, 'Topics of the day', p. 2.

The Observer

22 October 1870, 'The week's news', p. 7.

29 October 1870, 'The week's news', p. 7.

5 November 1870, 'The week's news', p. 7.

The Register

29 October 1870, 'Flood at Marrabel', 'Flood at Morphett Vale', 'The Angaston flood', 'Fatal flood at Clare', 'Telegraphic news', p. 5.

31 October 1870, 'Flood and storm in Gumeracha district', p. 5.

1 November 1870, 'Stockport farms and floods', p. 5.

2 November 1870, 'The fatal flood at Koorunga', p. 5.

1871

6–9 February 1871

Unsettled weather and heavy showers throughout the State led to localised flooding in a number of communities particularly in the Adelaide Hills and the Mid and Far-North with damage to bridges, roads and property.

The Border Watch

15 February 1871, 'Our Adelaide letter', p. 3.

The Northern Argus

17 February 1871, no title, p. 2.

The Observer

11 February 1871, 'The week's news', p. 6.

22 February 1871

Heavy rainfalls were concentrated in Mount Gambier township. Lower parts of the town were flooded, especially the streets. Most water receded quickly except at the Post Office. On

several occasions water overflowed the paths to flood businesses. The drainage system was considered completely inadequate. More damage was avoided as a result of absorbent soil.

The Border Watch

25 February 1871, 'Local intelligence', p. 2.

1872

14–29 January 1872

Flooding was reported throughout the North. Burra Creek was very swollen. Warrener Creek overflowed. The creek in the Koorunga was flooded after heavy rains with water overflowing and submerging the White Hart Inn by three or four feet. At Hookina, the creek was running higher than any of the settlers had ever seen.

The Advertiser

17 January 1872, 'Topics of the day', p. 2.

19 January 1872, 'Topics of the day', p. 2.

23 January 1872, 'Country news', p. 3.

The Northern Argus

16 February 1872, 'Northern items', p. 2.

19 February 1872, 'The weather', p. 2.

The Observer

20 January 1872, 'The week's news', p. 7; 'Heavy floods', p. 8.

27 January 1872, 'The week's news', p. 7; 'The northern floods', p. 8.

3 February 1872, 'The week's news', p. 7.

10 February 1872, 'The week's news', p. 7.

The Register

19 January 1872, 'The Burra flood', p. 5.

17 June – 2 July 1872

Over a period of two weeks, 9 inches of rain fell at Wilpena. Many creeks flooded and mails were delayed.

The Advertiser

2 July 1872, 'Topics of the day', p. 2.

6 July 1872, 'Topics of the day', p. 2.

19–31 July 1872

Very heavy floods were reported in the North. Heavy rains fell over a period of two days with up to 4 inches reported. The mail coach was washed away at Hamilton. Strathalbyn, Mount Remarkable, Normanville and Beltana reported flooding and property damage. Streets in Port

Augusta, Georgetown, Port Adelaide and Clare were flooded. The Bungala and Yankalilla Rivers were higher than had been seen in 20 years. The Light and Wakefield Rivers flooded.

The Advertiser

23 July 1872, 'Topics of the day', p. 2; 'Country news', p. 3.

24 July 1872, 'Topics of the day', p. 2.

25 July 1872, 'Topics of the day', p. 2.

27 July 1872, 'Country news', p. 3.

29 July 1872, 'Country news', p. 3.

31 July 1872, 'Country news', p. 3.

1 August 1872, 'Topics of the day', p. 2.

2 August 1872, 'Country news', p. 3.

13 August 1872, 'Topics of the day', p. 2.

The Northern Argus

26 July 1872, 'The late floods at Auburn', p. 2.

2 August 1872, 'Flood at Melrose', p. 2.

The Observer

27 July 1872, 'The week's news', p. 7; 'Yankalilla floods', p. 8.

3 August 1872, 'The week's news', 'Country letters', p. 7.

1873

5 January 1873

Gawler streets were completely flooded after several hours of rain.

The Observer

11 January 1873, 'The week's news', p. 5.

7 February 1873

Between 5pm and 6pm a hailstorm occurred at Willigoleeche, the township of Hallett, 20 miles north of the Burra. The hail fell so fast it accumulated in the unsheltered flat to the depth of 15 inches and rain fell in torrents. A tremendous flood ran down the flat towards Uloomoo.

The Observer

15 February 1873, 'The week's news', p. 5.

17 February 1873

Mount Barker was hit by a severe thunderstorm with some flooding of the township. Bundaleer Creek and the Broughton River flooded.

The Northern Argus

21 February 1873, 'Great flood', p. 30.

The Observer

22 February 1873, 'The week's news', p. 7.

4 May 1873

Heavy rain in the Adelaide Hills led to flooding in the eastern suburbs of Adelaide and some property damage.

The Advertiser

5 May 1873, 'Extensive floods', p. 3.

4 July 1873

Heavy rains over two days flooded rivers and creeks throughout the Colony causing considerable damage to banks, bridges and roads.

The Advertiser

5 July 1873, 'Topics of the day', p. 2; 'Extensive floods', p. 3.

7 July 1873, 'Topics of the day', p. 2.

The Register

5 July 1873, 'Flooded rivers and creeks', p. 6.

1874

11–16 January 1874

A terrific thunderstorm caused a huge flood at Burra, Clare, Auburn, Mintaro, Georgetown, Stockport and Saddleworth. Several bridges were washed away. There was considerable property damage, particularly at Clare. Rainfall on Yorke's Peninsula led to flooding at Wallaroo.

The Advertiser

13 January 1874, 'Floods in the north', 'Local telegrams', p. 2.

14 January 1874, 'Country news', p. 3.

15 January 1874, 'The Clare inundation', 'Rainfall on Yorke's Peninsula', p. 2; 'Country news', p. 3.

16 January 1874, 'Country news', p. 6.

17 January 1874, 'Topics of the day', p. 2.

19 January 1874, 'Topics of the day', p. 2.

20 January 1874, 'Topics of the day', p. 2.

31 January 1874, 'Floods in the north', 'The flood at Burra on Friday', p. 6.

The Northern Argus

16 January 1874, 'Great floods in Clare', p. 2.

The Observer

17 January 1874, 'The week's news', p. 7; 'Great floods in the north', p. 12.

The Register

13 January 1874, 'Great floods in the north', p. 5.

12 January 1874

The township of Mount Gambier and surrounding districts were flooded with damage to homes, wells and other property. 6.2 inches of rain fell in 24 hours.

The Border Watch

14 January 1874, 'Telegrams', 'Great rainfall', p. 2.

28 August – 12 September 1874

Heavy rains over several days led to intermittent flooding in the Mid-North with Saddleworth, Clare, and Gawler mentioned. Several bridges were damaged and roads washed out.

The Advertiser

3 September 1874, 'Country news', p. 3.

14 September 1874, 'Country news', p. 3.

22 September 1874, 'Topics of the day', p. 2.

1875

8–14 May 1875

Following rains and thunderstorms, flooding was reported throughout Adelaide and in many surrounding communities including the Barossa, Smithfield, Dalkey, Port Adelaide, Salisbury and Glenelg. The Botanical Gardens was five feet under water in some parts. The rail line was inundated by Brownhill Creek. Moonta was also reported as flooded and a tidal flood was reported at Port Pirie.

The Advertiser

10 May 1875, 'Topics of the day', p. 2.

11 May 1875, 'Topics of the day', p. 2.

12 May 1875, 'Topics of the day', p. 2.

14 May 1875, 'Topics of the day', p. 2.

18 May 1875, 'Topics of the day', p. 2.

The Bunyip

14 May 1875, 'The weather', p. 2.

The Observer

15 May 1875, 'Floods', p. 7; 'Floods', p. 12.

The Register

15 May 1875, 'The Humbug Scrub flood', 'The Lady Alice Mine flood', 'Flood at Williamstown', p. 5.

7–17 June 1875

Heavy rains over nine days caused widespread flooding. The Hutt River overflowed its banks at Clare cutting all communication to the south.

A woman, Catherine Egan, was drowned. At Riverton, the main street and some of the local shops and residences were flooded. At Kooringa, the Mount Bryan road was inundated. There was property damage at Lyndoch, Strathalbyn, Meadows, Booborowie, Two Wells, McLaren Vale, Port Lincoln and along the River Light.

The Advertiser

10 June 1875, 'Topics of the day', p. 2.

12 June 1875, 'Topics of the day', p. 2.

14 June 1875, 'Topics of the day', p. 2.

15 June 1875, 'Topics of the day', p. 2.

17 June 1875, 'Country news', p. 7.

The Northern Argus

11 June 1875, 'Heavy rain', p. 2.

The Observer

12 June 1875, 'Country letters', p. 6 ; 'The week's news', p. 7.

19 June 1875, 'Country letters', p. 6.

26 June, 1875, 'Country letters', p. 5.

The Register

11 June 1875, 'The floods at Clare', p. 5.

30 August 1875

Heavy rainfall at Glenelg caused flooding at the St. Leonard's Ward, compelling people to leave their homes and swamping the racecourse and roads.

The Register

31 August 1875, 'Flood at Glenelg', p. 5.

1876

9 February 1876

A heavy hailstorm and stubble blocked a culvert causing breaches in the embankment that created a flood up to ten feet high in places at Peake's Crossing on the Burra line. The washaways caused a train accident that resulted in the deaths of three men on the train.

The Register

10 February 1876, 'The railway accident at Peake's Crossing', p. 4.

28–31 March 1876

The Far-North experienced floods and resulting damage caused by heavy widespread rainfall with ten inches at Wonoka and five inches at Kanyaka.

The Advertiser

1 April 1876, no title, p. 5.

The Observer

1 April 1876, 'Heavy rain in the Far North', p. 7.

The Register

1 April 1876, 'Heavy rain in the Far North', p. 5.

1877

11–16 February 1877

Torrential rain and thunderstorms were reported from around the State. This led to short-term flooding in Adelaide and the suburbs, in several Mid-North towns and on the Yorke Peninsula.

The Advertiser

15 February 1877, 'The weather', p. 4.

16 February 1877, 'The late rains and floods', 'The rains', p. 4; 'The Floods at Riverton', p. 1; 'The rains', p. 5.

17 February 1877, 'The rains', p. 5.

The Northern Argus

16 February 1877, 'Black Port Plain', 'Georgetown', 'Great flood in Clare', 'Flood at Auburn', 'Rain in the North', p. 2.

The Observer

17 February 1877, 'Telegraphic messages', p. 3; 'The weather', p. 13.

24 February 1877, 'Country letters', p. 3; 'The week's news', p. 11.

18–26 March 1877

Widespread rains were reported in many areas of South Australia. Many reports of flooding came from towns throughout the Mid-North including Orroroo where the plains were flooded, Port Augusta and Port Pirie. There was particular damage in Gladstone, Wallaroo, Kadina, Moonta and the surrounding areas. 6.52 inches of rain were recorded over several days at Wallaroo. Serious flooding was also reported in many Lower-North towns such as Clare, Saddleworth and Kapunda as well as Gawler and Salisbury. There was less flooding in Adelaide although roads were inundated in Kensington, Norwood and Unley. One man was reported drowned at Port Pirie and there were numerous reports of loss of stock from around the area. At Greenock, a woman was swept away while attempting to

cross a dip in the main road. A number of railway embankments and cuttings were washed away or collapsed throughout the Mid-North and several bridges were destroyed or damaged.

The Advertiser

20 March 1877, 'Flood at Saddleworth', p. 5.

21 March 1877, 'Local telegrams', p. 5.

22 March 1877, 'Country news', p. 6.

23 March 1877, 'Local telegrams', p. 5.

24 March 1877, 'Local telegrams', p. 5.

26 March 1877, 'Local telegrams', p. 5; 'The late rains and floods', p. 6; 'Country news', p. 7.

27 March 1877, 'Local telegrams', p. 5; 'The late rains and floods', p. 6.

28 March 1877, 'The late rains and floods', p. 5.

29 March 1877, no title, p. 4; no title, p. 5.

30 March 1877, no title, p. 5; 'Yorke's Peninsula', p. 7.

31 March 1877, 'The late floods', p. 6.

The Bunyip

23 March 1877, 'Flood in Gawler', p. 2.

The Northern Argus

23 March 1877, 'Rain in the north', 'Flood at Saddleworth', p. 2.

27 March 1877, 'Saddleworth', 'The weather', 'Riverton', p. 2.

30 March 1877, 'Mount Bryan Flat', 'Kapunda', p. 2.

The Observer

24 March 1877, 'Serious floods in the north', p. 3; 'The weather', p. 7.

31 March 1877, 'Country letters', p. 7; 'The floods', p. 10.

The Register

24 March 1877, 'The rainfall and destructive floods', 'Telegraphic messages', p. 5.

26 March 1877, 'Telegraphic messages', 'The floods', p. 5.

27 March 1877, 'The floods', p. 5.

28 March 1877, 'The weather at Glenelg', p. 5.

21–26 September 1877

Two days of heavy rain and wind led to flooding at Meadows, Strathalbyn, Glenelg, Clare, Bremerton and Port Elliot. Near Clare, a man and his horse

drowned trying to cross Skillogallee Creek. The Angas, Torrens, Patawalonga and Hutt Rivers flooded with a loss of bridges.

The Observer

29 September 1877, 'Country letters', p. 6; 'The week's news', p. 7.

The Register

24 September 1877, 'Heavy flood and death from drowning', 'Heavy floods and loss of life', p. 5.

1878

4–25 March 1878

A drought was broken when widespread torrential rains over northern districts led to flooding with widespread property damage reported from many places in the North. Specific mention was made of flooding at Willochra, 7 inches of rain over 12 hours was reported from Paratoo and several houses were flooded at Stirling North with damage to fences and gardens. A downpour at Orroroo resulted in flooding within an hour. Heavy floods were reported from Beltana Station and Blinman. Nearly 4 inches of rain fell at Blinman. Heavy rains also fell in Adelaide. Plants, soils and fencing were washed away at a Norwood vineyard.

The Advertiser

18 March 1878, 'Country news', p. 7.

19 March 1878, 'Local telegrams', p. 5.

20 March 1878, 'Local telegrams', p. 5.

27 March 1878, 'Local telegrams', p. 5.

The Observer

16 March 1878, 'The week's news', p. 11.

23 March 1878, 'Rains in the country', p. 7.

30 March 1878, 'The weather', p. 7.

The Port Augusta Dispatch

9 March 1878, 'Country letters', supplement p. 1.

23 March 1878, 'Floods in the North', p. 5.

6 April 1878, 'Country letters', supplement p. 2.

11–12 June 1878

Torrential rain and wind around Adelaide resulted in flooding at Alberton with buildings inundated. Rain and floods were also reported in the South-East of the State.

The Advertiser

13 June 1878, 'Effects of the gale', p. 6.

17–29 July 1878

Areas north of Adelaide reported rain, wind and high tides over a period of days. This led to reports of flooding and damage in many communities in the Lower and Mid-North from Salisbury to Clare and through to Port Augusta. A man was reported drowned near Kapunda trying to cross a flooded creek. There were several reports of flooding of the River Broughton.

The Advertiser

19 July 1878, 'Local telegrams', p. 5.

20 July 1878, 'Local telegrams', p. 5.

26 July 1878, 'Country news', p. 7.

The Observer

27 July 1878, 'Country letters', p. 5; 'Weather notes', p. 9; 'Heavy rains in the north', p. 10; 'The week's news', p. 22.

3 August 1878, 'Country letters', p. 5; 'The week's news', p. 20.

The Register

20 July 1878, 'Provincial telegrams', p. 5.

1879

10 November 1879

A severe thunderstorm in the Mid-North caused some flooding and damage in a number of communities including Port Augusta, Quorn, Blinman, Beltana and Kanyaka.

The Port Augusta Dispatch

14 November 1879, 'The weather', p. 3; 'Country letters' p. 8.

21 November 1879, 'The weather', p. 2; 'Country letters', p. 8.

28 November 1879, 'Country letters', p. 4.

1880–1889

The eighteen-eighties were a time of development and recession in South Australia. The South Australian government had difficulties borrowing money on the London market; the Commercial Bank collapsed in 1886, and there was a poor harvest in the same year; the price of copper fell substantially in 1889. These reverses led to lower wages and considerable unemployment. In 1881 the University of Adelaide was the first Australian university to admit women on the same basis as men with Edith Dornwell becoming the first woman graduate in 1885. The Adelaide telephone exchange opened in 1883. Married women gained the right to own property in their own name in 1884. The Port Pirie smelter became operational in 1889.

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|------|---|
| 1881 | Islington Sewage Farm; Adelaide is first capital with water-borne sewage system |
| 1881 | University of Adelaide is the first in Australia to admit women to degrees |
| 1882 | Australia wins first 'Ashes' Test |
| 1884 | SA is the first Australian colony to levy income and land tax |
| 1885 | Total cultivated land in SA is 1,100,000ha |
| 1885 | Roseworthy Agricultural College is the first agricultural college in Australia |
| 1887 | Renmark Irrigation Colony established |
| 1887 | Adelaide to Melbourne railway opens |
| 1888 | Totalisator legally authorised |



1880

23 March 1880

Flooding was reported at Truro and Stone Hut with loss of fences and bridges.

The Advertiser

27 March 1880, 'Country telegrams', p. 5.

1881

10–11 January 1881

Heavy rain accompanied by wind led to minor flooding in Adelaide and more serious floods in Clare with accompanying property damage. Auburn, Riverton, Watervale and Mallala reported flooding.

The Advertiser

11 January 1881, no title, p. 4; 'Country telegrams', p. 5.

The Northern Argus

14 January 1881, 'Heavy flood', p. 14.

The Observer

15 January 1881, 'Country news', p. 108; 'The weather', p. 126.

The Register

11 January 1881, 'The weather', p. 5.

12 January 1881, 'The weather and crops', p. 6.

1882

26 April 1882

Torrential rain led to flooding in Port Augusta. At Orroroo and Kadina the flats were under water.

The Advertiser

27 April 1882, 'Country telegrams', p. 5.

28 April 1882, 'Country telegrams', p. 5.

26–27 November 1882

Heavy rains and thunderstorms in the North led to flooding in Port Augusta, Stirling and Farina. Railway lines and roads were washed away. A large quantity of land was covered with water in the area of Stephenson.

The Advertiser

28 November 1882, 'Country telegrams', p. 5.

29 November 1882, no title, p. 4; 'Country telegrams', p. 5.

30 November 1882, 'Country telegrams', p. 5.

1883

26 March 1883

Hamley Bridge was flooded after torrential rain.

The Advertiser

27 March 1883, 'Country telegrams', p. 7.

16–28 June 1883

Heavy rains occurred over a period of several days with up to 3 inches in a single downpour. Flooding was reported from communities in the South-East such as Millicent and the Tatiara Creek, Border Town, the Mid-North from Gladstone and Clare and a number of areas around Adelaide and the Hills such as Strathalbyn and Gumeracha. Bridges were washed away, crops were lost and property was damaged.

The Advertiser

22 June 1883, 'Country telegrams', p. 5.

23 June 1883, 'Country telegrams', p. 5.

25 June 1883, 'Country telegrams', p. 5.

The Observer

30 June 1883, 'Country letters', p. 15; 'The floods', p. 33.

The Register

23 June 1883, 'The floods', p. 5.

26 June 1883, 'Provincial telegrams', p. 6.

Tatiara Mail

29 June 1883, 'The weather', p. 2.

26–29 July 1883

Gales and rain caused flooding and property damage around Adelaide, Coromandel Valley and Clare.

The Advertiser

28 July 1883, 'The floods on Thursday night', p. 6.

30 July 1883, 'Country telegrams', p. 5.

The Observer

4 August 1883, 'Country letters', p. 16.

The Register

28 July 1883, 'Thursday night's storm', p. 6.

1884

7–10 March 1884

Heavy rains fell throughout the Mid-North with 2 ½ inches reported at Orroroo. At Koorunga, the main street and houses were flooded. A flood a quarter of a mile wide reached Yatina. 4.15 inches

of rain was recorded near Terowie and flooded the country.

The Advertiser

11 March 1884, 'Country telegrams', p. 5.

12 March 1884, 'Country telegrams', p. 5.

The Observer

15 March 1884, 'Country news', p. 16.

The Port Augusta Dispatch

10 March 1884, 'Weather in the interior', 'Damage to the railway', p. 2.

27–29 March 1884

Thunderstorms and rain in the Mid-North caused flooding in Gladstone and Laura. Laura reported 3 inches of rain.

The Advertiser

29 March 1884, 'Country telegrams', p. 5; 'Floods at Gladstone', p. 6.

31 March 1884, 'Country telegrams', p. 5.

11–13 May 1884

Heavy rains throughout the Adelaide Hills and the north of the State caused widespread flooding. Near Wilmington, the mail coach was washed away and an eight year old female passenger was drowned. Rail lines were damaged and there was considerable property damage. Strathalbyn, Woodside, Gladstone, Orroroo, Wilmington, Port Germein, Quorn and Port Augusta reported extensive flooding with property damage.

The Advertiser

13 May 1884, 'Country telegrams', p. 5.

14 May 1884, 'Country telegrams', 'Floods in the North', p. 5.

The Observer

17 May 1884, 'The weather in the country', p. 10; 'Country letters', p. 15.

24 May 1884, 'Country news', p. 16.

The Port Augusta Dispatch

14 May 1884, 'The floods', p. 2.

21 May 1884, 'Country letters', p. 2.

The Register

13 May 1884, 'The weather in the country', p. 6.

14 May 1884, 'The floods and the Torrens Lake', p. 4; 'The weather in the country', 'Heavy floods in the north', p. 5; 'Floods at Wilmington', p. 6; 'The weather in the country', p. 7.

15 May 1884, 'The floods in the Willochra Creek', 'Floods in the country', p. 5; 'Effect on the railways', 'The floods in the neighbourhood of Quorn', 'The weather in the country', p. 5.

25 June 1884

The Sturt River overflowed, swamping the Bay Road near Morphettville. The fields were flooded and the Morphett Arms Hotel was almost isolated.

The Advertiser

26 June 1884, no title, p. 5.

27 June 1884

Lake Frome overflowed across the railway line and about a mile of the main road between Robe and Beachport was under a foot of water.

The Border Watch

28 June 1884, 'An old grievance', p. 2.

16 July 1884

The Beachport to Robe road was flooded.

The Border Watch

16 July 1884, 'Beach Port', p. 3.

20–25 September 1884

Thunderstorms in the South-East caused flooding of houses and businesses in the Tatiara district. Torrential rain at Millicent flooded the streets and swamped the flats. Storms with heavy rains also caused flooding of the Para River at Gawler, flooding the cellars of houses. Extensive flooding was reported in the Adelaide Hills.

The Advertiser

22 September 1884, 'Country telegrams', p. 5.

The Observer

27 September 1884, 'The weather in the country', p. 8.

The Port Augusta Dispatch

24 September 1884, 'The weather', p. 2.

Tatiara Mail and West Wimmera Advertiser

26 September 1884, 'Items of news', p. 2.

2 December 1884

A high tide at Port Augusta flooded dwellings on low land.

The Port Augusta Dispatch

5 December 1884, 'High tide', p. 2.

1885

9 January 1885

Very heavy rains were reported at Paralana and Wooltana. Floods severely damaged miles of fencing and destroyed the road for the mail service. At Paralana, 10.5 inches of rain were recorded.

The Port Augusta Dispatch

30 January 1885, 'Great rains in the north east', p. 4.

27 February–2 March 1885

Heavy rainfall was reported on the border of South Australia and the Northern Territory. All the creeks and the surrounding country were flooded.

The Advertiser

4 March 1885, no title, p. 4.

12–13 April 1885

Reports of rainfall across the State included a report from Quorn to the effect that the railway line was under water for three hundred yards.

The Advertiser

14 April 1885, 'The weather and the crops', p. 6.

14 May 1885

A severe thunderstorm accompanied by torrential rain and hail passed over several districts in South Australia. Flooding was reported at Nuriootpa, Greenock and Tanunda.

The Advertiser

16 May 1885, 'Country telegrams', p. 5.

15 June 1885

Stormy weather conditions combined with a high tide flooded the creek and the post office at Port Germein and caused flood damage to the railway embankment on the beach at Victor Harbor.

The Advertiser

16 June 1885, 'The weather and the crops', p. 5.

16 June 1885

A week of wet and stormy weather in the Gawler vicinity caused the first flood of the year on the Para River. The ford was submerged by 2 feet of water.

The Advertiser

17 June 1885, no title, p. 5.

11–13 August 1885

From Millicent, flooding was reported in several parts of the surrounding district, particularly the land in the hundred of Riddoch.

At Beachport, heavy rain measuring over two inches, in combination with a gale blowing from the northwest, caused the water of Lake George to rise along the Robe Road and across the railway line.

The Advertiser

14 August 1885, 'A heavy gale at Beachport', p. 4.

12 September 1885

Very heavy rain washed away the rail line at Leigh's Creek, Brewerville and Paradise and a lake was formed near the entrance to the Frome. The flood reached Farina.

The Advertiser

22 September 1885, no title, p. 4.

21 September 1885

Rainfall was reported in many districts of South Australia. At Moonta, rainfall measured 1.875 inches and led to flooding of some shops, houses and the mine. At Telowie, rain caused floodwaters to run in the roads.

The Advertiser

22 September 1885, 'The weather and the crops', p. 5.

16–24 December 1885

A series of thunderstorms with substantial rains fell over several days after a period of dry hot weather. This led to short-term localised flooding in the Mid-North, Adelaide Hills and eastern regions of the State.

The Advertiser

19 December 1885, 'Storms and rain in the country', p. 5.

21 December 1885, 'The weather in the country', p. 5.

24 December 1885, 'Weather telegrams', p. 5.

25 December 1885, 'Country telegrams', p. 5.

1886

2–4 November 1886

Thunderstorms with rainfalls up to 3 inches led to floods in several towns in the Mid-North from Carrieton and Orroroo through to Burra and Mannahill. A man drowned at Beetaloo. Considerable property damage was reported throughout the area and several rail lines washed away.

The Advertiser

3 November 1886, no title, p. 4; 'Rain in the North', 'Heavy floods at Laura', p. 5.

4 November 1886, 'Storms in the North', p. 5.

5 November 1886, 'The Laura floods', p. 5.

8 November 1886, no title, p. 5.

The Observer

6 November 1886, 'Floods in the North', p. 10.

The Port Augusta Dispatch

5 November 1886, 'Tuesday's storm', p. 2.

9 November 1886, 'Quorn', p. 3.

The Register

3 November 1886, 'Floods in the North', p. 4.

4 November 1886, 'The storm in the North', 'The Beetaloo works', p. 5; 'The Teetulpa goldfields', p. 6.

The Southern Argus

4 November 1886, 'Floods in the North', p. 3.

3–6 December 1886

Thunderstorms with rainfalls of up to 2.65 inches caused creeks to overflow and floods were reported from several towns in the Mid-North including Port Augusta, Jamestown and Laura. Considerable property and crop damage was reported and rail lines, roads and fences were washed away.

The Advertiser

4 December 1886, 'Weather in the country', p. 5.

6 December 1886, 'Country telegrams', p. 5.

7 December 1886, no title, p. 5.

The Observer

11 December 1886, 'The weather and the crops', p. 10.

The Port Augusta Dispatch

7 December 1886, 'The rain', p. 4.

The Register

6 December 1886, 'Rains in the country', p. 6.

1887

19 March 1887

The flats at Appila were flooded after 0.5 inch of rain.

The Observer

26 March 1887, 'Country news', p. 16.

2–9 April 1887

Thunderstorms, heavy rains up to 2 inches and floods were reported from many towns in the Mid to Upper-North of the State including Leigh Creek, Port Pirie, Laura, Hawker and Orroroo with significant property damage and train lines washed away. A man was reported drowned.

The Advertiser

4 April 1887, 'The weather in the country', p. 5.

5 April 1887, 'The weather in the country', p. 5.

8 April 1887, 'The weather in the country', 'Big flood of the River Cooper', p. 5.

9 April 1887, 'The weather in the country', 'Country news', p. 7.

11 April 1887, 'The weather in the country', p. 5; 'Country news', p. 7.

13 April 1887, no title, p. 5.

20 April 1887, 'Country news', p. 7.

The Observer

9 April 1887, 'Saturday's storm', p. 35.

The Port Augusta Dispatch

5 April 1887, 'Saturday's storm', p. 2.

8 April 1887, 'Strangways Springs', p. 3.

The Register

4 April 1887, 'Saturday's storm', p. 5.

11 April 1887, 'The drought broken up' p. 5.

11 June 1887

Heavy rains up to 900 points caused flooding at Moonta.

The Observer

18 June 1887, 'The weather and the crops', p. 9.

21–22 June 1887

Heavy rains caused the Sturt River, Patawolonga and Wakefield River to overflow and flood Glenelg causing some property damage.

The Advertiser

24 June 1887, 'Farming news', p. 3; 'The heavy downpours of Tuesday and Wednesday', p. 4.

1 July 1887

Middleton Creek overflowed its banks and flooded the lower parts of Middleton. The water level was as high as two feet causing extensive damage to private and public infrastructure and property.

The Southern Argus

7 July 1887, 'Country intelligence', p. 3.

29 July 1887

The Rivers Angas and Bremer flooded the surrounding area, including Wellington Road and Middleton, swamping low-lying ground and causing property damage.

The Southern Argus

4 August 1887, 'General news', p. 2.

26 August 1887

A heavy downpour caused flooding in the streets of Port Augusta.

The Port Augusta Dispatch

30 August 1887, 'Weather', p. 2.

5 November 1887

A thunderstorm caused flooding in Bull's Creek.

The Southern Argus

10 November 1887, 'Country intelligence', p. 3.

1888

1 January 1888

A thunderstorm and heavy rain hit Teetulpa causing flooding in Dam Gully and Brady's Gully and minor damage.

The Advertiser

3 January 1888, 'Floods at Teetulpa', p. 5.

25 March 1888

Thunderstorms and heavy rains caused flooding in Narridy, Laura, Gladstone and Redhill. There was extensive damage to property and

infrastructure, including the washaway of the train line north of Gladstone.

The Advertiser

27 March 1888, 'Thunderstorms in the country', p. 5.

The Southern Argus

4 April 1888, 'Country intelligence', p. 3.

12 May 1888

An exceptionally high tide caused flooding in Port Adelaide.

The Advertiser

14 May 1888, no title, p. 5.

17 June 1888

Heavy rainfall led to flooding at Bull's Creek.

The Southern Argus

28 June 1888, 'Country intelligence', p. 3.

15 July 1888

Bridges were flooded and drains overflowed in Millicent, with water a half-mile wide at Reedy Creek. There was some private property damage.

The Border Watch

21 July 1888, 'Millicent', p. 3.

1888–1889

31 December 1888 – 2 January 1889

Widespread drought-breaking rains were recorded from the Far-North to districts south of Adelaide. To the north, flooding was reported by many communities with considerable damage to property. A two year old child drowned in the flooding at Outalpa Wirra. Petersburg was particularly hard-hit with many people rendered homeless. Flooding was also reported on the Yorke Peninsula.

Severe thunderstorms caused flooding in Adelaide and to the south. The Bremer River overflowed with several bridges destroyed and crops and livestock lost.

Both local and interstate rail traffic were disrupted due to flood-damaged railway lines. The Melbourne Express was delayed for some hours while it was expected the Broken Hill line might be closed for a week. Telegraph communication was disrupted.

The Advertiser

1 January 1889, 'Floods in the North', p. 5.



Flood at Naracoorte 9 June 1889; L Pabst, photographer. Refers to chronology entry for 8–13 June 1889. Courtesy of the State Library of South Australia. B6337



Flood at Port Germein in 1893. May refer to chronology entry for 26–31 May 1893. Courtesy of the State Library of South Australia. B48510

2 January 1889, no title, p. 4; 'A farewell to the drought', p. 5.

3 January 1889, no title, p. 4; 'The break-up of the drought', p. 5.

4 January 1889, 'The floods at Callington', 'Damage at Norwood Park', p. 7.

5 January 1889, 'The flooded railways', 'The weather in the country', p. 5.

7 January 1889, 'The break-up of the drought', p. 6.

The Observer

5 January 1889, 'Heavy rains', p. 14.

The Register

2 January 1889, 'The drought broken up', 'Railway communication interrupted', p. 5.

3 January 1889, 'Floods throughout the colony', p. 5.

The Southern Argus

3 January 1889, 'Floods in the South', p. 2.

1889

2 February 1889

A thunderstorm, heavy rainfall and hail caused flooding of the lowlands at Terowie.

The Observer

9 February 1889, 'The weather in the country', p. 11.

26 February 1889

Thunderstorms, heavy rains and winds hit many districts of South Australia. Flooding was reported at Redhill, Crystal Creek, Nerridy and on the low lands at Terowie.

The Advertiser

27 February 1889, 'Storms in the country', p. 5.

28 February 1889, 'Rain in the country', p. 5.

31 March 1889

Flooding was reported at Mount Gambier and in the surrounding district, damaging town streets and country roads.

The Border Watch

3 April 1889, 'Heavy rainfall', p. 2.

1–6 April 1889

Thunderstorms and widespread heavy rains, measuring 4 to 5 inches, caused problems in many districts of South Australia. The North

Para, Gilbert, Light and Broughton Rivers and tributary creeks overflowed. Flooding was reported from the Barossa district, through Riverton to Blyth, Moonta and Redhill with destruction or damage to bridges, roads, railway lines, a telegraph line and a fellmongery at Kapunda. Several homesteads were evacuated near Redhill and there were reports of losses of crops, stock and fencing.

The Advertiser

3 April 1889, 'Damage to the north line', 'Heavy rains-floods and storms, bridge washed away, damage to railways, swollen creeks and narrow escapes', 'Destruction of bridges', p. 5.

The Bunyip

5 April 1889, 'Heavy rains at North Para River', p. 2.

The Observer

13 April 1889, 'The weather in the country', p. 11.

The Register

5 April 1889, 'The late floods', p. 6.

8 April 1889, 'Rain in the country', p. 5.

14–19 April 1889

Extraordinarily heavy and widespread rains caused rivers to overflow leading to serious flooding in the Mid-North in areas such as Quorn and Caltowie, at Border Town and in the Adelaide Hills and city suburbs. There was extensive damage to private property and public infrastructure and railway lines and yards were submerged. It was reported that at least five lives were lost.

The Border Watch

1 May 1889, 'Border Town', p. 4.

The Bunyip

19 April 1889, 'Big floods', p. 2.

The Nhill and Tatiara Mail and West

Wimmera Advertiser

17 April 1889, 'Heavy hailstorm', p. 2.

27 April 1889, 'Border Town', p. 4.

The Observer

20 April 1889, 'Notes and comments', p. 10; 'The rain and the floods', p. 24.

27 April 1889, 'Country letters', p. 15.

The Register

- 17 April 1889, 'The floods', p. 5.
 18 April 1889, 'The rain and the floods', p. 4;
 'Extraordinary floods', p. 5.
 19 April 1889, 'The late floods', p. 5.
 20 April 1889, 'The late floods', p. 5.

31 May – 2 June 1889

Heavy rains caused several creeks to overflow and led to flooding in the South-East, particularly at Naracoorte, the Flats next to Kingston and Border Town and its surrounding area. Houses were evacuated in some areas as flood waters were eight feet deep in some places. There was extensive damage to public and private infrastructure and private property.

The Border Watch

- 8 June 1889, 'Border Town', p. 3.
*The Nhill and Tatiara Mail and West
 Wimmera Advertiser*
 5 June 1889, 'The weather', p. 2.

8–13 June 1889

Widespread heavy rains caused rivers and creeks to overflow and led to flooding. Floods were reported from the Mid-North, the Adelaide Hills, Gawler, low-lying areas in the vicinity of the South Para, the South-East and Bordertown. Naracoorte reported water as deep as 4 feet in places. There was extensive damage to private and public infrastructure including railways, bridges and private property.

The Bunyip

- 14 June 1889, 'Still another flood', p. 3.
*The Nhill and Tatiara Mail and West
 Wimmera Advertiser*
 12 June 1889, 'Floods at Naracoorte—the railway damaged', p. 2.
The Observer
 22 June 1889, 'The weather in the country', p. 32.
The Register
 13 June 1889, 'More heavy rains', p. 5.
 16 June 1889, 'The floods', p. 5.

7 July 1889

Flooding occurred on the roads between Blanchetown and Morgan and the road between Blanchetown and Truro.

The Observer

- 13 July 1889, 'Country weather', p. 15.

7 August 1889

Roads around Robe, Millicent and Penola were affected by flooding.

The Border Watch

- 14 August 1889, 'Penola', p. 3.

11 August 1889

Heavy rains caused creeks and streams to flood between Gawler and the Little Para River, a large amount of water flooding the plains, railway lines and Sandy Creek roads.

The Bunyip

- 16 August 1889, 'The weather', p. 2.



Canoeing along Henley Beach Road at around the end of the nineteenth century. Courtesy of the West Torrens Historical Society.

1890–1899

The final decade of the nineteenth century saw innovation for South Australia on the world stage in government, education and political reform. State education was made free to a compulsory age requirement of 13 in 1892. In 1894, South Australia became the first colony in Australia and the fourth place in the world to extend full adult franchise to all women, including Aboriginal women. In 1896, South Australian women voted in a general election which was for the first time within Australia and only the second time anywhere in the world. At the century's end, the political conscience developed in South Australia saw it vote heavily in favour of Australian Federation.

- 1890 First juvenile court in Australia is established in Adelaide
- 1891 SA immigrant population 315,212; Australia's population 3,200,000; sheep population 100,000,000
- 1891 Cremation legalised, an Australian first
- 1892 Compulsory education made free
- 1894 Women enfranchised and given right to stand for Parliament
- 1896 State Bank of South Australia opens
- 1897 University of Adelaide is the first in Australia to establish a Conservatorium of Music
- 1897 First public demonstration in Australia of wireless telegraphy at the University of Adelaide
- 1899 South Australians vote in favour of Federation



1890

20–28 January 1890

Scattered thunderstorms and torrential rain were reported north of Adelaide, in northern pastoral and agricultural areas and on the Yorke and Eyre Peninsulas. Over 5.5 inches fell at Stockport Creek and 4 inches at Stockport, where homes were flooded causing significant damage. The Rivers Light, Gilbert and Wakefield, broke their banks and caused flooding in the various towns and country from Hoyalton through Balaklava to Gawler. Damage was reported to wheat heaps, fences, roads and railway lines.

At Salisbury, the Little Para River burst its bounds and submerged houses on the flats. At Petersburg, 5 inches of rain were recorded causing flooded homes and damage to wheat stores. Crystal Brook streets flooded. Heavy rain fell at Curramulka on the Yorke Peninsula with reports of damage to business. Flooding and damage were reported from Edithburgh and Wallaroo.

Port Lincoln experienced over 4 inches of rainfall. Streets were flooded and townsfolk were evacuated to higher ground. Flooding was reported at Poonindie Station and Muloowurtie. Mail coaches and trains were delayed due to damaged roads and railway lines.

There were reports that the watercourses flowing into Lake Eyre were flooded due to heavy rains in Queensland and New South Wales.

The Advertiser

- 27 January 1890, 'Country telegrams', p. 5.
- 28 January 1890, 'Rain in the country', p.5.
- 29 January 1890, 'Rain in the country', p. 5.
- 30 January 1890, 'Rain in the country', p. 5.
- 5 February 1890, 'The weather in January' p. 5.

The Observer

- 25 January 1890, 'A flood at Salisbury', p. 29; 'Rain in the country', p. 31.
- 1 February 1890, 'January rains', p. 24; 'Floods in the country', p. 31.

The Register

- 28 January 1890, 'Heavy rains in the country', p. 5.
- 29 January 1890, 'Floods in the country', p. 5.

1–8 February 1890

Heavy rainfall and storms extended from Kangaroo Island in the south to Hergott Springs (Maree) in the north, and Cockburn in the northeast.

In Adelaide, low-lying land was submerged for a short time and houses and stores were flooded at Mount Torrens with much destruction of property reported.

Flooding reports came from the Mid-North with damage to roads, fences, telegraph lines, railway lines and other property.

Flooding was also reported in the Far-North from Innamincka and at Strangways Springs near Lake Eyre. Mail and train communications from the Far-North were disrupted.

The Advertiser

- 5 February 1890, 'Country telegrams', p. 5.
 - 6 February 1890, 'Rain and heat, floods and washaways in the country', p.5.
 - 7 February 1890, 'Floods at Mount Torrens', p. 5.
 - 8 February 1890, no title, p. 4; 'Country telegrams', p. 5.
 - 10 February 1890, 'Country telegrams', p. 5.
- The Register*
- 6 February 1890, 'Floods in the country', p. 5.

21 June 1890

Heavy flooding of the Little Para River led to flooding in Salisbury causing damage to homes and the wing wall of the bridge.

The Bunyip

- 27 June 1890, 'The weather', p. 2.

6 July 1890

The River Angas flooded the whole of the Angas and Lake Plains. Considerable damage was caused to crops and property.

The Southern Argus

- 17 July 1890, 'Country intelligence', 'Encounter Bay July 1890', p. 3.

9–10 July 1890

The Broughton River flooded at Yacka with damage to infrastructure.

The Advertiser

10 July 1890, 'Rain in the country', p. 5.

11 July 1890, 'Country telegrams', p. 5.

12–13 August 1890

Heavy rain with flooding was reported from several centres in the Mid-North with property damage to homes and public buildings.

The Advertiser

13 August 1890, 'Country telegrams', 'Floods at Caltowie', p. 5.

14 August 1890, 'Country telegrams', p. 5.

The Northern Argus

22 August 1890, 'News letters', p. 2.

12–14 August 1890

It was reported from Blumberg that 4 inches of rain had been registered since the start of the month. Reports were received of flooding of the Torrens at the Hindmarsh Bridge, the South Para, at Goose Island and Water-Street-Bridge. The South Bridge was under water and flooding caused damage to houses along the bank. Floods were reported at the junction of the North and South Para Rivers and Gawler and fences were submerged.

Heavy rain was experienced at Mount Barker and the flats below the town were underwater for a quarter of a mile in width.

At Mannum, the Murray River was reportedly 6ft 11inches above summer level. The dock and Captain Randall's Wharf were submerged and water was over the Mill tramline and jetty. The flooding caused damage to the wharf store and offices. Both main roads were flooded.

The Advertiser

15 August 1890, no title, p. 4.

The Observer

23 August 1890, 'The weather and the crops', p. 11; 'Country letters', p. 16.

12–14 October 1890

A storm at Glenelg damaged the jetty and waves carried away part of the railings and washed away steps. Continuing rough weather led to flooding around Meningie and Wellington as waters rose.

The Advertiser

13 October 1890, no title, p. 4.

The Southern Argus

23 October 1890, 'Country intelligence', p. 3.

1892

23 August 1892

Jacob's Creek was flooded delaying the mail coach and the North and South Para Rivers were flooded.

The Register

24 August 1892, 'Floods in the country', p. 5.

1893

26–31 May 1893

Heavy rains over several days after a dry period caused local flooding in many areas throughout the State including Adelaide, the Adelaide Hills, Fleurieu Peninsula and the Mid-North. A young woman, Euphemia Messenger, drowned near Quorn. There was damage to private and public infrastructure and property including culverts, roads, railway lines, houses, fences and bridges.

The Bunyip

2 June 1893, 'The weather', p. 2.

The Register

30 May 1893, 'Wind and rain', p. 5.

31 May 1893, 'The late storm', p. 6.

1 June 1893, 'The late storm', p. 7.

The Southern Argus

1 June 1893, 'The weather', 'A great flood', 'Incidents', 'The Finniss', 'In the south', 'At Ashbourne', 'A mail driver's experience', 'At Woodchester', 'Damage to bridges', p. 3.

8 June 1893, 'General news', p. 2.

5–30 September 1893

Heavy rainfall since the commencement of the month put large tracts of the low-lying country in the South-East under up to three feet of water. Areas included the Millicent and Kingston districts, Robe, Border Town, Penola and the low country between Mount Gambier and Narracoorte. Miles of water covered land which in ordinary seasons would have been dry. There was considerable damage to crops.

The Border Watch

9 September 1893, 'Millicent', p. 2.

13 September 1893, 'Millicent', 'The weather',

p. 2; 'Kingston', p. 3.
 16 September 1893, 'Border Town', p. 3.
 30 September 1893, 'The water in the country',
 p. 2.

23–24 September 1893

Severe storms and heavy rain caused flooding in many areas including Victor Harbor, Port Elliot, Langhorne Creek and the Angas Plains. The dams and rivers flooded include the Bremer River, Scott's Creek, Callington Creek and Mt Barker Creek. There was considerable damage to crops, roads, houses, bridges and a schoolhouse.

The Southern Argus

28 September 1893, 'General news', p. 2;
 'Country intelligence', 'Sunday's weather' p. 3.
 5 October 1893, 'The recent floods', p. 3.

1894

4 March 1894

Thunderstorms and heavy rain in the South-East led to flooding in Mount Gambier and Robe.

The Border Watch

7 March 1894, 'Severe thunderstorm', p. 2.
 14 March 1894, 'Robe', p. 3.

6 March 1894

Severe thunderstorms and rain caused flooding at Murray Bridge. A railway embankment was washed away.

The Southern Argus

8 March 1894, 'A heavy storm', p. 3.

22 June 1894

Flooding in Macclesfield caused damage to the bridge near the Wesleyan chapel.

The Southern Argus

26 July 1894, 'General news', p. 2.

20 July 1894

Heavy rain led to flooding at Port MacDonnell.

The Border Watch

25 July 1894, 'Kingston', p. 3.

13–14 October 1894

Heavy rains and thunderstorms in the Mid-North flooded creeks and property in Port Pirie, Laura

and Booleroo Centre causing damage to fences, houses and vegetation.

The Register

15 October 1894, 'Saturday's storm', p. 5.
 16 October 1894, 'The late rains', p. 6.

26 December 1894

Heavy rain resulted in flooding of the Bremer River with considerable damage to property along its length. Kanmantoo was particularly hard-hit with floodwaters up to 5 feet deep.

The Advertiser

7 January 1895, 'Floods in the South', p. 3.
The Register

28 December 1894, 'Heavy rains in the country', p. 6.

The Southern Argus

3 January 1895, 'Country intelligence', p. 3.

1895

3 January 1895

Heavy widespread rainfall caused flooding on some roadways in Adelaide. In the Mid-North, Laura was inundated.

The Advertiser

4 January 1895, 'Thursday's rains', p. 5.
 5 January 1895, 'The country', p. 5.

13 July 1895

Rain for 2 days led the Angas and its feeders to flood, causing damage to bridges, fences and roads and washing away ploughed land.

The Southern Argus

18 July 1895, 'The recent storm', p. 2; 'Country intelligence', p. 3.

19–29 July 1895

Constant heavy rain caused flooding in the South-East, including the Narracoorte, Penola and Millicent districts. The Port MacDonnell swamps in Recreation Reserve filled and were overflowing onto the racecourse. A quarter mile of the metalled part of Robe Road was underwater.

The Border Watch

20 July 1895, 'Port MacDonnell', p. 5.
 31 July 1895, 'Penola', p. 3; 'Millicent', p. 4.
 3 August 1895, 'Narracoorte', p. 4.

1896

6 July 1896

Streets, gardens and backyards in the low areas of Narracoorte were flooded as the result of a heavy fall of rain.

The Border Watch

15 July 1896, 'Narracoorte', p. 4.

1897

13–15 February 1897

Thunderstorms and heavy rainfall caused creeks to rise and submerge large areas of Adelaide and the south-west plains. Two lives were lost at Mitcham. Significant damage was caused to infrastructure, private property and crops.

Flooding occurred at Lyndoch and Snowtown causing damage to infrastructure and property. Within half an hour, 1.12 inches of rain fell at Virginia and low-lying parts of the town were flooded causing damage to residences.

The Advertiser

15 February 1897, 'A terrible thunderstorm', p. 5.

17 February 1897, 'Sunday's storm', p. 5.

The Bunyip

19 February 1897, 'The floods', p. 2.

The Register

15 February 1897, 'Sunday's cloudburst', p. 4; 'A violent thunderstorm', p. 5.

The Southern Argus

18 February 1897, 'General news', p. 2.

8 September 1897

The low-lying areas surrounding Kingston were flooded as the result of rains.

The Border Watch

8 September 1897, 'Millicent', p. 3.

1898

14 May 1898

Heavy rains fell throughout the south. Some parts of the district reported small floods.

The Southern Argus

19 May 1898, 'General news', p. 2.

14–16 June 1898

Heavy rains around Adelaide, the Hills and in the

Mid-North caused a number of creeks and rivers to overflow with damage to homes and crops.

The Advertiser

15 June 1898, 'A general downpour', p. 5.

16 June 1898, 'The weather in the country', p. 16.

The Register

15 June 1898, 'Record rain', p. 5; 'The Torrens in flood', p. 6.

16 June 1898, 'In full flood', p. 5; 'Tuesday's flood', p. 6.

17 June 1898, 'Southern suburbs flooded', p. 5.

The Southern Argus

23 June 1898, 'Country intelligence', p. 2.

1899

18 March 1899

Continuous rain caused flooding in Mount Gambier, especially in the area of Commercial Street and Bay Road.

The Border Watch

22 March 1899, 'Splendid fall of rain', p. 2.

24–27 March 1899

A thunderstorm at Petersburg caused the heaviest floods on record with two inches of rain falling in one hour. Low-lying streets, the rail yard and houses were flooded and damage caused. Several other towns in the Mid-North were also flooded.

The Advertiser

27 March 1899, 'Petersburg flooded', 'Yacht storm', p. 5.

28 March 1899, 'Terrific storm at Farina', p. 5.

29 March 1899, 'The weather in the country', p. 5.

The Register

27 March 1899, 'Flood and fire', p. 5.

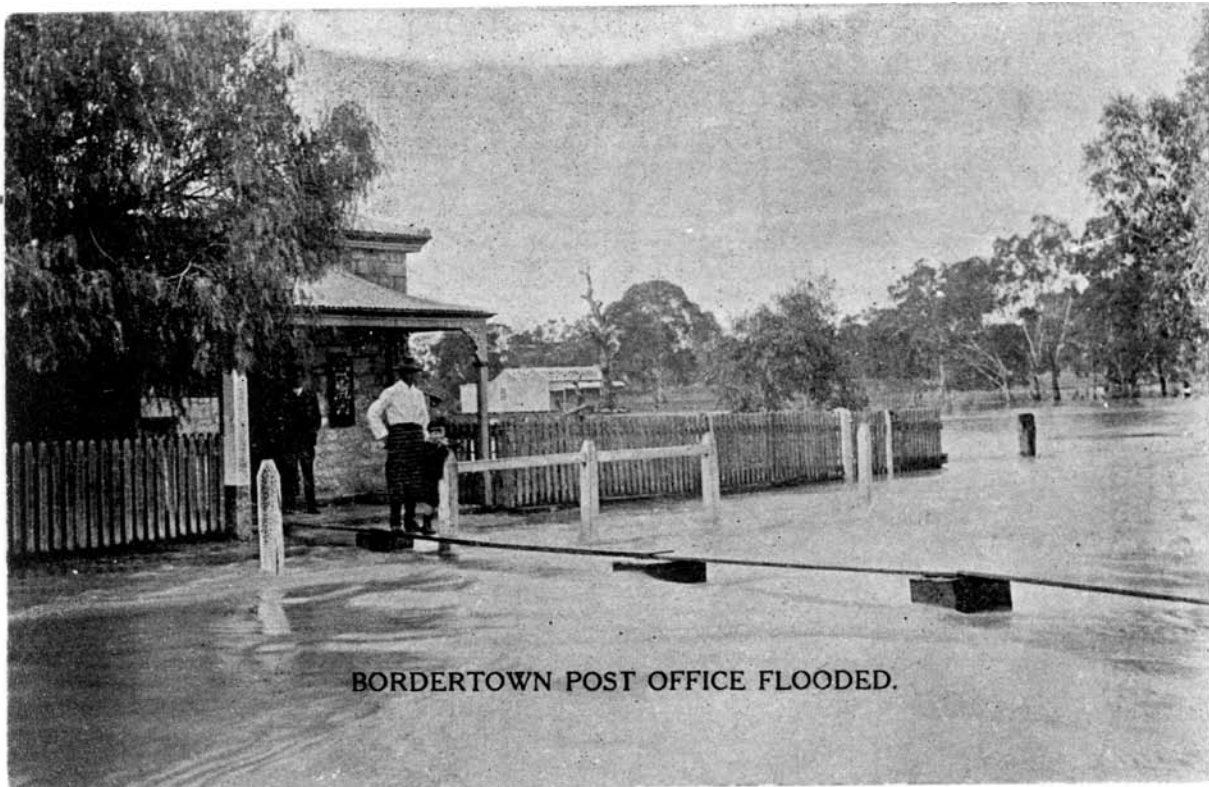
28 March 1899, 'Saturday's storm', p. 7.

25 March 1899

A heavy shower of rain fell and reports from various parts of the colony showed that the storm area was widespread, flooding the flats and causing considerable damage in various parts of the district.

The Southern Argus

30 March 1899, 'General news', p. 2.



Post Office at Bordertown with a temporary walkway across the flooded street. See chronology entry for 26–28 July 1909. Photo courtesy of the State Library of South Australia. B43843

8 August 1899

Upwards of an inch of rainfall was registered in the south in the last few days. The Angas and Bremer Rivers rose flooding much of the low-lying land.

The Southern Argus

10 August 1899, 'General news', p. 3.

5 November 1899

A severe thunderstorm and widespread torrential rains were reported from various parts of South Australia and all low-lying places were flooded. In Strathalbyn, about an inch and a quarter had fallen.

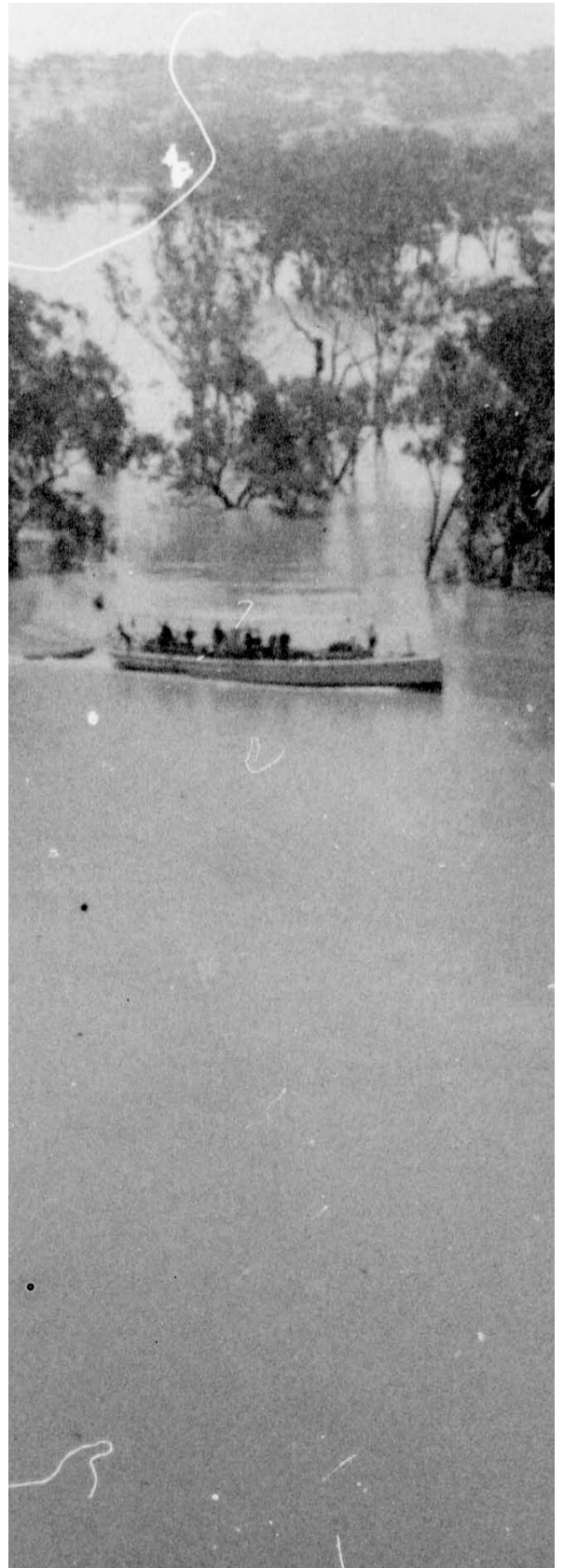
The Southern Argus

9 November 1899, 'General news', p. 2.

1900–1909

The Colony of South Australia possessed its own naval defence force as did all other Australian colonies prior to Federation. In 1900, it sent the HMCS Protector with her crew of 110 to China to assist the British in the Boxer Rebellion. In the same year, Adelaide was lit for the first time by electric light and the first Workmen's Compensation Act was passed. 1900 also saw the Commonwealth of Australia Constitution Act receive Royal Assent and a Proclamation was issued uniting the States as the Commonwealth of Australia as of 1 January 1901 when South Australia officially became a State. The first driver's licence was issued in 1906 and a year later, it became compulsory to hold a licence if driving. On a more humanitarian level, paid annual leave was enjoyed by the staff of the City of Adelaide as of this decade.

- | | |
|------|---|
| 1900 | First electric lighting in Adelaide |
| 1900 | Workmen's Compensation Act passed |
| 1903 | First crematorium in Australia opens in Adelaide |
| 1904 | First community-run hotel in the British empire is established at Renmark |
| 1906 | First licence to drive a motor vehicle in Australia is issued in Adelaide |
| 1906 | Surf bathing during daylight is legalised |
| 1906 | One third of Port Adelaide hotels lose liquor licences |
| 1908 | Adelaide High School opens |
| 1909 | First electric tram to Henley Beach |



1900

11 August 1900

Millicent and the surrounding area was flooded. 2.39 inches of rain fell in five days and the drains could not cope.

The Border Watch

18 August 1900, 'Millicent', p. 2.

16 August 1900

The Angas River flooded after exceptionally heavy rains, inundating a large area of the paddocks near the entry of the river into the lake. The overflow of the Bremer caused homes to be flooded.

The Southern Argus

23 August 1900, 'Country intelligence', 'The weather', p. 3.

22 August 1900

Blackfellow's Creek flooded after heavy rains and a large dam collapsed with considerable damage.

The Southern Argus

30 August 1900, 'Country intelligence', p. 3.

1901

15–16 June 1901

Heavy rains caused the Rivers Angas, Bremer and Finniss to flood. The aggregate rainfall for the few days totalled to close on 4 inches at Strathalbyn.

The Southern Argus

20 June 1901, 'General news', p. 2; 'Country intelligence', p. 3.

27 August 1901

It was reported from Yunta that there were heavy floods along the Erdina track. Up to 1.5 inches of rain had fallen.

The Advertiser

28 August 1901, 'The recent rains', p. 7.

1902

24 March 1902

Close to an inch of rain was recorded in Strathalbyn. The Angas River rose to winter flood top height, flooding many of the flats.

The Southern Argus

27 March 1902, 'General news', p. 2.

5–6 December 1902

Heavy rain fell in Adelaide. Sturt Creek rose and flooded Morphettville. The rain gauge at Smithfield recorded 40 points and water tables were soon flooded. Heavy rain north-east of Eudunda caused heavy floods.

The Advertiser

6 December 1902, 'The end of the drought', 'Floods at Eudunda', p. 7.

The Register

6 December 1902, 'Heavy storms', p. 7.

8 December 1902, 'Heavy rains', p. 6.

15–17 December 1902

Heavy monsoonal rains fell over much of the State. Flood damage occurred to railway lines in the North. Damage to dams and flooding around Petersburg were reported.

The Advertiser

17 December 1902, 'A splendid rainfall', p. 5; 'From our correspondents', p. 6.

The Register

17 December 1902, 'Monsoonal rain', p. 5.

18 December 1902, 'Heavy general rain', p. 7.

19 December 1902, 'The rains', p. 9.

The Southern Argus

18 December 1902, 'Country intelligence', p. 3.

1903

22–25 April 1903

General heavy rains after a period of drought produced widespread floods both north and south of Adelaide. In the Adelaide Hills, bridges were washed away and property damaged.

The Advertiser

25 April 1903, 'Splendid rains', p. 8.

The Register

28 April 1903, 'Reports from the country', p. 6.

The Southern Argus

30 April 1903, 'General news', p. 2.

20 August 1903

Mount Gambier was flooded for a short time after a heavy downpour as the drainage system could not cope.

The Border Watch

22 August 1903, 'Heavy rain, rough weather', p. 2.

15–17 September 1903

Heavy rain swept across the State from Broken Hill South. A number of creeks and rivers overflowed their banks and flooded low-lying country. Some damage was reported to gardens in several areas and houses were threatened around Langhorne Creek.

The Register

18 September 1903, 'A glorious rain', p. 5.

The Southern Argus

24 September 1903, 'Country intelligence', 'General news', p. 3.

26 November 1903

Heavy flooding occurred in the Mid-North with a number of communities flooded. Jamestown was particularly affected. There was damage to infrastructure, private property, roads and loss of crops throughout the whole area and wide tracts of low-lying land were under water.

The Advertiser

28 November 1903, 'Floods at Jamestown', 'Flood at Quorn' p. 7; 'A street or a river', 'Highest flood for 30 years', 'Crops and hay damaged', p. 8.

28 November 1903

Exceptionally heavy thunderstorms led to flooding at Woodchester. About 2 inches of rain were recorded for the week.

The Southern Argus

3 December 1903, 'Country intelligence', p. 3.

1904

1–5 January 1904

Heavy rain caused the streets to flood in Quorn. Roads and crossings were damaged and train lines were washed away. Other communities throughout the Mid-North also reported minor flooding. Widespread flooding was reported in the Far-North.

The Advertiser

4 January 1904, 'Floods in the north', p. 8.

5 January 1904, 'Weather bound', p. 8.

6 January 1904, 'The country storm', p. 10.

14 January 1904, 'The country', p. 8.

The Register

6 January 1904, 'The northern floods', p. 3.

2 January 1904

Mount Gambier's low-lying streets were flooded as a result of a heavy downpour.

The Border Watch

6 January 1904, 'The weather', p. 2.

12 July 1904

Heavy rain led to flooding of the Reedbeds at Henley Beach. Minor flooding in the Adelaide Hills was also reported.

The Register

16 July 1904, 'Flood at the Reedbeds', p. 4.

The Southern Argus

21 July 1904, 'Country intelligence', p. 3.

1905

23 April 1905

Heavy rains fell in the south, Murray Valley and Lower-North with a number of communities reporting rainfall in excess of 3 inches. In many parts, considerable damage was done to property and infrastructure by flood waters.

The Southern Argus

27 April 1905, 'Topics', p. 2; 'Country intelligence', p. 3.

10 July 1905

Heavy rain caused flooding throughout Adelaide. Many streets were impassable and low-lying ground throughout the city was inundated. The Torrens overflowed at Lockleys into Fulham Estate. Tram services from Lockleys to Findon were suspended with water 4 feet above the line in places. Little damage was reported.

The Advertiser

14 July 1905, 'The rain', p. 6; 'The country', p. 7.

15 July 1905, 'The country', p. 8.

The Register

12 July 1905, 'Another good rain', p. 5.

27 August 1905

Severe weather, snow and hailstorms in the Adelaide Hills was accompanied by minor flooding.

The Southern Argus

31 August 1905, 'The weather', p. 3.

1906

4–10 March 1906

Very heavy rains (up to 6 inches) throughout the North led to flooding around Farina and other locations.

The Advertiser

13 March 1906, 'Cloudburst in the north', p. 5.

14 March 1906, 'Fine pastoral rains', p. 5.

The Register

13 March 1906, 'Rain in the north', p. 3.

25 March 1906

Severe thunderstorms with accompanying heavy rain hit Adelaide, the Adelaide Hills and areas to the south. Strathalbyn was particularly affected. Houses were isolated and many low-lying areas were flooded for a short time before the water could drain away.

The Advertiser

27 March 1906, 'Magnificent general rains', p. 5.

The Southern Argus

29 March 1906, 'Local news', p. 2; 'Country intelligence', p. 3.

5 April 1906, 'Local news', p. 2.

25 June 1906

A heavy thunderstorm caused minor flooding at Naracoorte.

The Advertiser

27 June 1906, 'The country, earth tremors', p. 10.

17–22 July 1906

Continuous rains led to flooding over a large area of the South-East of the State. There were major disruptions to rail traffic due to damaged and submerged railway lines. Houses, cellars and some shops in Naracoorte were inundated with floodwater from the creek. Some roads also sustained damage from the floods. Kingston was flooded, experienced problems with inadequate drainage of floodwater and became isolated as it was completely surrounded by water. The Robe to Kingston road was flooded.

The Advertiser

24 July 1906, 'Storms and floods, heavy falls in the southeast' p. 7.

The Border Watch

25 July 1906, 'Wind, rain and floods', p. 2.

28 July 1906, 'The floods' p. 2.

The Register

23 July 1906, 'Floods in the southeast', p. 5.

24 July 1906, 'Floods in the southeast', p. 5.

8–9 September 1906

Heavy rains in Adelaide and the Adelaide Hills led to local rivers and creeks overflowing with low-lying land being inundated, crops submerged and some property damage. Areas adjoining the Torrens River to the west of the city were particularly hard-hit with some roads being knee-deep in water. In the Hills, there were a number of land-slips caused by floodwaters.

The Advertiser

10 September 1906, 'Wintry weather', p. 6.

11 September 1906, 'Floods near Adelaide', p. 7.

12 September 1906, 'Landslips in the Hills', p. 11.

17 September 1906, 'Country news', p. 8.

The Register

10 September 1906, 'Rain and floods', p. 5.

11 September 1906, 'Floods in South Australia', p. 7.

The Southern Argus

13 September 1906, 'Local news', p. 2; 'Country intelligence', p. 3.

17–18 November 1906

Widespread continuous rains fell across the State over a period of some thirty-six hours with falls of over 4 inches in some places. Flash-flooding of short duration was reported from several places and caused limited damage.

The Advertiser

20 November 1906, 'A record rainfall', p. 7; 'The country', p. 10.

21 November 1906, 'The country', p. 9.

23 November 1906, 'The country', p. 7.

27 November 1906, 'The country', p. 11.

The Register

20 November 1906, 'Grand November rain', p. 5.

23 November 1906, 'The country', p. 3.

1907

4 July 1907

Mount Gambier's streets were flooded as a result of heavy rain.

The Border Watch

6 July 1907, 'Heavy rain', p. 2.

1908

2–8 March 1908

Heavy rains in the Mid and Far-North of the State caused flooding with some damage to property. Roads were closed and railway lines were damaged. A number of isolated communities were cut off by the flood waters.

The Advertiser

4 March 1908, 'Splendid pastoral rains', p. 10.

6 March 1908, 'Far northern floods', p. 7.

7 March 1908, 'Floods in the interior', p. 9.

9 March 1908, 'Northern floods', p. 6.

10 March 1908, 'Wintry weather', p. 7.

11 March 1908, 'The far northern floods', p. 6; 'The country', p. 9.

12 March 1908, 'The country', p. 8.

The Register

7 March 1908, 'Floods in the North', p. 10.

19–20 June 1908

Very heavy general rains throughout the State led to minor flooding in several places. In Adelaide there were several reports of flooding particularly in the western suburbs with several houses inundated and the tram lines passing the Reedbeds off Henley Beach Road were under water. Several Adelaide Hills creeks ran high or overflowed.

The Advertiser

20 June 1908, 'Flood waters at Stepney', p. 7.

22 June 1908, 'Wintry weather', p. 6.

23 June 1908, 'Heavy general rains', p. 8.

The Southern Argus

25 June 1908, 'Country intelligence', p. 3.

25 June 1908, 'Local news', p. 2.

31 August 1908

The Tanunda and Adelaide Hills districts received continuous rain for two days leading to creeks running high or overflowing and reports of minor flooding.

The Advertiser

2 September 1908, 'A magnificent rain', p. 5.

The Southern Argus

3 September 1908, 'Local news', p. 3.

7 September 1908

Heavy rain led to flooding of streets in low-lying areas of Victor Harbor.

The Southern Argus

10 September 1908, 'Country intelligence', p. 3.

1909

16 May 1909

A total of four inches rainfall was registered in most parts of the south of the State. Rivers such as the Angas, Bremer, Finniss, Hindmarsh & Inman flooded. Bremerton was under water, but no damage was done.

The Southern Argus

20 May 1909, 'Country intelligence', 'Local news', p. 3.

18 June 1909

A thunderstorm and heavy rain in Adelaide and its suburbs flooded footpaths and thoroughfares. In the city centre, flood damage was caused to city businesses and residences.

The Advertiser

19 June 1909, 'A deluge in the city', p. 11.

26–28 July 1909

Heavy rains and some snow over several days culminated in a storm which caused flash-flooding around Adelaide. Elsewhere, flooding was reported from towns as far apart as Millicent, Tanunda, Bordertown and Langhorne's Creek. Accidents occurred when people attempted to cross dangerous fords. Several bridges in the country were washed away.

The Advertiser

28 July 1909, 'Coach washed away', p. 5.



Flooding on Railway Terrace, Peterborough, 16 February 1919. Refers to chronology entry for 16–19 February 1919. Courtesy of the State Library of South Australia. B31173

29 July 1909, 'Heavy rain', p. 10.

30 July 1909, 'Reedbed floods', p. 7.

31 July 1909, 'Splendid northern rains', p. 10.

2 August 1909, 'Country areas', p. 9.

The Register

31 July 1909, 'Snow and storms', p. 9; 'The country', p. 11.

The Southern Argus

29 July 1909, 'Local news', 'Country intelligence', p. 3.

1 August 1909

Floods occurred at Mount Gambier and various other locations in the South-East. The large volumes of water resulted in the loss of crops and livestock. Homes flooded in Naracoorte.

The Border Watch

4 August 1909, 'The weather', p. 2.

18–31 August 1909

On the evening of Thursday 18 August, heavy rains, said to cover the whole of the south of the

continent, caused flooding in Adelaide and areas south of the city. The rains continued for much of the following two weeks. Creeks and rivers overflowed, farm land was inundated and railway lines were submerged. Streets were flooded and property damaged.

The Advertiser

20 August 1909, 'Heavy general rain', p. 5.

27 August 1909, 'Magazine reserve and rifle range flooded', p. 4.

The Bunyip

27 August 1909, 'Rain and floods', p. 3.

The Register

20 August 1909, 'An August deluge', p. 5.

The Southern Argus

26 August 1909, 'Country intelligence', 'Floods and washaways', p. 3.

2 September 1909, 'Country intelligence', p. 3.

9 September 1909, 'Country intelligence', p. 3.

1910–1919

The second decade after Federation saw the administration of the Northern Territory transferred from South Australia to the Commonwealth. Issues of Public Health and sanitation were subject to public debate as the growing population reached one-tenth of the nation. In 1913, an outbreak of Smallpox in Sydney prompted adoption of compulsory medical inspections for school children in South Australia. The intervention of World War I provided a watershed for change in society. Under this prevailing situation, women joined the workforce in increasing numbers as men left for the war and South Australia's first women police were appointed. A referendum approved the closing of South Australian hotels at 6pm. The first Lord Mayor of Adelaide was elected. The global influenza epidemic reached Australia in 1919 necessitating closure of public places such as schools, theatres, churches and libraries and killing thousands.

- | | |
|------|---|
| 1910 | First monoplane flight in Australia at Bolivar |
| 1911 | South Australia no longer administers Northern Territory |
| 1913 | Medical inspection of school children introduced |
| 1915 | First women police appointed |
| 1915 | Referendum approves closing of hotel bars at 6pm |
| 1915 | Opals discovered at Coober Pedy |
| 1917 | First Australian Town Planning Conference is held in Adelaide |
| 1918 | First street petrol pump in Adelaide |
| 1919 | First airmail from Adelaide to Minlaton |
| 1919 | First Lord Mayor of Adelaide elected |



1910

6 January 1910

A severe thunderstorm led to flooding of farmland in the Roseworthy district.

The Bunyip

7 January 1910, 'Thunderstorms', p. 2.

6–7 March 1910

Minor flooding occurred at Langhorne's Creek when the Bremer River rose.

The Southern Argus

10 March 1910, 'Country intelligence', p. 3.

5–13 July 1910

Extended periods of heavy rain led to flooding in the Mount McIntyre district. Roads and crops were damaged around Millicent, Kingston and Robe.

The Border Watch

9 July 1910, 'Mount McIntyre', p. 1.

13 July 1910, 'Floods at Casterton', p. 3.

2–3 September 1910

Heavy rains raised river levels and caused local flooding, property damage and railway washouts throughout the Mid-North. A horseman attempting to cross the Light River was drowned.

The Advertiser

5 September 1910, 'Storm and floods', p. 9.

6 September 1910, 'Rain and floods', p. 7.

7 September 1910, 'The country', p. 16.

8 September 1910, 'The country', p. 11.

The Register

5 September 1910, 'Deluge in the north', p. 5.

6 September 1910, 'Anxious moments—tragic side of the flood', p. 7.

1911

5 February 1911

An estimated 8 to 9 inches of rain led to heavy local flooding in the Rapid Bay district with particular damage to roadways.

The Register

8 February 1911, 'Record flood', p. 5.

1912

13–17 September 1912

Heavy rains in the Millicent and Naracoorte

area led to localised flooding partly due to the drainage system being overloaded.

The Border Watch

18 September 1912, 'Naracoorte', p. 3.

The Southern Argus

19 September 1912, 'Country intelligence', p. 3.

26 September 1912, 'Country intelligence', p. 3.

1913

12–13 February 1913

Over six inches of rain on the West Coast caused significant flooding in the district of Penong and presaged heavy rainfalls in Adelaide and the surrounding areas on the following day. In the city, two inches of rain fell in forty minutes. This led to widespread flooding of roads and railway lines. The towns in the Barossa were inundated with multiple reports of flood waters several feet deep. Trees and property were washed away and deep mud was left behind as waters retreated. Stock drowned and crops were ruined. Many rail lines were washed out. At Kapunda, this led to a derailment and the train driver was drowned. Many other towns as far east as Murray Bridge and Langhorne Creek and as far south as Victor Harbor and Yankalilla also reported serious flooding.

The Advertiser

14 February 1913, 'Railway washed away', p. 9.

15 February 1913, 'After the storm', p. 21.

17 February 1913, 'Thursday's floods', p. 18.

19 February 1913, 'The country', p. 18.

20 February 1913, 'The country', p. 11.

The Register

14 February 1913, 'Adelaide flooded', p. 7.

15 February 1913, 'Thursday's deluge', p. 15;

'After the storm', p. 21.

17 February 1913, 'The great flood', p. 8.

The Southern Argus

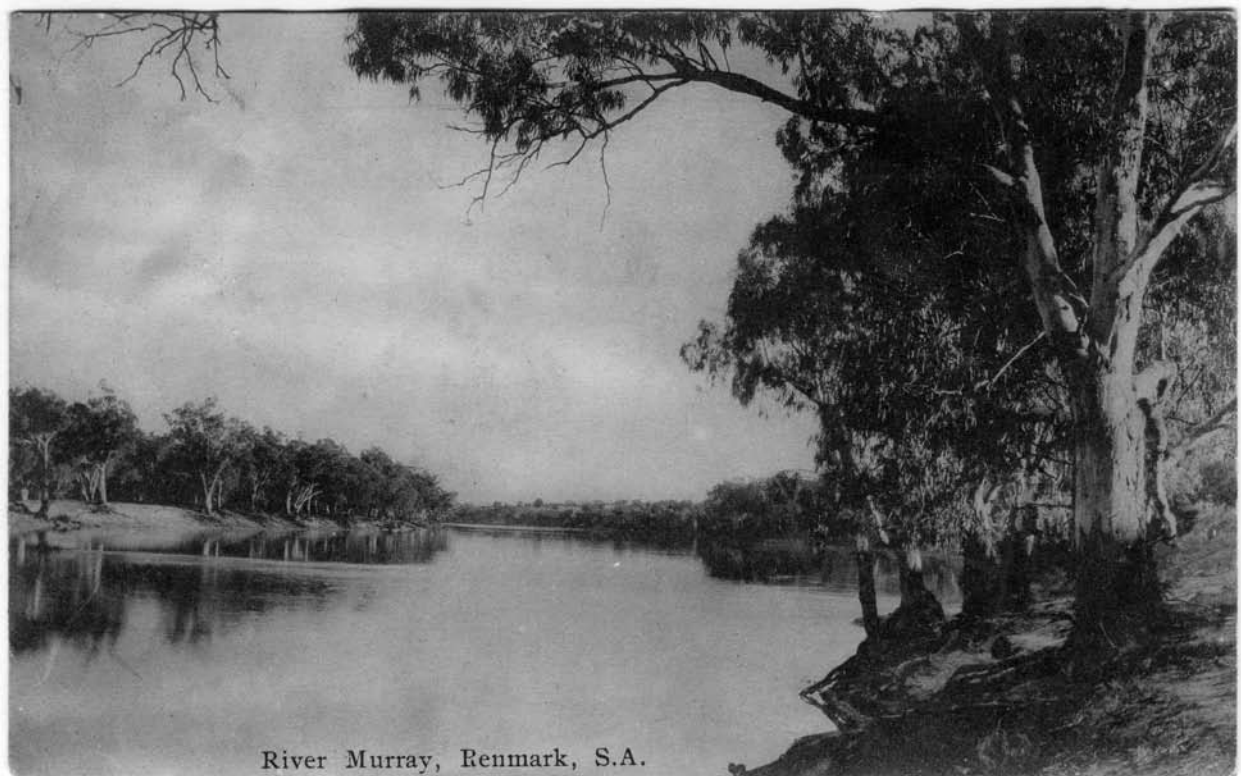
20 February 1913, 'Country intelligence', 'A tremendous downpour', p. 3.

The Victor Harbor Times

21 February 1913, 'Inman Valley', p. 3.

West Coast Sentinel

12 February 1913, 'District news', p. 3.



River Murray, Renmark, S.A.



Water flow down the River Murray was very varied prior to the installation of locks in 1922. Here the 1910 level is contrasted to 1914. Courtesy of the State Library of South Australia. B45488; PRG1258/2/2086

3–4 March 1913

Very heavy widespread rainfall and thunderstorms caused property damage in many areas. Rainfall of 3.69 inches in forty-eight hours was recorded at Freeling. Other centres, in particular the area of Petersburg and Yarcowie in the North, the Clare Valley, the Barossa Valley and the Murray Flats provided information on high rainfall and heavy flooding. The townships of Truro and Wasleys were under water. A number of dams burst, the most serious being the Eudunda railway dam which held four million gallons of water. Trains were delayed because of washouts, streets were submerged and houses flooded.

The Advertiser

5 March 1913, 'Rain and floods', p. 15.

6 March 1913, 'More heavy rain', p. 18.

7 March 1913, 'Recent floods', p. 18.

The Register

4 March 1913, 'A welcome monsoon', p. 7.

5 March 1913, 'Stormy elements', p. 13.

25–26 October 1913

Torrential rain and hail led to heavy floods in different parts of the State which delayed several trains in the North with particular reference to Petersburg, Mannahill, Nackara and Oodla Wirra. There were floods in Terowie and in the Kadina/Moonta district and widespread short term flooding in Adelaide. This caused considerable property damage to government, business and private premises. Floods occurred in the Adelaide Hills, railway washaways to the north of Adelaide just beyond Smithfield and the Murray swamp lands with damage to crops over a wide area in the Murray Bridge region. Flooding also occurred at Auburn and Victor Harbor. Much damage was done by associated hailstorms.

The Advertiser

27 October 1913, 'A torrential rain', p. 15.

28 October 1913, 'Sunday's storm', p. 11.

29 October 1913, 'Useful rains', p. 17.

The Register

27 October 1913, 'A Sunday deluge', p. 6.

28 October 1913, 'Sunday's deluge', p. 7.

The Victor Harbor Times

31 October 1913, 'The weather', p. 3.

22 December 1913

A sudden rainfall led to localised flooding of Adelaide streets.

The Register

23 December 1913, 'A tropical deluge', p. 7.

1914

27 February 1914

A sudden thunderstorm caused rain, local flooding and hail damage from the Mid-North to Victor Harbor. At Marrabel, 5 inches of rain fell in an hour. At Eudunda two men drowned as they tried to cross Julia Creek in a horse and trap.

The Advertiser

28 February 1914, 'Hail, rain, and flood', p. 19.

2 March 1914, 'Floods in the country', p. 7.

9 March 1914

A sudden thunderstorm near Murray Bridge caused temporary flooding of the rail line between Callington and Monarto, delaying the train from Adelaide. Little damage was done although some sheep were reported to have been drowned.

The Advertiser

11 March 1914, 'Railway ballast washed away', p. 14; 'Murray Bridge passenger train', p. 17.

13–16 November 1914

Several days of thunderstorms and heavy rain led to widespread flooding in the Mid and Far-North with the worst falls occurring on the 16 November. Crops, roads and fences were damaged and livestock lost. Streets in several Mid-North towns were inundated with widespread property damage. At Petersburg, a ten-year-old boy fell into a drain and was drowned.

The Advertiser

14 November 1914, 'Floods in the north', 15.

16 November 1914, 'Floods in the north', p. 9.

17 November 1914, 'Floods in the north', p. 9.

18 November 1914, 'Fine general rains', p. 10.

The Mail

14 November 1914, 'The Petersburg flood', p. 11.

18 November 1914, 'Big flood', p. 3.

21 November 1914, 'Flooded again', p. 4.

The Register

16 November 1914, 'Friday's thunderstorms', p. 9.

17 November 1914, 'Splendid rains', p. 7.

18 November 1914, 'The drought broken', p. 9.

22 December 1914

Monsoonal rains brought heavy rain to the north of the State. Laura, Petersburg and Gladstone were particularly hard-hit by flooding with water several feet deep. Other towns also reported flooding. There were a number of claims that government water diversion projects and bridge design were inadequate. A woman drowned near Orreroo while attempting to drive her horse buggy across Pekina Creek. A number of rail lines were washed out. There was considerable property damage and loss of stock.

The Advertiser

23 December 1914, 'Rain in the north', p. 8.

24 December 1914, 'Floods in the north', p. 11.

26 December 1914, 'Washaways in the north', p. 14.

29 December 1914, 'After the flood', p. 4.

30 December 1914, 'The country', p. 5.

The Register

23 December 1914, 'Rivers of rain', p. 11.

24 December 1914, 'Tuesday's torrential rains', p. 10.

26 December 1914, 'The recent floods', p. 10.

29 December 1914, 'The northern floods', p. 6.

1915

8–11 April 1915

Heavy rains north of Adelaide led to localised flooding. Burra, Riverton and Saddleworth reported flooding in the towns and creeks and rivers were running high. There was some property damage and loss of stock. Trains were delayed.

The Advertiser

9 April 1915, 'Welcome rain', p. 9.

10 April 1915, 'More rain', p. 14.

12 April 1915, 'Glorious autumn rains', p. 6.

13 April 1915, 'The drought definitely broken',

p. 6.

The Register

10 April 1915, 'Splendid rains', p. 11.

12 April 1915, 'Refreshing showers', p. 6.

14–15 May 1915

Record high tides and severe storms led to coastal flooding with roads and buildings on low-lying land inundated. At Birkenhead, water was up to 2 feet 6 inches deep and at Glenelg, the Brit Theatre was flooded.

The Border Watch

19 May 1915, 'The weather', p. 3.

The Mail

15 May 1915, 'Great seas sweep along beaches', p. 13; 'The drought broken up', p. 16.

The Register

17 May 1915, 'Unprecedented storm', p. 7.

18 May 1915, 'Saturday's storm', p. 5.

The Southern Argus

20 May 1915, 'Country news', p. 2.

The Victor Harbor Times

21 May 1915, 'Weather bureau, Adelaide', p. 4.

21–23 June 1915

Very heavy rains led to flooding around Adelaide and in the Adelaide Hills. Rivers and creeks ran high and a number of bridges were damaged or destroyed. Roads, property and crops were damaged. Rainfall registered up to 3.05 inches.

Heavy floods at Eudunda, Cherryville, and Kapunda caused widespread damage.

The Advertiser

23 June 1915, 'Reservoir rain', p. 8.

24 June 1915, 'Further floods', p. 6.

25 June 1915, 'Floods at Morialta Falls reserve', p. 6; 'Storm and flood', p. 9.

The Bunyip

25 June 1915, 'Heavy rains', p. 3.

The Register

23 June 1915, 'Torrential downpour', p. 8.

24 June 1915, 'Floods and storms', p. 6.

25 June 1915, 'The rain', p. 5.

5–7 August 1915

In the Adelaide metropolitan area, heavy rains flooded the streets. The River Torrens overflowed into low-lying country to the east of Henley Beach. The main road was underwater for about

a mile. Crops were lost and property damaged. High rainfalls were reported from the South-East and the Adelaide Hills.

The Advertiser

7 August 1915, 'Heavy rain storm', p. 15.

9 August 1915, 'Floods at the Lockleys and the Reedbeds', p. 6.

11 August 1915, 'The country', p. 12.

The Border Watch

7 August 1915, 'Millicent', p. 3.

8 August 1915

Localised flooding was reported at Snug Cove on Kangaroo Island, causing damage to bridges and property. The Angas River near Strathalbyn also flooded, causing damage to the weir.

Kangaroo Island Courier

21 August 1915, 'Snug Cove news', p. 1.

The Southern Argus

15 August 1915, 'Further damage to the weir', p. 1.

22–25 August 1915

Five and half inches of rain led to heavy floods on the Eyre Peninsula, causing train delays and damaging the line. Rudall Station was under water and dams and crops were damaged.

The Advertiser

26 August 1915, 'Heavy floods on Eyre Peninsula', p. 10.

The Eyre Peninsula Tribune

27 August 1915, 'District news', p. 5.

11 September 1915

Heavy showers on the Adelaide Plains led to watercourses in the western suburbs overflowing and in turn flooding adjacent Adelaide suburbs.

The Advertiser

13 September 1915, 'Floods at Morphettville and Reedbeds', p. 6.

The Register

13 September 1915, 'Splendid rains', p. 7.

19 September 1915

Heavy rains caused flooding of the Torrens River, with water overflowing the banks between the city and the sea. Flooding was reported at Henley Beach, Grange, Lockleys and the Reedbeds, with

water inundating roads, paddocks and houses.

The Advertiser

21 September 1915, 'Coping with the Reedbeds floods', p. 6; 'A splendid general rain', p. 7

The Register

21 September 1915, 'A wonderful rain', p. 5.

29 December 1915

A thunderstorm in the Mount Bryan district caused creeks to overflow, flooding about half a mile of flat country. One horse was drowned.

The Advertiser

1 January 1916, 'The country', p. 7.

1916

5 January 1916

A thunderstorm accompanied by torrential rain hit Petersburg, flooding streets and houses.

The Advertiser

6 January 1916, 'Storms in the north', p. 6.

3–9 March 1916

The Birdsville mail route was interrupted for six days due to flooding, particularly at Hergott Springs.

The Advertiser

10 March 1916, 'Rain in the interior', p. 6.

21–27 June 1916

Heavy rains, which continued for a week, resulted in flooding in Adelaide, surrounding districts and the Adelaide Hills with a number of waterways overflowing. Rainfalls of six inches were recorded at Mount Torrens. Unusually heavy rain on the Eyre Peninsula caused flooding in far-western districts. The road between Port Lincoln and Elliston was submerged.

The Advertiser

22 June 1916, 'Stormwaters at Thebarton', 'Floods at Port Adelaide', p. 7.

23 June 1916, 'Flood at the Reedbeds', p. 6.

28 June 1916, 'Storm and floods', p. 11.

The Register

27 June 1916, 'Water, water everywhere', p. 5.

The Southern Argus

22 June 1916, no title, p. 3.

29 June 1916, 'Local', p. 3.



In 1917 at Mannum, a barge was floated across the main street to act as a temporary footbridge. Courtesy of the State Library of South Australia. PRG1258/2/992



Another view of the 1917 flood. Courtesy of the State Library of South Australia. PRG1258/2/979

West Coast Sentinel

1 July 1916, 'Heavy rains', 'District news', p. 2.

29 June 1916

Streets and footpaths at Port Adelaide were flooded by high tide waters which flowed into underground drains and escaped through a gutter. Water rose to floor level. The River Torrens also rose, flooding the Reedbeds and other low-lying land.

The Advertiser

30 June 1916, 'A street underwater', 'Flood at the Reedbeds', p. 6.

16–17 July 1916

Widespread rainfall led to floods in many places. There were floods in the North in the region of Orroroo railway. Washaways occurred between Port Lincoln and Cummins. The Appila Creek flooded the surrounding land. The creeks flooded at Sedan where the low country and part of the streets were under water. The Torrens overflowed at the Reedbeds. The foundations of the foreshore and the jetty were washed away by floods caused by heavy rain at Ardrossan.

The Advertiser

20 July 1916, 'Rain and floods', p. 7.

17–19 July 1916

Heavy ongoing rains on the Eyre Peninsula led to flooding from Penong to Fowlers Bay. Rainfall ranged from 555 points to 700 points in three days. Houses, fences and roads were washed away.

West Coast Sentinel

22 July 1916, 'Heavy rains', 'District news', p. 2.

29 July 1916, 'My first trip through the West Coast', 'District news', p. 2.

22 July 1916

Heavy rain was recorded throughout Kangaroo Island and roads and several bridges were damaged by heavy floods.

Kangaroo Island Courier

22 July 1916, 'Rainfall and roads', p. 1.

14 August 1916

The River Torrens flooded onto the low-lying land at the Reedbeds. Flooding also occurred at Henley Beach and Fulham. Heavy rains led to flooding at Morphettville and the surrounding country.

The Advertiser

15 August 1916, 'Flood at the Reedbeds', 'Floodwaters at Morphettville', p. 6.

9 November – December 1916

An extraordinary volume of water poured down the Murray and reached a level far above the dam causing immense damage to the Blanchetown Works. Embankments collapsed at Mypolonga and were then strengthened. Renmark was described as a 'series of islands' as water broke through temporary banks, flooding the highway and low ground. On 28 November it was stated that the flood was expected to last two months. The river overflowed its banks and flooded swampland at Murray Bridge. None of the punts between Murray Bridge and the border could be used. The swamplands at the Pompoota Training Farm for Soldiers were flooded. About one thousand pounds damage was caused by the flood at Pompoota. Roads flooded between Strathalbyn and Meningie and thousands of acres of feed was ruined by water. The Murray rose over all low-lying swamps on Hindmarsh Island.

The Advertiser

10 November 1916, 'General news', p. 6.

17 November 1916, 'The Murray flood', p. 6.

18 November 1916, 'The Murray flood', p. 14.

20 November 1916, 'The Murray floods', p. 6.

21 November 1916, 'The country', p. 11.

1 December 1916, 'The country', 'Views and comments', p. 11.

2 December 1916, 'The country', p. 12.

6 December 1916, 'The Murray and the Mundoo barrage', p. 6.

14 December 1916, 'River Murray rising', p. 10.

21 December 1916, 'Fire and flood at Pompoota', p. 6; 'The country', p. 9.

The Southern Argus

23 November 1916, 'Country news', p. 3.

1917

21 February 1917

Rain caused floods at Petersburg and at Gumbowie at the south side of the town. Considerable damage was done to streets, footpaths and roads.

The Border Watch

24 February 1917, 'Flood at Petersburg', p. 2.

The Register

22 February 1917, 'Floods at Petersburg', p. 9.

15 June 1917

The heavy rains in the Hills district caused the Angas and Bremer Rivers to overflow their banks.

The Southern Argus

21 June 1917, 'Local', p. 2; 'Country news', p. 3.

19–24 July 1917

Rain over the Mount Lofty and Willunga Ranges flooded low-lying country and carried flood waters down the Torrens and confluent creeks. Many square miles of the Adelaide Plains were covered by water with damage to property particularly in the western suburbs of Adelaide. Other local creeks and rivers overflowed with consequent property damage reported from Gawler to Victor Harbor.

The Bunyip

20 July 1917, 'Big flood', p. 2.

The Mail

21 July 1917, 'A disastrous flood', p. 7.

The Register

20 July 1917, 'Memorable floods.', p. 7.

21 July 1917, 'The great flood', p. 6.

23 July 1917, 'The country', p. 3; 'Flood waters receding', p. 4.

24 July 1917, 'After the flood', p. 4.

25 July 1917, 'As the waters subside', p. 7.

The Southern Argus

26 July 1917, 'Country news', 'Floods and gales', p. 3.

2 August 1917, 'Jottings', p. 3.

The Victor Harbor Times

20 July 1917, 'Rough weather', p. 3.

6–11 September 1917

Very heavy rains fell in the Bremer watershed causing an overflow of the banks of the Angas

and Bremer Rivers in the neighbourhood of Langhorne's Bridge with all of the low-lying flats becoming submerged.

The Southern Argus

13 September 1917, 'Local', p. 3.

12 September 1917

Sudden rainfall at Ashbourne caused local flooding.

The Southern Argus

20 September 1917, 'Country news', p. 3.

12–16 September 1917

Torrential downpours led to flooding in many suburbs of Adelaide.

The Advertiser

13 September 1917, 'Heavy general rain', p. 6.

14 September 1917, 'The Reedbeds floods', p. 6.

15 September 1917, 'Another flood', p. 18.

The Register

13 September 1917, 'Another flood', p. 3.

7 October 1917 – February 1918

High waters in the Murray River caused ongoing flooding over an extended period of time. At Morgan, it was reported that the river was on average 26 feet above summer level from the middle of October to the end of December. The river was at its highest point at Murray Bridge on December 12–13, reaching the mark at 114.9 feet. Banks and levees were damaged and low-lying areas remained flooded for some weeks.

The Advertiser

11 December 1917, 'The country', p. 5.

11 January 1918, 'Re-establishing reclaimed swamps', p. 6.

18 January 1918, 'The Murray flood; waters subsiding', p. 4.

15 February 1918, 'Flooded Murray areas', p. 6.

The Bunyip

26 October 1917, 'Soldiers' areas flooded', p. 2.

The Register

8 October 1917, 'Murray flood serious', p. 8.

9 October 1917, 'Murray floods', p. 4.

Further detailed reports are available within the above news references.

22 November 1917

In the Millicent area, a region 30 miles long and 13 miles wide was affected by floods after very heavy rainfall. The road between Robe and Mount Gambier was under water for 13 miles.

The Advertiser

27 November 1917, 'The country', p. 6.

1918

28 January 1918

At Kingston, nearly two inches of rain led to floods which washed away much fencing.

The Advertiser

1 February 1918, 'The country', p. 8.

29 January 1918

Heavy rains were reported between Quorn and Oodnadatta, causing a washaway on the railway line between Bopeechee and Stuart's Creek.

The Advertiser

30 January 1918, 'Railway line damaged', p. 6.

26 June 1918

On Kangaroo Island, heavy rains led to floods at Hog Bay River which caused minor damage.

Kangaroo Island Courier

29 June 1918, 'Echoes from Penneshaw floods', p. 1.

8 July 1918

High seas and a gale at Port MacDonnell led to the flooding of several homes and a bark mill. There was some loss of property and damage.

The Border Watch

12 July 1918, 'Rough sea at Port McDonnell', p. 3.

4 October 1918

Rain in Tailem Bend caused floodwaters to wash over the banks of the river and flood the causeway and Jervois Swamp.

The Advertiser

7 October 1918, 'The country', p. 10.

13 November 1918

Several heavy thunderstorms occurred around Yongala flooding the surrounding country.

The Advertiser

14 November 1914, 'Floods in the North-Yongala district flooded', p. 15.

24 December 1918

The Edowie homestead was flooded due to heavy rain. The watercourse was half a mile wide in places.

The Advertiser

29 December 1918, 'The country', p. 4.

16–19 February 1919

Heavy rains and flooding extended to many parts of the State. Thunderstorms in the Mid-North caused flash-floods in a number of communities with damage to houses, other property, infrastructure and railway lines. Flooding in the city of Adelaide was responsible for much damage in city basements and many suburban streets were flooded.

The Advertiser

18 February 1919, 'Rain and floods', p. 7.

19 February 1919, 'Northern floods', p. 7.

20 February 1919, 'The country', p. 9.

21 February 1919, 'The Peterborough flood', p. 9; 'The country', p. 10.

26 February 1919, 'The country', p. 10.

28 February 1919, 'Deputations', p. 11.

The Register

18 February 1919, 'Torrential rain', 'In the country', p. 5.

19 February 1919, 'Widespread rain', p. 7.

13 April 1919

Several places and streets on Kangaroo Island were flooded after 83 points of rain were recorded over 15 minutes.

Kangaroo Island Courier

19 April 1919, 'Heavy rain', p. 1.

6 September 1919

Heavy rains caused the Angas River to flood at Strathalbyn damaging construction underway for the new Richardson Children's Bridge.

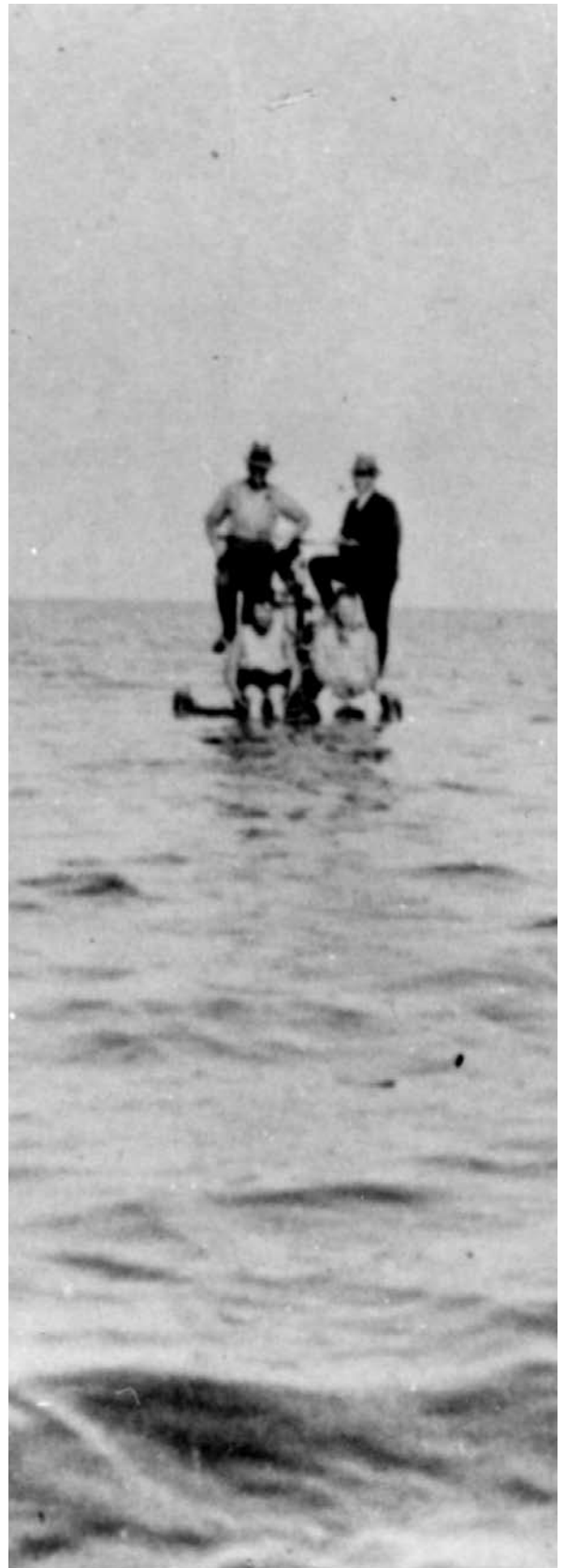
The Southern Argus

18 September 1919, 'Locals', p. 3.

1920–1929

In the twenties, there were powerful moves within Australia to increase the population by encouraging British migration. At the same time, restrictions in US immigration caused a sharp rise in migrant numbers from Italy. As a result, the population of South Australia in 1921 had risen to 500,000. In the country, the first lock on the River Murray became operational at Blanchetown in 1922. Adelaide's first radio stations began broadcasting locally in 1924 and the invention of the pedal wireless in 1929 broadened the usefulness of the technology and facilitated communications to the rural sector. The financial sector received a boost with the opening of the State Bank.

- | | |
|------|---|
| 1921 | Population of SA exceeds 500,000 |
| 1922 | First lock on Murray River becomes operational at Blanchetown |
| 1924 | First radio station in South Australia |
| 1924 | General Motors, USA, gives Holden brothers exclusive rights to GM chassis |
| 1925 | MTT commences motor bus operations |
| 1926 | State Bank opens for general business |
| 1929 | Kingsford-Smith flies from Australia to Britain in record time |



1920

12 May 1920

A severe rainstorm over Unley and neighbouring suburbs led to flooding. Some roads were damaged.

The Advertiser

14 May 1920, 'Cloud burst at Unley', p. 6.

31 May 1920

Heavy rains in Adelaide caused overflowing of water tables and flooding of streets and parklands.

The Advertiser

1 June 1920, 'Water everywhere', p. 6.

2 June 1920, 'Best rain for years', p. 7.

18 June 1920

Heavy rains led to flooding of Mount Gambier streets and gardens, overwhelming the drainage system.

The Border Watch

22 June 1920, 'Heavy rains', p. 2.

9 August 1920

Heavy rain led to overflowing of the South Para River with minor damage to allotments.

The Bunyip

13 August 1920, 'Disaster to the Barrage', p. 2.

1921

20–27 February 1921

A severe storm led to localised flooding in Gawler. Rains continued throughout the State for the following week resulting in widespread flooding, dislocation of rail services and some loss of stock. Wallaroo, Truro, Jamestown, Port Pirie and Victor Harbor all reported flooding in the town centres.

The Border Watch

25 February 1921, 'The Gawler storm', p. 1.

The Bunyip

25 February 1921, 'Disastrous hailstorm', p. 2.

The Register

1 March 1921, 'Widespread rain', p. 7.

2 March 1921, 'Record floods', p. 7.

4 March 1921, 'The floods', p. 6; 'After the deluge', p. 8.

The Southern Argus

3 March 1921, 'Locals', p. 3.

The Victor Harbor Times

25 February 1921, 'The weather', p. 3.

11 March 1921, 'Weather report', p. 4.

1 March 1921

Rainfall, described as the heaviest in the town's history, led to widespread flooding and damage around Port Augusta and surrounding towns. Some older buildings collapsed, crops were damaged and other property damage occurred.

The Transcontinental

4 March 1921, 'Phenomenal rain in the north', p. 3.

28 May–13 June 1921

Heavy sustained rains around Poochera caused flooding with roads damaged and farming operations delayed. Flooding reported in the Burra district.

The Advertiser

31 May 1921, 'Heavy rain and floods in Burra district', p. 7.

West Coast Sentinel

4 June 1921, 'District news', p. 2.

11 June 1921, 'District news', p. 2.

18 June 1921, 'District news', p. 2.

1922

8 January 1922

A severe thunderstorm at Crystal Brook resulted in flooding of town streets. A car was washed off the ford, damaged and a woman passenger endangered.

The Advertiser

9 January 1922, 'Rain in the north', p. 7.

3 June 1922

Heavy rain led to minor flooding of the Torrens River near its mouth. The tram tracks and Henley Beach Road were flooded.

The Advertiser

5 June 1922, 'Flooded streets and roads', p. 8.

The Register

5 June 1922, 'Wonderful shower seventy-two points in 50 minutes', p. 7.

7 July 1922

Heavy rain led to flooding at Port Elliot and Middleton. Several buildings were inundated and land slippage in a local memorial park caused some damage.

The Southern Argus

13 July 1922, 'Country news', p. 3.

The Victor Harbor Times

21 July 1922, 'Middleton', p. 3.

1923

20 May 1923

High tides, wind and rain led to limited flooding of Henley Beach Road near the sea. Property damage seemed the result of wind rather than flood.

The Advertiser

22 May 1923, 'Rain and wind', p. 9.

26 May 1923

Heavy rains caused minor flooding around Macclesfield, Paris Creek and Strathalbyn.

The Southern Argus

7 June 1923, 'Locals', p. 2; 'Country news', p. 3.

9–11 June 1923

Torrential downpours led to the Torrens overflowing and flash-floods around Adelaide and north of the city. Stock loss and property damage was reported and train and tram lines were damaged. Land was submerged around Bordertown.

The Advertiser

12 June 1923, 'Winter deluge', p. 9.

13 June 1923, 'The floods and afterward', p. 9; 'The country', p. 13.

The Bunyip

15 June 1923, 'Gawler in flood', p. 2.

The Mail

16 June 1923, 'Floods cause unemployment', p. 3.

2 July 1923

Heavy rains throughout the weekend (30 June–1 July) led to flooding around Mount Barker with a number of houses inundated. There was heavy rainfall and flooding in many southern and western suburbs of Adelaide, in the city and at

Salisbury when the South and Little Para Rivers overflowed.

The Advertiser

2 July 1923, 'Flooded streets at Unley', p. 10.

3 July 1923, 'Wintry weather', p. 9; 'The Torrens a banker', p. 11.

4 July 1923, 'The floods at the Reedbeds', p. 9.

5 July 1923, 'Flood waters at the Reedbeds', p. 9.

The Bunyip

6 July 1923, 'Further floods', p. 2.

The Southern Argus

5 July 1923, 'Country news', p. 3.

12 July 1923, 'Locals', p. 3.

19 July 1923

Flooding of the Torrens River at the Reedbeds inundated Henley Beach Road with up to three feet of water.

The Register

20 July 1923, 'Torrens again in flood', p. 10.

1 August 1923

Extremely heavy rains led to flash-flooding. Areas around Saddleworth and Riverton and the lower regions of the Torrens River were particularly hard-hit. Roads were impassable and train services were severely disrupted. There was considerable damage to livestock, infrastructure and private property.

The Advertiser

2 August 1923, 'Another deluge; floods in the north', p. 10.

3 August 1923, 'The floods', p. 9.

4 August 1923, 'The floods', p. 16.

The News

1 August 1923, 'Floods in suburbs and country', p. 1; 'Traffic suspended', p. 7.

2 August 1923, 'Floods subside', p. 1; 'Bridge washed away', p. 5.

18–23 September 1923

Torrential rains delivered 4.5 inches to Adelaide. The Torrens overflowed, causing widespread flooding of metropolitan areas and enormous damage to property and business. Transport was disrupted due to submerged roads and damaged tramlines and railway lines. Houses were flooded at Gawler and a boy drowned at Salisbury.

Flooding occurred at Strathalbyn with all creeks at record heights and extensive damage was done to buildings and bridges. Langhorne Creek and towns in the Barossa Valley were also flooded. Roads were damaged on the Fleurieu Peninsula. The Murray River flooded at Renmark and in the Jervois area and inundated reclaimed land at Tailem Bend.

The Advertiser

24 September 1923, 'Unprecedented September rains, great flood in the Torrens', p. 9.

25 September 1923, 'The floods, market gardeners suffer', p. 11.

2 October 1923, 'Hill landslips', p. 8.

The Border Watch

25 September 1923, 'Floods in Adelaide', p. 3.

The Bunyip

28 September 1923, 'Floods at Gawler', p. 2.

The News

20 September 1923, 'Floods follow sunshine', p. 1; 'Tracks flooded', p. 3.

21 September 1923, 'Floods damage property', 'Heavy rains deluge state', 'Record flood', p. 1.

22 September 1923, 'State deluged', p. 8; 'Tramline washed out', p. 9.

24 September 1923, 'Severe thunderstorms follow floods', p. 1; 'Pipers defy floodwater', p. 7; 'Virginia Bridge closed; roads washed away', p. 9; 'Flood brickyards, preventative measures wanted', p. 9; 'Sad drowning cases', p. 12.

25 September 1923, 'Western suburban floodwaters', p. 1.

26 September 1923, 'Jervois Swamp', p. 5.

27 September 1923, 'Men at Jervois Swamp', p. 5; 'Harnessing the floods', p. 6; 'Damage by floods government decision', p. 7; 'Floods at Tanunda, old mill disappears', p. 9.

The Register

22 September 1923, 'Storm, hail and water', p. 9.

24 September 1923, 'Record rains and floods', p. 7.

The Southern Argus

27 September 1923, 'Local', p. 2; 'Country news', p. 3.

4 October 1923, 'Local', p. 3.

15–17 December 1923

Heavy rains fell in the State's north resulting in washaway damage to railway lines between Quorn and Oodnadatta and north of Marree. A Quorn man was drowned in a swollen creek. A heavy rainstorm hit Adelaide resulting in flash-flooding in many places, including the Victoria Park Racecourse and the Adelaide Oval.

The Advertiser

17 December 1923, 'A railway washaway, Quorn', p. 9.

18 December 1923, 'A tropical downpour, Adelaide streets flooded', p. 13.

The News

17 December 1923, 'Heavy rainstorm, water channels overflow', p. 1.

18 December 1923, 'Cricket pitch at the Adelaide Oval underwater', p. 1; 'On the tracks, Victoria Park', p. 3.

The Register

17 December 1923, 'Heavy pastoral rains', p. 7.

The Southern Argus

20 December 1923, 'Locals', p. 3.

1924

18–19 February 1924

A severe thunderstorm hit Adelaide resulting in flash-flooding in the streets. State-wide rain fell. A goods train was delayed by floodwaters between Crystal Brook and Warnertown.

The Advertiser

19 February 1924, 'Winter in summer', p. 13.

20 February 1924, 'Floods in February', p. 12.

The News

19 February 1924, 'State wide rain', p. 5

The Register

19 February 1924, 'Phenomenal downpour', p. 9.

20 February 1924, 'Abnormal rains', p. 9.

20 October 1924

Heavy rainfall in the Hills caused the River Torrens to rise, overflowing in the Reedbeds district. Breakout Creek overflowed, inundating the road between North Arm Bridge and Fulham Corner.



Flooding in Victoria Square, Adelaide, 6 February 1925. Over five inches of rain in a little over two hours caused flash-flooding in Adelaide with some roads under three feet of water. The storm was largely confined to the city with no rain in the Adelaide Hills. Newspapers commented that this saved the city from a major flooding disaster. Refers to chronology entry for 6 February 1925. Courtesy of the State Library of South Australia. B60616

The Register

21 October 1924, 'River Torrens overflowed',
'A wall of water', p. 6.

4 November 1924

A severe thunderstorm passed over Bordertown and led to flooding of the streets.

The Register

6 November 1924, 'Good pastoral rains', p. 9.

1925

6 February 1925

Very heavy localised rains (five inches in two and a quarter hours), led to extensive flooding throughout greater Adelaide. Transport services were disrupted, streets were under water and considerable damage to property was reported, particularly in the business districts. Floodwaters dispersed relatively quickly. It was reported that

the storm did not affect the Adelaide Hills. Elsewhere throughout the State, the rains were patchy and inconsistent, but Mount Gambier also reported heavy rains with resultant flooding. Flooding occurred at Spalding when the Bundaleer Reservoir overflowed.

The Advertiser

7 February 1925, 'Tropical deluge in Adelaide', p. 13. *Associated articles throughout issue.*

9 February 1925, 'Friday's deluge', p. 11. *Associated articles throughout issue.*

10 February 1925, 'The monsoonal deluge', p. 15.

The Border Watch

10 February 1925, 'Mount Gambier deluged', p. 4.

The Mail

7 February 1925, 'Deluge from North Queensland', p. 1.

The Register

7 February 1925, 'A phenomenal rain', p. 8;
'The worst storm in the history of Adelaide',
p. 9. *Associated articles throughout issue.*

29 May 1925

An evening downpour resulted in flooding along
Unley Road which was blamed on inadequate
culverts.

The Advertiser

30 May 1925, 'A torrential downpour', p. 17.
2 June 1925, 'Floods at Wayville West', p. 12.

The Mail

30 May 1925, 'Last's night's storm', p. 1.

1926

19 January 1926

Mount Gambier was flooded. The rainfall for
two days was 2.41 inches. Floodwaters poured
down the main street flooding businesses and
roads washed away.

The Border Watch

21 January 1926, 'Extraordinary fall of rain',
p. 1.

21 March 1926

Heavy rain around Kyancutta caused minor
localised flooding.

The Advertiser

23 March 1926, 'A timely rain', p. 13.

5–6 October 1926

Heavy rains in the Adelaide Hills caused the
Torrens River to rise resulting in flooding along
its path and particularly in the Henley Beach
area.

The Advertiser

7 October 1926, 'Torrential rains', p. 13.

The Mail

9 October 1926, 'Floods in the heart of the
city', p. 1.

The Register

7 October 1926, 'Gales, floods and heavy seas',
p. 11.

8 October 1926, 'Floods at Henley', p. 11.

1927

18 June 1927

Rain falls were recorded in most areas in the

State. Floods occurred at Kingoonya. Heavy rains
fell along the East-West line and the country was
impassable in places.

The Advertiser

20 June 1927, 'General rains. Flood at
Kingoonya', p. 13.

4 August 1927

A heavy hailstorm and rain caused damage and
flooding, particularly at Henley Beach in the city
and Mount Pleasant in the Adelaide Hills.

The Register

6 August 1927, 'After the hailstorm', p. 9.
10 August 1927, 'The rains', p. 9.

17 December 1927

A heavy thunderstorm in the North flooded
Peterborough. The Flats, which run into Lake
Eyre were described as 'a sheet of water'. A
washaway occurred on the Oodnadatta line and
roads were flooded. 301 points in one and a half
hours was recorded at Marree.

The Advertiser

19 December 1927, 'Heavy thunderstorm', p.
13.

1928

19 January 1928

A heavy rainfall resulted in flooding in Mount
Gambier.

The Advertiser

20 January 1928, 'Heavy rain', p. 13.

The Border Watch

21 January 1928, 'Extraordinary fall of rain',
p. 1.

14 February 1928

General rains in the northern areas of the State
led to floods and rail washaways in many places.
A washaway to the train line, 30 miles out of
Cockburn, derailed a train at Cutana which caused
the death of a fireman.

Heavy rainfalls broke a long drought but
resulted in flooding in Burra and closed roads
and railways. Widespread damage occurred to
infrastructure, buildings and livestock.

The Advertiser

17 February 1928, 'The breaking of the drought',
p. 13; 'Serious damage by heavy rain', p. 15.

18 February 1928, 'The disastrous floods', p. 13.

The Register

16 February 1928, 'Long drought broken', p. 9.

17 February 1928, 'In the wake of the monsoon—deluge in North-East', p. 9.

18 February 1928, 'Aftermath of February rains', p. 9.

2 October 1928

A severe storm raised the level of the Murray River around Murray Bridge and led to minor flooding of reclaimed areas. In Adelaide, the River Torrens overflowed its banks.

Widespread flooding occurred near Quorn.

The Mail

6 October 1928, 'Torrens rises', p. 11.

The Register

3 October 1928, 'Fierce state wide gales', p. 9.

4 October 1928, 'In the track of the storm', p. 1; 'Murray areas flooded', p. 11.

1929

24 January 1929

Heavy rain led to minor flooding along the main street of Orroroo.

The Border Watch

26 January 1929, 'Long dry spell broken at Orroroo', p. 3.

20 February 1929

Scattered rainfall flooded Serviceton and Peterborough in the Hills area.

The Advertiser

22 February 1929, 'Scattered rain', p. 13.

24 March 1929

A thunderstorm flooded the countryside in the northern area of Eudunda to Morgan and Robertstown. This caused several fence and railway washaways, stock losses and impassable roads.

The Advertiser

25 March 1929, 'Torrential rains in the north', p. 13.

26 March 1929, 'Rain in the country', p. 13.

27 March 1929, 'The country', p. 7; 'Caught in flood', p. 13.

7–9 September 1929

Heavy rains led to minor flooding of paddocks around Tantanoola, Mount Schank and Wandilo.

The Southern Argus

12 September 1929, 'Locals', p. 3.

16–17 November 1929

Heavy rainfalls throughout the State broke the drought and caused minor flooding with hundreds of acres of wheat lands flooded around Crystal Brook.

The Register

18 November 1929, 'Crops under water', p. 3.

25–27 December 1929

Heavy rainfalls were reported throughout the State. Flooding extended through many Adelaide districts, country centres and in the North, particularly Peterborough. Widespread damage occurred in Adelaide suburbs. Train services were disrupted by washouts, communications were dislocated and damage to infrastructure and crops resulted.

The Advertiser

27 December 1929, 'Torrential rains in the north', p. 9.

28 December 1929, 'Glorious general rains: Melbourne Express derailed', p. 15.

30 December 1929, 'Aftermath of the storm', p. 9.

The Border Watch

28 December 1929, 'General rain', p. 1.

The Bunyip

3 January 1930, 'A deluge of rain', p. 12.

The Mail

28 December 1929, 'Floods at Paratoo', p. 1.

The Register

27 December 1929, 'Rains fall over northern pastoral areas', p. 3.

28 December 1929, 'State-wide rains mean changed outlook for South Australia', p. 2.

The Southern Argus

2 January 1930, 'Milang regatta', p. 3.

West Coast Sentinel

10 January 1930, 'Wudinna', p. 4; 'Minnipa', p. 10.

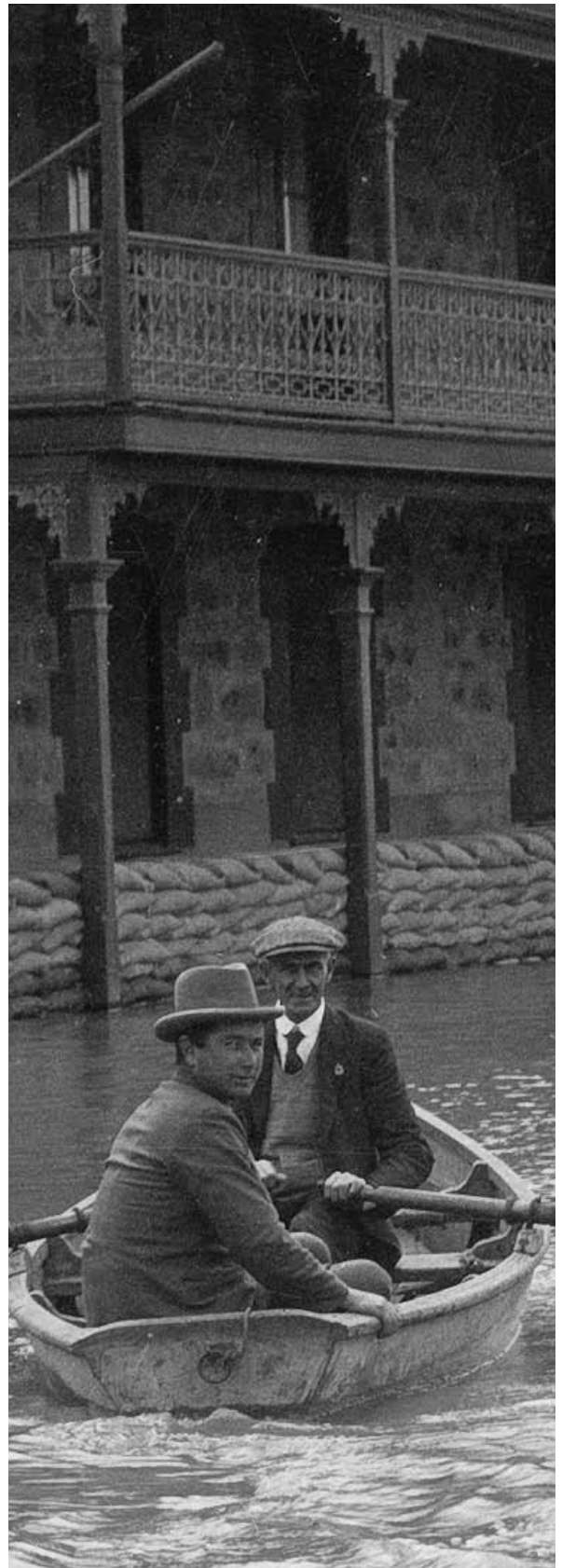


George Street, Norwood in 1931. See chronology entry for 2–3 September 1931. Courtesy of The Advertiser.

1930–1939

The Stock Market collapse at the end of 1929 ushered in the Great Depression. South Australia suffered as did the rest of the industrialised world. There were dole queues, soup kitchens, extreme poverty and hardship, wages were cut and increased working hours implemented for those who had work. This corresponded to a dramatic slowdown in many well-established industries in Adelaide. The rural sector, which relied on export trade, was reeling from the impact of the Depression. Things slowly improved in the second half of the decade until the growing optimism was dashed by the outbreak of World War II. Many rural families struggled to maintain properties that had been held for generations, finally abandoning their farms in order to seek work in the city.

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|------|--|
| 1930 | All South Australian public servants over age of 65 are compulsorily retired |
| 1931 | Holden merges with General Motors to become General Motors-Holden's Ltd |
| 1937 | South Australian Housing Trust becomes the first public housing authority in Australia |
| 1938 | Mount Bold Reservoir opens |
| 1938 | Bay Road renamed as Anzac Highway |
| 1938 | First talking fire alarm in the world is installed at Woodville |
| 1938 | First Adelaide Flower Day |
| 1939 | New Parliament House opened |



1930

1–3 February 1930

Rains in the North-East of the State caused minor flooding, disrupting road and rail travel. Floodwaters at Kingston and Crystal Brook inundated farmhouses, roads and crops.

The Advertiser

4 February 1930, 'Drought definitely broken in pastoral areas', p. 17.

5 February 1930, 'Pastoral rains', p. 17.

The Border Watch

4 February 1930, 'Heavy rain in the North', p. 1.

10–11 February 1930

Mannahill recorded 126 points of rain and all local watercourses were flooded. Water covered the road between Mannahill and Olary for four miles.

The Advertiser

11 February 1930, 'Country rains', p. 18.

12 February 1930, 'Falls of rain', p. 18.

18 July 1930

The low-lying areas of Millicent flooded for a brief time due to a thunderstorm.

The Border Watch

19 July 1930, 'Heavy rainstorm', p. 5.

2 August 1930

The Bremer River briefly flooded low-lying areas in the district of Strathalbyn.

The Southern Argus

7 August 1930, 'Locals', p. 2.

5 December 1930

Sudden heavy rain in the Mid-North led to flooding around Peterborough, Yongala and Booleroo Centre. Several accounts of property damage were received but most seemed to be caused by the storm rather than flooding.

The Advertiser

6 December 1930, 'Floods in the north', p. 15.

8 December 1930, 'Serious effects of floods in northern districts', p. 9.

The Mail

6 December 1930, 'Worst washaways since 1923', p. 1.

The Register

6 December 1930, 'Sudden deluge quickly floods northern towns', p. 1.

8 December 1930, 'Damage to crops and fencing', p. 2.

7 December 1930

A sudden downpour at Monash burst the irrigation channels and roads were made impassable. Benefits probably exceeded losses.

The Advertiser

12 December 1930, 'Our country section', p. 17.

1931

8 June 1931

In the metropolitan area, roads and grazing paddocks in the western suburbs and part of the park lands were flooded.

The Advertiser

10 June 1931, 'Steady soaking rain', p. 9.

28–29 June 1931

Heavy rain in the centre of Kangaroo Island brought the Cygnet River down in flood. Low-lying ground was under water. The sea washed away several feet of soil.

High tides caused floods in low-lying areas around the coasts of South Australia and the sea entered houses in some low-lying places on the mainland and caused damage in some cases.

A storm occurred at Mount Gambier which led to flooding in low-lying areas of the town and caused damage in many business places.

The Advertiser

30 June 1931, 'State whipped by wintry gale', p. 7; 'Business premises flooded at Mount Gambier', p. 8.

1 July 1931, 'Tide rises high at Port Pirie', p. 19.

The Border Watch

30 June 1931, 'Terrific thunderstorm floods Mount Gambier shops and streets', p. 1.

Kangaroo Island Courier

4 July 1931, 'High tides', p. 4.

West Coast Sentinel

3 July 1931, 'Abnormally high tides', p. 1.

6 July 1931

The rain caused the Cygnet River to flood. Low-lying country was under water.

Kangaroo Island Courier

8 July 1931, 'The weather', p. 5.

11 July 1931

The Finniss River flooded and fences were carried away.

The Southern Argus

16 July 1931, 'Locals', p. 3.

20 July 1931

A report from Mannahill in the North-East stated that good rain had caused the country to flood.

The Advertiser

27 July 1931, 'Good rain in North-East', p. 7.

9 July – 29 August 1931

Widespread River Murray floods were ongoing during this period. Severe flooding in the Riverland district disrupted communications. Houses and farm property flooded and crops damaged.

The River Murray trebled in width causing severe flooding and damage to occur at locations between Mannum and Murray Bridge.

The Advertiser

10 July 1931, 'River menaces low-lying areas', p. 19.

1 August 1931, 'Murray floods', p. 10.

3 August 1931, 'Murray rising', p. 9.

4 August 1931, 'River rises 7 in at Renmark', p. 8.

5 August 1931, 'Murray waters rising', p. 9.

6 August 1931, 'Renmark warned', p. 7.

7 August 1931, 'Bank bursts at Curlwaa', p. 25.

8 August 1931, 'River rises', p. 16.

10 August 1931, 'River rise less', p. 7.

11 August 1931, 'Hard fight to stay flood', p. 9.

13 August 1931, 'Murray floods', p. 9.

14 August 1931, 'Flood banks give way', p. 21.

15 August 1931, 'Peak reached at Renmark', p. 15.

18 August 1931, 'River flood moving on', p. 9; 'Settlers wage losing battle with flood', p. 19.

19 August 1931, 'River falling beyond Renmark', p. 15.

20 August 1931, 'Flight for safety', p. 7.

21 August 1931, 'Mannum floods', p. 14.

22 August 1931, 'Floodwaters menace Mannum lighting plant', p. 15.

24 August 1931, 'Moving stories of the floods', p. 7.

25 August 1931, 'Critical hour in fight against floods', p. 9.

26 August 1931, 'Swollen river takes new toll', p. 9.

27 August 1931, 'Calm day gives river settlers breathing space, p. 9; 'Swamps could have been saved', p. 11.

29 August 1931, '56 dairy farmers lose holdings', p. 15.

31 August 1931, '50,000 view flooded Murray during weekend', p. 7.

2 September 1931, 'Murray flood inundates another settlement', p. 9.

3 September 1931, 'Fall in river caused by N.E. wind', p. 9.

The Border Watch

16 July 1931, 'Floodwaters closing around Renmark', p. 1.

15 August 1931, 'Lake Bonney embankment bursts', p. 1.

18 August 1931, 'Flood danger nearly over', p. 1.

20 August 1931, 'Mannum residents flee for safety when floodwaters burst embankment', p. 1.

27 August 1931, 'Respite for Murray settlers', p. 1.

29 August 1931, 'Mypolonga goes under', p. 1.

West Coast Sentinel

7 August 1931, 'The Murray floods', p. 1.

21 August 1931, 'The Renmark flood', 'Murray breaks through embankment', p. 1.

28 August 1931, 'Anxious times along the Murray', p. 1.

2 August 1931

Continuous rainfall at Cummins registered 377 points, 86 above the average for July. Road damage occurred at Windeloo due to flooding two feet deep over the road for a distance of several chains.

The Advertiser

4 August 1931, 'Our country section', p. 10.

28 August 1931

A rise in level of Lake Albert caused flooding on the main Mount Gambier Road north of Meningie. Pasture and feed were lost.

The Border Watch

29 August 1931, 'Mount Gambier – Adelaide Road', p. 1.

2–3 September 1931

Very heavy rains in the Adelaide Hills led to flooding in many Hills communities. Creeks and rivers ran high. This led to flooding to the eastern Adelaide suburbs and western suburbs where the Torrens overflowed. Significant property damage occurred.

The Advertiser

4 September 1931, 'Storm waters sweep hills and suburbs', p. 19.

5 September 1931, 'Adelaide takes stock of flood damage', p. 15.

The Border Watch

3 September 1931, 'Heavy rain in Adelaide', p. 1.

The Southern Argus

10 September 1931, 'Locals', p. 3.

14 September 1931

Flooding of the Torrens caused submergence of roads at Lockleys and Henley Beach.

The Advertiser

15 September 1931, 'The Torrens again in flood', p. 15.

2 December 1931

In the Adelaide Hills, 230 points of rain fell in 30 minutes. Private bridges were washed away and severe crop and topsoil damage resulted.

Cloudbursts at Renmark, Georgetown, Lyndoch and Kapunda resulted in flooding of the streets of Renmark and surrounding countryside. Water overflowed the track of the railway between Georgetown and Abbeville. Tarlee and the streets of Riverton also flooded.

The Advertiser

3 December 1931, 'Electrical storm does £10,000 damage in the Hills', p. 9.

1932

9 April 1932

Flooding occurred in Mount Gambier and Heywood with minimal damage.

The Border Watch

12 April 1932, 'Heavy weekend rain—two inches at Mount Gambier', p. 1; 'Dartmoor crops flooded', p. 4.

13 June 1932

Continual rain at Mount Schank resulted in swamps flowing inland and some roads in the area being two feet under water.

The Border Watch

18 June 1932, 'The district—Mount Schank', p. 5.

7 August 1932

Extensive flooding occurred on the Bremer and Angas Plains after heavy rain fell.

The Bremer River flooded half the township of Langhorne's Creek because of heavy rains near Mount Barker and Callington. Streets were covered by two feet of water.

The Advertiser

10 August 1932, 'Langhorne's Creek is often flooded', p. 10.

The Southern Argus

18 August 1932, 'Jottings', p. 3.

24 September 1932

Heavy rain in Kangaroo Island resulted in the Cygnet River coming down in flood, causing damage to public infrastructure.

Kangaroo Island Courier

24 September 1932, 'Severe rain storms', p. 1.

1933

20 January 1933

Heavy downpours of rain led to flooding in Coonalpyn resulted in damage to public infrastructure.

The Southern Argus

26 January 1933, 'Ten inches of rain', p. 3.

24 January 1933

A heavy downpour of rain in Mount Gambier flooded streets.

The Border Watch

24 January 1933, 'Mount Gambier has cloudburst', p. 1.

31 August 1933

Flooding of Langhorne Creek caused minor local damage.

The Southern Argus

7 September 1933, 'Langhorne's Creek', p. 3.

1–3 September 1933

Two days of heavy rainfall throughout the State caused widespread damage and loss. Two inches of rain fell in the Adelaide Hills and three inches at Saddleworth. Floods resulted in the western suburbs of Adelaide and Port Noarlunga, Saddleworth and Stockport. In the Mid-North, flooding also occurred at Clare and two boys drowned when a car washed away while attempting to ford the flooded Hutt River.

The Advertiser

2 September 1933, 'Torrens overflows in western suburbs', 'Onkaparinga inundates two townships', 'Floods follow bounteous rain—two drowned', p. 15.

4 September 1933, 'Torrens floods—Stockport street flooded', p. 10.

5 September 1933, 'Torrens flooded', p. 8.

The Border Watch

2 September 1933, 'Floods in many parts cause heavy damage—two lives lost at Clare', p. 1.

The Bunyip

8 September 1933, 'General rain', p. 8.

16 September 1933

Heavy rain led to flooding of the Chapman River and land in the Antechamber Bay area.

Kangaroo Island Courier,

23 September 1933, 'Floods', p. 1.

1934

12 April 1934

Five inches of rain east of Burra led to local flooding. Floods also occurred in Kapunda and Caltowie.

The Advertiser

14 April 1934, 'Floods east of Burra', p. 15.

The Bunyip

27 April 1934, 'Storm at Kapunda', p. 4.

13–15 August 1934

Heavy rains in the Mid-North and the west of the State led to flooding in a number of communities. In coastal districts, exceptionally high tides and gale-force winds led to serious damage. Many people were left homeless and there was considerable property damage. Port Pirie and Port Augusta were particularly hard-hit. In Port Pirie, two babies drowned.

The Advertiser

15 August 1934, 'Gale-driven seas invade Port Pirie homes', 'Port Augusta flooded', p. 15.

17 August 1934, 'Port Pirie's plight revealed as flood recedes', p. 21.

The Border Watch

16 August 1934, '1000 homeless at Port Pirie', 'Homes washed out at Port Augusta', p. 1.

18 August 1934, 'Acute distress aftermath of Port Pirie floods', p. 1.

The Bunyip

17 August 1934, 'Tidal floods and disaster at Port Pirie', p. 1.

West Coast Sentinel

17 August 1934, 'Tuesday night's destructive storm', p. 1; 'Terrific gale in Murat Bay', p. 4.

3–7 November 1934

Downpours in the North of the State led to washaways and railway disorganisation. Extensive damage was caused to roads, crops and livestock. Caltowie experienced flooding and telegraph communications were lost with Cockburn, Pinnaroo, Streaky Bay and other townships in the region.

The Chronicle

8 November 1934, 'Damage in North', p. 43.

7–8 November 1934

Wild storms led to heavy rainfall on the Eyre Peninsula, in Adelaide and throughout the South-East of the State. Much of Adelaide flooded.

The Border Watch

8 November 1934, 'Deluge in Adelaide', p. 1.

Port Lincoln Times,

9 November 1934, 'Rain fails to kill grasshoppers', 'Storm in Adelaide', p. 1.

The Southern Argus

22 November 1934, 'Macclesfield', p. 1.

1935

1–2 January 1935

Thunderstorms led to flash-flooding of streets and footpaths in the Port Augusta district. A vehicle was washed away in the flooded Saltia Creek and other motorists were delayed by the flood.

The Transcontinental

4 January 1935, 'Inch of rain in first two days', p. 1.

1 April 1935

A thunderstorm accompanied by heavy rain described as a cloudburst caused minor flooding in the Naracoorte district.

The Border Watch

2 April 1935, 'Thunderstorm near Naracoorte', p. 1.

27–28 April 1935

Heavy rains to the north of Adelaide caused flooding around Port Augusta, Quorn and Saltia. The railway line was underwater and damage reported to dams, fencing and roads.

The Advertiser

29 April 1935, 'Good rain in North-West; floods damage Quorn road; cloudburst at Saltia', p. 15.

3–6 August 1935

Stormy conditions in the Adelaide Hills caused flooding of the Torrens and Onkaparinga Rivers. Low-lying areas towards Fulham and the Reedbeds were particularly affected. The Angas River flooded, causing damage to the weir. Stormy weather also occurred in the South-East where flooding of low-lying areas resulted around the Tantanoola, Naracoorte and Mosquito Creek districts.

The Border Watch

3 August 1935, 'Coldest day for 4 years', 'Stormy conditions around Adelaide', p. 1.

6 August 1935, 'Flooding at Naracoorte, worst weather for years', 'Low lying lands inundated', p. 1.

The Southern Argus

8 August 1935, 'Flood damages weir', p. 1.

15–18 September 1935

Widespread heavy rains, measuring over four inches in some parts, fell over the Adelaide Hills and southern districts causing flooding around Strathalbyn, Macclesfield, Meadows and Langhorne's Creek. Extensive damage was done to the weir on the Angas River and to bridges and culverts. The Onkaparinga River overflowed, flooding Noarlunga where approximately 100 people were forced to evacuate their homes. A boy drowned in the flooded Para River.

The Advertiser

17 September 1935, 'Noarlunga floods', p. 30.

The Border Watch

19 September 1935, 'Boy drowned in floods', p. 1.

The Southern Argus

19 September 1935, 'Big floods at Strathalbyn', p. 1.

26 September 1935, 'Good rain at Macclesfield', p. 1.

20 October 1935

Severe thunderstorms in northern districts caused widespread flooding of creeks. Six people drowned when their vehicle was swept away by a wall of water in Castine's Creek, between Quorn and Wilmington.

The Transcontinental

25 October 1935, 'Six persons drowned in flooded creek; severest thunderstorms for years', p. 1.

1936

1 January 1936

A heavy downpour in Adelaide caused localised flooding of houses and streets at St Peters. Severe thunderstorms also occurred in the North, causing flash-flooding of the streets at Nackara. Washaway damage to the Broken Hill railway line caused travel delays.

The Border Watch

2 January 1936, 'Heavy rain in Adelaide and the north', p. 2.

4 January 1936, 'Broken Hill Express delayed', p. 1.

8 January 1936

Heavy rains, described as 'phenomenal' in some places, fell in western, northern and north-eastern districts, causing widespread flooding which disrupted rail and road travel. All creeks in the Flinders Ranges flooded and roads out of this district were rendered impassable. Houses and streets flooded at Red Hill.

The Border Watch

9 January 1936, 'Splendid rains throughout the state', 'Floods in many districts', p. 1.

11 January 1936, 'Floods in northern areas abating', p. 1.

15–16 January 1936

Severe thunderstorms at Monarto caused flooding which damaged roads, fencing and crops. White Hill in the Murray Valley reported flooding and erosion caused by water rushing down from higher country, inundating properties and roads.

The Murray Valley Standard

17 January 1936, 'January rains cause damage', p. 1.

18 February 1936

Storms resulted in flooding in districts east of Burra, severely damaging fencing and roads. Flash-flooding also reported at Preamimma Creek and at Rocky Gully Creek which overflowed onto adjacent lands and submerged the Mannum Road.

The Border Watch

20 February 1936, 'Big floods east of Burra', p. 1.

The Murray Valley Standard

21 February 1936, 'Heavy fall of rain', p. 1.

15 December 1936

Heavy rainfall (136 points in less than 1 hour) over the Strathalbyn district flooded the town.

The Southern Argus

17 December 1936, 'Torrential rain at Strathalbyn', p. 1.

16 December 1936

The city and suburbs were flooded in Adelaide. The worst affected area covered Waymouth, Pirie and Grenfell Streets where there was damage to business premises. Hundreds of houses in residential areas were flooded, especially in the western and eastern areas of town.

The Border Watch

17 December 1936, 'Tropical storm in Adelaide', p. 1.

18 December 1936

Glencoe township and district was affected by flooding. Crops were under water up to 2 to 3 feet in some areas.

The Border Watch

19 December 1936, 'Glencoe inundated', p. 4.

1937

16–18 February 1937

Torrential rains led to flooding in areas of the Lower Eyre Peninsula. The roads between Cummins, Yeelanna and Tumby Bay were severely damaged. Farmers' properties were also affected. Flooding caused washaways and damage on northern rail lines, disrupting train schedules and resulting in the death of a train driver near Whyalla. A ten-year-old boy drowned while attempting to cross a flooded creek near Appila.

The Advertiser

17 February 1937, 'Washaways on northern lines', p. 23.

18 February 1937, 'Continuance of sultry conditions', p. 12.

19 February 1937, 'Boy drowned in flooded creek', p. 25.

The Border Watch

16 February 1937, 'Torrential rain in the north', p. 1.

19 February 1937

Torrential rain flooded Eudunda, causing damage to roads and houses. The railway line between Kapunda and Morgan damaged by washaways.

The Border Watch

20 February 1937, 'Flood damage in north', p. 1.

27 February 1937

Localised thunderstorm and torrential rain led to floods at Terka and Wilmington in northern South Australia with extensive damage to livestock and property.

The Advertiser

1 March 1937, 'Floods in northern towns', p. 19.

1–3 September 1937

The Wakefield, Hill, Hutt, Light, Gawler, Broughton and Gilbert Rivers overflowed. Widespread floods caused serious damage to trees, crops, railway lines, bridges and loss of stock and property. This covered most areas from Koolunga to Two Wells to Saddleworth. The Clare district was affected most.

The Advertiser

3 September 1937, 'Worst floods for 40 years in Mid-North', p. 31.

4 September 1937, 'Floods cause anxious night at Port Wakefield', p. 23.

27 November – 2 December 1937

A thunderstorm followed by continuous rainfall, recorded as two inches in Kimba, filled the Toopoor Lake and covered the railway track to a depth of 5 to 6 feet.

Port Lincoln Times

3 December 1937, 'Continuous rain causes much damage', p. 1.

28 November 1937

Heavy rains in the hills between Port Augusta and Wilmington led to floods in Stirling North and the surrounding districts with minor washaways on the Port Pirie line.

The Transcontinental

3 December 1937, '233 points of steady rain', 'Floods at Stirling North', p. 1.

1938

14 January 1938

Sudden heavy rains in the Mid-North flooded and washed away rail lines beyond Riverton to

Quorn and caused damage to crops, houses and fences.

The Advertiser

15 January 1938, 'Sudden floods in Mid-North', p. 25.

18–20 February 1938

Heavy rain caused creeks to overflow and led to major flooding in the Far-North of South Australia. Rail washaways reported west of Port Augusta, services suspended and 'thousands of pounds' worth of damage to infrastructure and property resulted. Heavy rainfall flooded creeks and roads throughout the Eyre Peninsula.

The Adelaide Chronicle

24 February 1938, 'Heavy rain transforms pastoral areas', p. 42.

The Advertiser

28 February 1938, 'Why the Alice Springs train did not get through', p. 24.

The Border Watch

22 February 1938, 'Up to six inches in pastoral areas', p. 2.

Port Lincoln Times

25 February 1938, 'Heavy downpour causes hold-ups', p. 1.

The Transcontinental

25 February 1938, 'Port Augusta and district receives best summer rain for years', p. 1.

15–17 April 1938

Heavy rainfall, particularly in the Red Creek district and high seas at Victor Harbor and the Murray mouth led to flooding at Victor Harbor, Hindmarsh, Ewe and other small islands. Significant damage was caused to barrage, dam and embankment infrastructure, property and equipment and there was some alteration to the coastline. At Port MacDonnell, water flooded over the road. The sea backed up the creeks and caused some damage.

The Border Watch

19 April 1938, 'Wettest Easter for many years—widespread damage', p. 1.

The Southern Argus

21 April 1938, 'Extensive damage by weekend of storms', p. 3; 'Heavy downpours', p. 8.

28 April 1938, 'Murray Barrages', p. 2.

4 May 1938, 'Goolwa news', p. 5.

10 December 1938

High seas flooded a large area extending from Glenelg to Port Adelaide. Boats, seawalls, earth embankments and timber yards sustained damage. Streets in Port Adelaide flooded.

The Advertiser

12 December 1938, 'Local damage by high seas', p. 23.

13 December 1938, 'Floodwaters at Port Adelaide', p. 24.

1939

15 January 1939

Tributaries of the Angas River overfilled and floodwaters threatened houses.

The Southern Argus

18 January 1939, 'Welcome rain', p. 8.

26 January – 2 March 1939

Very heavy rain fell in north-west South Australia and Central Australia resulting in serious, lengthy disruptions to rail, road, air and telegraph services by the extensive flooding. Floodwaters isolated Oodnadatta and reached towards the Northern Territory. A child drowned in the floodwaters. Tennant Creek and Alice Springs, isolated by the floodwaters, experienced repeated shortages of fresh food supplies. Extensive stock losses were incurred and railway lines and bridges were washed away. Over a period of 30 days, 679 points of rain registered at Marree.

The Advertiser

26 January 1939, 'More rain in interior', p. 17.

27 January 1939, 'More rain in north', p. 25.

28 January 1939, 'Floods in north', p. 19.

30 January 1939, 'Towns still isolated', p. 17.

2 February 1939, 'Lives lost in northern floods', p. 17.

14 February 1939, 'Re-opening of North-South line', p. 20.

20 February 1939, 'Further floods in north Australia', p. 17.

27 February 1939, 'Four trains stranded in interior', p. 27.

28 February 1939, 'Coldest February day in history', p. 18.

2 March 1939, 'Far-North floods subsiding', p. 19.

The Border Watch

28 February 1939, 'Heavy rain over wide pastoral areas', p. 1.

The News

27 January 1939, 'Biggest floods for years', p. 1.

28 January 1939, 'Floods in north begin to subside', p. 5.

31 January 1939, 'Repairing flood damage', p. 3.

1 February 1939, 'Three lose lives in north floods', p. 1.

16 February 1939, 'Port streets flooded', p. 1.

21 March 1939

Heavy rains caused washaways on the railway line north of Oodnadatta.

The Advertiser

22 March 1939, 'Heavy rains in north', p. 24.

5 April 1939

A heavy thunderstorm caused flooding in Mount Gambier. Heavy rain in the Williamstown district led to flooded streets and paddocks.

The Border Watch

6 April 1939, 'Splendid downpours end long dry spell in Lower South-East', p. 1.

10 July 1939

Heavy rains in the North caused creeks and rivers to overflow and flood roadways linking northern towns in the western districts of the State. Laura was isolated.

The Border Watch

11 July 1939, 'Heavy rain in north', p. 1.

30 August 1939

Heavy August rains led to flooding in the Naracoorte district.

The Border Watch

2 September 1939, 'Naracoorte Creek at flood level', p. 1.

30–31 August 1939

The Gawler River flooded low-lying country areas of the Adelaide Plains, causing little damage. Damage occurred to market gardens near Virginia. The Little Para River flooded around Salisbury.

The Advertiser

31 August 1939, 'Damage by floods', p. 20.

1 September 1939, 'Gawler River country flooded', p. 22.

10–11 September 1939

The Murray River breached an embankment at Tailem Bend, flooding about 180 acres of swampland.

The Advertiser

12 September 1939, 'Banks broken at Tailem Bend', p. 18.

10 October – 8 November 1939

Murray River floodwaters extended from the Riverland to Murray Bridge engulfing homes, roads and swamplands. The river in some areas was 4–5 miles wide, causing damage to orchards and vineyards.

The Advertiser

11 October 1939, 'Flood water extending at Renmark', p. 14.

18 October 1939, 'River still rising at Waikerie', p. 22.

24 October 1939, 'Murray waters still rising', p. 16.

25 October 1939, 'River Murray in flood', p. 19.

26 October 1939, 'River Murray still rising', p. 16.

27 October 1939, 'Sand-bagging at Waikerie', p. 26.

3 November 1939, 'Gradual rise along Lower Murray', p. 22.

4 November 1939, 'River breaks through at Murray Bridge', p. 23.

6 November 1939, 'Murray still causes anxiety', p. 18.

7 November 1939, 'Murray Bridge floods', p. 23.

8 November 1939, 'River flood eases', p. 20.

9 November 1939, 'Murray level drops further', p. 15.

The Murray Valley Standard

3 November 1939, 'Attention focussed on rising river', p. 1.

10 November 1939, 'Four private swamps 'go under' in river floods', p. 1.

The News

12 October 1939, 'Homes abandoned: river flood threat', p. 9.

31 October 1939

Unusually heavy rainfall led to flooding in the Kimba district.

Port Lincoln Times

9 November 1939, 'Exceptional November weather', p. 1.

1940–1949

In 1940, the prevailing atmosphere of tribulation was lightened by the world-famous discovery of penicillin by Adelaide-born, Dr Howard Florey, enabling mass production of antibiotics which undoubtedly contributed to the development of society. In support of the war effort, 1941 saw the launching of the first naval vessel built in South Australia and the introduction of daylight saving. Towards war's end, the State held its first election with compulsory voting. 1945 heralded new social legislation with unemployment and sickness benefits coming into operation and new government instrumentalities formed such as ETSA. Migration from Europe was resumed with assisted migration for the British and acceptance of displaced people from continental Europe. In 1947, the Woomera Rocket Range came into existence as a joint weapons research and testing collaboration between Britain and Australia.

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| 1941 | First naval vessel built in SA is launched |
| 1941 | Daylight Saving Time introduced |
| 1944 | First State election with compulsory voting |
| 1946 | Electricity Trust of South Australia (ETSA) established |
| 1947 | Construction of new Adelaide Airport commences at West Beach |
| 1948 | Full scale production of Holden car starts |
| 1949 | Migrant hostel built on airport land |



1941

22–31 January 1941

Heavy, widespread rains fell over the State and caused severe flooding, loss of life and great damage. Up to 5 inches of rain fell, breaking one of the worst droughts for 40 years. Two people reported dead and six missing.

Many northern areas flooded. All communications infrastructure severely damaged and heavy losses to stock, buildings and property reported.

The Angas, Dawson, Bremer, Hindmarsh and Inman Rivers flooded surrounding districts. Extensive damage reported in the Smithfield and Salisbury areas.

The Advertiser

25 January 1941, 'Floods sweep country towns', p. 15.

27 January 1941, 'Two dead in S.A. flood', p. 11; 'Great flood damage in country', p. 14.

29 January 1941, 'Resuming services after flood', p. 16.

31 January 1941, 'Repairing flood damage', p. 17.

The Border Watch

25 January 1941, 'South Australia's worst deluge', p. 1.

The Bunyip

31 January 1941, 'The State under flood', p. 7.

Kangaroo Island Courier

31 January 1941, 'The rainstorm', p. 1.

Laura Standard and Crystal Brook Courier

31 January 1941, 'Laura flooded third time in twenty-seven years', p. 2.

7 February 1941, 'Laura flood', p. 5.

14 February 1941, 'Flood water damage', p. 3.

The Murray Valley Standard

31 January 1941, 'Rain deluge will cost district many thousands', p. 1.

The Southern Argus

29 January 1941, 'Torrential rain causes widespread damage', p. 1.

Whyalla News

31 January 1941, 'Generous rainfall of 369 points', p. 1.

1942

2 May 1942

Heavy rains caused minor flooding near Hotel Bay, Whyalla.

Whyalla News

8 May 1942, '156 points on Saturday', p. 1.

14 July 1942

Heavy rain led to minor flooding of creeks on Kangaroo Island with damage to fences.

Kangaroo Island Courier

17 July 1942, 'Heavy rain', p. 1.

9 September 1942

Flooding reported around the Cygnet River after heavy rain, threatening homesteads.

Kangaroo Island Courier

11 September 1942, 'Cygnet River overflows its banks', p. 1.

1943

17 February 1943

Port Augusta and surrounding area was flooded after a heatwave and two nearby railway lines washed away.

The Transcontinental

19 February 1943, 'Heavy deluge follows heat wave', p. 1.

15 July 1943

Flooding occurred during high tides at Port MacDonnell. A boat was reportedly thrown into the middle of a road.

The Border Watch

3 August 1943, 'High seas at Port MacDonnell', p. 1.

1944

7–14 February 1944

Torrential rain led to severe floods near Port Augusta, causing rail washaways and delaying train services for one week.

The Advertiser

15 February 1944, 'Severe floods in Far North', p. 3.

10 May 1944

Parts of Military Road between Grange and Escourt House flooded to a depth of two feet as the Port River swamps overflowed on a high tide.

The Advertiser

11 May 1944, 'Road flooded', p. 5.



A landscape of waves encloses a farm near Balaklava. Refer to chronology entry for 22–31 January 1941. Courtesy of the State Library of South Australia.



Four men on a raft punt their way across floodwaters near Balaklava carrying feed. Refer to chronology entry for 22–31 January 1941. Courtesy of Kevyn Gardner.

1945

14 January 1945

Floodwaters swept into Wudinna and formed a 30 acre lake 4 feet deep.

Port Lincoln Times

18 January 1945, 'Heavy thunderstorm in Kimba and Wudinna districts', p. 1.

19 June 1945

Flooding reported in Quorn, Peterborough and the Upper-North of the State. Train services in the north cancelled.

The Border Watch

21 June 1945, 'Worst drought in South Australia now ended', p. 1.

26 June 1945

A storm led to commercial and residential flooding at Port Adelaide and damaged the jetties of Glenelg, Brighton and Henley Beach. The tide flooded the foreshore at Henley Beach and damaged foreshore facilities.

The Advertiser

27 June 1945, 'Shops flooded at Port Adelaide', p. 7.

28 June 1945, 'Damage at beaches', p. 5.

The News

27 June 1945, 'Port homes flooded in storm', p. 1.

1946

15–20 January 1946

Rain north-west of Port Augusta caused a washaway on the railway line at Winninowie. The railway line between Peterborough and Quorn was submerged in places. A large area flooded in the vicinity of Curnamona, Aroona and Martin's Well. A large portion of Gladstone flooded.

The Advertiser

21 January 1946, 'Traffic returns to normal today', p. 5.

The Border Watch

17 January 1946, 'Heavy rain and thunder', p. 1.

The News

21 January 1946, 'Floods cause big loss of poultry', p. 13.

16 January 1946

Victor Harbor received heavy rains over two days resulting in flooding of commercial and residential premises. Debris scattered over roads.

The Border Watch

19 January 1946, 'Finer weather forecast', p. 1.

28 January 1946

Floods damaged roads between Port Augusta and Port Pirie.

Whyalla News

1 February 1946, 'Floodwaters damage roads', p. 2.

4–6 February 1946

Trains delayed at Oodnadatta due to heavy rain and the Alberga River flooding. Water submerged the rail line to a depth of 7 feet but without expected damage.

The Advertiser

7 February 1946, 'Floods hold up three trains', p. 1.

The Transcontinental

8 February 1946, 'Three trains held up by floods', p. 1.

15 February 1946

Rains falling at a distance caused creek overflow and local flooding in the Orroroo district, damaging roads.

The Transcontinental

15 February 1946, 'No rain, but a flood', p. 3.

16–22 February 1946

State-wide torrential rain caused the Far-North to flood. Large lagoons formed, flooding hundreds of square miles and isolating towns including Stansbury and Port Augusta. Considerable damage occurred to roads. Surface water remained at stations to the north after flooding receded.

The Murray-Whyalla Pipeline at Sandy Creek was broken by floods. Road, rail, air, telegraph and telephone services disrupted.

At Victor Harbor, damage was estimated in the thousands of pounds. Mount Gambier experienced minor flooding.

The Advertiser

20 February 1946, 'S.A. returning to normal', p. 1.

21 February 1946, 'Vast change in north', p. 1.

22 February 1946, 'Flood waters break Whyalla pipeline', p. 1; 'Most services back to normal', p. 9.

The Border Watch

19 February 1946, 'State flooded by weekend downpour', p. 1.

21 February 1946, 'Northern deserts transformed to lakes', p. 1.

The News

18 February 1946, 'Rain records go in many parts of State', p. 1.

20 February 1946, 'Tarcoola train held 'til Saturday', p. 1.

21 February 1946, 'North train off to the Alice', p. 1.

22 February 1946, 'Graphic pictures of vast S.A. flood damage', p. 1.

Port Lincoln Times

21 February 1946, 'Heaviest February rains on record', p. 1.

28 February 1946, 'Flood damage in Cleve district', p. 1.

The Transcontinental

22 February 1946, 'Record rain over weekend', p. 1.

1 March 1946, 'Train services resumed', p. 1; 'After the floods', p. 3.

The Victor Harbor Times

22 February 1946, 'Heavy rains over weekend', p. 3.

Whyalla News

22 February 1946, 'Nearly seven inches of rain', p. 1.

19–28 July 1946

Continuous heavy rain caused extensive flooding throughout the South-East beginning in the Penola district and extending through the Hundreds of Mount Muirhead, Rivoli Bay, Symon, Kennion and Riddoch. The Furner-Beachport main road was under water as was most of the Biscuit Flat, Konetta and Claywells country. In the Bordertown district, swamps overflowed and there was extensive damage to crops.

The Advertiser

27 July 1946, 'S.-E. floods at peak', p. 13.

29 July 1946, 'S.-E. flood damage continues', p. 7.

The Border Watch

23 July 1946, 'Penola struck by tornado', p. 1.

27 July 1946, 'Minister of Lands inspects S.-E. flooded areas', p. 1.

23–25 July 1946

Heavy rains in the Cummins district led to flooding.

Port Lincoln Times

25 July 1946, 'School buses make detours', p. 1.

17–19 November 1946

Heavy rains at Port Augusta and Whyalla led to flooding of some homes and damage to roads and footpaths. The Whyalla to Port Augusta road impassable. Washaways occurred on the tram line at Iron Knob.

The Border Watch

19 November 1946, 'Rain in northern areas', p. 1.

The Transcontinental

22 November 1946, '247 points of rain gauged in 50 minutes', p. 1.

Whyalla News

22 November 1946, 'More heavy rain at Whyalla', p. 1.

1947

20 January 1947

A heavy downpour of five inches in two hours caused flooding and delayed trains at Cook.

The Transcontinental

24 January 1947, '5 inches of rain in 2 hours', p. 1.

29 March – 1 April 1947

Heavy rains caused floods in the North, disrupting road and rail traffic in the regions of Port Augusta, Port Pirie, Whyalla and Iron Knob for several days.

The Advertiser

1 April 1947, 'Train from north 24 hours late', p. 3.

The Transcontinental

4 April 1947, '229 points of rain', p. 1.

Whyalla News

3 April 1947, 'Another heavy rain', p. 1.

20 April 1947

A severe storm caused flooding on the streets of Mount Gambier.

The Border Watch

22 April 1947, 'Cloudburst hits town', p. 1.

24 June 1947

High seas washed over the seawall at Port MacDonnell and covered the road.

The Border Watch

26 June 1947, 'High seas float bay boats on to road', p. 1.

14–18 July 1947

Large expanses of land between Port MacDonnell and Bordertown (and also in Port MacDonnell itself) were submerged due to floodwaters. 66,000 acres of country were reportedly underwater. Penola also severely flooded. Heavy rains caused Mosquito Creek to burst its banks causing much damage. Many roads in the general South-East affected by floodwaters.

The Advertiser

17 July 1947, 'Sheep marooned in S.-E. flood', p. 1.

The Border Watch

17 July 1947, 'S.-E. flooded: may yet be cut off from rest of State', p. 1.

19 July 1947, 'Flood waters subsiding', p. 1.

2–5 September 1947

Bordertown and surrounding area inundated by floods. Winter Lake broke its banks, spreading over approximately 800 acres. Cannawigra and Buckingham isolated. Businesses flooded and road and rail traffic disrupted. Port Lincoln airfield waterlogged.

The Advertiser

4 September 1947, 'Flooding at Bordertown', p. 3.

5 September 1947, 'Creek level rising', p. 5.

6 September 1947, 'Families leave homes', p. 1.

The Border Watch

4 September 1947, 'Bordertown flood danger; furniture removed, houses sandbagged', p. 1.

1948

26 February – 2 March 1948

Heavy rain in the interior, of up to nine inches, flooded the Finke, Alberga, Neales and Hamilton Rivers and inundated large areas of Central Australia. Rail washaways caused disruption of train services to and from Oodnadatta.

The Advertiser

1 March 1948, 'Floods in interior', p. 1.

2 March 1948, 'Good rains in north', p. 3.

3 March 1948, 'Spread of floods', p. 3.

26 May 1948

High seas washed across seawall at Port MacDonnell and flooded road.

The Border Watch

27 May 1948, 'Sea across road at Port MacDonnell', p. 1.

11 September 1948

Low-lying areas of Port Augusta were flooded by an exceptionally high tide. Damage by floods from high tides was also reported from Whyalla and Wallaroo and minor flooding occurred at Port Noarlunga.

The Advertiser

12 September 1948, 'Marvellous aid to crops', p. 3.

11–13 October 1948

Port Augusta experienced its highest tide in 18 years. Houses reported surrounded by water several feet deep. Port Germein flooded to a depth of two feet as high tide waters encroached more than 200 yards into the town.

The Advertiser

13 October 1948, 'Pt. Germein flooded', p. 3.

14 October 1948, 'Half township still flooded', p. 3.

The Border Watch

12 October 1948, 'Rain soaks wheat belt', p. 1.

5 November 1948

Bordertown was flooded by thunderstorm inundating the croquet lawn and bowling green.

The Border Watch

6 November 1948, 'Nearly two inches at Bordertown', p. 1.

5 November 1948

The Mount Gambier township experienced localised flooding from a severe downpour. Commercial Street flooded. The lower ends of Bertha Street, North Terrace and Penola Road were also affected.

The Border Watch

6 November 1948, 'Cloudburst half fills cave', p. 1.

26 December 1948

Widespread rains from Adelaide to the Far-North ended the northern drought and brought floods to the Onkaparinga district and caused rail washaways to the Farina/Marree line and Port Augusta in the Far-North.

Damage to property, crops and bridges in the Kenton Valley to Balhannah area was estimated at thousands of pounds.

Weekend rains badly damaged water services at the Angorichina Hostel near Blinman in the Flinders Ranges and washed away telephone lines and roads.

The Advertiser

27 December 1948, 'Far North drought broken', p. 1.

28 December 1948, 'Flood damage at Angorichina', p. 3.

28 December 1948

A tornado accompanied by a cloudburst led to localised flooding, washing away roads and damaging fencing. Water rose to four inches in a farmhouse near Elliston.

Port Lincoln Times

6 January 1949, 'Tornado wrecks farm near Elliston', p. 12.

1949

19 February 1949

Cooper and flooded in northern parts of South Australia rendering some roads impassable.

The Border Watch

22 February 1949, 'Soaking general rains', p. 1.

20 February 1949

Flooding and erosion occurred in Mount Gambier.

The Border Watch

22 February 1949, 'Soaking general rains', p. 1.

5 March – 25 June 1949

Unprecedented rainfall in the interior flooded 50,000 square miles of cattle country at the borders of South Australia, Queensland and New South Wales. The floodwaters of Cooper's Creek cut the Marree-Birdsville stock route at Kopperamanna and reached Lake Eyre for the first time since 1890. At some points near the crossing, the Cooper was estimated to be up to 7 miles wide and 25 feet deep. Floodwaters were expected to recede after some weeks.

The Advertiser

26 March 1949, 'Deluge continues in interior', p. 1.

29 March 1949, 'Inland rain still falling', p. 1.

17 May 1949, 'Floods threaten to cut Birdsville Track', p. 3.

18 May 1949, 'Floods cut Birdsville stock route', p. 7.

24 May 1949, 'Floods in interior fill lake', p. 3.

4 June 1949, 'Inland floods reach Lake Eyre', p. 3.

9 June 1949, 'First major flow into Lake Eyre since 1890', p. 3.

25 June 1949, 'Cooper's Creek now a mighty river', p. 3.

8 September 1949

A wide stretch of road from Quorn to Hawker and Blinman was flooded.

The Transcontinental

16 September 1949, 'Heavy rain throughout Upper North', p. 4.



Chooks find the high ground in a flooded farmyard at Blanchetown in 1956. Photo courtesy of Dorothy Zadow.

8 October 1949

Rains in the Mid-North caused creeks to overflow and flooded roads between Port Augusta and Quorn.

The Transcontinental

14 October 1949, 'Good soaking district rain at weekend', p. 1.

25 October 1949

Heavy rains between Quorn and Hawker caused creeks to overflow and roads to become impassable.

The Transcontinental

28 October 1949, 'Over inch of rain in 15 minutes', p. 2.

20 November 1949

Whyalla Road flooded by overflowing creeks.

The Transcontinental

25 November 1949, 'Light rain over the weekend', p. 2.

1950–1959

The early nineteen-fifties saw the lifting of war-time restrictions with the discontinuation of rationing of tea, butter and petrol. As a milder, more relaxed approach to life began, activities directed at making life easier were introduced. Refrigeration at schools was non-existent and the free milk distributed to children went sour in the sun. Many homes in South Australian country towns were connected to electricity in the 1950s, with many farming properties relying on diesel generators well into the 1960s.

Television was something seen only in imported magazines prior to the fifties. It brought excited crowds to the city streets in the late fifties with congregations outside city stores. Most people went to church regularly on Sundays and ice deliveries were made to outlying communities for the ice chest. At the same time, trams disappeared from Adelaide streets except for the Glenelg Line.

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| 1951 | Free milk scheme for schoolchildren introduced |
| 1951 | School of the Air begins broadcasting |
| 1952 | Hospital benefits scheme starts |
| 1953 | The first atomic bomb tests in Australia conducted at Emu Field in SA |
| 1955 | Adelaide Airport opens at West Beach |
| 1956 | Maralinga became the site for further atomic tests by the British Government |
| 1957 | Long Service Leave legislation passes |
| 1958 | Last tram except on Glenelg line |
| 1959 | Joyce Steele and Jessie Cooper are first women members of State Parliament |



1950

3–10 February 1950

Major flooding in the northern and north-eastern pastoral areas resulted in numerous rail washaways and road damage.

The Advertiser

7 February 1950, 'Many stations still cut off', p. 1.

8 February 1950, 'Food relief effort fails in north', p. 5.

9 February 1950, 'Air relief of Leigh Creek', p. 1.

11 February 1950, 'Angorichina water restored', p. 3.

14 February 1950, 'Washaway causes new derailment', p. 1.

The Border Watch

4 February 1950, 'Over seven inches', p. 1.

17–24 March 1950

Further rains exacerbated earlier northern floods. At Marree, a section of the Adelaide Road flooded and rail tracks were washed away. Stock losses were reported.

The Advertiser

22 March 1950, 'S.A. rail repairs hampered', p. 1.

24 March 1950, 'Feed shortage feared at Marree', p. 3.

30 March 1950

A tropical rainstorm reported from Port Augusta caused more Far-North washaways of the railway line between Farina and Marree.

The Advertiser

31 March 1950, 'Washaways again in Far-North', p. 3.

13 June – 6 July 1950

Cooper's Creek, swollen by water draining from Queensland and the North-East of South Australia, cut the Birdsville Track at the Kopperamanna crossing and ran into Lake Eyre for the second successive year.

The Advertiser

14 June 1950, 'Birdsville Track flooded again', p. 1.

15 June 1950, 'Heavy floods expected in Cooper's Creek', p. 1.

21 June 1950, 'Cooper in flood', p. 1.

7 July 1950, 'Cooper floods 3 ft. higher than last year', p. 2.

1951

12 May 1951

Heavy rain caused flooding of streets in the eastern suburbs of Adelaide.

The Advertiser

14 May 1951, 'Good rains throughout S.A.', p. 1.

1–31 July 1951

Local flooding in the South-East district occurred during July.

The Border Watch

2 August 1951, 'Rain helps feed—hits rabbits', p. 1.

8 July 1951

Heavy rainfall caused widespread flooding in the Lower-North, in particular, Clare, Gawler and environs of Adelaide. Some stock losses reported.

The Advertiser

9 July 1951, 'Lower North areas flooded', p. 1.

11 July 1951, 'Stock losses in floods', p. 1.

The Bunyip

13 July 1951, 'Wet weekend causes rivers to flood', p. 1.

15–16 July 1951

Rainfall in the Adelaide Hills caused the Onkaparinga River to flood homes and damage property in the area. The Bremer River flooded Langhorne's Creek. Heavy rain caused creeks in the Rosewater area to flood property. In the country to the north, main roads flooded due to widespread rains.

The Advertiser

16 July 1951, 'Families leave flooded homes', p. 1.

17 July 1951, 'Township battles to hold floods', p. 1.

18 July 1951, 'Floods damage homes but irrigate vines', p. 3.

19 July 1951, 'Flooded street in Rosewater', p. 4.

20 July 1951, 'Reservoir spillway causing anxiety', p. 1.

21 July 1951, 'Many country roads flooded', p. 1.

26 July 1951, 'Floods still at Rosewater after 6 days', p. 1.

26 July 1951

Homes at Woodville North evacuated due to surrounding floodwaters that affected 20 families.

The Advertiser

27 July 1951, 'Families being moved from flooded homes', p. 3.

7 August 1951

About 20 Blair Athol homes were threatened by rising flood waters.

The Advertiser

8 August 1951, '20 Blair Athol houses threatened by floods', p. 1.

15 August 1951

At Bordertown, the water from the Poochera Water Hole flooded the Cannawigra Road for over one mile and significant areas of farming land were under water.

The Advertiser

16 August 1951, 'Cannawigra flood', p. 5.

14 September – 1 November 1951

The Murray River flooded in the Riverland, covering roads and at Mannum, covering pastureland and market gardens.

The Advertiser

15 September 1951, 'Kingston punt to close tomorrow', p. 3.

21 September 1951, 'Murray floods threaten home', p. 1.

22 September 1951, 'Worst Murray flood for 12 years', p. 1.

25 September 1951, 'Flood peak at Renmark on Oct. 10', p. 3.

2 October 1951, 'Country section', p. 11.

3 October 1951, 'Murray floods hold up steamer', p. 3.

9 October 1951, 'Floods disable five of eight Murray punts', p. 1.

24 October 1951, 'Murray settlers fight rising floods', p. 1.

25 October 1951, 'Night SOS to stem floods', p. 1.

26 October 1951, 'Murray bursts bank at Mannum', p. 1.

27 October 1951, 'Bulldozer stops lake breach', p. 1.

6 November 1951, 'State lashed by hurricane', p. 1.

1952

23 January 1952

A heavy downpour resulted in flooding of Mount Gambier streets.

The Border Watch

24 January 1952, '3 inches of rain after temperature of 109', p. 1.

31 May 1952

Rains led to floodwaters which caused one hundred thousand pounds worth of damage to infrastructure and property in the Gawler District and the surrounding areas, especially the Barossa Valley. Roads and the northern railway system were cut and two people were reported drowned at Templers, eight miles north of Gawler.

The Advertiser

2 June 1952, 'Widespread flood damage', p. 1; 'Barossa towns hit by floods', p. 3.

3 June 1952, '£100,000 damage in SA floods', p. 1; 'Some rail services restored' p. 3.

5 June 1952, '£5,000 flood damage', p. 4.

The Bunyip

6 June 1952, 'Widespread damage from floods', p. 1.

10 June 1952

A report from Port Augusta advised that weeks of almost continuous rain cut off Alligator Gorge Road at the Wilmington end.

The Advertiser

11 June 1952, 'Alligator Gorge Road flooded', p. 5.

14 August – 25 September 1952

The River Murray flooded extensively, including at Morgan, Renmark and Blanchetown. Swamps and low lands were flooded in the vicinity of Murray Bridge. Floods occurred at Swan Reach and Mannum. Strong winds caused Lake

Alexandrina to overflow. The peak of the Murray flood continued for about 7 to 10 days and was expected to remain dangerously high for several weeks. Roads were flooded but major damage was avoided.

The Advertiser

15 August 1952, 'Floodwaters close punts', p. 1.

28 August 1952, 'Saved after fall into floodwaters', p. 3.

5 September 1952, 'Punt closed to heavy traffic', p. 1.

6 September 1952, 'Floods peak likely for 7 to 10 days', p. 3.

9 September 1952, 'Township saved in 7 hour battle', p. 1.

10 September 1952, 'Troops help in flood fight', p. 1.

12 September 1952, 'S.A. flood patrols relax', p. 1.

15 September 1952, 'Sightseers flock to flood areas', p. 3.

16 September 1952, 'Lower Murray at flood peak', p. 1.

17 September 1952, 'Pastures dry through floods', p. 13.

18 September 1952, 'River levees hold floods', p. 3.

19 September 1952, 'Level falling', p. 1.

20 September 1952, 'Wind raises river level', p. 1.

22 September 1952, 'Fresh flood threats', p. 1.

23 September 1952, 'Settlers battle to save levee', p. 1.

24 September 1952, 'Flood dangers reduced', p. 3.

26 September 1952, 'Flood danger not yet over', p. 1.

The Murray Valley Standard

5 September 1952, 'Hopes of escaping flood damage saved by weather', p. 1.

12 September 1952, 'Flood dangers remain, but first test passed', p. 1.

26 September 1952, 'New flood peak in Nov adds to problem', p. 1.

1953

9–13 January 1953

Flooding at the Finke River crossing caused the

Port Augusta to Alice Springs train to be held up at Oodnadatta. At the crossing, water covered the line to a depth of 3 ft 6 inches.

The Advertiser

12 January 1953, 'Flood beats train to crossing', p. 1.

13 January 1953, 'Stranded train may cross today', p. 1.

14 January 1953, 'Pay car crosses flooded river', p. 1.

18 May 1953

A storm caused water in the swamp located close to Arno Bay to rise about 2 feet in depth, closing the road to Elbow Hill.

Port Lincoln Times

21 May 1953, 'Storm damages foreshore at Arno Bay', p. 1.

12 June 1953

High seas at Port MacDonnell led to waves breaking over the seawall and the sea flooding the foreshore. The jetty was submerged, boats were beached and the road from the jetty corner to the east was submerged. Damage was caused to new trees and a shed was washed away.

The Border Watch

13 June 1953, 'High seas at bay', p. 1.

3–6 September 1953

The Naracoorte district experienced its worst flood in history. The Naracoorte Creek flooded, with thousands of acres of pasture land underwater. Roads were heavily flooded. Several businesses were damaged.

The Advertiser

4 September 1953, 'Heavy floods in Naracoorte district', p. 1.

5 September 1953, 'South-East floods threaten electricity', p. 1.

7 September 1953, 'Naracoorte flood level lower', p. 3.

4 November 1953

Traffic on the north road was delayed due to flooding at Mambray Creek.

The Advertiser

19 November 1953, 'Traffic held up by floods', p. 5.

1954

11 December 1954

Heavy rain which accompanied a thunderstorm flooded backyards and caused gutters to overflow at Port Lincoln.

Port Lincoln Times

16 December 1954, 'Heavy rain accompanies thunderstorm', p. 1.

1955

6–14 February 1955

Flooding in the Mid-North caused railway washaways. Bridges were washed away and damaged at Hookina and Hawker. Hookina Creek flooded Wallerberdina Station.

The Advertiser

14 February 1955, 'Alice isolated for days', p. 3.

16 February 1955, 'Flood victims wade to safety'; 'Bridge wreck', p. 1.

4–25 March 1955

Trains were delayed by floods in the Far-North. The track between Telfer and Marree was under two feet of water in sections. Local roads were flooded.

The Advertiser

5 March 1955, 'Floods delay trains', p. 1.

26 March 1955, 'Floods still affecting North Rail Line', p. 3.

15–17 June 1955

Continuous State-wide rains for two days caused widespread flooding, particularly on the Nullabor Plain, the West and the North of the State, Kangaroo Island, Adelaide and areas south of Adelaide and the Victor Harbor district. Road traffic was cut, homes were flooded and stock drowned.

The Advertiser

17 June 1955, 'State drenched by rain'; 'River in flood', p. 1.

18 June 1955, 'Flood rescue bid', p. 1.

22 June 1955

A storm with accompanying heavy rain resulted in minor flooding in the township of Mount

Gambier. Paddocks at Eight Mile Creek, near Port MacDonnell were flooded.

The Border Watch

23 June 1955, 'Longest night and all storm', p. 1.

25 June 1955, 'Stock bogged at Eight Mile Creek', p. 1.

9 July 1955

Heavy rain resulted in minor flooding at Mount Gambier. Roads and private gardens flooded.

The Border Watch

12 July 1955, 'More rain forecast', p. 1.

7 August 1955

The Lower South-East was affected by very stormy weather with rain, hail and high winds. Minor flooding was experienced in Mount Gambier and Millicent.

The Border Watch

9 August 1955, 'District's worst storm enters its third day', p. 1.

21 August 1955

Thunderstorms and heavy falls of rain on the Eyre Peninsula flooded creeks and made a number of roads impassable.

Port Lincoln Times

25 August 1955, 'Further heavy rain on Eyre Peninsula', p. 1.

21–26 August 1955

Heavy rain in the Hills led to flooding in and around Adelaide and particularly Langhorne Creek. Roads were flooded and vineyards and orchards were several inches under water.

The Advertiser

26 August 1955, 'Floods over wide area after big hills rain', p. 1.

27 August 1955, 'S.A. floods recede', p. 1.

Sunday Mail

27 August 1955, 'Waters recede in S.A.', p. 3.

1956

31 March 1956

Rains in the Mount Gambier district resulted in flooding through the township of Mount Gambier.

The Border Watch

3 April 1956, 'Early break ends district drought', p. 1.

8 June – December 1956

Heavy rains in Queensland, New South Wales and Victoria led to exceptional flooding along the length of the Murray River in South Australia. Riverside communities were inundated and in places floodwaters were many kilometres wide. While the flood peak was reached in late August, some places remained under water for six months.

The Advertiser

13 July 1956, 'Break in outer flood bank', p. 1.
 14 July 1956, 'New flood crisis at Renmark', p. 1.
 18 July 1956, 'Breach in Renmark levee', p. 1.
 19 July 1956, 'Plan to check flood damage', p. 1.
 14 August 1956, 'New flood peak at Renmark', p. 1.
 15 August 1956, 'Flood of a thousand years', p. 1; 'Great fight to save Renmark', p. 3.
 16 August 1956, 'More critical at Renmark', p. 1.
 17 August 1956, 'River rise eases at Renmark', p. 1.
 4 September 1956, 'Rich area desolate after floods break levees', p. 1.

The Border Watch

17 July 1956, 'Flood appeal', p. 1.
 7 August 1956, 'S.-E. aid on flood levee', p. 1.
 14 August 1956, 'District aid for flood victims', p. 1.

The Murray Pioneer

14 June 1956, 'Flood expected to exceed 1955 level', p. 1.
 28 June 1956, 'Paringa road closes as river continues to rise', p. 1.
 5 July 1956, 'Flood peak now expected to be 28 feet 2 inches', p. 1.
 12 July 1956, 'Fight until water comes over the top!', p. 1; 'The river flood day by day', p. 7.
 19 July 1956, 'Latest official forecast 28 feet on August 17', p. 1.
 26 July 1956, 'This morning's 27 ft level equals 1917 peak', p. 1.
 2 August 1956, 'Level may now reach 28 feet 6

inches', p. 1; 'The river flood day by day', p. 9.
 9 August 1956, 'All night patrols with forecast of 29 ft', p. 1.

16 August 1956, 'Levels for River Murray's eight greatest floods from 1870 onwards', p. 3.
 23 August 1956, 'Hospital, high school, homes and orchards flooded', p. 1.

6 September 1956, 'Premier's high tribute to Renmark's flood effort', p. 1.

20 September 1956, 'The river flood day by day', p. 7.

The Murray Valley Standard

10 August 1956, 'Floodwater turning swamp areas into calamitous picture', p. 1.

The News

18 July 1956, 'Flood plan is to cut levees', p. 10.
 19 July 1956, 'There's a road under this', p. 1.
 14 August 1956, 'Flood sweeping down on Murray Bridge', p. 3.
 15 August 1956, 'Homes evacuated as water moves in', p. 2.
 16 August 1956, 'Mannum may soon go before flood', p. 1; 'Race against time', p. 3.
 17 August 1956, 'River farm loss £3m. Blow by floods', p. 1; 'Out goes furniture', p. 2.
 18 August 1956, 'River crisis near climax', p. 1.
 20 August 1956, 'Renmark people in night flood drama', p. 1; 'Flood tragedy from air', p. 2.
 21 August 1956, 'Renmark tense as retreat continues', p. 1.
Whyalla News
 31 August 1956, 'Generous flood aid', p. 1.

The extent of this event meant that all newspapers reported in great detail and in every edition. Here we include only a selection of significant articles.

16 June 1956

Gales and torrential rain on Eyre Peninsula partially flooded some properties and in the Adelaide Hills, floodwaters covered roads and pasture.

The Advertiser

18 June 1956, 'Floods hit towns, farms', p. 1.

Port Lincoln Times

21 June 1956, 'Flood havoc at Cummins', p. 1.



Simple family photos can often reflect the human impact of a flood. These three pictures show the Harold Ames' shack at Mannum before, during and at the height of the 1956 Murray floods. Photos courtesy of Christine Wendt, Bureau of Meteorology.



A pontoon ferry provides transport for a Standard Vanguard car during the 1956 Murray floods near Blanchetown. Refer to chronology entry 8 June – December 1956. Photo courtesy of Dorothy Zadow.



While floodwaters had receded considerably by September 1956, some areas remained flooded until the end of the year. Here, water still surrounds the Renmark Hospital on 14 December 1956. Courtesy of The Advertiser.

27 June 1956

Heavy rain caused flooding to homes in Cummins and damage to rail tracks between Cummins and Port Lincoln. In some cases, water 18 inches to 2 feet above rail level caused damage to the Thevenard and Kimba lines.

Port Lincoln Times

28 June 1956, 'Cummins flood reaches main street', 'Rail tracks seriously damaged by flood', p. 1.

28 June 1956

Large stretches of land and homes in many Adelaide suburbs were under water as a result of the continuous rain and the flooding of streams in the metropolitan area.

The Advertiser

29 June 1956, 'Many homes flooded', p. 1.

30 June 1956, 'Flood crisis eased by sun, winds', p. 1.

10–18 July 1956

Very heavy rains resulted in widespread disruption of transport in the Eyre Peninsula and evacuation of homes. In the Mid-North, floodwaters closed the roads between Snowtown and Blyth, Clare and Burra.

The Advertiser

11 July 1956, 'Transport on Eyre Peninsula chaotic', p. 1.

13 July 1956, 'Eyre Peninsula roads still under water', p. 3.

14 July 1956, 'Rail gangs aid on floods', p. 7.

19 July 1956, 'Rain again cuts roads', p. 1.

18 July 1956

Further rains badly affected communications in the Flinders Ranges, rendering roads from Port Augusta to Coober Pedy impassable. Rail traffic was held up due to Hamilton River floodwaters.

The Advertiser

19 July 1956, 'Rain again cuts roads', p. 1.

3–10 September 1956

Heavy rain flooded creeks causing a number of roads throughout the State to be closed. The Prince's Highway was cut by floods in a number of places. The Port Pirie – Port Broughton

road was closed. The Meningie – Kingston and Naracoorte – Kingston roads were impassable.

The Advertiser

4 September 1956, 'Floodwaters cut Port Pirie road', p. 7.

11 September 1956, 'Northern road still cut', p. 1.

12 September 1956, 'Warns on road hazards', p. 6.

The News

4 September 1956, 'Grim Premier sees vast flood losses', p. 3.

5 September 1956, 'Flood toll very big', p. 2.

6–27 September 1956

It was reported that surface water from Victoria was inundating grazing land in the Comaum – Coonawarra area in the South-East. Heavy rains were causing the overflow of swamps in Victoria.

The Advertiser

7 September 1956, 'Alarm over flooding of S.-E. farms', p. 7.

28 September 1956, 'Big S.-E. sheep area inundated', p. 7.

26 September 1956

Heavy rain in the Lower and Mid-North caused the River Gilbert to overflow its banks and flood the main street of Manoora to a depth of 3 feet.

The Advertiser

27 September 1956, 'Sudden flood in township', p. 3.

1957

1 May 1957

A big storm brought high tides and heavy seas to Port MacDonnell. Major damage occurred to the jetty, seawall, boats and Hammond's Bridge. The foreshore road was flooded with some erosion in places.

The Border Watch

2 May 1957, 'Port McDonnell battered by storm', p. 1.

20 June 1957

Heavy rain caused widespread flooding throughout suburban Adelaide.

The Advertiser

21 June 1957, 'Rain gives S.A. new heart', p. 1.

28 June 1957

An extremely high tide accompanied by heavy showers at Port Lincoln, with 70 points of rain falling in 36 hours, resulted in overflow of the drainage system and local flooding in some streets.

Port Lincoln Times

4 July 1957, 'Putting the pool in Liverpool', p. 1.

1958

16 July 1958

Heavy rainfall flooded low-lying streets to a depth of 12 inches in Tumby Bay.

The Advertiser

17 July 1958, 'Escape as bus lost in flood', p. 1.

11 September 1958

Some roads were flooded following the overflow of the North Para, Onkaparinga, Angas and Bremer Rivers.

The Advertiser

12 September 1958, 'State-wide rain up to 4 inches', p. 1.

10 October 1958

State-wide rains caused flash-flooding to a depth of 2 feet on the Port Wakefield Road south of Bolivar, the Adelaide suburb of Brighton and in Marree, where the roads were impassable.

The Advertiser

11 October 1958, 'S.A. rain benefit to huge area', p. 1.

1959

27–30 March 1959

Parts of Magill and Murray Park were flooded due to heavy rain and subsequent silting.

The Advertiser

1 April 1959, 'Silt around homes in Magill area', p. 5.

3 April 1959, 'Anti-flood measures suggested', p. 17.

8 April 1959, 'Anti-flood plans in two suburbs', p. 10.



Extensive flooding occurred north of Balaklava, cutting roads and isolating farmhouses. See chronology entry for 19 April 1968. Photo courtesy of The Advertiser.

1960–1969

Helped by immigration from Europe, the population of the State passed 1,000,000 during a decade of change and progress. The first IBM computer to be launched outside the USA was delivered to the Weapons Research Establishment in South Australia in 1961. With rapid advances in technology, in 1966, reception of orbital weather satellite data began and by the late sixties, satellite images were being received by the weather bureau in Adelaide.

Developments in the entertainment industry saw the first Adelaide Festival of the Arts being held in 1960. In 1965, the first Labor State Government in 32 years was elected and in 1967, Don Dunstan became Premier of the State, issuing-in many political reforms during his leadership. The passing of the Prohibition of Discrimination Act and the Aboriginal Affairs Act were perhaps a symbol of changing societal attitudes that would continue throughout the seventies.

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|------|--|
| 1960 | First Adelaide Festival of Arts |
| 1961 | Compulsory driving tests introduced |
| 1961 | Sturt's Desert Pea adopted as the floral emblem of SA |
| 1963 | Population of South Australia exceeds 1,000,000 |
| 1964 | Beatles visit Adelaide |
| 1965 | Roma Mitchell QC is appointed to the Supreme Court in SA becoming Australia's first female judge |
| 1966 | Prohibition of Discrimination Act passed; the first such Act in Australia |
| 1966 | First women sworn in for SA jury duty |
| 1966 | Flinders University is officially opened by Her Majesty Queen Elizabeth, the Queen Mother |



1960

20 April 1960

Whyalla streets were flooded following heavy rain.

Whyalla News

22 April 1960, 'Best rain of year', p. 1.

27–29 May 1960

Heavy rain in the Mount Lofty Ranges flooded roads to a depth of nearly a foot in places. Springbank residents' gardens were flooded.

The Advertiser

28 May 1960, 'Wet, windy week-end forecast', p. 1.

30 May 1960, 'Springbank gardens flooded', p. 1.

7 September 1960

Heavy rain caused water to pour over the uncompleted Myponga Dam resulting in a flood and some damage.

The Advertiser

8 September 1960, 'Heavy rain too much for dam', p. 1.

13 September 1960

Many roads State-wide were cut by flooding caused by steady, soaking rain.

The Advertiser

14 September 1960, 'Rains and winds lash State', p. 1.

15 September 1960, 'Caught by flood', p. 15.

23–29 September 1960

Heavy rain and storms led to flooding in the Upper South-East of South Australia with widespread areas under water. Stock losses were reported throughout the area. Slight flooding occurred at Murray Bridge.

The Advertiser

27 September 1960, 'Stock lost in S.-E. floodings', p. 1.

29 September 1960, 'Floods subsiding but roads cut', p. 8.

The Murray Valley Standard

23 September 1960, 'Car Ahoy!', 'Washaway was dangerous', p. 1.

30 September 1960, 'Flood at Murray Bridge, too', p. 1.

1961

20 March 1961

A storm in Whyalla caused local flooding of streets and property.

Whyalla News

24 March 1961, 'Storm floods shop', p. 1.

9 April 1961

Heavy rains led to overflowing street gutters which caused limited local flooding in Port Lincoln with some property damage.

Port Lincoln Times

13 April 1961, 'Hotel and store flooded, roads scoured', p. 1.

4 July 1961

Heavy rains caused some local flooding in Port Lincoln when street gutters overflowed. Minor property damage occurred.

Port Lincoln Times

6 July 1961, 'Storm lashes Lincoln and district', p. 1.

1962

17 January 1962

Heavy rains, following drought, swept across the North-East of the State and into N.S.W., Queensland and the Northern Territory. Widespread interstate reports of flooding cited many South Australia roads closed and trains delayed.

The Advertiser

18 January 1962, 'Drought ended in vast area', p. 1.

2 June 1962

A violent electrical storm swept across the southern part of the State causing extensive local flooding with many roads closed temporarily.

The Advertiser

2 June 1962, 'Violent night storm deluge: roads hit', 'Fireball and flooding', p. 1.

24 July 1962

Rains affected roads in the West, North West and Upper-North. Much of the main road from Alice Springs to Port Augusta was flooded. A section of the Port Augusta to Woomera road at Woocalla was under water.

The Advertiser

25 July 1962, 'Roads still affected by rain', p. 1;
'Roads in North flooded', p. 6.

19 October 1962

Up to 1½ inches of rain caused minor local flooding in Whyalla.

Whyalla News

23 October 1962, 'Best October rain since 1956', p. 1.

25–27 December 1962

Heavy rainfall of more than 3 inches led to flooding of the Adelaide to Broken Hill Road at Mannahill and other roads in the area. Further later rainfalls exacerbated local flooding. In Adelaide, heavy rains caused local flooding to streets and some shops.

The Advertiser

26 December 1962, 'Heavy floods cut B.H. road', p. 1.

28 December 1962, 'Floods cut N.-E. roads', p. 1.

29 December 1962, 'Heaviest rain for 2 years', p. 1.

The News

26 December 1962, 'Rains shut road', p.1.

1963

13 January 1963

In Mount Gambier, heavy rain caused minor local flooding on North Terrace and Sturt Street while, in Adelaide, a number of roads were inundated.

The Advertiser

14 January 1963, 'Rain up to 3 in. in wide area', p. 1.

The Border Watch

15 January 1963, 'Conditions moderate after S.-E. rain storm', p. 1.

3 March 1963

Heavy rain in Whyalla led to short-term flooding of some city streets.

Whyalla News

5 March 1963, 'Soaking rains aid district', p. 1.

13 April – 21 May 1963

Floodwaters from Queensland reached South Australia with Cooper's Creek swelling to a width of 50 to 60 miles. The flood levels were expected to top those of the 1906 flood. Many properties were isolated and a number of families were forced to flee. Feed was airlifted to cattle. The high waters persisted and continuing rain extended the inundation. Two men were drowned trying to cross the flooded Leigh Creek. In late May, the Ghan train was trapped by floodwaters but by the beginning of June, the waters had receded.

The Advertiser

19 April 1963, 'Creek is 60 miles wide', p. 1.

22 April 1963, 'S.A. floods', p. 3.

23 April 1963, 'Airlift of S.A. hay to cattle in floods', p. 1.

8 May 1963, 'Mail delivered by boat', p. 3.

10 May 1963, 'Floods near Lake Eyre', p. 3.

11 May 1963, 'Dyes check Eyre flood', p. 1; 'Wide area flooded', p. 3.

14 May 1963, 'Heavy rains in Far North', 'Two lost in flood', p. 1.

16 May 1963, 'Food railed to stranded Ghan', p. 1.

18 May 1963, 'Stranded Ghan passengers in airlift', 'Bluebird facing isolation', p. 1.

20 May 1963, 'Ghan airlift completed', p. 3.

21 May 1963, 'Attempt to move Ghan', p. 1.

22 May 1963, 'Ghan pushes on to destination', p. 3.

The News

13 May 1963, '2 feared swept to death in car', p. 1.

17 May 1963, 'The Ghan still held up', p. 7; 'Country roads improve', p. 29.

18 May 1963, 'Ghan airlift begins', p. 1.

24–26 April 1963

Heavy rain in Whyalla and surrounding areas caused minor local flooding of roads. At Iron Knob, over 300 points of rain were recorded.

Whyalla News

26 April 1963, 'Wettest Anzac Day on record', p. 1.

26–27 April 1963

Heavy rains over two days caused widespread flooding. Adelaide suburbs were particularly hard hit with a number of houses inundated. Two deaths were attributed to the flooding. One man drowned when his car was swept away as he tried to cross Dry Creek at Para Vista while another drowned in a stormwater drain at Mitchell Park. Two further deaths were attributed to the weather conditions, but were not the result of flooding. Flash-floods made many country roads impassable.

The Advertiser

27 April 1963, 'Floods swamp hundreds of homes', 'Swept mile down flooded creek', 'Salisbury alert for emergency', p. 1.

29 April 1963, 'S.A. storm deaths 4', 'Cloudbursts', p. 1.

30 April 1963, 'Rain boost to cereal hopes', p. 1.

The News

27 April 1963, 'Roads open after night of storms', p. 1; 'When storms hit suburbs', p. 3.

Port Lincoln Times

2 May 1963, 'Rains at right time—good season opening', p. 1.

The Standard

1 May 1963, 'Flooding causes havoc in northern suburbs', p. 17.

25 May – 12 June 1963

Widespread rains over 14 days led to flooding in many areas of S.A. and particularly in the Far-North, Adelaide suburban and coastal areas. Local creek flooding caused road washaways and crop damage in the Whyalla, Iron Knob and Kimba districts. Floods cut roads to Andamooka and roads from Hawker to Leigh Creek, Hawker to Blinman and Oodnadatta to Marree. Rail washaways delayed the northbound Ghan.

The Advertiser

27 May 1963, 'Reservoirs get first intake', 'Seaside arch tilted', p. 1.

3 June 1963, '3-inch falls in hills areas', p. 1.

5 June 1963, 'Opal town road links cut', p. 1.

8 June 1963, 'Widespread flooding after 14 days of rain', p. 1.

13 June 1963, 'Muloorina marooned', p. 9.

Whyalla News

4 June 1963, 'Road works, crops affected by heavy rains', p. 1.

28 July 1963

Violent storms led to rivers overflowing north and south of Adelaide, resulting in heavy property damage, flooding of roads and power outages. At Victor Harbor, floodwaters from the Inman River inundated the oval.

The Advertiser

29 July 1963, 'S.A. flayed by bleak storms', p. 1.

27 October 1963

Widespread rain caused suburban and country flooding. A man drowned when his car plunged into the river at Murray Bridge. There was some flooding and property damage in Adelaide and more severe flooding in Mount Barker.

The Advertiser

28 October 1963, 'Floods, two die in big rains', p. 1.

1964

20–21 April 1964

Fierce thunderstorms resulted in flash-flooding across metropolitan and suburban Adelaide. The following day, further rainfall hampered clean-up efforts and extended flooding.

The Advertiser

21 April 1964, 'City scoured by vivid storm', p. 1.

22 April 1964, 'City sodden after more rains', p. 1.

2 July 1964

Overflowing drains along Goodwood Road, Adelaide, caused flooding to a depth of 18 in.

The Advertiser

3 July 1964, 'Water to the hubs', p. 2.

10–17 July 1964

Five days of intense storms flooded roads and disrupted transport throughout Adelaide and the southern part of the State. Hahndorf, Aldgate and Bridgewater in the Adelaide Hills recorded floods to a depth of five feet. Langhorne Creek was inundated. Flooding occurred in Mount Gambier

where drainage was insufficient and thousands of acres in the Naracoorte Plains were submerged. Millicent Airport was closed for several days due to flooding on the runway. Cummins, on the Eyre Peninsula, was inundated.

The Advertiser

- 13 July 1964, 'Wild weather to continue', p. 1.
- 16 July 1964, 'Floods lapping Hills houses', p. 1; 'More flooding in squalls', p. 3.
- 17 July 1964, 'Flooding', p. 3.
- 20 July 1964, 'Weather likely to ease today', p. 1; 'Flooding', p. 3.
- 23 July 1964, 'Floods in S.-E. close airports', p. 3.
- 24 July 1964, 'Airport still closed', p. 3.

The Border Watch

- 14 July 1964, 'Rain, hail, gale', p. 1.
- 16 July 1964, 'Cloudburst hits city', p. 1.
- 18 July 1964, 'Weather eases', p. 1.
- 21 July 1964, 'No sign of break in S.E. rains', p. 1.

Port Lincoln Times

- 11 July 1964, 'Town delayed', p. 1.
- 16 July 1964, 'Rain and gales hit town', p. 1.

18 November 1964

Rain in Adelaide led to flooding of homes, postponement of sporting events and interruption to train, bus and telephone services.

The Advertiser

- 19 November 1964, 'Rain up to 3in. : pastoral gain, city chaos', p. 1; 'Floods sweep suburbs', p. 3.

The Border Watch

- 19 November 1964, 'Most rain to north', p. 1.

1965

7 May 1965

Two inches of rain recorded in 40 minutes, 8 miles west of Lock led to flooding and fences washed away, but little real damage done.

Port Lincoln Times

- 13 May 1965, '2 ins in 40 minutes', p. 1.

2 June 1965

Winter gales drove tides to record levels causing flooding at Port Adelaide, Port Pirie and Port MacDonnell.

The Advertiser

- 3 June 1965, 'High tides', p. 1.

25 June 1965

Rain caused localised flooding in the lower Murray district.

The Murray Valley Standard

- 25 June 1965, 'Week's happy topic is rain', p. 1.

10 December 1965

Sudden rain caused flood damage in Murray Bridge.

The Murray Valley Standard

- 10 December 1965, 'Downpour revived M.B. drainage worries', p. 1.

1966

12 January 1966

Widespread rains in the Far-North, North-West and North-East of the State resulted in creeks and rivers flooding. Streets were flooded in Loxton. Heavy rain in Birdsville led to the Diamantina River running abank and water flowing into S.A., cutting the Birdsville Track, making roads impassable and leading to necessity for food drops to a group of French geologists about 40 miles from Oodnadatta.

The Advertiser

- 13 January 1966, 'Rain again in dry areas of North', p. 1.
- 14 January 1966, 'New floods again delay Ghan', p. 1.
- 15 January 1966, 'Subsiding', p. 1.
- 17 January 1966, 'Drought of 10 years has broken', p. 1.

3 December 1966

December rains of up to 11 inches caused millions of dollars of damage on the Eyre Peninsula. A 34 mile stretch of railway was severely damaged, hundreds of miles of fences destroyed, roads scoured and homes damaged. Cars were swept away in swirling floodwaters. Five homes were evacuated at Lipson when the Burraway Creek flooded. Raging floodwaters swept from the hills and seriously damaged the railway between Uerran and Ungarra.

Port Lincoln Times

8 December 1966, 'Flood follows freak rains', p. 1.

8 December 1966, 'Homes evacuated in Lipson flood crisis', p. 3.

8 December 1966, 'Colossal damage to line', p. 1.

3–4 December 1966

Torrential rainfalls were recorded and many parts of the State, including Adelaide, were flooded. The Gawler district flooded heavily. Depths of 12 inches were recorded in Gawler and some roads were blocked. In the North, services to and from Alice Springs were delayed by washaways and at Ibunga Creek, 86 miles north of Oodnadatta, floodwaters 8 feet deep covered the track.

The Advertiser

3 December 1966, 'Weather takes heavy toll of S.A. sheep', p. 1.

5 December 1966, 'State swamped by deluge: crops hit', p. 1.

The Border Watch

6 December 1966, 'Heavy summer rain', p. 1.

The Bunyip

7 December 1966, 'Floods, damage in record rain', p. 1.

12 December 1966

Flooding was reported in several centres in the South-East. The Mount Gambier township flooded and Port MacDonnell was also badly affected.

The Border Watch

13 December 1966, 'Freak deluge subsides', p. 1.

1967

23 February – 8 March 1967

Several outback communities in Far-North South Australia and Lower Northern Territory were isolated by flooding. Railway communications were disrupted. Large lakes of water were reported forming as far south as fifty miles below Oodnadatta. The desert became a huge swamp and supplies were airlifted by the RAAF into Alice Springs.

The Advertiser

27 February 1967, 'Emergency measures in outback', p. 1.

28 February 1967, 'Further floods in North now feared', p. 1.

9 March 1967, 'Flooding changes face of desert', p. 1.

19 March 1967

Mary Street in Ethelton was flooded by two feet of water from the Port River.

The Advertiser

29 April 1967, 'Port River inundates Ethelton street', p. 9.

2–9 June 1967

Three days of steady rain in the Far-North-East of South Australia resulted in flooding which cut the Birdsville Track.

The Advertiser

9 June 1967, 'Floods cut roads', p. 3.

1968

19 January 1968

Thunderstorms caused flash-flooding at Kingoonya. Washaways on the Transcontinental Railway Line caused ten freight cars to derail. With water inundation to a depth of fifteen inches, several families abandoned their homes and took refuge in the Kingoonya store. Food was air-lifted to waiting railway passengers.

The Advertiser

19 January 1968, 'Rain lashes S.A.: rail link broken', p. 3.

20 January 1968, 'Rains cut another rail link', p. 39.

19 January 1968

Adelaide suburbs, particularly the north-western, suffered from extensive flooding as more than an inch of rain fell in the morning. The main cause of the flood was the build up of debris during the summer months. Major roads in the metropolitan area were flooded. Train line washaways were extensive and included the Transcontinental Line and the Central Australia Line. Further south, local washaways occurred between Alberga and Andamooka, between Edwards Creek and Mount

Dulton and between Box Creek and Anna Creek. Two boys were rescued from a stormwater drain by holidaymakers.

The Advertiser

20 January 1968, 'Adelaide suburbs flooded', p. 1.

26–28 January 1968

Alice Springs was isolated from the south, with rail and roads cut off by flooding. Food airlifts to Alice Springs were necessary.

The Advertiser

27 January 1968, 'Alice gets food by air today', p. 3.

29 January 1968, 'Emergency supplies of food', p. 36.

20 February 1968

February rains caused extensive flooding to occur in Adelaide city streets to a depth of three feet. In Cowell, floodwaters to a depth of one foot cut several roads and washed through a roadhouse.

The Advertiser

20 February 1968, 'Peak February rain, floods, and dust', p. 1.

28 March 1968

A spectacular storm brought with it heavy rains of more than two inches. Torrential rain caused stormwater to overflow the gutters, scoured out roads and flooded into homes.

Port Lincoln Times

3 April 1968, 'Town council to combat flood damage', p. 3.

16 April 1968

A cloudburst near Port Augusta caused the death of a man driving his car when the car was washed off the road by a five foot wall of water.

The Advertiser

17 April 1968, 'Man in car drowned', p. 6.

19 April 1968

Flooding occurred across northern parts of the State, cutting many roads and destroying fences and property. One and a half inches fell in Halbury in twenty-five minutes, cutting the Auburn to Balaklava road as well as the Halbury to Hoyleton railway line. Between Lochiel and

Snowtown, one and a half inches fell in twenty minutes, with water flowing eighteen inches deep covering a four mile wide stretch of the road. In Balaklava, tons of mud washed across paddocks, side roads were cut and two farm houses isolated. At Cradock, where one and a half inches were also recorded in twenty minutes, roads and paddocks were flooded.

The Advertiser

20 April 1968, 'School buses, cars stranded by rains', p. 1.

21 April 1968

In Adelaide, the East Parklands flooded to a depth of one foot and flooding also occurred along Payneham Road. Rushing water scoured a five foot deep hole in the centre of Brighton Road. The Rundle Mall store of Harris Scarfe flooded when an outside gutter over-flowed.

The Advertiser

22 April 1968, 'Flash floods hit city, suburbs', p. 1.

28–29 April 1968

Extensive flooding of parts of the Lower Eyre Peninsula was recorded. In Port Lincoln, homes and business premises flooded, roads and footpaths were scoured and kerbing collapsed. Water raced down Happy Valley and cascaded like a waterfall over the edge of the Lincoln Highway. The Flinders Highway was cut at Little Swamp. Flooding to a depth of one foot covered the causeway at Big Swamp. Wangary was isolated when bridges were washed away. The Ghan was delayed and washaways occurred at Abminga Creek and Duffield Creek.

The Advertiser

30 April 1968, 'General rain consolidates break in S.A.', p. 1.

Port Lincoln Times

2 May 1968, 'Town flooded by 6 inches of rain', p. 1.

4 June 1968

Torrential rain fell in the Mount Lofty Ranges, causing the Onkaparinga River to overflow and cutting the Prince's Highway at the bottom of Germantown Hill. Flooding occurred in Verdun, Balhannah and Mylor.

The Advertiser

5 June 1968, 'Flooding cuts Hills highway', 'Onkaparinga flood traps two in car', p. 1.

1 July 1968

Heavy rain across the Eyre Peninsula approached three inches and flooding caused isolation of communities by cutting road communications.

Port Lincoln Times

4 July 1968, 'Record rains isolate EP towns', p. 1.

5 July 1968

In the north of South Australia, floodwaters overflowed from Little Swamp washing away a ninety foot section of the tramway linking the Coffin Bay sand deposits with the port at Proper Bay and halting BHP's lime sand production.

Port Lincoln Times

11 July 1968, 'Floods halt BHP sand production', p. 1.

9 August 1968

Floodwaters from the Onkaparinga River swamped thirty houses in Port Noarlunga, peaking at 8pm with up to four feet of water in some of the houses. At one point, water was four foot three inches over the Clarendon Weir. The main coastal road between Moana and Port Noarlunga was cut by floodwaters. A three hundred yard section of the Prince's Highway between Germantown and Hahndorf was cut by

water. Flooding of the Bremer Creek also forced the closure of roads near Langhorne Creek.

The Advertiser

10 August 1968, 'Families in flight from town flood', p. 1.

The News

9 August 1968, 'People flee river homes', p. 1.

10 August 1968, 'Further floods feared', p. 1.

1969

12 February 1969

Heavy rainfalls caused homes and businesses to flood in Murray Bridge.

The Murray Valley Standard

13 February 1969, 'Homes flood in heaviest rain for 28 years', p. 1.

24 March 1969

Heavy rain resulted in minor flooding occurring in Mount Gambier.

The Border Watch

25 March 1969, 'Big variation in rain', p. 1.

23 March 1969

In the north of South Australia, major flooding involved a section of the Lincoln Highway.

Port Lincoln Times

27 March 1969, 'Weekend rains 'spark' activity', p. 1.

1970–1979

To most South Australians this was known as the Dunstan Decade. The Labor Government was returned to office in 1970 under the leadership of Don Dunstan. He remained leader until 1979 when he resigned for health reasons. There was a sense of innovation and change. The Adelaide Festival Centre opened, late-night shopping was introduced and pubs were allowed to stay open late. South Australia led the way with social legislation. It was the first Australian State to legalise abortion under certain circumstances, the legal consequences of illegitimacy were abolished, homosexual acts were decriminalised, rape in marriage was made a criminal offence, the Sex Discrimination Act was proclaimed, the Equal Opportunity Office was set up and a Women's Advisor's Office was set up in the Premier's Department. At the beginning of the decade, Sir Mark Oliphant, the first South Australian born Governor, was sworn in and replaced by the first Aboriginal Governor, Sir Douglas Nicholls in 1976.

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| 1970 | Hairy-nosed wombat adopted as the faunal emblem of SA |
| 1971 | Daylight Saving reintroduced for first time since World War II |
| 1971 | Wearing of seat-belts in motor vehicles made compulsory |
| 1971 | Fluoridation of Adelaide's water |
| 1972 | South Australian Film Corporation established |
| 1973 | Cross Lotto introduced |
| 1974 | Road signs become metric |
| 1974 | Late trading for hotels introduced |
| 1975 | Medibank starts in South Australia |
| 1976 | Capital punishment abolished |
| 1976 | Sir Douglas Nicholls is first Aboriginal Governor of SA |
| 1977 | Late night shopping introduced |
| 1977 | Adelaide's first water filtration plant at Hope Valley |



1970

9 April 1970

A thunderstorm in the Adelaide Hills recorded five inches of rain in a violent ninety minute thunderstorm, causing flooding, power cuts and extensive damage to businesses and homes in Mount Barker. The Callington Road was inundated by water to a depth of four feet.

The Advertiser

10 April 1970, 'Families flee floods after worst storms', p. 1.

11 April 1970, 'Man, horse save each other in flood struggle', p. 1.

20 April 1970

Heavy, widespread rain in the State's north led to flooding and the cutting of numerous roads. Flooding also occurred in Adelaide after heavy rainfall. At Lameroo, a cloudburst dropped fifty-three points in ten minutes and pools of water twenty feet wide covered the road in places.

The Advertiser

22 April 1970, 'North roads cut: city flooding', p. 1.

26 August 1970

Heavy rain deluged the southern half of South Australia. Floodwaters cut the Prince's Highway at Verdun. The highway north of Clare was under four feet of water and the Little Para flooded roads in Salisbury.

The Advertiser

27 August 1970, 'Deluge in Hills closes highway', p. 1.

28 August 1970, 'Flowing to sea', p. 1.

The Border Watch

27 August 1970, '... And still it pours down', p. 1.

14–15 November 1970

Flooding occurred at Westbrook when the River Murray broke its banks as a result of heavy rain and gales. Stock was drowned and some houses damaged. Flooding caused stock losses in the Bordertown and Naracoorte districts.

The Advertiser

16 November 1970, 'S.A. lashed by rain, gales', p. 1.

The Border Watch

17 November 1970, 'Lower S.-E. benefits from rain', p. 1.

1971

20 February 1971

Thunderstorms in Caltowie caused thousands of dollars worth of damage. Flash-flooding sixty-nine miles north of Hawker at Blinman cut the town's water supply. Fog and heavy rain occurred at various locations.

The Advertiser

22 February 1971, 'Hot—then the lot', p. 3.

7–11 March 1971

Heavy rain led to flooding in the North-East of the State, isolating towns, homesteads and a drilling team at Mount Hopeless. Hundreds of square miles were flooded about twenty miles west of Innamincka. Cooper Creek was running to a depth of twenty-two feet. Hundreds of motorists were stranded.

The Advertiser

9 March 1971, 'Rain: S.A. stations plan new stock', p. 3.

12 March 1971, 'Rain still falls in N.-E.', p. 3.

18 March 1971

Floodwaters in the North-East of the State rose again as a consequence of Queensland floods. Birdsville was isolated.

The Advertiser

18 March 1971, 'Mad surge flows by Birdsville', p. 13.

26 April 1971

Flash floods affected the Adelaide Hills after heavy rainfalls. Buildings were flooded and the main highway closed. The Onkaparinga woollen mills at Lobethal were inundated by five feet of water. Hundreds of lambs perished and some reports of narrowly avoided drowning were received.

The Advertiser

27 April 1971, 'Factory and houses swamped in Hills', p. 1.

The Border Watch

27 April 1971, 'Good season to follow S.-E. deluge', p. 1.

28–29 August 1971

A weekend deluge resulted in the worst flooding in fifty years in the Adelaide Hills and Southern districts. Reservoirs overflowed into the Torrens, Onkaparinga, Gawler and South Para Rivers. Floods swept into houses located near rivers at Port Noarlunga and Gawler and closed many roads. In Gawler, where houses were flooded to a depth of three feet and low-lying areas to six feet, many residents claimed the flood was 'man made'. A group of fifteen market gardeners surveyed their damage at \$146,240.

Port Lincoln streets were flooded and flooding affected some of the Lower Eyre Peninsula, including Wangary and Coultas districts. A number of roads were cut by flooding including the Flinders Highway.

The Advertiser

30 August 1971, 'Water sweeps into houses', p. 1; 'Caught in the flood', p. 12.

31 August 1971, 'Floods washed the rugs', p. 1; 'Gawler flood stirs anger', p. 6.

1 September 1971, 'Floods 'error' claim denied', p. 9.

The Bunyip

1 September 1971, 'Aid rushed to flood victims', p. 1.

Port Lincoln Times

2 September 1971, 'Weekend deluge brought mixed results', p. 1.

30 August 1971

The Prince's Highway was flooded to a depth of one foot near Hahndorf.

The Advertiser

27 September 1971, 'Flooding threat to highway', p. 3.

1972

8 January 1972

Heavy rains at Cobdogla totalling five inches, left water to a depth of eighteen inches. Homes were flooded and farmers unable to tend to their paddocks.

The Advertiser

6 January 1972, 'New fear for vines', p. 3.

10–12 January 1972

Widespread rains led to flooding in South

Australia. In Meningie, the flooding of business and private premises was reported. In the Far-North, holiday-makers were stranded at the hotel-motel at Arkaroola Station, eighty miles east of Leigh Creek. The south bound Ghan was held at Finke as floodwaters damaged the Central Australia Railway about ten miles to the south. Penola suffered minor flooding. The Birdsville Track became impassable.

The Advertiser

10 January 1972, 'Floods in North halt Ghan', p. 9.

11 January 1972, 'Sudden deluge floods town', p. 1.

12 January 1972, 'Deluge stops trains in North, hits air services', p. 1.

The Border Watch

11 January 1972, 'Storms in S.-E.', p. 24.

14 January 1972

Widespread flooding was reported north of Adelaide, particularly around Burra and Port Augusta and delaying the mail. At Port Augusta, an inch of rain fell in twenty minutes.

The Advertiser

18 January 1972, 'Topics of the day', p. 2.

15 February 1972

Localised heavy rain caused washaways to occur in the Cleve area.

Port Lincoln Times

17 February 1972, 'District rain a mixed blessing to producers', p. 3.

5 July 1972

At Haslam near Port Lincoln, a house was partly flooded by a 90 point cloudburst.

Port Lincoln Times

6 July 1972, 'After the rain and the wind', p. 1.

9 August 1972

Continual rain for several days in the Lower South-East resulted in a gauging of over two inches and flooding at Mount Gambier.

The Border Watch

10 August 1972, 'The big freeze and flood', 'Flooding could be result of progress', p. 1.

26 December 1972

A sudden downpour caused flash-flooding in city streets and western suburbs of Adelaide.

The Advertiser

27 December 1972, 'A summer drenching for Adelaide', p. 3.

1973

19 January 1973

An intense weather pattern swept through the Kalangadoo and Penola area bringing heavy downpours of rain which caused some flooding.

The Border Watch

23 January 1973, 'Mini-cyclone rips through Kalangadoo', p. 24.

3–5 February 1973

Extensive rains in the North-West of the State caused widespread flooding, isolated Aboriginal communities, cut roads and made airstrips unusable. Road and rail transport were brought to a standstill, with the Adelaide to Alice Springs train line cut in several places to a depth of 8 feet.

The Advertiser

6 February 1973, 'Rains turn State into quagmire', p. 1.

7 February 1973, 'Food drops to flood-bound Aborigines', p. 3.

Port Lincoln Times

8 February 1973, 'We missed the rain', p. 1.

2–6 February 1973

Soaking rain in the North caused the Myall Creek to flood across the Eyre Highway, washing a bus downstream. Nearby towns were flooded.

The Advertiser

7 February 1973, 'Boats rescue 20 from flooded bus, truck', p. 1.

The Transcontinental

7 February 1973, '363 points in four days of soaking rain', p. 1.

22 February 1973

The Strzelecki Track in the North-East was flooded by Cooper Creek. Water was reported to a depth of eight feet across the Track and still rising near Innamincka.

The Advertiser

22 March 1973, 'Track cut', p. 3.

26 March 1973

Torrential rains at Gawler caused flash-flooding and cut the Stuart Highway.

The Advertiser

27 March 1973, 'Three S.A. towns hit by flash storms', p. 1.

31 April 1973

Storm water and high winds caused havoc in Port Lincoln. Flooding occurred at Port Lincoln High School.

Port Lincoln Times

3 May 1973, 'Trail of damage follows early morning storm', p. 3.

13 May 1973

Floodwater from Queensland put much of South Australia's North underwater.

The Advertiser

14 May 1973, 'Floodwaters swirling into Lake Eyre', p. 1.

6 June 1973

About one thousand square miles of Far-North South Australia, just south of Innamincka, was underwater after Cooper Creek flooded.

The Advertiser

6 June 1973, 'Desert now 'water garden'', p. 16.

20 June 1973

Heavy rains flooded Port Lincoln's Double Corner, which was under reconstruction.

Port Lincoln Times

21 June 1973, 'Rain floods new works', p. 3.

26–28 August 1973

Widespread floods across the North of South Australia, cut all roads north of Hawker and Pimba. The Port Augusta to Alice Springs railway line was cut in numerous places. At least three thousand tourists were stranded in the area, including about one thousand Army and Air Force cadets attending their annual camp. Follow-on rains made many roads muddy and impassable into early September.



These aerial photos give a graphic indication of the isolation of Innamincka in the Far North. Photo courtesy of Dennis Parslow.



A long period of flooding in South Australia in 1974 transformed the landscape over 40,000 square miles. Photo courtesy of Dennis Parslow.

The Advertiser

27 August 1973, 'More rain in North traps tourists', p. 1.

29 August 1973, 'The 'stick-in-the-muds'', p. 1.

3 September 1973, 'Outback again red gluepot', p. 3.

2 September 1973

Port Noarlunga was flooded as overflow from the Mount Bold reservoirs travelled down the Onkaparinga River and met high tides and gales. Although the flood was expected, it exceeded those expectations.

The Advertiser

3 September 1973, 'Port Noarlunga flooded', p. 1.

The Southern Times

12 September 1973, 'No solution to stop flooding', p. 1.

11 September 1973

Mount Gambier experienced a severe hailstorm, which also caused flooding within the town. Considerable damage to roads and parks occurred.

The Border Watch

13 September 1973, 'Trail of damage after hailstorm', p. 1.

22–24 October 1973

At Morgan, five hundred holiday shacks were flooded, surrounded or threatened on the Murray flood plains. A period of flooding along the Murray extended over the next few days.

The Advertiser

23 October 1973, 'Murray flood menaces 500 shacks', p. 1.

24 October 1973, 'Minor flood on the way', p. 3.

25 October 1973, 'Kangaroos rescued from flood', p. 3.

30 October 1973

Widespread rains throughout the State led to power blackouts and flooding in the Riverland where storms at Renmark caused blackouts and floods cutting a main street with water flowing across vital road approaches to the town.

The Advertiser

31 October 1973, 'Storms cause damage and blackouts', p. 3.

11–21 November 1973

The River Murray flooded at Blanchetown, Morgan and Renmark. These were the highest river levels recorded since the floods of 1956. A nine year old Renmark boy was swept to his death.

The Advertiser

12 November 1973, 'Shack flood loss \$1/2m and rising', p. 1.

12 November 1973, 'Renmark boy drowns', p. 1.

21 November 1973, 'Aerial hunt for roos in floods', p. 1.

22 November 1973, 'Roos stranded by flooding are starving to death', p. 12.

30 December 1973

Four inches of rain caused flooding in the Far-North of South Australia and cut road communications.

The Advertiser

1 January 1974, 'Rain turns North into quagmire', p. 3.

1974

17–21 January 1974

Flooding in and around Coober Pedy and Oodnadatta submerged some 'dugout' homes to a depth of two feet. Flooding led to cancellation of rail services to Alice Springs. At Oodnadatta, children were reported fishing for 'yellow bellies' in Main Street.

The Advertiser

18 January 1974, 'Opal miners flooded out', p. 3.

19 January 1974, 'New downpour worsens floods at Oodnadatta', p. 3.

22 January 1974, 'They're fishing in Main Street', p. 1.

22 January 1974, 'Big wet' in North eases', p. 3.

29 January – 2 March 1974

A long period of flooding occurred in northern South Australia, isolating outback communities

and threatening natural gas supplies from Moomba. Towards the end of this period, floodwaters were estimated to cover almost forty thousand square miles. Pandie Pandie and Kalamurina Station homesteads along the Birdsville Track were threatened by rising floodwaters. Blinman in the Flinders Ranges was also isolated. Air drops were required and some people had to be plucked from rising waters. Rains also undermined repair work still being carried out on previous flood damage, meaning roads and rail were out of commission for a lengthy period. Floodwaters reported to be as deep as thirty feet, with only roofs showing on some houses. Rivers would be reported as 'in flood' well into late March.

The Advertiser

30 January 1974, 'Rains on way, but Adelaide to miss worst', p. 1.

30 January 1974, 'Flood threatens gas supplies', p. 1.

1 February 1974, '300 stranded by deluge in N.T.', p. 1.

4 February 1974, 'Funds to aid flood victims reach \$2 ½ m.', p. 3.

13 February 1974, 'Air operation saves marooned man', p. 13.

15 February 1974, 'Flood-waters claim S.A. homestead', p. 1.

16 February 1974, 'Lost battle', p. 1.

16 February 1974, 'Floods wreck another station', p. 1.

20 February 1974, 'Food to Alice by air again', p. 3.

20 February 1974, '5 ½ inches', p. 3.

21 February 1974, 'Women rescued from floods', p. 3.

23 February 1974, 'Sea of fresh water has changed North', p. 8.

2 March 1974, '1,000 cattle marooned', p. 3.

23 March 1974, 'Punt operating again on flooded Birdsville Track', p. 4.

The Transcontinental

27 March 1974, 'More road making equipment required in northern districts', p. 3.

30 January – 1 February 1974

In the North, the Lincoln Highway was cut by flooded Lipson Creek. As further rains fell,

Whyalla, Cowell and Port Augusta were isolated. The main Port Augusta – Whyalla road was inundated to a depth of three feet. Marree's main street was flooded. Roads leading to Quorn and Wilmington remained impassable for some time.

The Advertiser

2 February 1974, 'Adelaide gets taste of the big 'wet'', p. 1.

Port Lincoln Times

30 January 1974, 'Storm hits weekend activities', p. 1.

31 January 1974, 'Highway cut by heavy rainfall', p. 1.

The Transcontinental

6 February 1974, 'Keneally seeks aid to prevent further flooding', p. 10.

1 February 1974

An eight day heatwave concluded in a deluge and minor flooding in Mount Gambier.

The Border Watch

2 February 1974, 'Deluge ends heatwave', p. 1.

26 March 1974

Flooding in Monarto killed between ten and twelve thousand chickens.

The Advertiser

29 March 1974, 'Thousands of chicks drown', p. 3.

9–10 April 1974

In the Far-North, extensive flooding occurred along railway line north of Marree, making the line impassable.

The Advertiser

10 April 1974, 'Floods turn Ghan back', p. 3.

11 April 1974, 'Far North hit again by rain', p. 27.

8–12 May 1974

In the Outback, heavy rain caused flooding between Port Augusta and Woomera, stranding up to six hundred in outback tours. Andamooka was flood-bound and inaccessible for well over a week and food drops were necessary.

The Advertiser

9 May 1974, '600 caught in Outback floods', p. 1.

- 13 May 1974, 'Railmen guard bridge', p. 1.
- 15 May 1974, 'Our Mid-North awash', p. 1.
- 16 May 1974, 'Outback traffic on move again-slowly', p. 3.
- 17 May 1974 'The Outback food ferry', p. 3.

14 May 1974

Clare suffered its 'worst flood in the town's history'. Fifty shops were flooded by two and a half feet of water, when the banks of the Hutt River burst. Floodwaters of four feet flowed down the main street and about fifteen houses were inundated. Damage in the main street was estimated at more than one hundred thousand dollars. The Port Wakefield Road was cut by floodwaters from the Lower Light River, five miles north of Two Wells, when a foot of water covered the road for two hundred yards.

The Advertiser

- 15 May 1974, 'Our Mid-North awash', p. 1.
- 16 May 1974, 'Outback traffic on move again-slowly', p. 3.

11 July 1974

Torrential rain on the Mid-South coast burst the banks of creeks around Myponga, Inman Valley and Yankalilla. Dairies were flooded and roads were cut. Water a foot deep was flowing through some dairies and the main Myponga – Victor Harbor road was cut in more than half a dozen places. A minor landslide partly blocked Main South Road between Sellicks Beach and Myponga.

The Advertiser

- 12 July 1974, 'Flash flood hits dairies', p. 1.

17 July 1974

Flooding was reported in Mount Gambier township after torrential rain.

The Border Watch

- 18 July 1974, 'Bread still a problem ... but ample water', p. 1.

21 July 1974

The rising Murray caused flooding to holiday shacks and houses at Blanchetown.

The Advertiser

- 22 July 1974, 'Murray floods hit 400 shacks', p. 3.

3 October 1974

Floodwaters from the South Para River caused significant damage to farms and market gardens in the Virginia area. Two homes were evacuated in Angle Vale as a result.

The Bunyip

- 9 October, 'Gawler families near evacuation', p. 1.

4 October 1974

Floodwaters caused hundreds to be stranded at Mambray Creek and a near-drowning at Terowie.

The Advertiser

- 5 October 1974, 'Flood danger eases throughout State', p. 1.

The Transcontinental

- 9 October 1974, no title, p. 1.

6 October 1974

Swan Reach flooded by the rising Murray.

The Advertiser

- 7 October 1974, 'River beats the levee', p. 1.

1975

16 May 1975

Large areas of beachfront and coastal roads at Port MacDonnell were under water to a depth of several feet in many places. Shops and houses were flooded.

The Advertiser

- 17 May 1975, 'Sea floods S.-E. town', p. 1.

24 October 1975

Gale force winds and heavy rain across the Mid-North of the State and across metropolitan areas caused creeks to flood, cut roads and caused traffic hazards. A goods train plunged off a bridge across the flooded Crystal Brook Creek. Torrential rain isolated most towns north of Crystal Brook. Embankments, bridges and rail lines were washed away.

The Advertiser

- 25 October 1975, 'Floods cut off town in North of S.A.', p. 1.

1 December 1975

The Mid-North town of Blyth was flooded by torrential rain.

The Advertiser

2 December 1975, 'Town is flooded', p. 1.

12 December 1975 – 1 January 1976

In the North-East of the State, the Winninnie Creek between Yunta and Mannahill was flooded and the Adelaide bound Ghan was delayed for twenty-four hours due to flooding of the Finke River. Roads in the North of the State were closed due to flooding. All roads north of Marree including the Birdsville Track, were impassable due to flooding caused by heavy rains.

The Advertiser

15 December 1975, 'Rain causes floods—but helps to quell fire', p. 1.

18 December 1975, 'Heavy floods in Centre', p. 3.

31 December 1975, 'Roads out in North', p. 3.

1 January 1976, 'Muddy New Year's Eve', p. 1.

1976

7 February 1976

A tropical depression centred around Alice Springs brought two days of heavy rains to the North of the State leading to many roads and airports being closed by floodwaters. The railway track for the Ghan was damaged by floodwaters and passengers were stranded.

The Advertiser

9 February 1976, 'Heavy rains cut road and rail links in Far North', p. 1.

10 February 1976, 'Weather stops air drop to the Ghan', p. 3.

11 February 1976, 'Stranded Ghan passengers brought out by helicopter', p. 1.

12 February 1976, 'Railway track 'very serious'', p. 15.

19 February 1976

A sudden thunderstorm in the North of the State caused short term flooding and cut the main road between Leigh Creek and Marree.

The Advertiser

20 February 1976, 'Deluged', p. 3.

9 March 1976

Water from flood-bound Queensland rivers and creeks reached South Australia. The Strzelecki

and Birdsville Tracks were cut and Moomba and Innamincka isolated.

The Advertiser

10 March 1976, 'Far North floods build up', p. 9.

11 March 1976, 'Flooding cuts roads in North', p. 17.

3 October 1976

Heavy rains and hail led to flash-floods closing roads and damaging houses and crops. It was reported that almost all roads north of Port Pirie and Peterborough were impassable. The Ghan rail line suffered washouts and the train was delayed. While most rainfall gauges recorded only 25 to 33 mm of precipitation, it was pointed out that this was highly inaccurate as much of the precipitation was in the form of golf ball size hailstones and could not be measured. Wirrabara recorded 116mm of rain.

The Advertiser

4 October 1976, 'Pirie flooded: many roads cut in North', p. 1.

5 October 1976, 'Laura people rally', p. 1.

7 October 1976, 'Main street becomes a lake', p. 3.

8 October 1976, 'Augusta airfield 'a bloody disgrace'', p. 1.

The Transcontinental

6 October 1976, 'Hail, wind and rain lash city', p. 1.

16 October 1976

Heavy rains again caused flooding and road closures in the Mid-North.

The Advertiser

18 October 1976, 'Roads to North cut again', p. 3.

1977

14–16 January 1977

Heavy rains caused road flooding in the centre of Victor Harbor. At Salisbury East, flooding caused damage to one hundred homes and inundated roads in the area.

The Advertiser

17 January 1977, 'Residents want action over flooding', p. 1.

18 January 1977, 'Check on drainage following flood', p. 3.

The Victor Harbor Times

19 January 1977, 'Sudden downpour halts traffic', p. 1.

February 1977 – June 1977

A report was received of flooding in the Far-North of the State. It was in flood for about two months and was not expected to abate for another two months. The Diamantina River flooded Goyder's Lagoon to make it thirty kilometres across at the widest part. The Birdsville Track was cut for about a month north of Clifton Hill Station. The Cooper Creek measured more than seven metres over the Innamincka Crossing and still rising.

The Advertiser

6 April 1977, 'Blanket of dust covers suburbs', p. 1.

26–27 November 1977

Heavy rains were recorded throughout the State with the highest rainfalls in the Upper-North area. Many roads were closed with those around Coober Pedy being particularly hard-hit.

The Advertiser

28 November 1977, 'Roads cut by flooding in Outback', p. 1.

29 November 1977, '13 stranded in S.A.'s sodden North', 'Late S.A. rain causes problems', p. 1.

30 November 1977, '13 rescued in Outback', p. 11.

The News

2 December 1977, 'Floodwaters cut Eyre Highway', p. 13.

Port Lincoln Times

1 December 1977, 'Deluge creates havoc', p. 1.

1978

9 April 1978

A rainfall of 75mm in two hours led to flooding and damage in the Riverland. A number of roads were closed by floods. Soil and fences were washed away on flooded farmland.

The Advertiser

10 April 1978, 'Riverland isolated by floods', p. 1.

8 May 1978

A flash hailstorm led to flooding of the Pimba to Andamooka road. Several vehicles were temporarily delayed.

The Advertiser

9 May 1978, 'Hail, rain strand travellers', p. 1.

3–5 June 1978

Heavy rains in the Flinders Ranges, with falls of up to 250mm, caused flooding in the Quorn, Wilmington, Gladstone and Port Pirie areas leading to widespread flooding of roads and as creeks rose, their consequent closure for nearly a week.

The Advertiser

5 June 1978, 'Rain belt a help to some S.A. farmers', p. 1.

6 June 1978, 'Northern floods strand hundreds', p. 1.

7 June 1978, 'Flooding keeps 500 at Quorn', p. 3.

The Transcontinental

7 June 1978, 'The weekend of the big floods', p. 1.

14 June 1978, 'Call for new bridges', p. 1.

1 July 1978

In the Far-North, heavy rains again caused road closures due to flooding.

The Advertiser

3 July 1978, 'Rains again cut off Far North', p. 3.

5 July 1978, 'Outback creeks in flood', p. 12.

The Transcontinental

5 July 1978, 'Heavy rains boost season's aggregate', p. 15.

5 July 1978

A rain band sweeping from Port Lincoln to Lameroo caused widespread flooding in Adelaide. In Clare, parts of the main street were under water. Many roads were closed temporarily while in the Flinders Ranges, some roads were expected to be closed indefinitely.

The Advertiser

6 July 1978, 'Flood warning for Virginia, Gawler', p. 1.

Port Lincoln Times

6 July 1978, 'Swamp fills after long dry spell', p. 3.

6 August 1978

Heavy rains and thunderstorms over a wide area of the State caused some flooding on Eyre Peninsula and in the North. Roads and farmland were inundated when creeks overflowed their banks.

The Advertiser

7 August 1978, 'Much of State is awash', p. 1.

9 August 1978, 'Town on flood standby', p. 1.

Port Lincoln Times

10 August 1978, 'Heavy rain cuts roads and phones', p. 1.

1979

16 January 1979

Heavy rains in the Far-North isolated Marree and Birdsville. Thunderstorms caused widespread flash-flooding in Adelaide's north and north-eastern suburbs

The Advertiser

17 January 1979, 'Flooding follows sudden downpour', p. 1.

20 January 1979, 'Floods isolate outback towns', p. 11.

23–28 February 1979

A sudden storm at Whyalla resulted in many roads in the city being flooded. In the Far-North, a number of towns were isolated following heavy rains. Roads and railway lines were cut. A baby was drowned when washed from his mother's arms after their car became trapped in floodwaters on the Wilmington to Port Augusta road.

The Advertiser

24 February 1979, 'Flash floods isolate houses in Whyalla', p. 1.

26 February 1979, 'Flooding cuts rail link with N.T.', p. 1.

26 February 1979, 'Baby dies in flood, trains delayed', p. 3.

The Transcontinental

28 February 1979, 'Wilmington seeking flood relief funds', p. 1.

26 May 1979

In the Far-North, heavy rains over several days led to flooding of large areas with closure of roads and rail links. Many people were marooned with their vehicles by the floods.

The Advertiser

28 May 1979, 'Floods trap 32 children in bus', p. 1.

29 May 1979, 'Outback flood havoc', p. 3.

28 September 1979

Torrential rain and thunderstorms cut many roads and disrupted power supplies on the Eyre Peninsula. In the Far-North, many roads were inundated, leaving cars bogged. In Adelaide, minor flooding occurred along the Torrens River.

The Advertiser

13 October 1979, 'Flooding on the Torrens', p. 3.

Port Lincoln Times

4 October 1979, 'Storms cut roads, power', p. 1.

The Transcontinental

3 October 1979, 'Down came the rain', p. 15.

31 December 1979

In Port Pirie, more than 125mm of rain fell in less than 90 minutes leading to widespread flooding in the town. About sixty houses were severely damaged and floodwaters were up to 1.5m deep. The storm was part of a weather system extending over the north and north-east of the State and some roads in the Far-North were closed. The roadhouse at Pimba was flooded.

The Advertiser

1 January 1980, '\$1m. storm: Pirie awash', p. 1; 'Havoc in North as storm hits', p. 19.

3 January 1980, 'Stranded outback tourists rescued', p. 11.

The News

31 December 1979, 'Cloudburst swamps Pirie', p. 1.

31 December 1979, 'Homes and shops evacuated', p. 1.



Flood aftermath at 8 Pulford Grove, Magill, 26 June 1981. Photo courtesy of The Advertiser.



Sturt River floodwaters at Coromandel Valley, 3 July 1981. Photo courtesy of The Advertiser.

1980–1989

On 15 February 1981, Adelaide experienced 43.4 °C, its hottest day since 1948. It was on Ash Wednesday two years later that bushfires fanned by extreme heat and gale-force winds in the Adelaide Hills claimed 28 lives and caused property damage estimated at over \$200 million. In that year, Adelaide elected its first female Lord Mayor, Wendy Chapman. Anti-nuclear demonstrators blockaded the Roxby Downs copper-uranium mine site and in 1984, a Royal Commission into the effects of British nuclear testing at Maralinga was appointed with especial concern regarding the effect of radioactive wastes on the local Aborigines. Aboriginal Land Rights were firmly placed on South Australia's agenda when the Maralinga Land Rights Bill was passed by State Parliament in the same year. In 1986, Jubilee celebrations commemorated the 150th anniversary of European settlement in South Australia. That year saw official visits to the State by both Queen Elizabeth II and Pope John Paul II.

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|------|--|
| 1980 | Bushfire destroys 35 homes in Adelaide Hills |
| 1981 | Pitjanjatjara Land Rights Bill enacted |
| 1982 | Some hotels allowed to trade on Sundays |
| 1983 | Bushfires claim 28 lives |
| 1984 | Maralinga Land Rights Bill passed |
| 1984 | Adelaide Rail Passenger Terminal opens at Keswick |
| 1985 | First Australian Formula 1 Grand Prix held in Adelaide |
| 1985 | Opal is adopted as the gemstone emblem of SA |
| 1986 | SA Maritime Museum opens |
| 1988 | First red-light cameras installed |



1980

19–23 April 1980

Widespread rain throughout the State was generally seen as a good start to the rainy season, however, serious flooding occurred in a number of areas. In Port Lincoln, a 20 minute deluge on 19 April caused widespread flooding throughout the city with damage estimated at \$1.2 million. Power and phones were cut. In the Far-North, rain over several days, with particularly heavy falls on 21 April, culminated in the Ghan train to Alice Springs having to return to Port Augusta. Many roads were closed. In the South-East, minor flooding occurred at Allendale.

The Advertiser

23 April 1980, 'Rain stops Ghan: new line open', p. 30.

24 April 1980, 'Many roads still out in North', p. 10.

22 April 1980, 'Record opening for S.E.', p. 1.

Port Lincoln Times

23 April 1980, '\$1 million havoc', p. 1; 'Storm brought havoc to city', p. 3; 'Torrent down Happy Valley', p. 6; 'Busy weekend for Emergency Services', p. 7.

25 April 1980, '\$1¼ m. damage to city', p. 1.

29 June 1980

Port Pirie to Port Broughton road closed due to flooding.

The Advertiser

30 June 1980, 'NSW hit by gales', p. 16.

14 July 1980

Runway at Kingscote airport flooded.

The Islander

16 July 1980, 'Downpour closes airport', p. 1.

24 August 1980

Heavy rains flooded roads in the Innamincka area.

The Advertiser

28 August 1980, 'Outback roads open again', p. 17.

1981

27 April 1981

Heavy rains caused flooding and closure of many roads in the Far-North. Oodnadatta airport was flooded and Coober Pedy was 'awash'.

The Advertiser

28 January 1981, 'Outback hit by floods', p. 1.

29 January 1981, 'Outback roads cut for up to a week', p. 28.

15 April 1981

Hail, wind and rain led to flooding of agricultural land in the South-East of the State.

The Border Watch

18 April 1981, 'Hail, wind rain hit South-East', p. 1.

23–26 June 1981

Heavy rains over 3 days initially caused sporadic flooding of Highway One near Snowtown and minor flooding on Hutt Street in Adelaide. As the rains continued, more widespread damage occurred in the city with a number of houses inundated when creeks overflowed. In the Adelaide Hills a number of communities in the Onkaparinga Valley were flooded when the river broke its banks. Telephone services were affected. In Port Lincoln, floods and resulting landslides closed roads and caused minor local flooding of buildings.

The Advertiser

24 June 1981, 'Highway flooded', p. 1.

25 June 1981, 'Wet cable cuts Hills telephones', p. 1.

26 June 1981, 'Floods in suburbs: phone services hit', p. 1.

27 June 1981, 'City likely still to be lashed by heavy rain', p. 1.

The News

25 June 1981, 'We're awash but dams are not', 'Flood strands eight families', p. 2.

26 June 1981, 'We're awash', p. 1; 'Homes flooded as new storms hit', 'And there's more to come', p. 2; 'Water, water everywhere', p. 20.

Port Lincoln Times

26 June 1981, 'Heavy rain cuts roads', p. 1.

2–3 July 1981

Heavy rains lashed Adelaide and the Adelaide Hills. Houses were flooded in the Brownhill Creek area. In Aldgate, stores were flooded when the creek overflowed. The following day more widespread flooding occurred with continuing

rain, high tides and gales. A number of coastal areas were flooded.

The Advertiser

3 July 1981, 'Floods, hail again—and storms are looming', p. 1.

4 July 1981, 'High tides and gales batter coast', p. 1.

11 July 1981, 'The swamping of suburbia', p. 17.

24 July 1981

Flooding of the South Para River cut several roads in the Gawler area.

The Advertiser

25 July 1981, 'Floods close Gawler fords', p. 6.

13–28 August 1981

Heavy rains led to a number of creeks in the Adelaide Hills overflowing. Worst hit was Langhorne Creek when the Bremer River inundated the town. Around Bordertown, thousands of hectares of farmland were under water. There was minor flooding on Kangaroo Island. Roads were closed and farmland flooded in the South-East. Continuing rains meant that the floodwaters did not subside for several weeks.

The Advertiser

15 August 1981, 'Quiet battle in a flooded town', p. 1.

22 August 1981, 'Big wet hits S.A.'s crops', p. 1.

27 August 1981, 'S-E flood battle easing', p. 18.

28 August 1981, 'Roads still blocked by S-E floodwaters', p. 6.

3 September 1981, 'Floodbound farmers rely on their 'duck'', p. 3.

The Border Watch

18 August 1981, 'Traffic hazard', p. 4.

25 August 1981, 'Floods cut roads', p. 1.

The Islander

19 August 1981, 'Flooding caused as rains continue', p. 1.

Mount Barker Courier

19 August 1981, 'Langhorne Creek suffers worst flood in 40 years', p. 1.

13 October 1981

River Murray floodwaters flowed through the holiday shack area of Blanchetown with at least 6 shacks inundated. The caravan park was also flooded.

The Advertiser

14 October 1981, 'Not a 'shackie' in sight', p. 1.

1982

6 January 1982

Heavy rainfall in the South-East of the State was welcomed as breaking the drought but resulted in flooding of streets in Mount Gambier when the drains were unable to cope.

The Border Watch

7 January 1982, 'Deluge "buckets" on S.E.', p. 1.

1983

2 March 1983

Sudden heavy rainfalls led to widespread flooding in greater Adelaide and the Barossa Valley with damage estimated at \$7 million. More than 140 homes in the Barossa Valley and many other homes and businesses elsewhere were damaged by floodwaters resulting from overflowing gutters and overflowing creeks. Five vans were washed from a caravan park at Stockwell. Schools in the Barossa Valley were closed. Flaxman's Valley reported 125mm of rain, Edithburgh reported 100mm, but other areas reported about one third of that. In the South-East of the State, rains caused only short-term minor flooding.

The Advertiser

3 March 1983, 'Now the deluge', p. 1. *Other minor articles throughout paper.*

4 March 1983, 'S.A. reels as the floods cost millions', p. 1; '\$7m. damage in Barossa floods', p. 3. *Other minor articles throughout paper.*

The Border Watch

3 March 1983, 'Rain—tropical style', p. 1.

The Bunyip

9 March 1983, 'The deluge', p. 1.

The News

3 March 1983, 'Flood fury', p. 1; '1000 Flee Gawler "tidal wave"', p. 3; 'Barossa awash as ferocious flood hits', p. 4.

4 March 1983, 'Mop up and stand by for more', p. 5.

7–10 March 1983

The Commissioner of Highways announces that the Sturt Highway between Truro and Blanchetown would be closed for at least four days due to flooding.

The Advertiser

8 March 1983, 'Highway closed', p. 13.

21 March 1983

Extensive rain caused minor flooding.

The Border Watch

22 March 1983, 'Rain brings new life to parched country', p. 1.

3 April 1983

Heavy rains caused local flooding in Port Lincoln. 85mm was recorded within a few hours. Roads were awash and two houses were inundated.

Port Lincoln Times

3 April 1983, 'Heavy rains caused major local flooding in Port Lincoln on Easter Sunday', p. 1.

6 April 1983, 'Floods follow deluge', p. 1.

30 April 1983

138mm of rain in five hours in the Port Lincoln district caused flash-floods around Koppio and in the Tod Valley. A wall of water a metre and a half high rushed down the valley causing damage to property and drowning sheep.

Port Lincoln Times

4 May 1983, 'Flash floods', p. 1.

9 June 1983

Heavy evening rains led to minor short-term flooding in several suburbs of Adelaide.

The Advertiser

10 June 1983, 'Flooding in Adelaide', p. 10.

29 June 1983

Flooding closed the Birdsville Track.

The Advertiser

30 June 1983, 'Floods close track', p. 11.

8 September 1983

Heavy rains caused minor flooding in Adelaide, the Adelaide Hills and the South-East of the State.

The Advertiser

9 September 1983, 'Minor flooding as heavy rains lash S.A.', p. 3.

The Border Watch

9 September 1983, 'Heavy rain brings road, flood problems', p. 3.

1984

12 January 1984

Monsoonal rains in Central Australia caused extensive flooding throughout the North of the State. Worst hit may have been the area around William Creek, but all of the Far-North was inundated. Many people were stranded and roads and railways were impassable.

The Advertiser

13 January 1984, 'Floodbound town 'like island where supply ship calls'', p. 3.

14 January 1984, 'A sea falls into the Outback, and drought's just a memory', p. 3.

16 January 1984, 'Floods stop Centre's trains indefinitely', p. 1.

Sunday Mail

15 January 1984, 'Big floods sweep the Far North of S.A.', 'Mercy fliers press on in winds, rain', p. 3.

24 March 1984

More than 82mm of rain fell in Mount Gambier over a three day period causing flooding and property damage. A number of houses were inundated. Torrential rains also caused flooding at Victor Harbor with several homes inundated.

The Border Watch

26 March 1984, 'Three-day deluge', p. 1; 'Water, water everywhere', p. 3.

27 March 1984, 'City clean-up after storms', p. 3.

The Victor Harbor Times

28 March 1984, 'Gales follow flooding on South Coast', p. 1.

7 June 1984

Heavy rains and a blocked drain caused flooding at the Liverpool Street – Mortlock Terrace

roundabout in Port Lincoln. Water reached to cars' bumper bars, but cleared within 15 minutes.

Port Lincoln Times

8 June 1984, 'Roads flood, drain blocks', p. 1.

16 August 1984

Heavy rain led to minor flooding in several Adelaide suburbs, Mount Barker and Coromandel Valley.

The Advertiser

17 August 1984, 'Heavy rain floods several properties', p. 12.

Messenger Standard

22 August 1984, 'Protest follows floods', p. 1.

1–4 September 1984

Heavy rains around Port Lincoln caused some local flooding with some roads and paddocks under water.

On Kangaroo Island, heavy rains caused widespread flooding. Many roads were under water and stock drowned in flooded paddocks.

In the South-East of the State, release of water from Bool Lagoon, ordered by the S.-E. Drainage Board, coupled with heavy rainfall over several days led to widespread flooding of farmland.

The Advertiser

4 September 1984, 'August rain twice the average', p. 3.

5 September 1984, 'Kangaroo Island gets major damage in torrential rain', p. 1.

6 September 1984, 'Kangaroo Island is braced for another battering', p. 8.

12 September 1984, 'S-E Drainage Board criticised over widespread floods', p. 10.

The Border Watch

13 September 1984, 'Drain floods anger land men', p. 3.

17 September 1984, 'SE back to winter as rain persists', p. 1.

The Islander

5 September 1984, 'Recent rains take their toll', p. 1.

12 September 1984, 'Rain damage clean-up continues', p. 1.

Port Lincoln Times

5 September 1984, 'Crop damage in many areas', p. 1; 'District reels as heavy rain falls', p. 3.

1985

2 January 1985

A sudden rainfall caused very short-lived localised flooding on Compton Street in Mount Gambier.

The Border Watch

3 January 1985, 'Weather keeps tourists indoors', p. 1.

6 February 1985

Heavy rain and flash-flooding cut several major roads in the Far-North.

The Advertiser

7 February 1985, 'Trees down in wind storm', p. 1.

9 February 1985, 'Unexpected lift lands Brian in RAH with broken wrist', p. 9.

14 April 1985

Storms and gales swept across South Australia resulting in property damage, including that caused by flooding. Dukes Highway was flooded near Bordertown.

The Advertiser

15 April 1985, 'Chaos as wild winds hit city', p. 1.

15 October 1985

A sudden rainfall led to minor flooding of buildings in Adelaide.

The Advertiser

16 October 1985, 'Storm hits city and more on the way', p. 8.

23 October 1985

A drainage problem in Nangwarry in the South-East of the State led to minor flooding after a rainfall.

The Border Watch

24 October 1985, 'Rain brings smiles to man on the land', p. 1.

4 November 1985

Heavy rainfalls led to minor flooding of roads and gardens in Mount Gambier and Nangwarry.

In the North of the State, up to 175mm of rain caused many outback roads to be closed. Cooper's Creek was said to be in flood.

The Border Watch

5 November 1985, 'Soaking late spring deluge', p. 1.

The News

5 November 1985, 'Floods havoc hits Outback', p. 1.

1986

8 May 1986

Deluge caused minor flooding of buildings in Mount Gambier.

The Border Watch

9 May 1986, 'Deluge of hail and rain hits city', p. 1.

2–3 July 1986

Heavy rain across South Australia and particularly in the Adelaide Hills led to flooding around Clarendon and in other southern suburbs of Adelaide. Moana Caravan Park and several houses were flooded when Pedlar Creek burst its banks. Several roads were temporarily closed. At Clarendon, a number of mudslides led to water backing up.

The Advertiser

3 July 1986, 'Creek overflows swamp southern suburbs', p. 8.

4 July 1986, 'Couple's home threatened by mudslide', p. 1.

2 August 1986

Heavy rain in Adelaide led to flooding of several houses at Coromandel Valley, Valley View and Tranmere. Old Norton Summit Road was closed due to flooding.

The Advertiser

4 August 1986, 'Downpour causes flooding, rockslide', p. 1.

13 August 1986

Heavy rains caused minor flooding from Victor Harbor to Goolwa. Currency Creek overflowed.

The Victor Harbor Times

20 August 1986, 'Downpours cause floods, road damage', p. 1.

1 December 1986

An electrical storm accompanied by heavy rainfalls, estimated at 25mm of rain in twenty minutes, swept across Adelaide and as far south as Victor Harbor. Several houses were flooded.

The Advertiser

2 December 1986, 'Houses flooded, roofs torn off in suburban storm', p. 1.

The Victor Harbor Times

5 December 1986, 'Lightning strikes!', p. 1.

6 December 1986

Two fierce wind and rain storms struck Adelaide and surrounding areas. While most damage was caused by wind, there was some flooding reported. Roads in the Adelaide Hills and the Far-North were flooded.

The Advertiser

8 December 1986, 'The wild weekend, storms bring chaos and a bill for millions', p. 1.

The Victor Harbor Times

10 December 1986, 'Extensive storm damage from Saturday's deluge', p. 1.

1987

24 January 1987

Heavy rain caused flooding at the corner of Carlton Parade and Main Street in Port Augusta.

The Transcontinental

28 January 1987, 'Rain, rain, glorious gain', p. 1.

18 February 1987

Heavy rain caused flooding around Leigh Creek and closed a number of Far-North roads.

The Advertiser

19 February 1987, 'Flash flooding traps three schoolgirls in Far North', p. 3.

19 February 1987

A thunderstorm with heavy rains caused flash-flooding throughout Adelaide with traffic delays and more than 50 houses and other buildings flooded.

The Advertiser

20 February 1987, 'Rain causes havoc for hundreds of motorists', p. 5.

28 February 1987

Heavy rains caused some flooding in Port Augusta and many Far-North roads were closed.

The Transcontinental

4 March 1987, 'Heavy rain closes roads', p. 1.

25 May 1987

Heavy showers led to flooding of Beulah Road in Norwood.

The Advertiser

26 May 1987, 'Gales cause havoc in City, Hills', p. 1.

21 June 1987

Torrential rains, gale force winds and high seas caused minor flooding throughout the Fleurieu Peninsula. In the Adelaide Hills, there was flooding when the Onkaparinga River, Mount Barker Creek and Torrens River all overflowed. Many houses in Mount Barker were flooded.

The Advertiser

22 June 1987, 'Storms help farmers, but bring chaos to suburbs', p. 2.

24 June 1987, 'Jetties hit as gales batter coast', p. 1.

Mount Barker Courier

1 July 1987, 'Mount Barker awash', p. 1.

The Victor Harbor Times

26 June 1987, 'Rain, winds lash coast', p. 1.

15–17 July 1987

Heavy rains on 15 July, followed by several days of sporadic rainfall, initially led to minor flooding around Adelaide. Creeks carrying run-off from the Adelaide Hills caused more flooding in the Adelaide Plains.

The Advertiser

16 July 1987, 'Emergency crews brace for more of the same', p. 4.

18 July 1987, 'Police fear city ford may cost lives', p. 5.

20 July 1987, 'SES and CFS kept busy', 'Three escape as Torrens crossing claims new victims', p. 2.

27 July 1987, 'Spate of emergencies as winter hits hard', p. 1.

28 July 1987, 'Effluent in streets as septic flood', p. 2.

The News

17 July 1987, 'South mops up rain damage', p. 10.

23 August 1987

The spillway on a large dam at Littlehampton began to break up causing a nearby unsealed road to become flooded.

The Advertiser

24 August 1987, 'CFS to the rescue', p. 4.

15 October 1987

A 'freak storm' caused minor flooding in northern suburbs of Adelaide and in Lyndoch.

The Advertiser

16 October 1987, 'Freak storm sweeps through part of State', p. 1.

1 December 1987

The northern, north-eastern and eastern suburbs were subject to minor floods.

The Advertiser

2 December 1987, 'Clean up battle continues in storm lashed S.A.', p. 4.

31 December 1987

Many intersections in Kadina remained flooded for two hours after a twenty minute deluge of rain. Heavy rain was also reported in Mount Gambier with consequent minor flooding.

The Advertiser

1 January 1988, 'Storm leaves trail of damage', p. 3.

The Border Watch

3 January 1988, 'Caught in deluge', p. 3.

1988

23 January 1988

Heavy rain caused flooding, particularly in the northern suburbs of Adelaide. There were over one hundred reports of flooding and considerable property damage at Elizabeth Shopping Centre and Parafield Discount Centre.

The Advertiser

25 January 1988, 'Costly showers bucket month's rain on Adelaide in one day', p. 4.

30 March 1988

Rains in the Far-North have caused floods which closed many roads and stranded a number of travellers.

The Advertiser

8 April 1988, 'S.A. couple stranded by rain write sand notes', p. 2.

17 May 1988

A heavy downpour caused minor flooding in Adelaide and Nangwarry, 30km north of Mount Gambier.

The Advertiser

18 May 1988, 'Storm floods city but still misses farms', p. 4.

The Border Watch

19 May 1988, 'Nangwarry downpour', p. 5.

23 May 1988

A violent storm caused flooding in Aldgate, Stirling and Bridgewater in the Adelaide Hills with a number of houses and a shop inundated. Minor flooding was also reported from other suburbs of Adelaide.

The Advertiser

24 May 1988, 'SOS calls flood in as storm batters Adelaide', p. 1; 'S.A. emergency crews battle storm damage', p. 2.

4 June 1988

Flooding reported in Adelaide suburbs.

Sunday Mail

5 June 1988, 'Floods hit suburbs', p. 1.

14 June 1988

Continuous rain around Bordertown led to widespread flooding when creeks broke their banks. In Bordertown itself, waters from Tatiara Creek were held back by sandbagging and a number of roads were closed. In the South-East, Naracoorte Creek was contained by sandbagging.

The Border Watch

16 June 1988, 'Floods hit', p. 1.

17 June 1988, 'Farmers facing multi-million dollar flood damage losses', p. 1.

20 June 1988, 'Floods start to subside', p. 1.

Border Chronicle

15 June 1988, 'Widespread flooding', p. 1.

21 July 1988

Rain caused minor flooding in Hindmarsh, Croydon, Brompton and North Adelaide.

The Advertiser

22 July 1988, 'Downpour cuts roads, damages shop stock', p. 1.

1989

13–26 March 1989

Torrential downpours caused widespread flooding throughout South Australia's North and from Port Augusta to the South Australia – New South Wales border. Many travellers were stranded. Areas around the Flinders Ranges were flooded. In Andamooka, 30 homes were flooded and houses were reported flooded in Port Augusta. Many mine shafts were flooded at Coober Pedy and equipment was destroyed or damaged. Flooding persisted for some weeks.

The Advertiser

16 March 1989, 'Stranded family safe after four days in the wet', p. 3.

21 March 1989, 'Rain cuts roads in Northern Flinders', p. 5.

25 March 1989, 'Helicopters ready to rescue flood victims', p. 1.

28 March 1989, 'Deluge devastates opal mines', p. 3.

The News

14 March 1989, 'Fears for tourists after Far North floods', p. 3.

Northern Sun

17 March 1989, 'Floods cut off North', p. 1.

Sunday Mail

26 March 1989, 'Finally flood relief as rains ease', 'Disaster as opal mines submerged', p. 2.

12 April 1989

Heavy rains around Price on the Yorke Peninsula caused the local creek to overflow when culverts could not deal with the flow. This led to the whole town being inundated by water. The waters quickly subsided.

Yorke Peninsula Country Times

18 April 1989, 'Streets of Price awash', p. 1.

29 April 1989

There was flooding reported near Tumby Bay. The pipeline between Port Lincoln and Cowell had broken from the mass of water.

The Advertiser

1 May 1989, 'Devastating rains flood EP dustbowls', p. 1.

7–9 May 1989

Persistent torrential rains across the south of the State led to many reports of flooding. Waikerie in the Riverland was hard hit with many homes inundated. Other towns in the area also reported flooding. There was extensive flooding of low-lying areas of Eyre Peninsula with the district around Cleve being hard-hit. In the city of Adelaide, a number of suburbs were flooded.

The Advertiser

8 May 1989, 'Floods at Cleve', p. 5.

9 May 1989, 'Floods follow downpour', p. 3; 'Too much rain', p. 4.

10 May 1989, 'Lucky break for many farmers', 'Waikerie flooded in 200mm downpour', 'Deluge brings good and bad news for State', p. 5.

The News

9 May 1989, 'Flooding as storms hit', p. 1.

The River News

10 May 1989, 'Town mops up after flooding rains', p. 1.

8 June 1989

Earlier rains in Queensland led to Coopers Creek flooding in the Far-North of the State with many areas becoming isolated.

The Advertiser

12 June 1989, 'Floods cut northern roads', p. 3.

13 June 1989, 'Floods cut Innamincka's lifeblood', p. 2.

7 August 1989

The River Murray flooded low-lying areas adjacent to the river at Loxton and caused temporary evacuation of the Loxton Riverfront Caravan Park.

The Advertiser

7 August 1989, 'High river forces park evacuation', p. 7.

10 September 1989

Storms and torrential rain caused flooding in some parts of South Australia.

The News

11 September 1989, 'State storm havoc', p. 5.

23 November 1989

Heavy rain and thunderstorms caused several Outback communities in South Australia's Far-North to be cut off with creeks flooding. Areas hardest hit include Leigh Creek and Arcoona Station, Andamooka, Marree and Oodnadatta.

The Advertiser

27 November 1989, 'Outback deluge leaves travellers stranded', p. 3.

The News

24 November 1989, 'Deluge cuts roads in North', p. 12.

27 November 1989, 'Police warn bush drivers', p. 4.

29 November – 1 December 1989

A series of rainstorms caused local flooding in suburbs to the north of Adelaide. Some crop damage was predicted.

The Advertiser

2 December 1989, 'Harvests hit as storms batter S.A.', p. 5.

The Bunyip

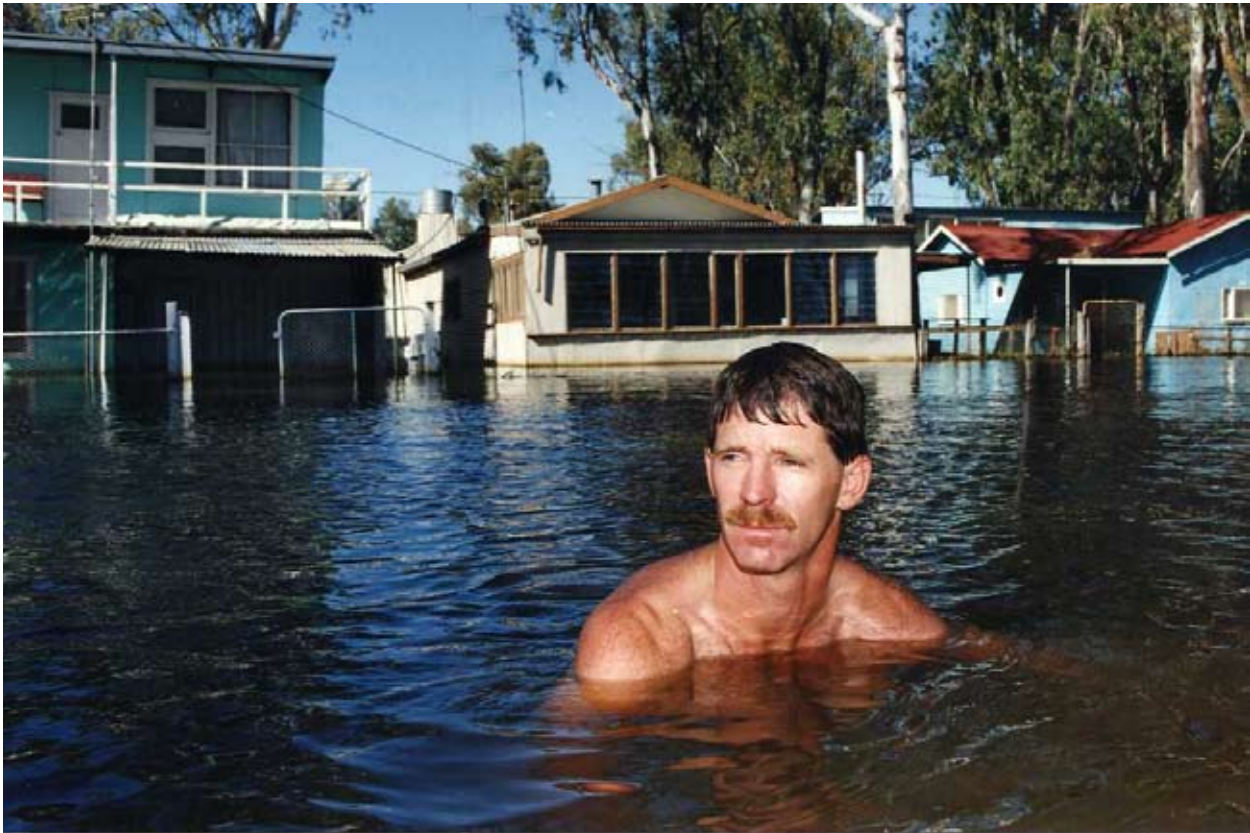
6 December 1989, 'Damage by rain', p. 1.

The New Review Messenger

6 December 1989, 'Big trail of damage hits northern suburbs in severe storm', 'Legal threat after flood hits house', p. 1.

The News

1 December 1989, 'Power lines down as storms lash city', p. 2.



One of the police Star Force swims from the patrol boat to flooded River Murray shacks on the lookout for looters. Photo courtesy of The Advertiser.



Heavy rains in the north of Adelaide led to flooding in low-lying areas of Gawler. See chronology entry for 30 August 1992. Photo courtesy of The Advertiser.

1990–1999

In 1991, the South Australian Institute of Technology merged with the three Colleges of Advanced Education to create a third university for SA, the University of South Australia. The State Bank collapsed in 1991. In 1992, the South Australian Certificate of Education was introduced to replace and reform the matriculation system. 1993 saw the Grand Prix event lost from South Australia. The entertainment industry showed a surge in growth with the opening of the Adelaide Entertainment Centre and the introduction of legalised gambling. South Australia was on the move in a physical sense when the Southern Expressway became fully operational at the end of 1997 and in 1998, when the Crafers Freeway Tunnel was completed. In 1999, health was a top priority with the introduction of a school-based Hepatitis B Immunisation Programme into South Australian schools for the first time as an initiative by the NHMRC.

- | | |
|------|---|
| 1991 | University of SA formed through merger of other tertiary organisations |
| 1991 | South Australian Certificate of Education (SACE) replaces previous matriculation system |
| 1991 | Dame Roma Mitchell becomes Australia's first female Governor |
| 1992 | Adelaide Entertainment Centre opens |
| 1993 | Poker machines introduced |
| 1996 | New Brighton Jetty opens |
| 1997 | Berri Bridge opens |
| 1997 | Southern Expressway becomes fully operational |
| 1998 | Crafers Freeway tunnel excavated |



1990

9–14 May 1990

Innamincka flooded by heavy rains in Queensland.

The Advertiser

14 May 1990, 'Early flood inundates Innamincka', p. 1.

15 May 1990, 'Innamincka ready for flood peak', p. 12.

The News

14 May 1990, 'Rain hopes dim', p. 2.

12 June 1990

Localised flooding occurred in Woodville and Brompton after a sudden downpour.

The News

12 June 1990, 'Rain at last ... but not enough', p. 5.

25 June 1990

Paris Creek flooded at Strathalbyn. A home in Ashbourne also flooded. Rough weather in Adelaide caused minor flooding in the southern suburbs.

The Advertiser

28 June 1990, 'The weather—floods, snow and sun', p. 1.

The News

27 June 1990, 'Hail and flood fury hits city', p. 3.

4 July 1990

Floods were reported in Happy Valley, Aberfoyle Park, Payneham and St Agnes. Roads also closed throughout the State.

The News

5 July 1990, 'Floods hit pensioners', p. 12.

16 July 1990

Torrential rains swept parts of the State, causing minor flooding to the Adelaide Hills and Murray Mallee regions.

The News

17 July 1990, 'Back to winter', p. 2.

25 July 1990

Flooding reported at Strathalbyn and Ashbourne as creeks burst their banks following heavy rain. Two houses damaged.

The Advertiser

26 July 1990, 'The weather: floods, snow, sun', p. 1.

The News

26 July 1990, 'Danger eases', p. 2.

5 August 1990

Flooding in South Australia's Far-North closed the Birdsville Track.

The News

6 August 1990, 'Big chill set to continue', p. 7.

25 September 1990

Massive rains in the Murray-Darling catchment areas inundated low-lying areas on banks of the River Murray at Morgan and Blanchetown. Shacks were surrounded by water. It was predicted that low-lying areas further down the river might also flood.

The Advertiser

27 September 1990, 'River becomes their only road', p. 1.

The News

25 September 1990, 'Spring rain shuts road', p. 7.

23 January 1991

General flooding reported in the South-East region including Port MacDonnell, Yahl, Moorak districts and Mount Gambier. Some houses flooded.

The Border Watch

24 January 1991, 'Storm fury abates', p. 1.

6 February 1991

Birdsville Track was closed due to flooding.

The Advertiser

7 February 1991, 'Freak rainstorm hits S.A.'s far North-East', p. 5.

8 February 1991, 'North-East bracing for massive floods after record rains', p. 8.

3 April 1991

Flooding occurred in the North of the State.

The Advertiser

4 April 1991, 'Our rainfall hits extremes', p. 4.

8–10 June 1991

Minor flooding occurred in Kadina and Alford.

What was once a field of peas became a 20ha lake on which a mock Loch Ness Monster was floated as a joke.

The Advertiser

11 June 1991, 'Flooding danger over', p. 4.

28 June 1991, 'Heavy rainfall spawns a monster', p. 5.

The News

10 June 1991, '6 die as gales batter NSW', p. 2.

7 July 1991

Minor floods reported after heavy rain in Flagstaff Hill, Christies Beach, Salisbury, Golden Grove and Modbury.

The Advertiser

8 July 1991, 'Coldest day to be followed by more', p. 1.

20 August 1991

Creek at Cowandilla burst its banks and flooded five houses. Further thunderstorms and hail caused flooding on Adelaide's parklands and power cuts.

The Advertiser

21 August 1991, 'S.A. battered by violent squalls', p. 3.

22 August 1991, 'In the park, a lull before the storm', p. 3.

The News

21 August 1991, 'Big damage bill as violent storm hits', p. 6.

23–27 August 1991

Minor flooding of creeks and roads occurred in Mount Barker. Several creeks in the Mount Lofty area burst their banks causing further minor flooding in Mitcham, Aldgate and Stirling areas. Flooding also reported in Hallett Cove, Aberfoyle Park, Blackwood and Belair (due mainly to blocked drains), causing minor damage to homes.

The Advertiser

28 August 1991, 'Flooding as rain hits Hills area', p. 4.

The News

27 August 1991, 'Suburbs in flood danger', p. 3.

15–18 September 1991

Widespread flooding across the south of the State. Roads washed away in the Adelaide Hills and on the Fleurieu Peninsula. Goolwa road collapsed near Ashbourne. A vacant house at Carrickalinga was lifted off its stumps by floodwater from the Carrickalinga Creek. Many roads south of Adelaide cut.

The Advertiser

16 September 1991, 'Mopping up ... but the worst is to come', p. 1.

19 September 1991, 'Reservoirs nearly full after week of heavy Hills rains', p. 8.

The News

16 September 1991, 'Battered residents brace for more', p. 1.

18 September 1991, 'Keep your brolly handy', p. 1.

26 November 1991

Flooding reported in the Riverland and South-East.

The Advertiser

26 November 1991, 'Riverland and South-East battered as crops worth millions lost', p. 1.

1992

10 February 1992

Areas of Adelaide flooded after a storm dumped almost 50mm of rain in an hour. Strathalbyn was the worst affected.

The Advertiser

11 February 1992, 'Houses damaged as storms dump 50mm', p. 3.

Mt. Barker Courier

12 February 1992, 'Freak storm, floods batter Strathalbyn', p. 1.

29 February 1992

Following torrential rainstorms, more than 30 homes at Port Pirie were flooded and there was widespread flash-flooding of roads across Adelaide. Heavy rains also caused major flooding in Port Augusta and in the Far-North of the State.

Sunday Mail

1 March 1992, 'Homes hit in flood havoc', p. 1; 'Torrential deluge mayhem across S.A.', p. 5.

The Transcontinental

4 March 1992, 'Port Augusta awash!', p. 1.

11 May 1992

Heavy rains caused flooding around Port Augusta.

The Transcontinental

13 May 1992, 'Rain causes flooding in some areas', p. 5.

11 July 1992

Minor flooding reported around Adelaide when stormwater drains overflowed.

Sunday Mail

12 July 1992, 'Car crash spate as rain hits', p. 3.

30 August 1992

There were heavy rains across the State. 200 tourists were stranded at Innamincka after Far-North roads flooded. In the Adelaide Hills, roads were blocked by rock and mud slides, houses were flooded and three people were swept away from the caravan park at Cudlee Creek. Two died and one was saved. Adelaide Hills reservoirs were full and overflowing. 30 people were rendered homeless due to flooding. Councils faced multimillion dollar clean up bills.

The Advertiser

31 August 1992, 'S.A. floods chaos', p. 1; 'Floods chaos', p. 2.

1 September 1992, 'Floods threaten houses, Army in battle for town', p. 1.

The Bunyip

2 September 1992, 'Winter's last hurrah', p. 1.

Leader Messenger

9 September 1992, 'Floods push welfare groups to the limit', p. 8.

The Northern Argus

1 September 1992, 'Wild weather a two-edged sword', p. 1.

The Plains Producer

2 September 1992, 'Light River bursts its banks', p. 14.

6 September 1992

Streets flooded in Whyalla.

Whyalla News

8 September 1992, 'City awash with heavy rains', p. 1.

16–17 September 1992

There was flooding to the north of Adelaide. Roads were cut and dozens of homes were inundated and damaged between Two Wells, Virginia and Gawler. Market garden crops were destroyed.

The Advertiser

17 September 1992, 'Families evacuated in flood', p. 5.

18 September 1992, 'Residents angry as floods hit', p. 3.

The Bunyip

23 September 1992, 'Plains awash', p. 1; 'Homes flooded', 'Area escapes the big wet', p. 2; 'Reservoir spill 'not the cause'', p. 3.

The Northern Argus

22 September 1992, 'Flood damage set at \$90,000', p. 6.

The Plains Producer

23 September 1992, 'Two Wells couple count the cost', p. 1.

24–25 September 1992

Widespread rains caused flooding in a number of places. At Langhorne Creek, roads were covered with 65cm of water. The Lipson Show on the Eyre Peninsula was postponed after the showgrounds flooded. Hundreds of thousands of dollars of flood damage occurred in the Clare Valley. Roads were cut throughout the Mid-North.

The Advertiser

25 September 1992, 'Floods sweep S.A.', p. 1.

26 September 1992, 'One too many for weary grape growers', 'Outback floods ease', p. 4.

The Bunyip

30 September 1992, 'Stockport hit again', p. 2.

The Flinders News

29 September 1992, 'Flood chaos: SES goes on full alert', p. 2.

The Northern Argus

29 September 1992, 'The big wet continues', p. 1.

The Plains Producer

30 September 1992, 'Minor flooding at Bowmans and Pt. Wakefield', p. 1.

Port Lincoln Times

29 September 1992, 'Heavy rains postpone the 90th Lipson Show', p. 3.



A house at Birdwood just keeps its roof above water during the floods of 30 August 1992. Photo courtesy of Brian Barber.



The same house on dry land in September 2005. Photo courtesy of Brian Barber.

The Recorder

30 September 1992, 'River overflows for the third time', p. 5.

The Southern Argus

24 September 1992, 'Flood washes annual gymkhana down the creek', p. 7.

8–9 October 1992

Heavy rains led to flooding in low-lying areas north of Adelaide. Flooding was reported at Birdwood Retirement Village and a caravan park was evacuated at Gawler. The Army sandbagged properties at Verdun and Balhannah. Kapunda was also sandbagged. 150 homes were affected by floodwaters at Two Wells. Kangaroo Island also had four properties flooded and roads cut.

The Advertiser

9 October 1992, 'Residents evacuated; major flood alerts', p. 1.

10 October 1992, 'Big wet hits plains', p. 1.

The Barossa and Light Herald

14 October 1992, 'Barossa battles round 2', p. 1.

The Bunyip

14 October 1992, 'Heartache', p. 1.

The Plains Producer

14 October 1992, 'Worst flooding since 1941 say Two Wells residents', 'Mallala Council faces \$900,000 repair bill', p. 1.

Sunday Mail

10 October 1992, '200 flee homes in flood', p. 2.

17 November 1992

Widespread flooding stretched from Adelaide through the northern suburbs and up to Tanunda. CFS units assisted in saving 20 houses in Williamstown and Lyndoch. Properties were also sandbagged in Vine Vale and Tanunda. Many businesses experienced flooding. Barossa Valley Highway was impassable.

The Advertiser

18 November 1992, 'Flooding and fires in storm chaos', p. 3.

20 November 1992

Widespread storms caused local flooding and minor damage across the State.

The Advertiser

21 November 1992, 'Mid-North rocked by new round of storms', p. 5.

The Barossa and Light Herald

25 November 1992, 'Storms hand out another battering', p. 1.

The Bunyip

25 November 1992, 'Storm fury', p. 1.

The Leader

25 November 1992, 'Rain floods local roads', p. 1.

The Plains Producer

25 November 1992, 'Flood alert sounded—again', p. 1.

The Transcontinental

25 November 1992, 'Freak deluge wreaks havoc', p. 1.

2 December 1992

Week-long rains flooded businesses and caused million dollar losses to farmers on the Eyre Peninsula.

Port Lincoln Times

8 December 1992, 'Heavy rain dampens EP harvest', p. 1.

17–19 December 1992

Widespread flooding stretched from Gawler to Mount Pleasant, through the Eastern Adelaide Hills and down to Goolwa. Dozens of homes were evacuated and at least thirty were flooded. Strathalbyn High School had a roof collapse. A wall at Lobethal and a bridge at Woodside also collapsed. Metre high waters swept hundreds of used tyres into Callington. SES volunteers were involved in the clean up. Crops in the Mid-North were also damaged by storm. The total costs were estimated as being up to \$750 million. A girl was swept to her death while trying to push a stalled car on the flooded main street of Kanmantoo.

The Advertiser

18 December 1992, 'Record downpours swamp Hills and the North', p. 3.

19 December 1992, 'Storms create \$750m havoc', p. 1; 'Town treads carefully with wet-weather tyres', 'The \$750 million deluge', p. 3.

21 December 1992, 'S.A.'s flood crisis', p. 7.

24 December 1992, 'After the floodwaters, another battle', p. 2.

The Bunyip

23 December 1992, 'Flood alert again ... but damage minor', 'Crops devastated', p. 3.

Sunday Mail

20 December 1992, 'S.A.'s flood disaster', p. 2.

The Times

22 December 1992, 'Thunderstorms leave trail of coastal damage', p. 1.

24 December 1992, 'Council plans flood strategy', p. 11.

17–21 December 1992

Rain in some areas of Eyre Peninsula during the past week quadrupled the average rainfall for December causing widespread flooding and forcing the closure of many roads.

Port Lincoln Times

22 December 1992, 'Rains cause damage', p. 2.

22 December 1992

Flooding in the Riverland caused loss to orchards.

The Advertiser

26 December 1992, 'Riverland flood poses new risks', p. 2.

Sunday Mail

27 December 1992, 'Riverland in tatters as storms wipe out fruit', p. 2.

1993

25 January 1993

Torrential rain led to flooding throughout northern South Australia. Worst hit were parts of the Eyre Peninsula and homes and businesses were flooded in Whyalla. Minor flood damage was reported from elsewhere.

The Advertiser

26 January 1993, 'Flood alerts as rain lashes northern S.A.', p. 3.

27 January 1993, 'Sighs of relief as floodwaters subside', p. 5.

The Flinders News

27 January 1993, 'Storms batter region', p. 3.

The Plains Producer

27 January 1993, 'District awash', p. 1; 'Council assists flood working party', p. 6.

Port Lincoln Times

28 January 1993, 'Cleve \$1M. damage bill', p. 3.

The Transcontinental

27 January 1993, 'Rains wash out roads', p. 1.

Whyalla News

26 January 1993, 'Rains wreak havoc', p. 1.

26 January 1993

A heavy storm caused flooding within the city of Mount Gambier. The courthouse was flooded severely and several streets had to be pumped out.

The Border Watch

28 January 1993, 'Rain storm lashes city', p. 3.

4 July 1993

Widespread rains across the Far-North caused extensive flooding with many communities isolated. A number of tourists and other travellers were trapped by the waters.

The Advertiser

7 July 1993, 'Rain maroons 40 school students in Far North', p. 7.

7 July 1993

Storms ravaged the State. Flooding was reported in Willunga, Kanmantoo, Macclesfield, Goolwa, Victor Harbor, Middleton, Port Elliot, Aldinga and Whyalla.

The Advertiser

8 July 1993, 'Huge bill as wild storms lash State', p. 1.

Whyalla News

9 July 1993, 'Flood havoc', p. 1.

The Times

13 July 1993, 'Counting storm costs', p. 1.

20 July 1993, 'Storm carves erosion gully', p. 3.

13 October 1993

Seven country highways, including the Strzelecki and Birdsville Tracks were closed due to flooding. Roads were closed in the Far-North through the next week.

The Advertiser

15 December 1993, 'Light relief from storm clouds', p. 1.

1994

25–26 May 1994

Gale force winds, severe rain squalls, thunderstorms and a very high tide caused flooding at various coastal locations stretching from Port Noarlunga to Port Germein. Homes were threatened at Port Adelaide and Port Pirie. At Port Germein, shacks were isolated and about seventy occupants of a caravan park stranded.

The Advertiser

27 May 1994, '\$2m repair bill in wake of storms', p. 4.

Port Lincoln Times

26 May 1994, 'Tide threatens coastal homes', p. 1.

24 June 1994

Strong winds, rain and high tides caused flooding in many areas of the State. Road traffic was disrupted and there was minor flooding in several places.

The Advertiser

24 June 1994, 'Floods, chaos as storms batter State', p. 2.

30 July 1994

Minor flooding occurred in parts of the State as a result of snow, hail and rain.

Sunday Mail

31 July 1994, 'Snow, hail as big freeze hits S.A.', p. 2.

17 December 1994

One third of the Onkaparinga District fruit and vegetable production was wiped out through rain, hail and flooding. A road bridge collapsed just east of Woodside as stormwater rushed down a creek.

The Advertiser

19 December 1994, 'Storms wash dreams away', p. 3.

1995

3 January 1995

Flooding forced the closure of some roads in and around Barmera. At least one house near the Sturt Highway was flooded and eight people were stranded at the Lake Bonney Caravan Reserve.

The Advertiser

4 January 1995, 'Crops battered as storm hits Riverland', p. 3.

The Murray Pioneer

10 January 1995, 'Barmera storms leave path of destruction' p. 1; 'Homes damaged in flash flooding' p. 3.

13–14 January 1995

Flooding was reported through Kapunda, Eudunda, Robertstown, Burra, up to Port Pirie and across to Whyalla. Homes and businesses were damaged in Port Pirie, Burra and Whyalla and water was flowing down the main street of Eudunda.

The Advertiser

16 January 1995, 'Mid-North roads shut as flooding subsides', p. 5.

The Bunyip

18 January 1995, 'Rain a relief from heatwave', p. 1.

The Flinders News

18 January 1995, 'Downpour disrupts region', p. 1.

The Recorder

17 January 1995, 'Port Pirie under water', p. 1; 'Torrential downpour floods several homes', p. 17.

Sunday Mail

15 January 1995, 'From fire anger to floods', p. 1.

Whyalla News

17 January 1995, 'Weekend downpours take city by surprise', p. 3.

12–13 July 1995

Widespread coastal flooding was reported as a result of high tides, wind and rain. In the South-East of the State, rain caused flooding at Frances.

The Advertiser

14 July 1995, 'Chaos on the coast', p. 1.

15 July 1995, 'Storm's helpless victims', p. 4.

21–23 July 1995

Two days of heavy rain caused sporadic flooding across the State. Hardest hit were places in the Adelaide Hills and to the north of Adelaide. In total, about one hundred homes



Flood scene in the Adelaide Hills at Birdwood on 30 August 1992. Photo courtesy of Brian Barber.



The same scene at Birdwood in September 2005. Photo courtesy of Brian Barber.

were threatened and one thousand telephone connections cut.

The Advertiser

23 July 1995, 'Silver lining as winter returns', p. 3.

24 July 1995, 'Storm-lashed State mops up', p. 3.

Sunday Mail

23 July 1995, 'Raging torrent damages homes', p. 5.

The Victor Harbor Times

25 July 1995, 'Crashes, floods at Yankalilla', p. 1.

22 December 1995

Flooding closed the roads from Marla to Oodnadatta, William Creek and Coober Pedy.

The Advertiser

22 December 1995, 'Far North roads closed by rain', p. 2.

Sunday Mail

24 December 1995, 'Far North roads cut', p. 2.

31 December 1995

Flash-flooding was reported in the northern suburbs of Adelaide, with minor flooding occurring elsewhere. Sandbagging was carried out in Parafield Gardens, where more than seventy homes were threatened. At Baker Street in Enfield, water was waist deep and many houses had up to a metre of water gushing through them. In Campbelltown, large numbers of people were stranded in their cars as 400mm of water flowed down Lower North East Road.

The Advertiser

1 January 1996, 'Storms bring chaos', p. 1.

1996

22 June 1996

Houses in Adelaide flooded. Other areas of the State were also affected, including the Yankalilla-Normanville area, and the South Coast.

Sunday Mail

23 June 1996, 'Flooding, road chaos as electrical storm hits', p. 3.

29 June 1996

Flood damage to Kangaroo Island was reported, with the hospital being the worst affected.

Sunday Mail

30 June 1996, 'Hospital flooded as roof collapses', p. 11.

18 July 1996

Heavy rains swept Adelaide, flooding roads around Gumeracha and Kersbrook.

The Advertiser

19 July 1996, 'Rains flood roads and more on way', p. 7.

4 August 1996

Torrential rains across Adelaide and the Hills caused dozens of roads to be closed and homes were threatened by floodwaters. More than forty minor flooding incidents were reported in the southern suburbs.

The Advertiser

5 August 1996, 'Two risk saving boy in raging river', p. 3.

Mount Barker Courier

7 August 1996, 'More rain, flooding forecast', p. 4.

30 September – 1 October 1996

Floodwaters were reported in the Gawler River. Twenty houses were sandbagged at Two Wells, with sandbagging also carried out at Verdun and Hahndorf. The Adelaide Hills, Old Noarlunga, Port Noarlunga and Langhorne Creek were all badly hit by flooding, with buildings being inundated. A petrol station at Verdun was under two metres of water and a local nursery flooded. The two metre depth gauge at Oakbank Race Course also disappeared beneath brown swirling water.

The Advertiser

1 October 1996, 'Teenager's icy ordeal as floods hit', p. 1.

The Bunyip

2 October 1996, 'Adelaide Plains on flood alert', p. 1.

The Naracoorte Herald

2 October 1996, 'Rain revives drain problem', p. 1.

Sunday Mail

6 October 1996, 'The week that was', p. 151.

The Victor Harbor Times

4 October 1996, 'Area escapes damage', p. 6.

5 December 1996

Severe thunderstorms swept across the State, causing flash-flooding and road closures in some areas.

The Advertiser

7 December 1996, 'Storms close roads but crops unaffected', p. 4.

1997

14 January 1997

Widespread thunderstorms resulted in some houses and a country hospital being flooded in Maitland and two supermarkets were flooded in Port Pirie.

The Advertiser

15 January 1997, 'Storms temporary fire relief', p. 3.

21 January 1997

Heavy rain caused widespread flooding in Adelaide and closed roads at Seaton, Findon and Woodville.

The Advertiser

22 January 1997, 'Cool change brings floods, road chaos', p. 2.

5–6 February 1997

Widespread flooding reported throughout the State. Flooding occurred along the Barrier Highway near the border, around Whyalla, and in the Far-North including Roxby Downs, Peterborough and Hawker. Olary was isolated with two hundred passengers stranded on the Indian Pacific train. Twenty-two roads were cut and eighty-seven kilometres of rail track damaged between Broken Hill and Port Pirie. Food was dropped at the town of William Creek and at the station homesteads of Anna Creek, Hamilton and Mount Dome. Residents of Bon Bon Station, west of Roxby Downs, were evacuated as a metre of water swept through their homes.

The Advertiser

6 February 1997, 'State in a wet and dry spin', p. 3.

7 February 1997, 'First the furnace, then the floods', p. 1.

11 February 1997, 'Crisis watch on flood damage', p. 2.

Sunday Mail

9 February 1997, 'Outback braces for new deluge', p. 12.

Whyalla News

7 February 1997, 'Whyalla's downpour', p. 1.

9 February 1997

Further flood damage and tourists stranded as storms flow through the North of the State.

The Advertiser

10 February 1997, 'Full alert as new storms lash State', p. 5.

12 February 1997, 'Outback flooding worst in years', p. 4.

1 April 1997

Floodwaters in the North of the State created lakes up to one thousand kilometres long and thirty kilometres wide. Traffic restrictions were imposed on most roads.

The Advertiser

14 April 1997, 'Flower carpet set to roll out after floods', p. 7.

6 August 1997

Widespread rain caused flooding to some areas, including the Adelaide Hills.

The Advertiser

8 August 1997, 'In the nick of time', p. 2.

31 October 1997

Buildings were flooded in Watervale and Clare and roads cut after widespread storms. Houses in Adelaide were also flooded.

The Advertiser

1 November 1997, 'October roars out with record fury', p. 1.

Sunday Mail

9 November 1997, 'City's blackout crisis', p. 14.

13 November 1997

Thunderstorms in the Far-West and Mid-North of the State caused minor local flooding.

The Advertiser

14 November 1997, 'Storms lash Far West coast', p. 14.

15 November 1997, 'Crop fears after rain, hail havoc', p. 30.

18 December 1997

Rain flooded some roads around Port Augusta and very minor flooding occurred in Whyalla.

The Transcontinental

23 December 1997, 'Deluge causes flooding', p. 3.

Whyalla News

19 December 1997, 'No problems despite heavy rain', p. 3.

1998

12–13 January 1998

Two days of rain and thunderstorms caused flash-flooding across the Eyre Peninsula and from the Barossa Valley as far south as Mount Gambier. Property damage and road closures were reported with rainfalls of up to 67mm.

The Advertiser

13 January 1998, 'Storm clouds gather but the heat's still on', p. 3.

14 January 1998, 'Deluge washes away the heat', p. 5.

The Border Watch

14 January 1998, 'The big mop up!', p. 1.

15 January 1998, '\$200,000 in rain damage', p. 1.

20 January 1998, 'Damage bill will top \$1.5 million', p. 3.

The Bunyip

14 January 1998, 'Local flooding', p. 2.

21 January 1998, 'Homes sandbagged as storms hit', p. 8.

The Eyre Peninsula Tribune

15 January 1998, '53mm dumped on EP', p. 1.

Port Lincoln Times

20 January 1998, 'Heatwave to floods', p. 7.

6 February 1998

The equivalent of one month's rain in a day caused minor flash-floods in several suburbs around Adelaide. Croydon, Brompton and Peterhead were reported to be the worst affected areas.

Sunday Mail

8 February 1998, 'Rain, flooding chaos', p. 6.

11 April 1998

Rains caused problems in metropolitan Adelaide regions with fifteen incidents of flooding reported, mostly from the southern suburbs.

The Advertiser

13 April 1998, 'Rain gives farms a happy Easter', p. 3.

20–24 April 1998

Heavy downpours caused flooding to low-lying areas in the Far-North, with roads to the area being cut resulting in Outback travellers being stranded. Several National Parks were closed. There was some minor flooding in Adelaide.

The Advertiser

22 April 1998, 'Floods force closure of National Parks', p. 8; 'Outback travellers stranded', p. 13.

25 April 1998, 'Rising levels cut access to Simpson Desert', p. 13.

24–27 July 1998

Storms swept across the State causing flooding in the Far-North and some minor flooding in and around Adelaide. Flooding in Port Adelaide resulted from a combination of wind and high tides.

The Advertiser

25 July 1998, 'Storms sweep across country and city', p. 7.

28 July 1998, 'Wild, wet and windy; blackouts, crashes as storms hit State', p. 7.

6 August 1998

Heavy rain along the metropolitan coast caused local flooding of roads in Port Adelaide and other coastal communities.

The Advertiser

7 August 1998, 'Rain havoc along coast', p. 5.

22 September 1998

A series of spectacular thunderstorms moved across the metropolitan area of Adelaide. Floods were reported from the northern to southern suburbs, as well as parts of the Adelaide Hills. The worst affected areas were Lobethal and

McLaren Vale. A tropical thunderstorm, restricted to the city area of Mount Gambier, caused some flooding of roads and homes. However, the water drained away within a few minutes.

The Advertiser

23 September 1998, 'A stormy sound and light show', p. 4.

The Border Watch

23 September 1998, 'Big storm caused flash floods', p. 3.

5 October 1998

Flash-flooding struck across Adelaide, swamping roads and putting homes at risk. There were nineteen flood-related incidents in total.

The Advertiser

6 October 1998, 'City chaos in flash flooding', p. 3.

10 November 1998

Heavy rain caused flooding in Port Augusta.

The Transcontinental

18 November 1998, 'Double average rainfall in one day', p. 1.

1999

21 January 1999

Heavy rains cut access to the Simpson Desert, to and from Birdsville. The Eyre Creek was reported as flooding some distance from the main channel. There was extensive flood damage to the Walkers Crossing area.

The Advertiser

29 January 1999, 'Simpson flood shows the pace', p. 34.

1 March 1999

Flooding hit the Adelaide Hills following heavy storms.

The Advertiser

2 March 1999, 'Storms bring fires and flooding', p. 3.

18 March 1999

25 houses were flooded when heavy rain lashed Adelaide's northern suburbs, with Parafield Gardens and Paralowie the hardest hit.

The Advertiser

19 March 1999, 'The big downpour finally hits home', p. 7.

21 March 1999

Widespread rain across the State caused flooding and cut roads. Minor flooding was reported in the Adelaide Hills and in some Adelaide suburbs.

The Advertiser

22 March 1999, 'S.A. mops up after downpour', p. 7.

22–23 May 1999

Flash-flooding, described as the worst in two years, hit Adelaide over the weekend. A storm hit Adelaide about 9pm on Saturday and intermittent rain continued on Sunday. The areas that were most affected by flooding were Marion Road at Cowandilla, Hutt Street and Dequetteville Terrace in the city, Prospect Road at Blair Athol and Stirling. Dozens of houses were damaged by floodwaters.

The Advertiser

24 May 1999, 'Homes damaged as storm sweeps State', p. 7.

Sunday Mail

23 May 1999, 'Shops, homes hit by flash flooding', p. 9.

12 June 1999

Stormy weather throughout the State resulted in minor flooding in Adelaide.

The Advertiser

14 June 1999, 'Wild and woolly but farmers smiling', p. 6.

19 July 1999

Rapid Bay Primary School was flooded when the Anacotilla River overflowed following rain. There was also minor flooding at Victor Harbor and throughout the Adelaide Hills.

The Advertiser

20 July 1999, 'A rapid escape', p. 9.

The Victor Harbor Times

22 July 1999, 'Tempest hits—blackouts, winds, floods', p. 1.

2 October 1999

Flash-flooding occurred in Adelaide, caused by wild electrical storms throughout the State. 40 separate incidents involving flash-flooding were reported. Camping sites near Burra were flooded.

The Advertiser

4 October 1999, 'Storm havoc but bush misses out', p. 9.

Eastern Courier

20 October 1999, 'Problem drain mystifies council, irks residents', p. 3.

Sunday Mail

3 October 1999, 'Floods wreak havoc', p. 7.

19 November 1999

Heavy rain caused Glen Osmond Creek to overflow, flooding nearby property.

Eastern Courier

1 December 1999, 'Flooding a drain on bike-shop owner', p. 17.

3 December 1999

A combination of heavy rainfall and out-of-action stormwater drainage pumps as a result of a power outage led to flooding in Port Augusta. There was also flooding reported from the Far-North of the State.

The Advertiser

4 December 1999, 'Mop up after floods douse the heat', p. 3.

17 December 1999

Heavy rains swept through parts of the Far-North, stranding tourists and cutting off towns. Parts of the Strzelecki Track near Innamincka were flooded to depths of more than three metres after the Cooper Creek broke its banks.

The Advertiser

18 December 1999, 'Cut off by the rains—tourists stranded, but graziers rejoice', p. 40.

25 December 1999

Raging floodwaters caused more than \$1 million damage in the Eudunda area and in the Mid-North, 26 homes were flooded. Flash-flooding was also reported at Renmark, Mount Gambier and Paringa. Minor flooding reported throughout the State, particularly in the metropolitan areas of Adelaide and in the Adelaide Hills.

The Advertiser

27 December 1999, 'Five rescued from raging flash flood', p. 11.

The Border Watch

29 December 1999, 'Flooded holiday', p. 4.

Sunday Mail

26 December 1999, 'Floods, chaos as freak storm hits', p. 2.



A freak Christmas storm in 1999 caused flash-flooding and chaos throughout the State. This is the Light River near Gawler. Photo courtesy of Tim Eckert.

2000–2005

South Australia was central to an initiative by the Federal Government Department of Health and Aging aimed at developing and strengthening research and evaluation in primary health care over the five year period, 2000–2005. In early 2004, the Adelaide to Darwin Railway Line was completed. This enabled ready trade access to the port of Darwin and opened the gateway to the north for the first time since South Australian settlement. On February 1st, the inaugural journey of the passenger service of The Ghan took 47 hours to complete and travelled 2,970km. From 2001, Burbridge Road at West Beach was re-named Sir Donald Bradman Drive in honour of the widely-known cricketer. The multimillion dollar re-development of the Glenelg foreshore and Patawalonga River and the demolition of Magic Mountain saw a new face emerge for Adelaide's favourite beachside suburb.

- | | |
|------|---|
| 2001 | The leafy seadragon is adopted as the marine emblem of SA |
| 2002 | History of Floods project commences |
| 2003 | Restrictions on late-night and Sunday shopping hours eased |
| 2003 | The first windfarm in SA began operations at Starfish Hill near Cape Jervis |
| 2004 | Adelaide to Darwin railway commences operation |
| 2005 | Population of SA is 1,500,000; population of Adelaide 1,100,000 |



2000

10 February 2000

Flooding of roads in the Far-North resulted from local rain and floodwaters from Queensland and New South Wales moving south. Many trucks were stranded and homesteads surrounded by water.

The Advertiser

14 February 2000, 'Stuck in the middle', p. 4.

15 February 2000, 'Trucks left high and dry by floods', p. 4.

16 February 2000, 'Floodwaters subsiding', p. 25.

Sunday Mail

13 February 2000, 'Food drops as roads closed in North', p. 9.

19–21 February 2000

Roads in Port Augusta flooded for a short time after a thunderstorm. Rain swept through the Riverland, flooding roads and a few houses and causing crop damage. Heavy rains led to minor flooding in Gawler, Kapunda, the local district and the Adelaide Hills.

The Advertiser

22 February 2000, 'Murray vintage hopes start to sink', p. 4; 'Deluge causes havoc', p. 5.

The Border Watch

22 February 2000, 'Storm brings floods', p. 7.

The Bunyip

23 February 2000, 'Tropical chaos', p. 1.

Mount Barker Courier

23 February 2000, 'Emergency services to the rescue', p. 4.

The Murray Pioneer

22 February 2000, 'Downpour hits region', p. 1; 'Town's record fall for February', p. 5.

The Murray Valley Standard

22 February 2000, 'Storms lash Murraylands', p. 1.

The Transcontinental

23 February, 'Roads flooded', p. 1.

26 February 2000

Heavy rain caused some flooding in Booleroo Centre.

The Northern Argus

1 March 2000, 'Town's 75mm Saturday arvo deluge', p. 7.

20 March – 23 April 2000

Flooding in the Far-North threatened Birdsville and Innamincka. Birdsville was surrounded by water and roads were cut after the Diamantina River broke its banks. Roads were closed for some weeks.

The Advertiser

22 March 2000, 'Going with the flow', p. 26.

1 April 2000, 'Swollen floodwaters encroach on Birdsville and Innamincka', p. 18.

24 April 2000, 'Road opens after flood', p. 3.

22 March 2000

Strong winds and driving rain caused minor local flooding in several Adelaide suburbs.

The Advertiser

23 March 2000, 'Storm cuts roads, power', p. 11.

9 April 2000

Severe thunderstorms swept across the State, causing widespread flash-floods. Worst affected was the Mid-North, with houses flooded and roads closed in Gladstone, Crystal Brook and Port Pirie.

The Advertiser

10 April 2000, 'Mid-North bears brunt of storm', p. 5.

12 April 2000, 'Tourists' lucky escape from floods', p. 3.

The Northern Argus

12 April 2000, 'Floods block roads', p. 6.

The Transcontinental

12 April 2000, 'Isolated thunderstorms cause flooding', p. 4.

13 April 2000

Torrential rain in the Mid and Far-North led to flash-flooding in a number of communities. Gladstone was particularly hard-hit and roads in the Far-North were closed.

The Advertiser

15 April 2000, 'Flooding puts town on alert', p. 13.

17 April 2000, 'Floods strand 25 tourists in Far North', p. 13.

Sunday Mail

16 April 2000, 'Flash floods close roads', p. 7.

The Transcontinental

19 April 2000, 'Drenching downpour', p. 3.

29 April 2000

Three hours of heavy rain caused widespread flash-floods in Adelaide. Flooding also occurred in the Mid-North, with houses flooded and roads closed in Gladstone, Crystal Brook and Port Pirie.

The Advertiser

1 May 2000, 'Big rains "perfect" for crop farmers', p. 12.

Sunday Mail

30 April 2000, 'Downpour follows a wild day of dust', p. 3.

12 May 2000

At Port Lincoln, a high tide pushed sand into a foreshore storm drain, blocking it. This caused rainwater to back up and flood Liverpool Street.

Port Lincoln Times

16 May 2000, 'Main street flooded', p. 1.

15 May 2000

A blocked pollutant trap caused flooding in Rundle Park, Adelaide.

The Advertiser

16 May 2000, 'Persistent lashing rains spoil many a long weekend activity', p. 4.

26 May 2000

Several incidents of general flooding across the metropolitan area of Adelaide were reported following heavy rains. In the South-East, the Glenelg River was at its highest since 1983, flooding boat sheds and shacks alongside the river.

The Advertiser

27 May 2000, 'Storm damage as cold front bites', p. 5.

The Border Watch

30 May 2000, 'Claim Glenelg River at highest since 1983', p. 2.

8 June 2000

Rain led to flooding of several Mount Gambier roads.

The Border Watch

9 June 2000, 'Flash floods again', p. 3.

21 June 2000

Several homes flooded as heavy rain lashed much of the State. There was also minor flooding in some streets at Port Adelaide.

The Advertiser

22 June 2000, 'Homes flooded as wind and rain lash State', p. 3.

20 July 2000

Torrential rain and gale-force winds over several days led to widespread flooding in the Adelaide Hills and throughout the South-East. Several creeks overflowed and many roads were under water. Roads and land were also flooded on Kangaroo Island.

The Advertiser

21 July 2000, 'Homes flooded as wild storms hit', p. 9; 'Rain floods roads in South-East', p. 12.

The Border Watch

21 July 2000, 'South-East drenched', p. 3.

25 July 2000, 'Wet and wild ...!', p. 3.

26 July 2000, 'South-East awash', p. 1.

The Islander

3 August 2000, 'Big wet wreaks havoc', p. 9.

14 August 2000

Heavy rain, which swept across the metropolitan area of Adelaide, caused minor flooding in several suburbs.

The Advertiser

15 August 2000, 'Rain causes flooding', p. 5.

3 September 2000

Heavy rain throughout the Riverland caused minor flooding.

The Murray Pioneer

5 September 2000, 'Heavy rains cause localised flooding', p. 2.

7 September 2000

After a night of heavy rains across Adelaide, several incidents of flooding were recorded.

Flood damage was also recorded in Hope Valley when a creek overflowed.

The Advertiser

8 September 2000, 'Tornado scares a suburb', p. 9.

Sunday Mail

10 September 2000, 'New flood alert', p. 5.

18 October 2000

A wind and rain storm caused minor flooding on the Yorke Peninsula, although wind damage was severe. There was flash-flooding in the Clare Valley with roads closed and minor flooding at Victor Harbor.

The Advertiser

19 October 2000, 'Storm batters State—houses damaged, power cut', p. 15.

The Northern Argus

25 October 2000, 'Mid-North awash', p. 8.

The Victor Harbor Times

26 October 2000, 'Flooded golf course', p. 1.

Yorke Peninsula Country Times

24 October 2000, 'YP counting the cost', p. 1.

2001

24 January 2001

Violent storms across the State led to minor flooding in Renmark, closing some streets and causing minor damage to some businesses.

The Advertiser

25 January 2001, 'Storms, lightning add havoc to the heatwave', p. 7.

25 January 2001

Torrential rain and strong winds caused extensive flooding across the metropolitan area of Adelaide. More than 20 homes and businesses suffered flood damage. Several roads were also flooded, causing traffic delays. Some minor flooding was reported from regional areas.

The Advertiser

26 January 2001, 'Homes flooded as rain finally breaks big dry', p. 7.

27 January 2001, 'Soaking for most of the State', p. 7.

20 March 2001

Heavy rain led to minor flooding in Mount Gambier.

The Border Watch

22 March 2001, 'Mopping up storm water', p. 2.

17 May 2001

Steady rain across the State resulted in 30 cases of minor flooding to houses in Adelaide and suburbs.

The Advertiser

18 May 2001, 'Farmers rejoice over big soak', p. 11.

26 May – 8 June 2001

A burst of pre-winter weather with rains continuing for twelve days caused flooding in parts of Adelaide and throughout the State. Homes received minor flood damage in a number of eastern and northern suburbs of Adelaide. Roads in the Far-North were flooded with travellers stranded.

The Advertiser

6 June 2001, 'Heavy rain forecast to continue', p. 2.

7 June 2001, 'Farmers cheer but floods hit many', p. 2.

8 June 2001, 'Flood-hit house a disaster zone', p. 7.

13 June 2001, 'Awash in one of the wettest winter starts', p. 27.

The Islander

14 June 2001, 'Downtown deluge', p. 1.

Sunday Mail

27 May 2001, 'Floods hit and more to come', p. 20.

10 June 2001, 'Muddy 16km survival trek drama', 'Rain brings cheer to farms', p. 9.

21 August 2001

Several streets flooded in Mount Gambier after heavy rains.

The Border Watch

22 August 2001, 'Mount Gambier awash after downpours', p. 1.

25 August 2001

Rain across Adelaide caused minor flooding at Black Forest, Holden Hill and Salisbury Downs.

The Advertiser

26 August 2001, 'Rain, wind and now hail to hit', p. 9.

1 September 2001

A weekend State-wide downpour cut roads and forced campers in the Flinders Ranges to escape flooded campsites. Tourists were stranded in other parts of the State.

The Advertiser

3 September 2001, 'Tourists stranded, roads cut in floods', p. 13.

4 September 2001, 'Month's rainfall squeezed into days', p. 13.

The Transcontinental

5 September 2001, 'Record day of rain at Wilpena Pound', p. 5.

7–8 September 2001

Wild weather sweeping across South Australia caused minor flooding to the final day of the Royal Adelaide Show. There was also minor flooding across the Adelaide Hills with Lobethal, Mount Torrens, Langhorne Creek and the Gawler River particularly affected.

The Advertiser

8 September 2001, 'Power cuts, houses damaged', p. 3.

The Bunyip

12 September 2001, 'Flood threatens Buckland Park', p. 10.

Sunday Mail

9 September 2001, 'Emergency Service workers keep busy with more than 500 calls for help as ... wild weather puts on a show', p. 5.

23 September 2001

Constant rain across Adelaide caused minor flooding to roads, affecting traffic. An underpass in Rosetta Street was also flooded.

The Advertiser

25 September 2001, 'It just keeps raining', p. 13.

2002

18 May 2002

Adelaide was hit by a severe weather-front causing flooding in several areas. Flash-flooding was reported in Unley, Oaklands Park and Aldinga.

The Advertiser

20 May 2002, 'Farmers celebrate weekend storms while others count the costs', p. 11.

Sunday Mail

19 May 2002, 'Mini-tornado creates havoc in the suburbs', p. 4.

7 July 2002

Several reports of localised flooding resulted from an electrical storm that hit Adelaide and surrounding areas, most notably Littlehampton.

The Advertiser

6 July 2002, 'Storm brings halt to suburban trains', p. 9.

25–26 November 2002

Heavy rains caused flash-flooding across Adelaide, the Adelaide Hills and Kangaroo Island. Areas affected include Hahndorf, Balhannah, Littlehampton and Burnside. The rain also caused flooding of roads in Mount Gambier.

The Advertiser

26 November 2002, 'Storms hit, but not where they are needed the most', p. 1; 'Cruel rain', p. 4.

The Border Watch

27 November 2002, 'Rain causes havoc', p. 3.

2003

20 February 2003

A technical fault in the Barcoo Outlet, caused flooding in several suburbs in the west of Adelaide with Novar Gardens, Glenelg North and West Richmond particularly hard hit. Rain also caused flash-flooding in some country areas, including Port Pirie.

The Advertiser

21 February 2003, 'Barcoo Outlet fault causes street flooding', p. 5.

Weekly Times Messenger

26 February 2003, 'Flood countdown', 'February record', p. 1.

24 February 2003

Floodwaters in the Far-North reached Lake Eyre, cutting off homesteads and stranding outback travellers.

The Advertiser

25 February 2003, 'Floodwaters isolate homesteads, trap travellers—all the rivers run', p. 3.

19 March 2003

Rain caused minor flooding in Adelaide. Flood damage was also reported in Mount Gambier, Robe, Penola and Naracoorte.

The Advertiser

20 March 2003, 'Traffic havoc as rain, wind take early autumn toll', p. 18.

The Border Watch

21 March 2003, 'Storm wreaks havoc', p. 1.

23 May 2003

Flash-flooding occurred across the State, with the Myponga and Kangarilla areas amongst the hardest hit.

The Advertiser

24 May 2003, 'State hit by flash floods', p. 15.

4–7 June 2003

State-wide flash-flooding occurred with the Myponga and Kangarilla areas amongst the hardest hit.

The Advertiser

5 June 2003, 'Storm hits suburbs', p. 13.

6 June 2003, 'Winter arrives with damage bill of \$1m', p. 9.

Mount Barker Courier

11 June 2003, 'Wild weather lashes Hills', p. 10.

27–28 June 2003

Almost 200 houses flooded in Glenelg following a failure of the gates on the Patawalonga Weir, causing stormwater to break the banks of the river. Heavy rains also caused flooding throughout the North of the State.

The Advertiser

28 June 2003, 'Floods of tears', p.1.

30 June 2003, 'Three Patawalonga barriers decommissioned', p. 5; 'Rain, wind havoc—but it won't last', p. 15.

1 July 2003, 'Operator must help residents out', p. 6.

The Bunyip

2 July 2003, 'CFS to rescue as rain pours in', p. 4.

The Plains Producer

2 July 2003, 'Storms create flooding chaos', 'From one extreme to another', p. 1.

21 December 2003

More than 30 incidents of flash-flooding occurred in Adelaide as a result of heavy rain. Suburbs most affected included Cheltenham, Woodville, West Croydon, Norwood, Burnside and Glen Osmond.

The Advertiser

22 December 2003, 'Deluge—half a month's rain in just half an hour', p. 3.

2004

9 June 2004

Sudden rain caused flood damage to a supermarket at Blackwood.

The Advertiser

10 June 2004, 'Unexpected drenching', p. 7.

2 August 2004

Heavy rains in Adelaide led to floods inundating homes and businesses. Floodwaters closed roads at Lenswood, Lobethal, Williamstown and Verdun.

The Advertiser

4 August 2004, 'It just would not stop', p. 7

5 August 2004, 'Eyesore on Torrens as floods overload trash racks', p. 13.

29 August 2004

Flooding on the Sturt Highway in the Riverland area caused traffic restrictions.

The Advertiser

30 August 2004, 'Highway flooded', p. 11.

7–9 December 2004

Heavy rainfall caused by an unusual weather system pulling tropical rain into South Australia from the east coast led to flash-flooding throughout Adelaide and the Mid-North. Roads at Richmond, Henley Beach, Largs Bay and Golden Grove were inundated. Flooding was also reported in the Port Pirie area with significant damage to homes.

The Advertiser

7 December 2004, 'Floods in Port Pirie area', p. 7.

9 December 2004, 'Why weather is going crazy', p. 3.

10 December 2004, 'Storm clouds, lightning and flash floods. What a drenching', p. 7.

11 December 2004

Following a freak storm, nearly 100 homes and shops in Murray Bridge were damaged by floodwaters. Dozens of roads were also closed.

The Advertiser

17 December 2004, 'Residents warned to prepare for floods', p. 32.

Sunday Mail

12 December 2004, "There's no sense in losing your cool"—freak storm floods homes', p. 4.

2005

3 January 2005

Heavy rains caused flooding in Eudunda, with the Eudunda Hotel Motel receiving minor damage.

The Advertiser

4 January 2005, 'Summer storms damage', p. 13.

26 January 2005

A 45 minute downpour caused flash-flooding in parts of Murray Bridge.

The Advertiser

27 January 2005, 'Oh no, it's back again as properties flooded', p. 4.

10 June 2005

Heavy localised rain led to short-term flooding in the northern Adelaide Hills and the Barossa Valley.

The Bunyip

16 June 2005, 'Season breaks in nick of time', p. 2.

20–22 June 2005

Heavy rain caused havoc for motorists as roads flooded across the city, with the worst affected area being Port Road. An Adelaide taxi driver was trapped in his car (under a bridge in West Croydon) for more than 30 minutes due to the

flooding on Rosetta Street. Some damage to residential property was reported. The heavy rain also caused flooding around the Kilburn South Urban Renewal project. Residents feared contaminated soil overflowed containment lines. Seaton's Gleneagles Reserve was turned into a lake after days of heavy rains.

There was minor flooding at Port Lincoln, Murray Bridge and throughout the Fleurieu Peninsula.

In the South-East, the Glenelg River rose after recent rains and riverside buildings were flooded.

The Advertiser

21 June 2005, 'First drought, then flooding', 'It's no fare, the engines flooded', p. 5.

22 June 2005, 'Snow in the Hills, floods in the city—the wild weather of our wettest June day provided fun and fury', p.1.

23 June 2005, 'Not again—floods hit Murray Bridge', p. 9; 'Fears over pollution in flooding', p. 27.

24 June 2005, 'Despairing flood victims wait for next disaster', p. 12.

The Border Watch

23 June 2005, 'River rising', p. 1.

The Bunyip

22 June 2005, 'Winter hits with a vengeance', p. 3.

Port Lincoln Times

21 June 2005, 'Sandbags protect homes', p. 5.

The Victor Harbor Times

23 June 2005, 'Region hit by flooding', p. 13.

15 October 2005

Heavy rains in the Far-North led to flooding and closure of the Oodnadatta Track.

The Advertiser

18 October 2005, 'Outback town may be marooned', p. 3.

20 October 2005, 'Deluge mixed emotions as heavens open across State', p. 3.

21 October 2005, 'Rains breathe life back into remote stations', p. 15.

24 October 2005

A local downpour caused minor flooding around Mount Crawford.

The Bunyip

26 October 2005, '50mm dumped on district',
p. 3.

7 November 2005

Heavy rains throughout the greater Adelaide area and the Adelaide Hills led to creeks overflowing and local flooding. Worst hit were Aldgate, Gawler and areas around the South Para River. A number of roads were temporarily closed. Gawler Caravan Park was inundated.

The Advertiser

9 November 2005, 'Downpours city mops up',
p. 1.

The Bunyip

9 November 2005, 'Deluge', p. 1; 'Deluge hits district', p. 5.

16 November 2005, 'Flood fallout', p. 1; 'Virginia a ghost town', p. 7; 'Victims count the cost', p. 8; 'Inquiry into why the ford failed', p. 9.

7 December 2005, 'Flood bill could top \$1m',
p. 2.



Appendix A

While outside the scope of the book, the following paper reports on aspects of flooding by the River Murray prior to European settlement.

Appendix A:

Prehistoric Flooding in the River Murray, South Australia

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Introduction

The River Murray in South Australia flows through a semi-arid region and carries the discharge of the largest drainage basin in Australia, the Murray-Darling (figure 1). The basin contains more than 20 major rivers and has a catchment exceeding 1,000,000km², or 1/7 of the Australian continent (Mackay, 1990). In South Australia the River Murray has no significant tributaries; it is an exotic stream of very low gradient with extreme flows. When floods in the Murray and Darling systems coincide, such as in 1870 and 1956, exceptional floods are produced in the South Australian section of the River Murray (Jacobs, 1990). The 1956 flood of 3,956 cumecs (cubic metres per second) or 341,000 megalitres per day (ML/day) with a return interval of 160 years is the largest recorded South Australian event, followed by the 1870 flood estimated at 3,690 cumecs (appx. 319,00 ML/day).

In South Australia the time available for formally recording flood events is constrained to the relatively short period of European occupation (approximately 170 years). The longer the record of flood events the more reliable will be the statistical analysis of those floods and the greater the predictive power of those statistics. In general terms small flood events occur more frequently (i.e. have a shorter return interval) than do large

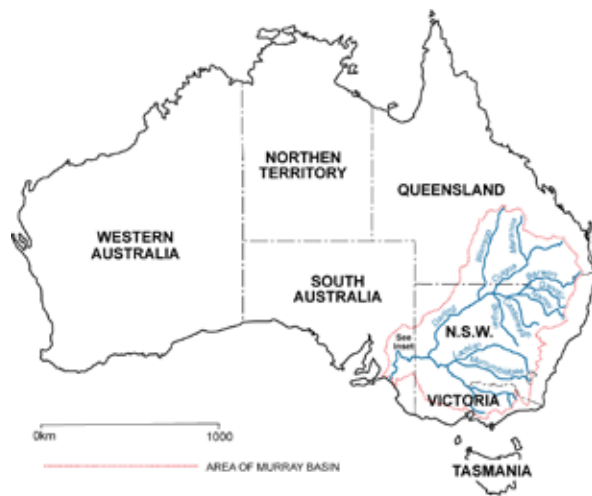


Figure 1: The Murray-Darling Drainage Basin.

flood events. The longer the period of flood records the more dependable will be the average of the flood events. Flood magnitude and frequency can predict, for example, how large (in discharge and stage height) a 100-year flood will be, but it cannot predict when that 100-year flood will occur. The 100-year flood does not occur regularly once every 100 years, but may occur several times in one year. What it does mean is that when averaged out over thousands of years, a flood of that magnitude will occur, on average, once in 100 years. Put into betting terms it means that every year there is one chance in a hundred of a flood of that magnitude occurring. Further, the bigger the event, say the 1,000-year flood, the less is the chance that it will occur in any one year.

In order to best reveal the relationships between flood magnitudes and frequencies it is imperative to have a very long flood record. Given the short period of historical records in South Australia it is important to try to extend the period of flood record by investigating evidence of floods that occurred prior to historical observations. Such floods, which are known as prehistoric or palaeofloods are of great significance. By allowing extension of the flood record, they increase the statistical and predictive reliability of the flood data and incorporate actual flood events that serve to validate, verify and constrain conventional flood-prediction models (Zawada, 1997).

Zawada (1997) summarised the evidence used for reconstruction of palaeofloods. Such evidence includes identifying and interpreting biological, erosional and depositional features related to a particular flood event. In South Australia very little research has been carried out on prehistoric flooding, but that which has been done involves investigation of sediments deposited during flood events, flood debris and botanical evidence such as lines of trees germinated at the maximum level of the flood along the River Murray.

The main aim of this paper is to present evidence of pre-European palaeofloods in South Australia, focussing on the River Murray. Where possible, indicators will be used to identify the magnitudes (stage heights) and timings of the palaeofloods so that predictions for future flood events can be made more reliably.

Palaeofloods in the River Murray

Slack-water Sediments as evidence of Palaeoflooding

Walker Flat Site

Evidence of the oldest known palaeoflood in the River Murray comes from the trench of the River Murray near Walker Flat (figure 2), where archaeologists (Mulvaney *et al.*, 1964), excavating an Aboriginal occupation site in an overhanging rock shelter on a steep river bluff, intersected a fluvial sand lens some five centimetres thick (figure 3). This layer of river sand lay between two carbon-rich occupation layers that were radiocarbon dated at $3,170 \pm 94$ years BP (lower unit) and $2,950 \pm 91$ years BP (higher unit) respectively. The thin sand horizon was regarded as slack-water sediment, deposited at the peak of a single flood episode some 3,000 years ago, and interpreted as a flood slightly larger than the highest recorded flood in the South Australian section of the River Murray in 1956.



Figure 2: Map of the River Murray in South Australia showing locations/places mentioned in the text.

Surveying by Mulvaney *et al.*, (1964) revealed that the interstratified fluvial sediments, at 6.4m, are slightly lower than the level of the highest recorded flood of 5-6 September, 1956 (6.86m) in comparison to the present pool level, which is elevated (+ 0.61m) due to the regulation of this part of the river by barrages near the mouth. Given this artificial elevation of the 1956 water level and the fact that the depth of water in which the fluvial sediments were deposited is unknown as is the peak stage level of the flood, they concluded that the palaeoflood of 3,000 years BP was the 'highest on record'. Mulvaney *et al.*, (1964) also speculated that 3,000 years ago sea level could have been as much as 23cm lower than now, which would indicate an even greater volume of water flowing down the river at that time. However, evidence from near the Murray Mouth (Cann *et al.*, 2000) suggests that sea level was probably a little higher 3,000 years BP than at present. Nevertheless, there is little doubt that the palaeoflood of approximately 3,000 years ago was at least as great as the 1956 flood and probably exceeded it.

Ideally, for slack-water sediments to be reliably used as proxy indicators of flood stages their maximum elevations should correspond to the peak flood stages, the channel cross sections should have been stable during the flooding and subsequently there should

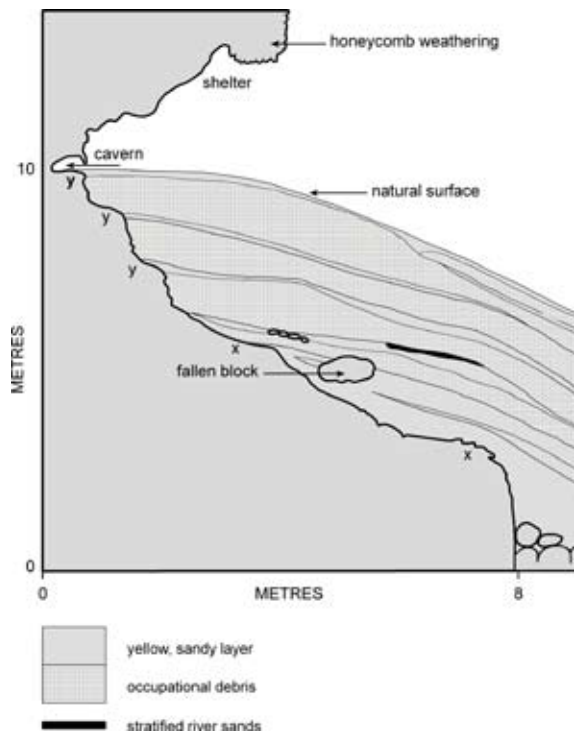


Figure 3: Riverine sediments incorporated in Aboriginal occupation layers, Fromm Landing (source: Twidale 1964)

have been minimal aggradation or degradation of the main stream (Zawada, 1997, p. 124). Furthermore, the palaeoflood events should have occurred under a climatic regime similar to today. For the Walker Flat site the only uncertain parameter is probably the identification of the peak flood stage.

In the Murray Trench, which extends downstream from Overland Corner for about 270km, the river is constrained by cliffs up to 30m high in a valley between one and two kilometres wide, so that the level of a flood event is amplified far more than on broad open flood plains. This could make the small valleys and backwaters that dissect the cliff line ideal locations for the identification of flood deposited slack-water sediments related to prehistoric flood events and present opportunities for future investigators of palaeofloods.

Flood Debris as evidence of Palaeoflooding

The Karadoc Tree

Floods may carry debris of tree trunks and branches that become stranded in elevated positions on the banks of rivers or are caught up in large trees. A sizeable log, high up in the branches of a large red gum tree (*eucalyptus camaldulensis*), was reported by Blainey (1964) in the Karadoc region. Karadoc is in Victoria, upstream of Mildura, and the tree is situated on the floodplain of Outlet Creek, not far from the River Murray. Initially it was thought that the elevation of the stranded flood debris (figure 4) exceeded the level



Figure 4: Photograph of a large red gum tree with debris caught up in the branches some six metres above ground level. This may be the original Karadoc Tree near Mildura in Victoria.

reached by the flood of 1956, but subsequently it was determined that the stranded log was lower than the 1956 flood level (Blainey, 1964). Despite this the stranded log provides possible evidence of a flood peak somewhat less than that of 1956; it may have resulted from the 1870 flood, which has an estimated discharge of 3,690 cumecs. A search was undertaken for the 'Karadoc Tree' at Outlet Creek. A large tree with debris located in its branches about six metres above the floodplain was located and photographed (figure 4) but it was not possible to establish beyond doubt that this was the original 'Karadoc Tree' given the lapse of some 40 years since it was originally reported.

Caution is required in interpreting flood debris evidence as it is very difficult to establish that the present height of flood debris relates exactly to the maximum peak of the flood event: The debris could have settled out at any level below the flood peak during falling stages of the flood. Furthermore, the age of the debris may not be directly related to the time of the flood as logs lying on the floodplain for some time may be picked up by later flood events. Even more critical is the observation that some debris appears to be high branches fallen from the same, or adjacent, trees.

Swan Reach: Punyelroo Cave

Two red gum (*E. camaldulensis*) logs, which have been interpreted by many workers as flood debris (e.g. Parkin, 1938; Blainey, 1964; Thomson, 1975), occur in Punyelroo Cave, near Swan Reach (figure 5). The cave has developed in Miocene limestone (Rogers *et al.*, 1995) and probably comprises several kilometres of horizontal passages (Sefton,

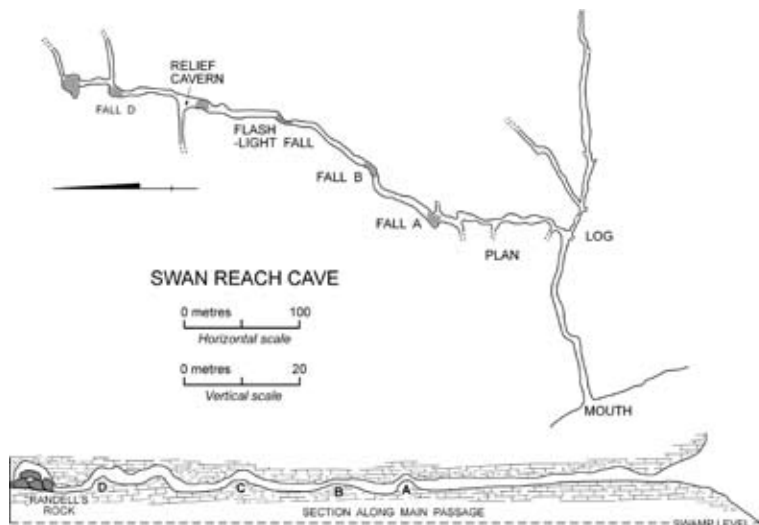


Figure 5: Map of Punyelroo Cave near Swan Reach (source: Parkin 1938).

1995). Apart from near its ‘lofty’ entrance, the cave height varies between one to three metres with many roof falls being present (Parkin, 1938). The cave entrance, which was approximately 7.6m above river level when investigated by Parkin (1938), occurs towards the base of a 30m high river cliff.

Parkin (1938) reported the presence of two large red gum ‘tree trunks’, lying 18m and 180m from the cave mouth respectively. Today both logs are separated by approximately 20m, so that the log near the mouth has been carried in some 140m since 1938. Furthermore, a major roof fall has occurred about 100m from the cave entrance, suggesting that the log had been moved to its present position before the fall. It is unlikely that people have carried the logs deep into the cave as the logs are of considerable size and weight, being up to eight metres long with a maximum circumference of 80cm. It would be very difficult to transport and manoeuvre such logs in the dark and restricted cave passages. The view that the log nearer the mouth was floated in on the 1956 floodwaters seems to be very compelling.

It has been argued, however, that the 1956 flood did not reach the level of the cave entrance. The cave was surveyed in 1957 by the Engineering and Water Supply Department of South Australia (Blainey 1964). This survey concluded that floodwaters were prevented from entering the cave by a hump some 23cm high at its mouth, and that it would be necessary for the 1956 flood to have been an extra 60cm higher to float the logs into the cave. The red gum logs are of some antiquity (appx. 2,600 years old), yet they are in an excellent condition, which Parkin (1938) attributed to the still and humid atmosphere in the cave, which would have assisted their preservation.

There appears to be general agreement that the logs have been transported well into the cave by floodwaters. Moreover, there is the possibility that several floods near the magnitude of the 1956 flood (return interval of 160 years) could have occurred within 2,600 years to progressively transport the logs into the cave. It is also possible that the logs were carried to the cave entrance by Aboriginal people, as it would be quite fortuitous for two logs of similar ages to lie on the ground for a long time before both were carried into the cave by floodwaters. Regardless of how they initially entered the cave mouth, it appears that successive floods transported them progressively further into the cave system.

Botanical evidence of Palaeoflooding

The River Murray Palaeoflood of circa-1760

A major palaeoflood peak in the River Murray, which occurred in about 1760, has been identified on the basis of lines of black box (*Eucalyptus largiflorens*), which germinate on the margins of flooded areas. This flood event exceeded the 1956 flood peak by about two metres in the Murray Trench of South Australia at Overland Corner. It is the greatest flood for which there is direct evidence in the River Murray Valley of South Australia, with a discharge almost double that of the 1956 flood. It is a flood with a probable recurrence interval of approximately 1,000 years.

Eucalyptus largiflorens as a flood level indicator

Black box is a small to medium sized tree, which grows up to 20m high. Its general Australian distribution is indicated in figure 6 (Boland *et al.*, 1984). Old trees can have girths up to four metres. The bark of *E. largiflorens* on the trunk and larger branches is rough, fibrous and dark grey. The tree has been suggested as being closely associated with previous flood levels (Tate, 1885; Treloar, 1959; Mack, 1962; Jolly & Walker, 1996; Taylor *et al.* 1996) all of which suggest that its seeds need to be immersed for significant periods of time to enable germination.

The effect of flooding reduces the salinity of the substrate, which also facilitates germination. Generally, black box seeds germinate during flood events that reduce salinity to below 500 ppm, but at higher salinity levels these seeds will not develop (Sulley, 2001). The highest germination sites on river banks occur where flood duration

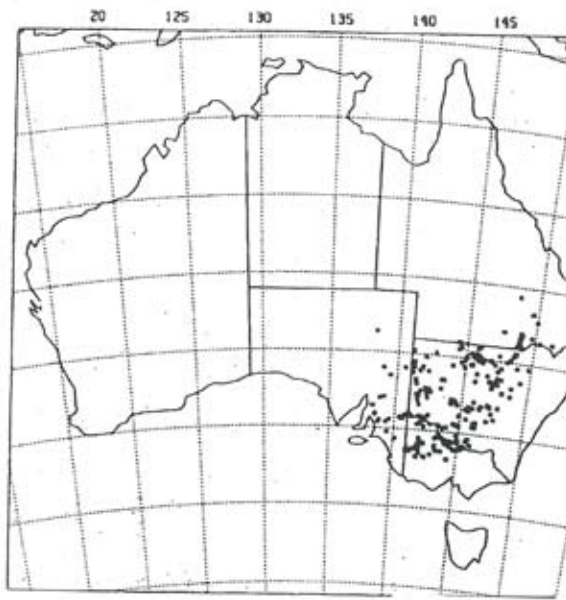


Figure 6: Distribution of *Eucalyptus largiflorens* in Australia (source: Boland *et al.* 1984).

is sufficient to leach away concentrated salt. However, where flood immersion is too long the seedlings will not germinate. Experiments replicating black box seedling survival during flood inundation showed that they can survive 15 days of inundation, but not 30 days, as can the river red gum (*Eucalyptus camaldulensis*). Thus, black box seedlings survive on flood fringes where the flood level recedes within 15 days, but they die out on

lower ground, where red gums may persist (Sulley 2001). The resulting effect is a narrow band of black box germination and survival for each flood event. Furthermore, the two eucalyptus species avoid competition for space and resources by sensing different flood zone habitats, the black box persisting at the upper level of a particular flood. A line of black box trees indicates the flood peak as the seeds from which the trees grew were washed to and deposited at the flood fringe. This evidence for past floods is thus a more reliable gauge of maximum flood stage than is flood debris. It has long been accepted as a clear flood level indicator along the River Murray. This was highlighted as early as 1885 when Tate (1885, p.27) made the following observations:

‘The extent of the flood-waters is marked by the presence of the “box” (*E. largiflorens*) ... specimens may here and there be seen considerably beyond the limits of the greatest flood on record, which seems to demonstrate that at a distant date still higher floods have occurred than we know of. This fact is so well known on the river that no permanent habitation of any value is erected within the zone of the “box”.’

Research by (Taylor *et al.*, 1996) has also shown that the distribution patterns of black box appear to follow spatial patterns of flooding extents. During our study, many observations were made of the generation of lines of lines of black box at maximum flood stages (figure 7), although there is not a continuous line of trees along the river at the peak of every flood event. Special conditions seem to apply for the healthy establishment of *E. largiflorens*. For example, Mr Peter Teakle and Mr Peter Ward, the owner and manager of Akuna Station respectively, have noted that where the bank is purely sand, no seedlings become established, and that unseasonal flooding does not favour seedling production. They have noted some of the ideal conditions for seedling germination and growth include a north bank of the river covered by calcrete pebbles and boulders. In a flood event the prevailing south and south-westerly winds push aquatic plants to the upper limit of the flood on the north bank. Here, calcrete boulders and pebbles trap the vegetation from the river together with floating seeds of the *E. largiflorens* and provide a shaded micro-environment that preserves moisture and favours seed germination. The trapped vegetation forms a mat of nutrients that provides ideal conditions for the propagation and establishment of *E. largiflorens*. Stands of the river red gum (*Eucalyptus camaldulensis*) are also generated at the same flood level but they do not survive long term at the high levels where *E. largiflorens*, which can survive drier conditions, can persist. Thus *E. largiflorens* typically occupies the higher ground. Not only do black box trees establish in response to flood events but detailed surveying has revealed that the high level trees generated during the 1956 flood occur within three centimetres of the actual recorded flood level (Snowball, 2001).

The Overland Corner site discussed in this paper lies within the Gorge Section of the River Murray, here entrenched into near level-bedded Mannum Limestone of Early to Middle Miocene age (Rogers *et al.*, 1995). The limestone crops out from river level almost to the top of the cliffs. The Overland Corner Hotel itself was built in 1859 with limestone cut from a nearby quarry. A permanent flood peak marker of the 1956 flood has been placed on an exterior hotel wall that allows comparison with peaks of other floods. The gorge at Overland Corner (figure 8) is about two kilometres wide and is incised below a ground surface that is roughly 60m AHD (Australian Height Datum, which approximates mean sea level). The river level is about five metres AHD. The floor of the gorge is characterised by abandoned channels, floodplain depressions, levees and point bar scrolls. The floodplain is underlain by Late Pleistocene and Holocene sediments, dominantly the Monoman and the Coonambidgal Formations, (Drexel & Preiss, 1995), which infill a deeper valley cut into the Mannum Limestone.



Figure 7: Line of *Eucalyptus largiflorens* that consistently stand some two metres vertically above the level reached by the 1956 floodwaters near Spectacle Lakes. The late Joe Mack is pictured in the foreground.

The geological and geomorphological settings of the Overland Corner site provide optimum conditions for palaeoflood investigations (Snowball, 2001) because the narrow gorge constricts and amplifies flood events, and the seed bed of calcrete pebbles and boulders on a south-westerly facing bluff is ideal for the germination of *E. largiflorens*.

How big was the circa-1760 Palaeo Megaflood?

Surveying from established benchmarks and from other locations where flood levels have been recorded on flood staffs, buildings, trees, bridges and weirs, Snowball (2001) established the elevations of lines of *E. largiflorens* and some individual trees both at, and either side of Overland Corner. The stage height of the 1956 flood at Overland Corner was also established using the marker on the side of the Overland Corner Hotel. Trees were surveyed consistently to the same relative position, i.e. normal to the river channel, on the right hand side of the tree as near to the centre of the girth of the tree as possible. The levelling allowed trees of similar life stage and girth to be grouped as distinct lines of trees at similar levels. Seven trees at Overland Corner, two trees at Akuna station and individual trees near Lake Bonney and Lock Three were identified as indicators of the palaeoflood level. These trees were of similar structure and life stage, as well as lying on the reconstructed palaeowater slope line, and were consistently higher than the 1956 flood level. Trees believed to be indicators of the 1956 flood were also identified, with nine trees identified at Overland Corner and ten at Akuna Station.

According to Snowball (2001), the maximum level the palaeoflood reached at each site, using *Eucalyptus largiflorens* as a flood level indicator was: 17.66m (girth—3.25m) at Akuna Station; 18.01m (girth—2.73m) at Overland Corner; 17.74m at Lock Three (girth—4.2m); and 17.93m at the now dead Bushranger Tree (girth—2.1m) near Lake Bonney.



Figure 8: Aerial photograph of Overland Corner site. (Reproduced with the permission of Mapland). (Photograph courtesy of the Department for Environment and Heritage).

At Overland Corner the highest palaeoflood level tree, at 18.01m, was 2.11m higher than the 1956 flood level of 15.89m recorded on the side of the Overland Corner Hotel. The highest-level tree of those representing the 1956 flood at Overland Corner was at a level of 15.90m. At Akuna Station the highest-level palaeoflood indicator tree (17.66m) was 2.13m above the 1956 flood level of 15.56m recorded on a post along with six other large flood events. The highest tree representing the 1956 flood at Akuna Station was at a level of 15.53m. At Lock Three a single palaeoflood indicator tree, at 17.74m, was 1.77m higher than the 1956 recorded flood level of 15.97m.

There were some apparently anomalous results from the surveying. For example, two trees identified at a similar level to the trees representing the 1956 flood level at Overland Corner and Akuna Station were of much greater girth and clearly represented an older growth stage. At Overland Corner the individual tree was at a level of 15.19m (1956—

15.90m) and had a girth of 1.85m while the average girth of the 1956 flood indicator trees was only 0.49 m. At Akuna Station the individual tree was at a level of 15.07m (1956—15.53m) and had a girth of 2.56m while the average girth of the 1956 flood indicator trees here was 0.97m. These data suggest that there were earlier floods approximating that of the 1956 event.

Another anomalous result was a tree at Akuna Station that was situated well above all known flood levels. The tree was at an elevation of 25.21m, had a girth of only 0.82m and a life stage of III, an older juvenile according to the Mueller-Dombois and Ellenberg (1974) system of classification. The low girth of the tree and its older juvenile growth stage, demonstrate that this tree could not have been flood-germinated, as no such flood level has been recorded in recent history. Other factors must be responsible for the establishment of this tree. It is likely that there is a water source for this tree in the form of a spring or groundwater. There appeared to be an impermeable horizon within the Tertiary limestone at the level in which the tree was rooted, providing a water source that allowed seed to germinate and survive in this position.

Snowball (2001) concluded that surveying of individuals and stands of *E. largiflorens* demonstrates that a palaeoflood level can be established not only at one location, but over a 60km stretch of the River Murray, from Spectacle Lakes (30km downstream from Loxton) (Bourman *et al.*, 2000) to Akuna Station. Compared to the 1956 flood level, the palaeoflood level is consistently higher on average by approximately 2.00m.

The flood levels progressively fall downstream as they are ultimately graded to sea level. For example, the 1956 flood reduces from 19.81m at Renmark to 15.97m at Lock Three and finally to four metres at Murray Bridge (Snowball, 2001). The maximum level of trees indicating the 1956 flood also demonstrates a sloping floodwater surface. At Overland Corner the maximum height tree generated by the 1956 flood was at 15.90m and at Akuna it was at 15.53m. This not only confirms the surface water slope down the river but also strengthens the view that the lines of *E. largiflorens* are reliable flood level indicators (Snowball, 2001). The high level trees indicating the 1956 flood at Overland Corner and Akuna Station are within one and three centimetres respectively of the recorded levels at each of these sites. The 1956 flood water surface is almost mirrored

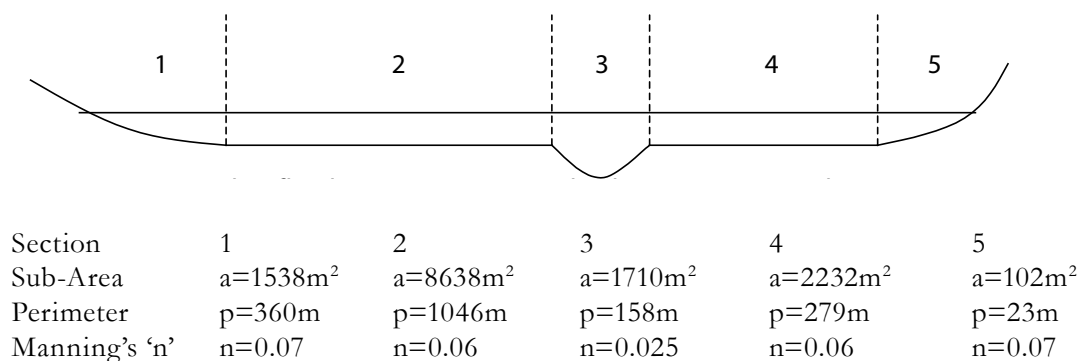


Figure 9: Palaeoflood cross-section at Overland Corner (source: Snowball 2001).

by the level of the trees representing the 1956 level with the trees at the maximum levels most closely matching the recorded level.

The data for megaflood peaks that are available do not show a consistent drop in water levels proceeding downstream. There is a drop from 17.93m upstream at the Bushranger Tree at Lake Bonney to 17.66m downstream at Akuna Station, with an intervening higher level of 18.01m at Overland Corner, but it is only eight centimetres above the level of the Bushranger Tree. Minor variations in palaeoflood stages at different parts of the valley may have been influenced by changes in valley morphology. For example, a narrowing valley will result in a higher flood peak. Nevertheless, given the small sample size and the potential subjectivity in the survey technique, the results are quite remarkable.

What water volumes were involved in the palaeoflood of circa 1760?

The discharge of the palaeoflood has been estimated using the Manning equation. This uses the cross-sectional area of flow together with the velocity of the flow to calculate the discharge. The result of the Manning Equation is a discharge in cubic metres per second or cumecs. The formula for the Manning equation (The Institution of Engineers 1977, p. 69) is shown below:

$$Q = VA \quad \text{where } V = \frac{R^{2/3} S^{1/2}}{n}$$

Q = Discharge S = Channel slope

V = Velocity P = Wetted perimeter

A = Area n = Manning's Roughness Coefficient

R = Hydraulic radius (A/P)

Both the *circa*-1760 palaeoflood and the 1956 flood are events that caused the river to spread onto the floodplain. Over the total area of the flood cross-section the roughness of the bottom changes and so a series of Manning's Roughness Coefficients has been applied to sections of different roughness. This means that the above Manning equation is adapted for use with a set of subsections, which are shown below as taken from page 70 of Australian Rainfall and Runoff—Flood Analysis and Design (The Institution of Engineers, 1977).

Q_h = sum of all q_i

$$\text{where } q_i = \frac{1}{n_i} \frac{a_i^{5/3} S^{1/2}}{p_i^{2/3}}$$

q_i = discharge in sub-section i (m^3/s)

a_i = area of sub-section (m^2)

p_i = wetted perimeter for sub-section i (channel bottom only) (m)

n_i = Manning's Roughness Coefficient for sub-section i

S = slope of energy line

This adjusted version of the Manning equation was used to estimate the discharge of the palaeoflood and to test the accuracy of an estimate of the 1956 flood, which has a known discharge of 3,950 cumecs. The cross-sectional area of flow (figure 9) used to estimate the discharge of the palaeoflood was located at Overland Corner because a distinct line of palaeoflood-indicator trees occurs there. The cross-section was taken from the palaeoflood tree with the greatest height (18.01m) in a line directly across the river. A contour map (Dept. of Lands S.A. 1981) was used to draw the cross-section,

and appropriate roughness coefficients (Gregory and Walling, 1973; The Institute of Engineers, 1977, 1987) were chosen for different parts of the channel cross-section.

Snowball (2001) calculated the discharge of the palaeomegaflood to be 7,686 cumecs (approx. 664,000 ML/day), which is almost twice the discharge of the 1956 (3,950 cumecs, 342,000 ML/day). To test the accuracy of the flood discharge estimate for the palaeoflood, the same method was used to estimate the discharge of the 1956 flood (Snowball, 2001) at the same location. The same method and formula were used as for the palaeoflood estimate except that the roughness coefficient for the floodplain has been reduced since the palaeoflood, due to extensive vegetation clearance. The estimated discharge for the 1956 flood was 3,996 cumecs (Snowball, 2001), which is close to the actual recorded discharge of 3,950 cumecs, increasing confidence in the palaeoflood discharge estimate.

Various factors can influence the flood stages recorded or inferred. Channel roughness induced by thick vegetation would have increased the flood stage of the *circa* 1760 palaeoflood in comparison with the 1956 flood. However, the flood of 1956 may have been accentuated by the influence of dams and weirs, with these structures increasing channel roughness. Furthermore, the presence of embankments, levees, and the practice of extending them during the 1956 flood would have constrained the floodwaters and possibly increased the stage height, whereas in the case of the palaeoflood the floodwaters would have dispersed freely over the floodplain. Even given these impacts, the estimated discharge of the *circa* 1760 flood is of the right order and it is reasonable to insert the palaeoflood data into a probability distribution to facilitate flood frequency analysis.

Tree	Elevation (metres)	Girth	Growth stage	Wood sample type	Sample # assigned by dating lab.	Radio- carbon date
1	16.98m	4.50m	VI-old mature	Heartwood	Wk9804	130 ± 42BP
1	16.98m	4.50m	VI-old mature	Branch fragment	Wk9805	112 ± 32BP
2	17.94m	2.06m	VIII- standing dead	Heartwood	Wk10053	MODERN

Table 1: Radiocarbon ages of black box samples.

How old was the palaeomegaflood?

Dendrochronology

Some recent studies suggest (e.g. Hupp, 1988; George & Nielsen, 2000) that tree ring analysis (dendrochronology) can be used to date trees and to identify palaeofloods. However, according to Dr. Des Coleman (2001, pers comm.), most Australian tree species, particularly Eucalypts, are not conducive to tree ring analysis. Australia does not have clearly defined extreme seasons and, as a consequence, most Australian trees neither have a dormant season nor display a growth ring for each year, as do many coniferous northern hemisphere species, such as the bristlecone pine, *Pinus longaeva* (Connor & Lanner 1990). Australian tree species display opportunistic growth in response to rainfall events and nutrient availability and may have several growth periods in years when these resources are readily available but little growth when resources are scarce. As a result, there is no calibration table, as used for the bristlecone pine, available with which to date the black box using dendrochronology. The viability of change in tree-ring anatomy in relation to inundation during large flood events, as done with the *Quercus macrocarpa* (bur oak) along the Red River, Manitoba, Canada (George & Nielsen 2000), was also discounted because of the tendency for the heartwood of *E. largiflorens* to hollow out with increasing age.

Radiocarbon dating

Several attempts have been made to determine the age of the trees situated on the palaeoflood level by using radiocarbon dating. Although there are problems associated with dating of living trees by radiocarbon, it does offer the opportunity to demonstrate if the trees are 'Modern', i.e. up to 200 years older than 1950. If the trees are older than this, then they would return greater ages. Radiocarbon ages from two samples collected from *E. largiflorens* on the megaflood line were reported by Bourman *et al.* (2000), both of



Figure 10: Large 1.5m diameter, red gum, flood debris log stranded on the western margin of the one kilometre-wide floodplain of MacDonell Creek in the North Flinders Ranges. Figure provides a scale.

which returned Modern ages, and which provide an oldest possible age of 1750 for the palaeoflood.

Three additional samples were collected by Snowball (2001) for radiocarbon dating. These were collected from two *E. largiflorens* palaeoflood-indicator trees. One of the trees had two samples taken, one from the heartwood and one from a dead branch towards the base of the tree, which was possibly epicormic growth, developed well after the tree had been established. The tendency of *E. largiflorens* trees to hollow with age, thereby removing the oldest heartwood, means that the radiocarbon results reported are likely to be younger than the tree they were collected from.

Age implications

The results for each sample and information about the tree they were taken from, are presented in table 1. Radiocarbon dates are reported as % Modern when the conventional age is younger than 200 years BP (Before Present), where present is the year 1950 (Stuiver

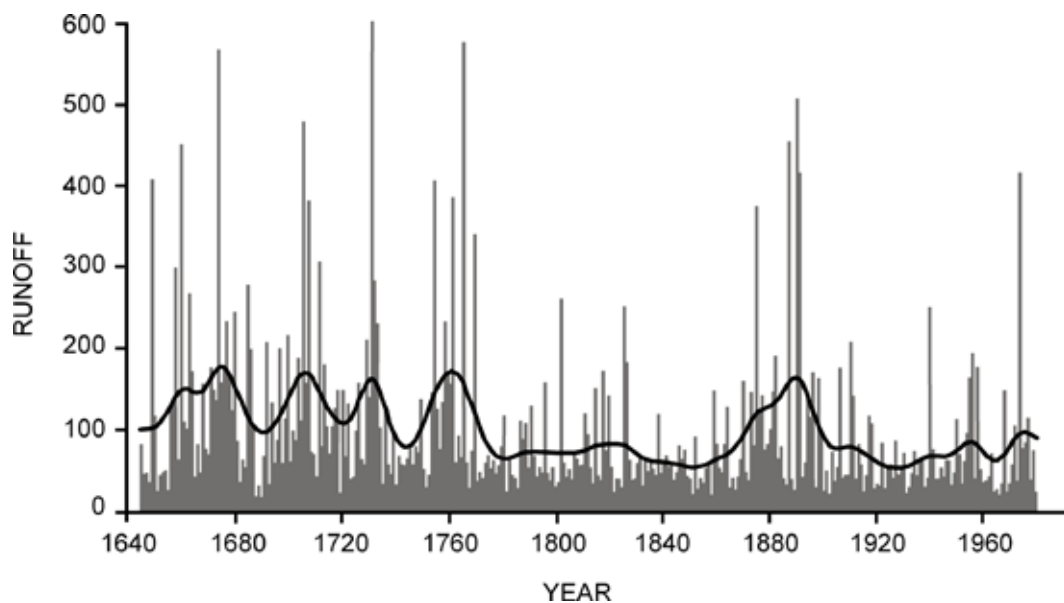


Figure 11: Palaeoflood data of Isdale et al. (1998) which reveal major flooding in the Burdekin in the 1870s with previous equivalent run-off events occurring about 1760.

& Pollack, 1977). (Table 1) The accuracy of the radiocarbon dating is demonstrated by the two samples from the one tree revealing that the heartwood was older than the wood from the younger branch as would be expected.

Modern age was derived for Sample Wk10053 from Tree 2. The maximum possible age for Sample Wk-9804 (Tree 1) is 172 years before 1950, or a date of 1778 AD, but this age is probably conservative because some of the heartwood had rotted. The ages cannot be older than 200 years or they would not be modern. If the age is 200 years before 1950, the date of the flood would be 1750, which narrows the possible age of the palaeoflood down to 1750–1778.

David Mack (quoted in Mortimer 1985) predicted that the flood event occurred in 1777 or 1778, associated with a sharp peak in sunspot activity, as were the floods of 1870

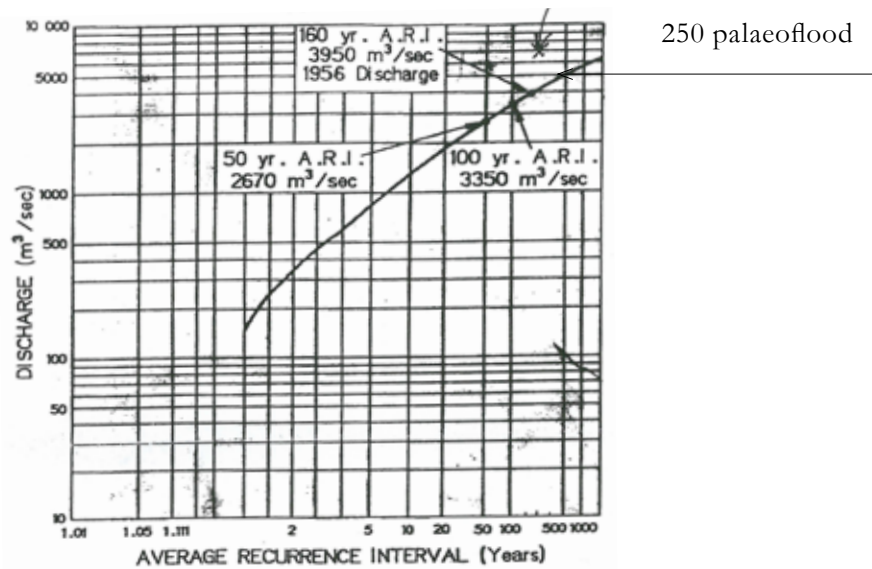


Figure 12: Flood discharge and ARI probability distribution (Source: Potter et al., 1988), with the approximately 250 year palaeoflood plotted. Note the deviation of this point from the interpolated line.

and 1956. Given that *E. largiflorens* has an estimated life span of some 300 years (Blainey, 1964), the maximum possible age for the flood is 1700 AD, with radiocarbon evidence and other data favouring an age near 1760 AD.

A major flood event in MacDonnell Creek, which flows north north-east towards Lake Blanche in the northernmost Flinders Ranges, has also been dated using radiocarbon techniques. Although MacDonnell Creek lies well outside of the Murray-Darling drainage basin, the flood event may relate to weather conditions at the time of the *circa*-1760 palaeoflood in the River Murray. In its upper reaches in the ranges MacDonnell Creek has eroded a valley up to a kilometre wide in Mesozoic and Precambrian rocks. The floodplain is underlain by Cainozoic sediments into which the creek is entrenched by up to six metres in places. The creek bottom hosts large red gums (*E. camaldulensis*) and other bushes typical of inland arid Australia, whereas away from the creek the vegetation is dominated by saltbush and mulga. The creek flows rarely and flows are usually due to summer thunderstorms in the ranges.

The margins of the floodplain are marked by lines of flood debris, dominantly large to very large logs of red gum (figure 10). Some of the largest logs are up to 0.5km from the channel indicating a flood much larger than current floods, which are usually restricted to the channel or spill a short distance out on to the floodplain. Several samples were taken from the outer section of a red gum log 1.5m diameter located at 29°50'45"S 139°17'45"E, on the western side of the creek south of Trinity Well. The radiocarbon age is 214 ± 31 years BP, and the age range 245 BP to 183 BP (calculated on the basis of the Present as 1950); therefore the age is somewhere between 1705 and 1767, and falls within the suspected timing of the largest known palaeoflood in the River Murray, thereby providing evidence of widespread and extensive rainfall and flooding that would be required to initiate a flood of the dimensions of the *circa*-1760 megaflood.

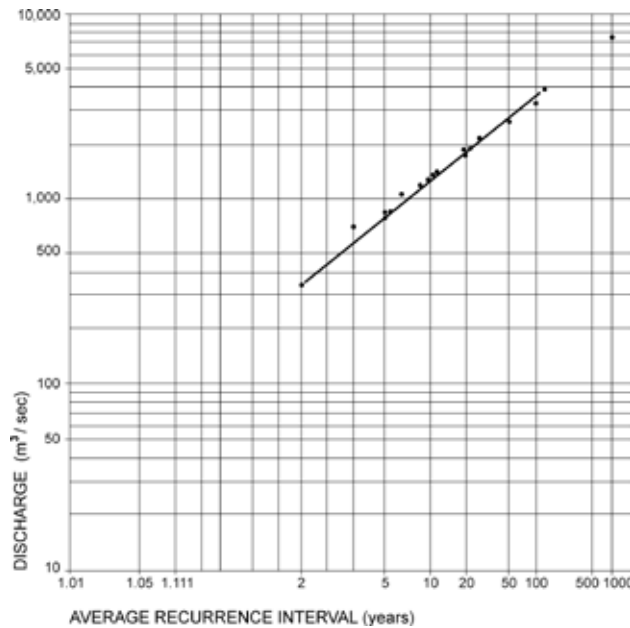


Figure 13: Flood discharge and ARI probability distribution (source: Potter *et al.* 1988), with the approximately 250 year palaeoflood plotted. Note the deviation of this point from the interpolated line.

Mortimer (1985) noted that there was near coincidence of flooding in both the Murray and Darling Rivers during the 1956 flood and that there had been widespread rains over much of Australia during the previous two year period (Allen *et al.*, 1977), the culmination of which was the largest recorded flood in the South Australian section of the River Murray. By analogy, the conditions associated with the 1956 flood suggest that similar circumstances would have been required to generate the *circa*-1769 palaeoflood.

Major flood events in Northern Queensland, extending back to 1640 (figure 11) have been identified by Isdale *et al.* (1998), who calibrated fluorescent zones in Great Barrier Reef corals with organic horizons terrestrially derived from continental flood waters. A major flood peak occurred in 1760 and this may well be associated with the *circa*-1760 palaeoflood recorded in the River Murray. The apparent unison of flooding in widely separated parts of Australia, from Northern Queensland to the Flinders Ranges and throughout the Murray Darling Basin, could be taken to indicate that there were widespread rains at this time, conditions essential for such a large flood event.

Analysis of flood frequency and magnitude.

If there is a sufficiently long flood record, which represents a near complete suite of major weather conditions, then the relationships between the magnitudes of flood events and their frequencies or Average Recurrence Intervals (ARI's) can be graphed to provide predictive values. Extrapolation of the graph to magnitudes exceeding any so-far observed flood peaks can be tested by incorporating palaeoflood data with magnitudes in excess of recorded events. One of the most widely applied curves for hydrological analysis is that of the log-Pearson Type III distribution (Zawada, 1997) and it has been utilised in South Australia by Potter *et al.*, (1988).

Average recurrence interval (years)	Peak flow		Date
	ML/day	m ³ /sec	
160	341,000	3,950	3/9/1956
100	289,400	3,350	calculated*
50	230,700	2,670	calculated*
30	192,000	2,220	25/8/1931
22	165,200	1,910	14/11/1974
20	159,800	1,850	calculated*
20	157,600	1,820	24/12/1975
12	128,700	1,490	15/9/1952
11	122,400	1,420	12/11/1973
10	114,900	1,330	calculated*
9	107,800	1,250	23/10/1981
7	95,100	1,100	22/12/1964
5.5	77,100	890	12/12/1960
5	74,300	860	calculated*
5	72,300	840	3/11/1958
4	63,800	740	7/11/1953
2	30,000	345	calculated*
*Calculated flows from 'Flood Frequency Analysis of River Murray at Morgan' (EWS LIB REF 87/24)			

Table 2: River Murray. Selected ranked peak flows at Morgan.

The ARI is the average time in years between the occurrence of floods of similar discharges. In 1967 the U.S. Water Resources Council proposed the use of the log-Pearson type III distribution as the standard method of flood frequency analysis (Condie, 1977), and the log-Pearson Type III probability distribution is now widely used as the standard method for flood frequency analysis (Viessman *et al.*, 1972). The main objective when choosing a particular type of frequency distribution is how well the observed data 'fits' the distribution type (Benson, 1968). Condie (1977) stated that 'if it can be assumed that by including historic information, the reduction effected in the variance of estimate of the T- year flood is inversely related to an effective record length, then the collection and incorporation of historic information is well worth the effort.'

The log-Pearson type III (probability distribution) is a log-normal distribution and plots on log-probability paper as a straight line. Consequently, it is theoretically possible to extrapolate the distribution line to ascertain the flood exceedence probabilities and discharges of large magnitude flood events (Zawada, 1997). Pilgrim and Doran (1987) explained that: 'flood frequency analysis enables the magnitude of floods of a selected probability of exceedence to be estimated by statistical analysis of recorded floods'.

Figure 12 illustrates a log-Pearson type III probability distribution and Average Recurrence Interval using peak discharges of the River Murray at Morgan to estimate ARIs of floods of certain discharges (Potter *et al.*, 1988). The graph plots as a curve on log-probability paper; the shape of the curve depends on skewness of the data (Zawada, 1997), with the data plotting as a straight line when skewness is zero. According to Pattison *et al.* (1977) this situation is uncommon with rivers in Australia, but flow data (table 2) supplied by the Engineering and Water Supply Department of South Australia, (now SA Water) and recorded on log-probability paper, plotted near a straight line (Bourman *et al.*, 2000) (figure 13). The plot of Potter (1988, p.161), however, is a curve with three (50 year, 100 year and 160 year) Average Recurrence Intervals highlighted. If the estimated age of the palaeoflood is taken as approximately 250 years ago and the calculated discharge as approximately 7,700 cumecs then this event plots some distance from the curve projected from known flood events. The best fit position for the palaeoflood is as a flood of a thousand years ARI (Bourman, 2000; Snowball, 2001).

It is not possible to assign a plotting position for the ARI of the palaeoflood as has been done for the recorded floods because there are not continuous records for the past 250 years. The equation for working out the plotting position (PP) of an ARI of a flood of certain discharge is as follows:

$$PP = \frac{N + 1}{m}$$

Where N = Number of years of record

and m = rank of the flood (m is obtained by sorting floods in decreasing order of magnitude—the greatest flood is ranked 1)

However, with the extended line of best fit into the upper section of the log-Pearson type III probability distribution it was possible to plot the discharge of the palaeoflood. Given the probable timing of the palaeoflood, it has an ARI of at least 250 years, which would place it with a discharge of approximately 4,200 cumecs, a value considerably less than the calculated discharge of 7,686 cumecs. When the palaeoflood discharge is plotted where its discharge of 7,686 cumecs intercepted the line of best fit, the associated ARI of this point is at the 1000 year line. The point of interception, which is marked, can be seen in figure 13. This result suggests that the ARI of a flood with the discharge (7,686 cumecs) of the palaeoflood is 1,000 years. This finding, derived from a palaeoflood, suggests that the magnitude/return interval graph for floods on the River Murray in South Australia (Potter *et al.* 1988) may need revision, and demonstrates the value of extending the short historical record with evidence derived from palaeofloods.

Conclusions

The prehistoric floods reported above add significantly to the flood history of the River Murray in South Australia. Several floods approximating that of the 1956 flood, the largest observed since European settlement, have been identified. The site at Walker Flat revealed a flood slightly larger than the 1956 flood some 3,000 years ago, and red gum logs in the high level cave near Swan Reach suggest the occurrence of several floods slightly higher than the 1956 flood event. The palaeoflood of approximately 250 years ago reveals that this was probably a flood with a return interval of 1,000 years and within much of the Murray Trench produced a flood peak two metres greater than the 1956 flood. While floods of this magnitude may be rare, every year there is a 1,000 to one chance of such a catastrophic flood occurring.

Today the River Murray is heavily regulated with much water removed from the system, and flows artificially controlled, thus reducing the impacts of small frequent floods. However, the regulatory structures will offer no protection against exceptional weather conditions. The presence of regulatory structures can exacerbate large floods as occurred in the Colorado River in 1983 when the storages were full and major snowmelt occurred in the catchment. Rhodes *et al.* (1984) and Jacobs (1990) noted that the duration and magnitude of the large floods in South Australia of 1870 and 1956 depended on the combination of floodwaters from both the Murray and Darling rivers. If the flood peaks of both rivers had coincided, instead of being separated by a month (Mortimer, 1985), then the 1956 flood would have been even higher than it was, emphasising the role of timing of flows in different parts of the drainage basin in generating large floods. In 1956, synchronous flooding was caused by heavy rains in the first three months of the year in the Darling catchment that continued throughout the winter in the River Murray drainage basin. The stage had been set for South Australia's largest recorded flood event by above average rain in the two previous years. The years 1954–56 were all La Niña years, when flooding is more likely than during En Niño years (Allen *et al.*, 1977).

Similar conditions must have prevailed with the palaeoflood of *circa*-1760. Widespread above average rainfall is suggested by the coincident flooding in the Northern Flinders Ranges. Furthermore, Isdale *et al.* (1988) have revealed that there were flood-producing rains in Queensland in 1760 (figure 11). Some of these reconstructions appear somewhat tenuous but the coincidence of flooding in both streams is essential for the flooding evidence observed. Greater channel roughness and space occupation by the presence of vast numbers of trees, combined with synchronicity of flooding in both drainage basins, probably played major roles in achieving the flood peak of *circa*-1760 AD.

Acknowledgement

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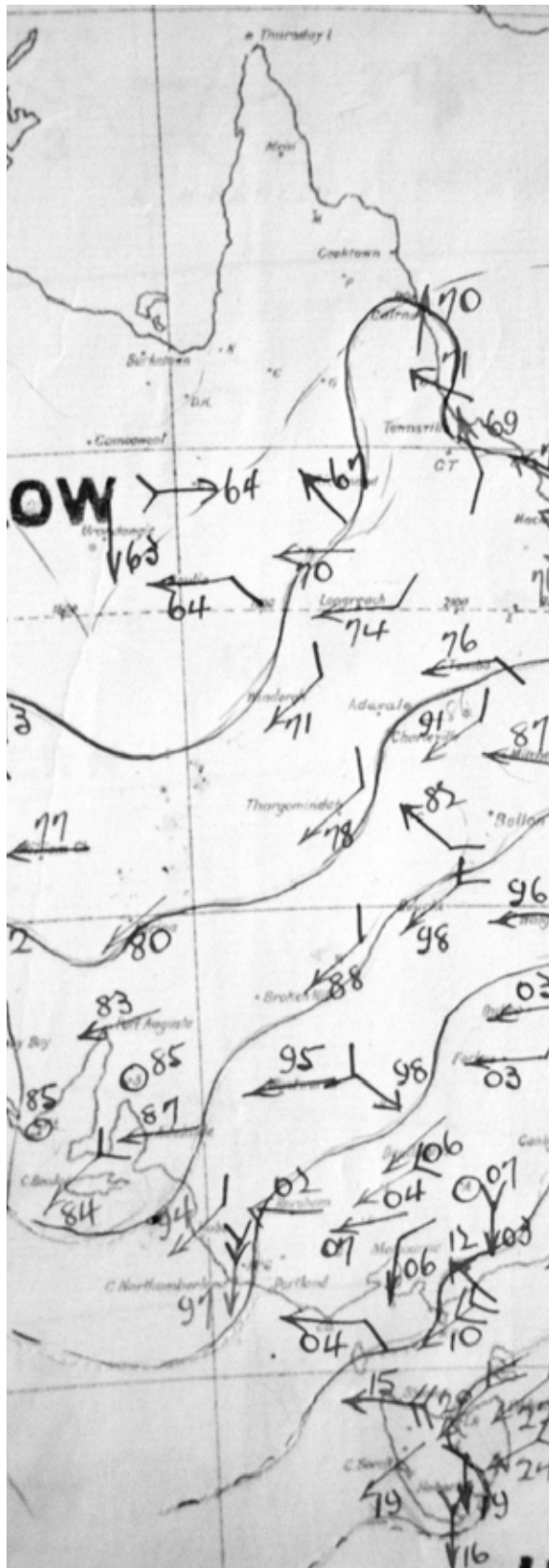
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Appendix B



Appendix B-1

Map of South Australia



Major Locations and Roads
in South Australia

Latitude / Longitude
Loc: 135°0' 129" E
Lat: 32°1' 731" S
Printed at: 27/09/2006

Appendix B-2

Newspaper Research

Information about flood events was acquired from newspapers. In excess of 200,000 issues were searched during the course of this project. In the book the generic or common name of newspapers has been used in line with the practice of the State Library of South Australia and to introduce consistency to the newspaper listings.

Some South Australian newspapers have had many name changes or adaptations over time whilst others have remained unaltered. This appendix provides a medium for researchers to refer to the source article using the newspaper masthead at the time. It enables researchers to use the correct newspaper name when citing reports. However, in a few cases the name of the newspaper on its masthead differs from the name used on other pages of the same edition. Where there may have been only an occasional citation of a newspaper and there is no name change, it is not listed in this appendix. Subtitles of newspapers have not been included.

The Advertiser

12 July 1858 – 22 March 1889
 23 March 1889 – 20 February 1931
 21 February 1931 – 30 September 1931
 1 October 1931 – Present

The South Australian Advertiser
The Advertiser
The Advertiser and Register
The Advertiser

The Border Watch

26 April 1861 – 5 May 1874
 6 May 1874 – Present

Border Watch
The Border Watch

The Bunyip

5 September 1863 – Present

The Bunyip

The Chronicle

17 July 1858 – 28 December 1867
 4 January 1868 – 6 August 1881

 13 August 1881 – 9 March 1889
 16 March 1889 – 28 September 1895
 5 October 1895 – 26 September 1975

The South Australian Weekly Chronicle
The South Australian Chronicle and Weekly Mail
The South Australian Weekly Chronicle
The South Australian Chronicle
The Chronicle

The Eyre Peninsula Tribune

2 December 1910 – 10 September 1959
17 September 1959 – 8 September 1960

15 September 1960 – Present

The Maitland Watch

22 December 1911 – 26 June 1969

Mount Barker Courier

1 October 1880 – 7 September 1960

14 December 1960 – 8 January 1992

15 January 1992 – Present

The Murray Pioneer

9 April 1892 – 4 July 1913

11 July 1913 – Present

The Murray Valley Standard

23 November 1934 – Present

The Naracoorte Herald

5 January 1948 – Present

The News

24 July 1923 – 27 March 1992

The Northern Argus

19 February 1869 – Present

The Observer

1 July 1843 – 31 December 1904

7 January 1905 – 19 February 1931

The Port Augusta Dispatch

18 August 1877 – 21 April 1916

Port Lincoln Times

5 August 1927 – Present

The Register

18 June 1836 – 15 June 1839

22 June 1839 – 31 December 1900

1 January 1901 – 1 February 1929

2 February 1929 – 20 February 1931

Eyre's Peninsula Tribune

*The Eyre Peninsula Tribune and
Kimba Dispatch*

The Eyre Peninsula Tribune

The Maitland Watch

*Mount Barker Courier and Onkaparinga
and Gumeracha Advertiser*

Mount Barker Courier

The Courier (Mt Barker).

The Renmark Pioneer

The Murray Pioneer

The Murray Valley Standard

The Naracoorte Herald

The News

The Northern Argus

The Adelaide Observer

The Observer

The Port Augusta Dispatch

Port Lincoln Times

*South Australian Gazette and
Colonial Register*

The South Australian Register

The Register

The Register News – Pictorial

The Southern Argus

17 March 1866 – Present

*The Southern Argus**Sunday Mail*

4 May 1912 – 31 January 1954

6 February 1954 – 24 December 1955

31 December 1955 – Present

*The Mail**The SA Sunday Mail**Sunday Mail**The Transcontinental*

24 October 1914 – Present

*The Transcontinental**The Victor Harbor Times*

23 August 1912 – 1 September 1922

8 September 1922 – 9 May 1930

16 May 1930 – 8 April 1932

15 April 1932 – 22 March 1978

30 March 1978 – 29 June 1983

6 July 1983 – 31 December 1986

7 January 1987 – Present

*The Victor Harbor Times**Victor Harbour Times**The Times Victor Harbour**Victor Harbour Times**Victor Harbor Times**Victor Harbor The Times**The Times**West Coast Sentinel*

28 June 1912 – 16 July 1926

23 July 1926 – present

*West Coast Sentinel**West Coast Sentinel*

Appendix B-3

Locations and their Coordinates

An extended list of flood locations mentioned in newspaper articles may be found on the DVD together with their coordinates and the rainfall catchment in which they occur, if available.

In this appendix the coordinates for a selection of places in South Australia are provided as an aid to researchers. However, inclusion here does not mean that these locations are named in the synopses of the chronology. Please refer to the book's Index.

Name	Latitude	Longitude	Bedowie Well	-30.3967	138.6508	Buckleboo	-32.9183	136.2128
Aberfoyle Park	-35.0686	138.5983	Beetaloo	-33.2289	138.2293	Bugle Ranges	-35.1395	138.8728
Adelaide	-34.9297	138.5980	Belair	-34.9987	138.6190	Bundaleer	-33.4696	138.5261
Alberton	-34.8623	138.5146	Bellevue Heights	-35.0333	138.5938	Burdett Landing	-35.0617	139.3156
Aldgate	-35.0153	138.7357	Beltana	-30.8134	138.4108	Burnbrae	-34.9495	139.2834
Aldinga	-35.2681	138.4814	Belvidere	-35.2933	138.9534	Burnside	-34.9400	138.6633
Alford	-33.8340	137.8441	Bendleby	-32.3400	138.7294	Burra	-33.6809	138.9342
Algebuckina	-27.9108	135.8130	Berri	-34.2846	140.6013	Burton	-34.7376	138.5937
Allendale East	-38.0021	140.7118	Bethany	-34.5389	138.9699	Bute	-33.8258	138.0395
Alligator Gorge	-32.7394	138.0749	Beulah Park	-34.9180	138.6443	Butler	-34.0830	136.1760
Alton Downs	-26.1217	138.9398	Big Swamp	-34.6446	135.6960	Butler Bridge	-33.3195	137.9851
American River	-35.7772	137.7746	Bimbowrie	-32.0446	140.1558	Butterworth Dam	-29.9608	136.4965
Amyton	-32.6053	138.3264	Birdwood	-34.8201	138.9608	Cadelga	-26.0871	140.4079
Andamooka	-30.4486	137.1651	Birkenhead	-34.8380	138.4968	Cadell	-34.0392	139.7672
Angas Plains	-35.3285	139.0119	Biscuit Flat	-36.9696	139.9833	Callal Gate	-33.9290	141.0011
Angaston	-34.4988	139.0514	Black Forest	-34.9608	138.5741	Callanna	-29.7137	137.9004
Angle Vale	-34.6431	138.6455	Blackfellows Caves	-37.9483	140.4671	Callington	-35.1189	139.0412
Angorichina Hostel	-31.1284	138.5606	Blackford	-36.8107	140.0560	Calperum	-34.2451	140.6720
Anjutable Well	-31.9272	133.0167	Blackwood	-35.0210	138.6106	Caltowie	-33.1829	138.4827
Anlaby	-34.2215	138.9688	Blair Athol	-34.8630	138.5955	Camden Park	-34.9674	138.5410
Anstey Hill	-34.8431	138.7328	Blakeview	-34.6731	138.7080	Campbelltown	-34.8831	138.6851
Antechamber Bay	-35.7901	138.0867	Blanchetown	-34.3541	139.6125	Cannawigara	-36.3208	140.6480
Anzac Highway	-34.9429	138.5812	Blanchewater	-29.3278	139.7126	Canowie	-33.3992	138.7592
Apoinga	-33.9613	138.9339	Blinman	-31.0927	138.6800	Canunda	-37.6740	140.2845
Appila	-33.0510	138.4276	Blyth	-33.8475	138.4882	Cape Borda PO	-35.7545	136.5916
Arcoona	-31.0251	137.0482	Blyth Hills	-26.7476	129.1961	Cape Northum.	-38.0623	140.6614
Arden Vale	-32.2247	138.0406	Bolivar	-34.7672	138.5852	Cape Willoughby	-35.8426	138.1335
Ardrossan	-34.4255	137.9141	Bon Bon	-30.4251	135.4769	Carey Gully	-34.9662	138.7601
Arkaba	-31.7333	138.5016	Booborowie	-33.5642	138.7582	Cariewerloo	-32.4003	137.2243
Arkaroolla Village	-30.3125	139.3349	Bool Lagoon	-37.1404	140.7253	Carlton Parade	-32.4980	137.7676
Armagh	-33.8295	138.5795	Boolcoomata	-31.9699	140.5417	Carpa	-33.7606	136.6877
Arno Bay	-33.9109	136.5684	Booleroo Centre	-32.8826	138.3491	Carpenter Rocks	-37.9168	140.3994
Ascot Park	-34.9876	138.5590	Bordertown	-36.3157	140.7739	Carrickalinga	-35.4189	138.3248
Ashbourne	-35.2886	138.7644	Bowden	-34.9033	138.5812	Carrieton	-32.4273	138.5294
Ashford	-34.9508	138.5711	Bower	-34.1254	139.3495	Carrow	-34.1200	136.3478
Ashton	-34.9405	138.7367	Bowmans	-34.1608	138.2577	Castambul	-34.8679	138.7584
Athelstone	-34.8723	138.7046	Bramfield	-33.6215	134.9935	Cavan	-34.8252	138.5988
Athenna	-32.0475	133.4261	Brecon	-36.2276	140.3502	Ceduna	-32.1288	133.6738
Auburn	-34.0290	138.6843	Bremerton	-35.2983	139.0402	Chain of Ponds	-34.8242	138.8328
Bagot Well	-34.3038	138.9821	Brennan Jetty	-34.7186	135.8668	Chapel Hill	-35.0835	138.7678
Baker	-35.3223	138.7151	Bridgewater	-35.0113	138.7588	Charleston	-34.9182	138.8993
Bakers Crossing	-34.6371	138.5704	Brighton	-35.0201	138.5175	Charlotte Waterhole	-34.7855	135.5443
Balaklava	-34.1480	138.4143	Brinkley	-35.2317	139.2209	Charra	-32.0706	133.3293
Balcanaona	-30.5340	139.3040	Brinkworth	-33.6969	138.4009	Cheltenham	-34.8678	138.5210
Balhannah	-34.9926	138.8262	Broadview	-34.8769	138.6126	Cherry Gardens	-35.0654	138.6653
Banksia Park	-34.8097	138.7326	Brompton	-34.9013	138.5747	Cherryville	-34.9131	138.7648
Barmera	-34.2534	140.4635	Brooklyn Park	-34.9304	138.5421	Chinta	-31.9981	133.7646
Baroota	-32.9076	137.9798	Broughton	-33.5389	138.2237	Chowilla	-34.0254	140.8364
Barossa Valley	-34.4487	139.0221	Brownhill Creek	-35.0061	138.6768	Christies Beach	-35.1364	138.4756
Barton	-35.1099	138.5927	Brownlow	-35.6709	137.6124	Clapham	-34.9894	138.6039
Barunga Range	-33.7919	138.1292	Bruce	-32.4644	138.1923	Clare	-33.8355	138.6117
Basebys Station	-34.9326	139.3018	Brunkunga	-35.0046	138.9409	Clarence Park	-34.9655	138.5805
Basket Range	-34.9428	138.7607	Buchfelde	-34.6038	138.7099	Clarendon	-35.1115	138.6277
Beachport	-37.4827	140.0114	Buckingham	-36.3467	140.5854	Clearview	-34.8579	138.6110
Beaufort	-34.0848	138.2049	Buckland Park	-34.6874	138.5155	Cleve	-33.7036	136.4924

Cobdogla	-34.2468	140.4016	Finniss	-35.3838	138.8234	Hiles Lagoon	-33.1889	138.9587
Cockaleecchie	-34.2093	135.8434	Finnissbrook	-37.4244	140.1625	Hillbank	-34.7457	138.6819
Cockburn	-32.0754	140.9936	Firle	-34.9064	138.6512	Hiltaba Water	-32.1520	135.0647
Coffin Bay	-34.6244	135.4702	Flagstaff Hill	-35.0503	138.5835	Hilton	-34.9345	138.5628
College Park	-34.9112	138.6171	Flaxley	-35.1386	138.8223	Hindmarsh	-34.9084	138.5679
Collinsfield	-33.6083	138.2237	Flaxman Valley	-34.5578	139.0784	Hindmarsh Island	-35.4975	138.8766
Commodore Swamp	-31.2493	138.4273	Fords	-34.3867	138.8735	Hog Bay	-35.7235	137.9473
Condowie	-33.7344	138.3060	Forest Range	-34.9301	138.8048	Holden Hill	-34.8492	138.6758
Conmurra	-37.0964	140.1718	Forestville	-34.9519	138.5776	Holdfast Bay	-35.0320	138.4843
Conyngham Street	-34.7329	138.6757	Forrester	-34.7983	138.8991	Hookina	-31.8068	138.2610
Cooper Pedy	-29.0138	134.7512	Forster	-34.7348	139.5560	Hope Valley	-34.8434	138.6989
Cook	-30.6150	130.4126	Fowlers Bay	-31.9899	132.4365	Horrocks Vale	-32.6602	138.0391
Coomooroo	-32.6179	138.4560	Frances	-36.7143	140.9541	Houghton	-34.8301	138.7594
Coomunga Rail Stn	-34.6560	135.7272	Freeling	-34.4559	138.8075	Hoyleton	-34.0257	138.5609
Coonalpyn	-35.6965	139.8571	Fulham	-34.9280	138.5126	Huddlestone	-33.3321	138.2905
Coonawarra	-37.2921	140.8330	Fullarton	-34.9573	138.6234	Hughes Gap	-33.2884	138.2285
Coondambo	-31.0620	135.8637	Furner	-37.4084	140.3390	Humburg Scrub	-34.7273	138.8102
Copeville	-34.7965	139.8467	Galway Gardens	-34.9472	138.5679	Hyde Park	-34.9577	138.6004
Copley	-30.5575	138.4218	Gap Hills	-35.6375	137.4849	Hynam	-36.9387	140.8585
Copper Hill	-27.9819	134.4072	Gawler	-34.6062	138.7425	Ingle Farm	-34.8297	138.6446
Copperhouse	-33.6807	138.8991	Gawler Ranges	-32.3727	135.7441	Inglewood	-34.8258	138.7726
Cordillo Downs	-26.7069	140.6253	Gemmells	-35.1805	138.8991	Inman Valley	-35.4672	138.5160
Coromandel Valley	-35.0400	138.6112	Georgetown	-33.3641	138.3915	Innaminka	-27.7478	140.7382
Coulta	-34.3863	135.4667	Gepps Cross	-34.8424	138.6038	Iron Knob	-32.7335	137.1493
Courela	-32.5378	134.4420	Geranium	-35.3816	140.1577	Ivy tank	-31.2627	131.2948
Cowandilla	-34.9325	138.5541	German Flat	-37.7369	140.4212	Jacob Creek	-34.5949	138.9740
Cowarie	-27.7016	138.3330	Germantown Hill	-35.0197	138.7761	Jamestown	-33.2051	138.6043
Cowell	-33.6859	136.9246	Gilles Plains	-34.8524	138.6516	Jervois	-35.2660	139.4235
Cowirra	-34.9051	139.3319	Gladstone	-33.2713	138.3524	Kadina	-33.9640	137.7143
Cradock	-32.0722	138.4924	Glanville	-34.8455	138.4889	Kalamurina	-27.9051	137.9898
Crafers	-34.9976	138.7055	Glen Boree	-31.8704	132.5053	Kalangadoo	-37.5658	140.7045
Craigmore	-34.7074	138.7070	Glen Bridge	-37.6327	140.3189	Kangarilla	-35.1500	138.6585
Crofton Park	-35.0782	139.0323	Glen Osmond	-34.9622	138.6463	Kanmantoo	-35.0707	139.0116
Crossville	-33.6974	136.6196	Glenalta	-35.0124	138.6273	Kapunda	-34.3423	138.9138
Croydon	-34.8948	138.5618	Glenbarr	-35.4379	138.3715	Karkoo	-34.0333	135.7290
Crystal Brook	-33.3546	138.2038	Glenburnie	-37.8410	140.8579	Katalpa	-37.3568	140.4659
Cudlee Creek	-34.8421	138.8280	Glencoe	-37.6873	140.6189	Keilli	-33.6057	138.1462
Cummins	-34.2642	135.7256	Glendambo	-30.9662	135.7309	Keith	-36.0996	140.3534
Cungena	-32.5847	134.7219	Glendare	-33.4384	138.9948	Kensington Gdns	-34.9193	138.6617
Curramulka	-34.6988	137.7097	Glenelg	-34.9831	138.5143	Kensington Park	-34.9218	138.6518
Cutana	-32.2235	140.5914	Glenlossie	-32.9099	138.1570	Kent Town	-34.9220	138.6179
Cuttlefish Bay	-35.7380	138.0212	Glenside	-34.9440	138.6326	Kersbrook	-34.7857	138.8502
Cygnat River	-35.6990	137.5188	Glenunga	-34.9521	138.6367	Keswick	-34.9464	138.5756
Dalhousie Springs	-26.4616	135.4835	Glossop	-34.2717	140.5264	Ketchowla	-33.2912	139.2162
Dalkey	-34.1891	138.4380	Glynde	-34.8983	138.6503	Keyneton	-34.5560	139.1340
Dashwood Gully	-35.1662	138.7041	Golden Grove	-34.7857	138.7016	Ki Ki	-35.5687	139.7927
Deadmans Road	-34.3389	138.2791	Goodwood	-34.9540	138.5929	Kia Ora	-34.2154	138.9267
Delabole Hill	-35.3017	138.5353	Goolwa	-35.5020	138.7784	Kilburn	-34.8618	138.5803
Delamere	-35.5719	138.1961	Gordon	-32.1171	138.2666	Kilkenny	-34.8829	138.5523
Denial Bay	-32.1007	133.5756	Goyder Lagoon	-26.9324	138.9544	Kimba	-33.1408	136.4184
Dernancourt	-34.8618	138.6754	Grange	-34.9024	138.4926	Kingooonya	-30.9129	135.3140
Devils Garden	-34.1204	138.4758	Granite Downs	-26.9377	133.4942	Kingscote	-35.6559	137.6356
Devon Downs	-34.6795	139.6093	Grassy Flat	-35.7514	137.9097	Kingston	-35.1828	138.4939
Dingabledinga	-35.2676	138.6331	Green Hill	-37.4937	140.2749	Kingston on Murray	-34.2231	140.3453
Donnybrook	-33.8627	138.6164	Greenock	-34.4589	138.9261	Kingston SE	-36.8332	139.8517
Dowlingville	-34.3289	137.9183	Greenwith	-34.7785	138.7029	Kingswood	-32.4395	138.1251
Dry Creek	-34.8276	138.5834	Grey Riddoch Drain	-37.4870	140.5736	Klemzig	-34.8809	138.6377
Dublin	-34.4748	138.3520	Guichen Bay	-37.1226	139.7674	Knoxville	-34.9440	138.6326
Dulwich	-34.9375	138.6273	Gulnare	-33.4679	138.4411	Kokatha	-31.2604	135.2374
Dutton	-34.3613	139.1405	Gumbowie	-33.0622	138.8759	Konetta	-37.2501	140.1081
East Wellington	-35.3243	139.3937	Gumeracha	-34.8259	138.8820	Kongal	-36.3086	140.5266
Eastwood	-34.9437	138.6195	Gunbowie	-35.0283	137.6898	Koolunga	-33.5837	138.3322
Eba	-34.0687	139.5782	Hackham	-35.1464	138.5258	Koonamore	-32.0650	139.3823
Echunga	-35.1029	138.7936	Hackney	-34.9139	138.6159	Koonunga	-34.3824	138.9889
Eden Hills	-35.0225	138.5942	Hahndorf	-35.0311	138.8109	Koorunga	-37.4931	140.5249
Eden Valley	-34.6438	139.0961	Halbury	-34.0870	138.5148	Kooyonga	-34.9310	138.5279
Edeowie	-31.4638	138.4636	Hall Well	-32.4586	139.1434	Koppio	-34.4328	135.8676
Edithburgh	-35.0857	137.7433	Hallett Cove	-35.0783	138.5004	Korunye	-34.5416	138.5264
Edwardstown	-34.9833	138.5734	Hamilton	-34.2200	138.8766	Kultanaby	-31.0137	135.6338
Elbow Hill	-33.7420	136.7920	Hamley Bridge	-34.3589	138.6818	Kyancutta	-33.1350	135.5543
Elder Park	-34.9198	138.5972	Hammond	-32.5230	138.3140	Kybunga	-33.9227	138.5055
Elizabeth	-34.7183	138.6674	Hansborough	-34.2254	139.0393	Lameroo	-35.3304	140.5159
Ellendale	-34.5121	139.0980	Hanson	-33.7532	138.8407	Lancelot	-33.0004	138.9556
Elliston	-33.6512	134.8878	Happy Valley	-35.0842	138.5660	Langhorne Creek	-35.2973	139.0336
Emu Bay	-35.5920	137.5033	Harrogate	-34.9516	139.0112	Largs Bay	-34.8285	138.4927
Emu Plain	-33.6124	136.5716	Hart	-33.7579	138.4375	Laura	-33.1863	138.2992
Encounter Bay	-35.5796	138.5953	Hartley	-35.1996	139.0140	Leasingham	-33.9813	138.6434
Enfield	-34.8623	138.6043	Haslam	-32.5095	134.2122	Leigh Creek	-30.5940	138.3990
Ethelton	-34.8500	138.4887	Hatherleigh	-37.4900	140.2726	Leighton	-33.6345	138.7596
Eudunda	-34.1774	139.0827	Hawker	-31.8904	138.4234	Lenswood	-34.9197	138.8314
Eurelia	-32.5542	138.5611	Hawthorn	-34.9713	138.6033	Lewiston	-34.6060	138.5899
Evanston	-34.6177	138.7302	Hawthorndene	-35.0233	138.6314	Lilydale	-32.9579	139.9729
Fairview Park	-34.8015	138.7274	Hazelwood Park	-34.9399	138.6546	Lincoln Gap	-32.6032	137.6000
Farina	-30.0675	138.2760	Hectorville	-34.8950	138.6635	Linden Park	-34.9442	138.6457
Farrell Flat	-33.8361	138.7878	Henley Beach	-34.9169	138.4977	Linwood	-34.3813	138.7703
Felixstow	-34.8901	138.6462	Hergott Springs	-29.6263	138.0618	Lipson	-34.2937	136.1347
Findon	-34.9013	138.5288	Highbury	-34.8571	138.7105	Little Swamp	-34.6948	135.7927

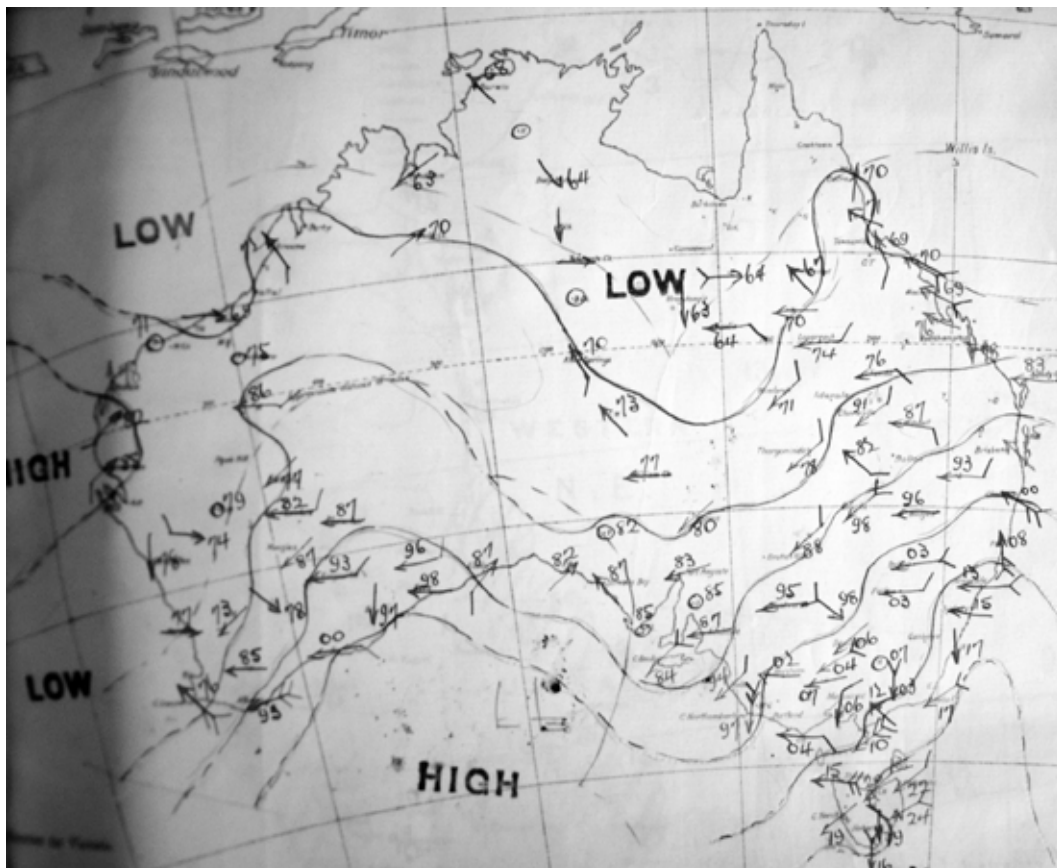
Littlehampton	-35.0501	138.8630	Mount Barker	-35.0725	138.8581	Pandie Pandie	-26.1310	139.3896
Lobethal	-34.9060	138.8722	Mount Bold	-35.1145	138.6858	Pandurra	-32.6292	137.4281
Lochiel	-33.9305	138.1592	Mount Breckan	-35.5468	138.6205	Para Hills	-34.8119	138.6582
Lock	-33.5685	135.7541	Mount Bryan	-33.5521	138.8920	Parachilna	-31.1335	138.3938
Lockleys	-34.9257	138.5324	Mount Bryant	-33.4272	138.9736	Paradise	-34.8735	138.6740
Long Gully	-35.1083	138.7441	Mount Compass	-35.3494	138.6197	Parafield Gardens	-34.7840	138.6109
Long Island	-35.1363	139.2932	Mount Crawford	-34.7144	138.9514	Paralana Hmstead	-30.2066	139.4551
Long Plain	-34.3665	138.3467	Mount Dare	-26.0712	135.2500	Paralowic	-34.7577	138.6041
Long Valley	-35.2065	138.8897	Mount Davies	-26.2156	129.2583	Paratoo	-32.7000	139.3795
Louds Hill	-35.2968	138.5168	Mount Dutton	-27.8068	135.9868	Parilla	-35.2993	140.6656
Lower Hermitage	-34.8121	138.7643	Mount Gambier	-37.8256	140.7784	Paringa	-34.1805	140.7841
Lower Light	-34.5390	138.4012	Mount Graham	-37.5270	140.4454	Park Holme	-34.9901	138.5502
Loxton	-34.4568	140.5710	Mount Hopeless	-29.7019	139.6727	Parkside	-34.9473	138.6172
Lucindale	-36.9732	140.3675	Mount Lofty	-34.9751	138.7073	Parnaroo	-32.9800	139.1540
Lyndhurst	-30.2890	138.3478	Mount Mary	-34.1067	139.4388	Parndana	-35.7906	137.2606
Lyndoch	-34.6025	138.8898	Mount McIntyre	-37.5816	140.5470	Payneham	-34.9008	137.6404
Lyrup	-34.2604	140.6524	Mount Muirhead	-37.5692	140.4032	Peake	-35.3646	139.9488
Macclesfield	-35.1740	138.8356	Mount Nor'west	-29.9650	137.7036	Peepinoo	-36.8425	139.8751
Macgillivray	-35.8117	137.5180	Mount Pleasant	-34.7747	139.0493	Pekina	-32.8398	138.5512
Macumba	-27.2527	135.6495	Mount Ross	-26.4344	134.9168	Pelican Point	-37.9289	140.4254
Magill	-34.9123	138.6740	Mount Shank	-37.9443	140.6813	Penfield	-34.6886	138.6224
Maitland	-34.3751	137.6720	Mount Serle	-30.5020	138.8983	Penneshaw	-35.7236	137.9418
Mallala	-34.4394	138.5098	Mount Templeton	-33.9981	138.3182	Pennington Gdns	-34.9153	138.5962
Malvern	-34.9597	138.6091	Mount Torrens	-34.8732	138.9584	Penola	-37.3786	140.8362
Mangalo	-33.5360	136.6187	Mount Weedna	-32.9943	135.5470	Penong	-31.9358	132.9879
Mannahill Well	-32.3662	139.9732	Mount Willoughby	-27.6798	134.4565	Penrice	-34.4897	139.0440
Mannanarie	-33.0458	138.6172	Mulgundawa	-35.3098	139.2005	Peterborough	-32.9749	138.8352
Mannum	-34.9155	139.3032	Mullinger Swamp	-36.8541	140.9720	Peterhead	-34.8321	138.4948
Manoora	-34.0025	138.8160	Muloorina	-29.2383	137.9054	Petersburg	-32.9749	138.8352
Marble Hill	-34.9211	138.7569	Muloowurtie	-34.5705	137.8810	Pewsey Vale	-34.6218	138.9635
Marden	-34.8952	138.6285	Mulpara	-35.1558	140.3950	Piccadilly	-34.9845	138.7245
Marion	-34.9982	138.5500	Mundoora	-33.6027	138.0579	Pigeon Flat	-36.3174	140.7427
Marla	-27.3025	133.6216	Mundowdna	-29.7319	138.2293	Pimba	-31.2525	136.8000
Marrabel	-34.1433	138.8764	Mundulla	-36.3615	140.6912	Pinnaroo	-35.2628	140.9066
Marree	-29.6493	138.0635	Mungeranie	-28.0179	138.6607	Pioneer Bend	-35.7276	137.2566
Marryatville	-34.9288	138.6429	Munno Para	-34.6685	138.6994	Plympton	-34.9640	138.5532
Matta Flat	-33.9760	137.7028	Murat Bay	-32.1193	133.6262	Point Lowly	-33.0023	137.7829
Mattawarrangala	-31.9639	138.8339	Murnpeowie	-29.5886	139.0486	Pompoota	-34.9899	139.3400
Maylands	-34.9124	138.6335	Murray Bridge	-35.1215	139.2726	Ponde	-34.9508	139.3102
Mayurra	-37.6219	140.3122	Murtho Rocks	-34.0543	140.8255	Poocher Flat	-36.3046	140.6826
McLaren Vale	-35.2198	138.5411	Mutooroo	-32.4506	140.9181	Poochera	-32.7221	134.8378
Meadows	-35.1817	138.7608	Mylor	-35.0446	138.7579	Poonindie	-34.5832	135.8772
Melrose	-32.8276	138.1877	Mypolonga	-35.0424	139.3543	Port Adelaide	-34.8476	138.5019
Melton	-34.0850	137.9803	Myponga	-35.3930	138.4621	Port Augusta	-32.5008	137.7950
Meningie	-35.6913	139.3367	Myrtle Bank	-34.9620	138.6332	Port Broughton	-33.6570	137.9331
Merghiny	-32.1306	133.8497	Myrtle Springs	-30.4523	138.2185	Port Elliot	-35.5344	138.6793
Merna Mora	-31.5470	138.3887	Nackara	-32.8019	139.2431	Port Gawler	-34.6487	138.4741
Mernmerna	-31.6549	138.3688	Nairne	-35.0392	138.9115	Port Germein	-33.0235	138.0014
Merriton	-33.4362	138.1485	Nangkita	-35.3461	138.6847	Port Julia	-34.6652	137.8766
Middle Beach	-34.6031	138.4482	Nangula Springs	-37.6368	140.4027	Port Lincoln	-34.7258	135.8534
Middleton	-35.5115	138.7064	Nangwarry	-37.5435	140.8155	Port MacDonnell	-38.0552	140.6979
Mil-lel	-37.7734	140.8297	Nantawarra	-34.0069	138.2270	Port Noarlunga	-35.1490	138.4752
Milang	-35.4080	138.9692	Napperby	-33.1560	138.1169	Port Pirie	-33.1895	137.9925
Mile End	-34.9283	138.5685	Naracoorte	-36.9557	140.7529	Port Victor	-35.5530	138.6181
Millbrook	-34.8193	138.8132	Narridy	-33.4271	138.3026	Port Victoria	-34.4981	137.4821
Millicent	-37.5987	140.3543	Native Valley	-35.0305	138.9808	Port Vincent	-34.7802	137.8577
Millswood	-34.9594	138.5916	Neales Flat	-34.2428	139.1746	Port Wakefield	-34.1862	138.1463
Milne Gap	-37.6589	140.3164	Nectar Brook	-32.7005	137.9707	Port Willunga	-35.2668	138.4617
Minbrie	-33.5505	136.9281	Nelson	-33.6564	138.9283	Proper Bay	-34.7908	135.8690
Mingary	-32.1337	140.7413	New Town	-33.9563	137.6946	Prospect	-34.8864	138.5916
Mingbool	-37.7094	140.8729	Newton	-34.8836	138.6803	Purnong	-34.8555	139.6195
Minlaton	-34.7726	137.5941	Noarlunga	-35.1838	138.4994	Puttapa Gap	-30.7088	138.4105
Minnipa	-32.8574	135.1528	Normanville	-35.4430	138.3129	Pygery	-33.0210	135.4090
Mintabie	-27.3152	133.3021	North Adelaide	-34.9080	138.5942	Quorn	-32.3464	138.0409
Mintaro	-33.9197	138.7208	North Shields	-34.6294	135.8640	Ramco	-34.1734	139.9486
Mitcham	-34.9843	138.6227	Northfield	-34.8519	138.6265	Rapid Bay	-35.5186	138.1903
Moana	-35.1986	138.4737	Norton Summit	-34.9241	138.7240	Redbanks	-34.5066	138.5819
Mobilong	-35.1215	139.2726	Norwood	-34.9241	138.6299	Redhill	-33.5389	138.2237
Modbury	-34.8341	138.6860	Novar Gardens	-34.9663	138.5312	Redruth	-33.6717	138.9279
Monarto	-35.0569	139.1084	Nuriootpa	-34.4744	138.9943	Redwood Park	-34.8128	138.7063
Monash	-34.2376	140.5559	Oakbank	-34.9848	138.8428	Rendelsham	-37.5510	140.2211
Montacute	-34.8937	138.7402	Oaklands Park	-35.0115	138.5408	Renmark	-34.1741	140.7418
Monteith	-35.1713	139.3161	Olary	-32.2801	140.3236	Rennick	-37.8411	140.9716
Moockra	-32.4620	138.4147	Old Boolcoomata	-32.0976	140.2772	Reynella	-35.0908	138.5362
Moolawatana	-29.9127	139.7290	One Gum Well	-31.3541	139.5239	Rhynie	-34.1508	138.6886
Moolooloo	-30.9916	138.5767	Onkaparinga	-32.9749	138.8352	Richmond	-34.9398	138.5594
Moomba	-28.1103	140.1906	Oodlawirra	-32.8839	139.0608	Ridloch Bay	-38.0527	140.7880
Moonta	-34.0686	137.5876	Oodnadatta	-27.5469	135.4457	Ridleyton	-34.8958	138.5694
Moorak	-37.8687	140.7328	Orroroo	-32.7355	138.6117	Riverton	-34.1600	138.7450
Moorook	-34.2818	140.3633	Orwell Rocks	-38.0562	140.7344	Rivoli Bay	-37.5330	140.0934
Morchard	-32.7205	138.4905	Ottoway	-34.8482	138.5336	Robe	-37.1658	139.7554
Morgan	-34.0318	139.6601	Oulnina	-32.5138	140.0482	Robertstown	-33.9916	139.0793
Morialta Park	-34.9067	138.7103	Outalpa	-32.3504	140.1604	Rochester	-33.6969	138.4851
Morphett Vale	-35.1194	138.5277	Overland Corner	-34.1527	140.3339	Rosaville	-37.8228	140.7603
Morphettville	-34.9881	138.5404	Ovingham	-34.9007	138.5857	Rose Park	-34.9321	138.6253
Mosquito Plains	-37.0265	140.6121	Paddys Station	-34.5025	138.5134	Rosewater	-34.8524	138.5171
Mount Arden	-32.1531	137.9772	Palmer	-34.8539	139.1579	Roseworthy	-34.5368	138.7444

Rostrevor	-34.8927	138.6888	Uooloo	-33.3374	138.8865	Yankalilla	-35.4534	138.3346
Roxby Downs	-30.5601	136.8986	Umberatana	-30.2412	139.1293	Yanyarrie	-32.3468	138.5646
Rushmore	-35.2627	138.8553	Undalya	-34.0743	138.6950	Yarcowie	-33.2301	138.8848
Saddleworth	-34.0849	138.7825	Underdale	-34.9224	138.5456	Yardea	-32.3801	135.5241
Salisbury	-34.7656	138.6399	Ungarra	-34.1815	136.0467	Yarrah Vale	-32.1970	138.0903
Saltia	-32.4742	137.9324	Unley	-34.9506	138.6050	Yarrowie	-33.0510	138.4276
Sandergrove	-35.3386	138.8632	Uraidla	-34.9578	138.7439	Yatina	-32.9286	138.6664
Sandy Creek	-34.9427	139.2474	Valley View	-34.8399	138.6607	Yeelanna	-34.1424	135.7289
Schlinke Gully	-34.5519	138.9892	Verdun	-35.0100	138.7907	Yelta	-34.0653	137.6178
Seaford	-35.1842	138.4774	Victor Harbor	-35.5530	138.6181	Yongala	-33.0302	138.7483
Seaton	-34.8918	138.5061	Vimy Ridge	-35.0197	138.7761	Yorke town	-35.0211	137.6041
Seaview Downs	-35.0394	138.5356	Virginia	-34.6694	138.5597	Yorkey Crossing	-32.4044	137.7495
Second Valley	-35.5238	138.2220	Waikerie	-34.1892	140.0005	Younghusband	-34.8807	139.5403
Sedan	-34.5746	139.2938	Waitpinga	-35.5965	138.5385	Yunta	-32.5813	139.557
Sellicks Beach	-35.3351	138.4496	Wall	-27.0404	140.2542			
Semaphore	-34.8391	138.4836	Wallaroo	-33.9343	137.6279			
Seppeltsfield	-34.4930	138.9198	Walloway	-32.6304	138.5857			
Sevenhill	-33.8926	138.6264	Wandearah	-33.4092	138.0344			
Silverton	-35.6180	138.1614	Wandilo	-37.7406	140.6867			
Smith Bay	-35.5933	137.4427	Wangary	-34.5522	135.4774			
Smithfield	-34.6818	138.6903	Wangolina	-36.9465	139.8174			
Smithfield Yard	-27.9097	135.9867	Wala	-34.5281	135.6762			
Snowtown	-33.7839	138.2137	Warcowie	-31.7758	138.6514			
Snug Cove	-35.6959	136.8458	Warnertown	-33.2379	138.1110			
Solomontown	-33.1882	138.0268	Warratta Vale	-34.2653	136.1857			
South Petherton	-34.8246	139.0689	Wasleys	-34.4734	138.6808			
Spalding	-33.4992	138.6081	Waterloo	-33.9937	138.8779			
Springfield	-34.1217	138.8769	Watervale	-33.9624	138.6439			
Springton	-34.7094	139.0869	Watulunga	-35.4040	138.8416			
St. Agnes	-34.8309	138.7091	Waukaringa	-32.3011	139.4376			
St. Marys	-34.9969	138.5774	Wayville	-34.9480	138.7003			
St. Peters	-34.9059	138.6227	Welcome Springs	-29.4713	136.4583			
Stanley Flat	-33.7864	138.5904	Welland	-34.9046	138.5571			
Stansbury	-34.9114	137.7954	Wellington	-35.3349	139.3803			
Stelton	-34.0370	138.8769	Wepar	-37.6371	140.7155			
Stepney	-34.9150	138.6258	West Croydon	-34.8902	138.5564			
Stewarts	-36.9643	140.5967	West Richmond	-34.9396	138.5484			
Stirling	-34.9954	138.7319	Westbourne Park	-34.9738	138.5934			
Stockport	-34.3364	138.7302	Westbrook	-35.2173	139.4156			
Stockwell	-34.4366	139.0518	Whites Flat	-34.5139	135.8511			
Stone Hut	-33.1068	138.2953	Whittata	-31.7366	137.4225			
Stone Well	-34.5052	138.9467	Whitwarta	-34.1022	138.3377			
Strangways Spngs	-29.1626	136.5485	Whyalla	-33.0375	137.5731			
Strathalbyn	-35.2553	138.8950	Whyte-Yarcowie	-33.2301	138.8848			
Streaky Bay	-32.8000	134.2150	Wigley Flat	-34.1739	140.2546			
Strepera Waterfall	-35.7066	137.0958	Wild Horse Plains	-34.3648	138.2707			
Struan	-37.0964	140.7862	Willaston	-34.5872	138.7409			
Stump Hill	-35.2041	138.5262	Williamstown	-34.6719	138.8881			
Surrey Downs	-34.8030	138.7109	Willochra	-32.2288	138.1391			
Sutherland	-34.1560	139.2210	Willowie	-32.6891	138.3261			
Swan Reach	-34.5686	139.6046	Willunga	-35.2750	138.5515			
Swinden Crossing	-31.9468	137.7696	Wilmington	-32.6525	138.0991			
Tailem Bend	-35.2530	139.4567	Wilooka	-36.3154	140.4274			
Talia	-33.3175	134.8797	Wilpena	-31.5126	138.6128			
Talisker	-35.6231	138.1513	Wilson	-32.0008	138.3536			
Tam O'shanter Bore	-30.9623	138.5533	Windsor Gardens	-34.8694	138.6489			
Tanunda	-34.5270	138.9560	Winkie	-34.3051	140.5197			
Tarcoola	-30.7097	134.5687	Winninowie	-32.6208	137.9095			
Tarcowie	-34.5449	140.8823	Wirrabara	-33.0323	138.2665			
Tarcowie Hills	-32.9382	138.6041	Wirrulla	-32.4065	134.5321			
Tarlee	-34.2722	138.7721	Wisanger	-35.6234	137.4668			
Tarrawatta	-34.5470	139.0786	Witchelina	-29.8720	138.1612			
Tea Tree Gully	-34.8276	138.7245	Witjira Nat. Park	-26.6671	135.9165			
Teetulp	-32.5253	139.5487	Woakwine	-37.4030	140.0746			
Telowie	-33.0628	138.1028	Wolsley	-36.3672	140.9064			
Templers	-34.4692	138.7451	Wongulla	-34.7061	139.5652			
Terka	-32.7095	138.1436	Wonka	-33.1366	139.0714			
Terowie	-33.1522	138.9188	Wonoka	-31.7561	138.3353			
The Gums W'hole	-30.0612	138.2792	Wood Point	-35.2213	139.3793			
The Red Banks	-35.7397	137.7180	Woodburn	-35.3173	138.9869			
The Woolwash	-37.7151	140.5893	Woodchester	-35.2051	138.9655			
The Wylie	-37.6400	140.3233	Woods Flat	-34.2363	139.6449			
Thebarton	-34.9166	138.5710	Woods Point	-35.2213	139.3793			
Thevenard	-32.1466	133.6491	Woodside	-34.9529	138.8743			
Thornlea	-37.4206	140.1275	Woodville	-34.8772	138.5393			
Tickera	-33.8239	137.7336	Woolshed Well	-32.6168	139.7551			
Todmorden	-27.1418	134.7578	Wooltana	-30.4155	139.4196			
Tooperang	-35.3727	138.7104	Woomera	-31.1667	136.8120			
Torrens Island	-34.7922	138.5277	Worrolong	-37.8077	140.8466			
Torrens ville	-34.9200	138.5599	Wudinna	-33.0488	135.4606			
Tranmere	-34.9057	138.6599	Wyrie Swamp	-37.6239	140.3541			
Truro	-34.4098	139.1264	Yacka	-33.5725	138.4445			
Tulka	-34.7967	135.7969	Yadlamalka	-32.0324	137.8928			
Tumby Bay	-34.3780	136.0993	Yadnarie	-33.6578	136.3945			
Tungkillo	-34.8246	139.0689	Yahl	-37.8788	140.8272			
Two Wells	-34.6046	138.5245	Yallunda Flat	-34.3498	135.8776			
Ucolta Post Office	-32.9519	138.9663	Yaninee	-32.9501	135.2728			

Appendix B-4

Synoptic Charts

Synoptic charts are an invaluable tool in assessing the weather conditions preceding and leading up to conditions which give rise to floods. In his paper 'The Nature of Floods' Kim Read discusses circumstances in which flooding is likely to occur. The following chart shows the weather conditions leading up to the record rainfall event which occurred on 6 February 1925.



As can be seen from Figure 1 (the rainfall analysis for the Adelaide area) most of the falls were on the Adelaide plains west of the Mount Lofty Ranges. An eyewitness account of this event can be found in *The Monana* (Sept 1975), the journal of the Australian Meteorological Association, (pp33–36).

The DVD contains a full description of this and other synoptic charts which have resulted in significant floods.

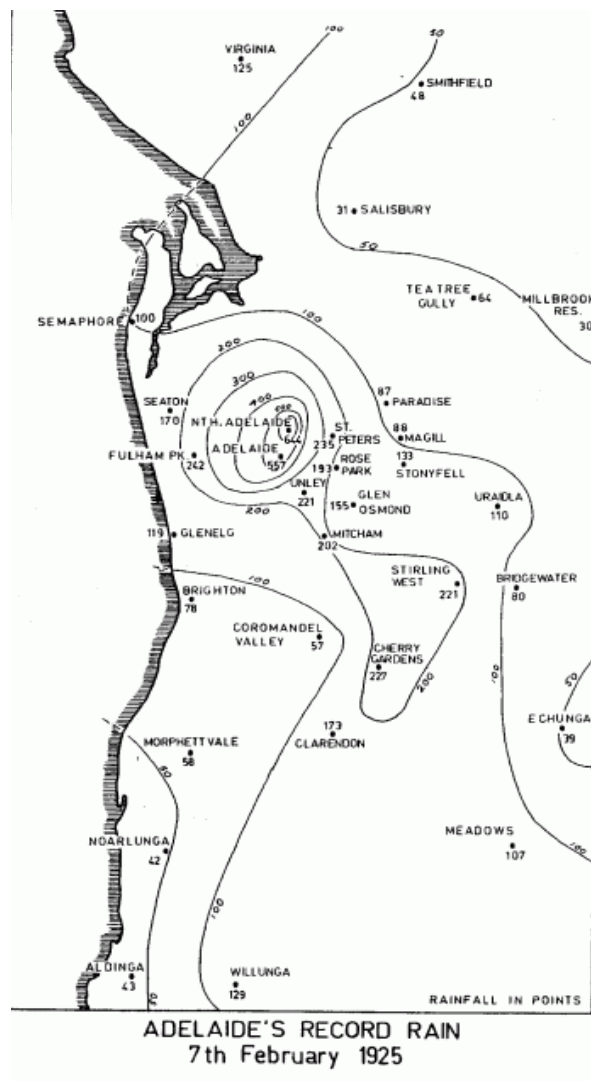


Figure 1: Adelaide Record Rainfall Event.

Appendix B-5

South Australian Flood Warning Consultative Committee

The South Australian Flood Warning Consultative Committee is a group of delegates of 11 agencies representing Commonwealth, State, Local Government and private interests in the discipline of the issuing of warnings about pending floods in South Australia. This Consultative Committee has, on its own initiative, promoted this project.

As the Consultative Committee is not a legal entity in its own right, it looked to one of its members to undertake this project.

The Bureau of Meteorology, a member of the Consultative Committee, agreed to undertake the project on behalf of the Committee.

The publications of the project viz. *Floods in South Australia: 1836–2005* and its accompanying DVD have been published in the name of the Bureau of Meteorology.

The member organisations listed hereunder with the names of the most recently appointed representatives prior to this publication going to print.

Australian Government Bureau of Meteorology
 Australian Government Bureau of Meteorology
 State Emergency Service
 SA Police
 Department of Water, Land and Biodiversity Conservation
 Transport SA
 SA Water
 Planning SA
 SA Natural Resources Management Boards
 Local Government Association of SA, West Torrens
 Institute of Public Works Engineering Australia, SA Division
 Department of Premier and Cabinet

Andrew Watson
 Chris Wright
 Bob Stevenson
 Russell Dippy
 Jim Barrett
 Bill Lipp
 Peter Murphy
 Gavin Burgess
 Keith Downard
 Trevor Starr
 Kim Read
 Ross Pagram

Appendix B-6

History of Floods Project Steering Committee

1. In November 2002 a project Steering Committee was appointed to oversee the work of the project.
2. A brief excerpt of its Terms of Reference is set out below.

EXTRACTS FROM THE TERMS OF REFERENCE

1) THE STEERING COMMITTEE

- a) A Steering Committee (hereinafter called the Committee) is required to direct the work of the project. The Committee will have a twofold responsibility:
 - i) To direct the work of the project, and
 - ii) To direct the activities of the staff engaged in the work of the project.
- b) The members of the Committee will be appointed from representatives of the agencies who are supporting the project.

2) CHAIRMAN

The Chairman of the Committee will be Chris Wright.

3) APPOINTMENT OF THE COMMITTEE

- a) The Chairman will appoint between 6 and 10 persons to serve on the Committee, subject to the concurrence of each nominee.
- b) The initial members of the Committee will be appointed in November 2002.
- c) Members of the Committee will continue to serve on the Committee:
 - i) Until the member stands down, or
 - ii) Until the project is completed and the Committee is disbanded.
- d) If a member of the Committee resigns the Chairman may appoint a new person to take the place of the member who has resigned.

4) ROLE OF THE COMMITTEE

The Committee will discharge its responsibilities of directing the project by considering and making recommendations in relation to the following responsibilities relating to the project.

- a) Meet from time to time as decided by the chairman. (It is envisaged that meetings will be held at approximately 6 monthly intervals as work on the project will only be undertaken on Thursdays and Fridays i.e. after the equivalent of 10 weeks normal work.)
- b) Act on behalf of the SAFWCC in relation to all project matters.
- c) Oversight of the work of the project.
- d) Oversight the work of the chairman, supervisor/s, Work for the Dole Programme Participants and any other persons engaged in the project work in relation to the work of the project and the role of each person engaged on the project.

- e) Oversight the administration of the project.
- f) Make recommendations on all things in relation to the research, writing and publishing of the History of Floods in South Australia. This will include matters relating to extent and location of research, interpretation of research and other data, style, editing, content and publishing details.
- g) Offer support to all persons engaged on the project.
- h) Make recommendations on any matter relating to the project as may appear prudent with a view towards ensuring the success of the project.

Chris Wright (Australian Government Bureau of Meteorology); Kevin Godfrey (Australian Government Bureau of Meteorology); Graeme Furler (Former Regional Director, Australian Government Bureau of Meteorology, SA); Martin Allen (Department of Water, Land and Biodiversity Conservation); Kim Read (Institute of Public Works Engineering Australia, SA Division); Dr Jill Kerby (SA Natural Resources Management Boards); Brenton Curtis (City of Tea Tree Gully); Linton Johnston (Hydrological Society of SA Inc.); Ravshan Mirzaev (Community Work Coordinator, Ask Employment and Training Services).

Appendix B-7

History of Floods Project Financial Supporters

In the early stages of the project an appeal was made to a wide range of agencies both public and private and the those listed hereunder made generous untied contributions to support the work of the project. Without the collective contributions which amounted to \$39,250 the project could not have continued.

These contributions together with the Work for the Dole Programme grants available to the Bureau of Meteorology as a sponsor for the engagement of unemployed persons who are participants of the Work for the Dole Programme made the project possible.

The Department of Employment and Workplace Relations through the Work for the Dole Programme contributed more than \$60,000 towards the administration and management of the project in accordance with the guidelines set down for the financial support of approved projects.

The funds generously provided by the agencies listed hereunder were used for the printing of the book, the replication of the DVD and for the vehicle travelling allowances paid to project participants engaged in country areas to enable them to travel between local government centres.

The representatives of the contributing agencies listed hereunder are the most recently advised prior to this publications going to print.

Alexandrina Council—John Coombe
Burnside, City of—Mark Clarke
Holdfast Bay, City of—Charles Sheffield
Mallala, District Council of—Colin Dunlop
Mid Murray Council—Dean Gollan
Mitcham, City of—Con Theodoroulakes
Norwood, Payneham and St Peters, City of—Mario Barone
Onkaparinga, City of—Beth Davidson-Park
Tea Tree Gully, City of—Greg Perkin
Walkerville, Corporation of the Town of—Mark Draper
Department of Water, Land and Biodiversity Conservation—Andrew Johnson
Hydrological Society of SA Inc.—Linton Johnston
Tonkin Consulting—Kim Read
Eyre Peninsula Natural Resources Management Board—Ms Kate Clarke
Adelaide and Mount Lofty Ranges Natural Resources Management Board (formerly were Catchment Water Management Boards of Onkaparinga, Patawalonga and Torrens and North Adelaide and Barossa)—Dr Jill Kerby

Appendix B-8

History of Floods Project Staff

The Australian Government Bureau of Meteorology, the South Australian Flood Warning Consultative Committee and the History of Floods Project Steering Committee acknowledges the work done by about 110 persons who contributed their skills and labour to the project and it was principally their efforts that ensured the success of this project and the publication of this book and its accompanying DVD. The staff included:

Mark Ambrose	Judith V Ferrante	Sally Murray
WB Anthony	Bruce Field	Peter Ngan
Garry Bell	Marie Goodwin	Thuan D Nguyen
Mac Benoy	Darren Green	Wolf Norkowski
James Brew	Richard John Harris	Narhoja Omarhoja
Jeffrey Burford	Tania Hannah	Roy Parrott
Keith Casperson	Niluka Hattotuwa	Andrew Charles Piper
John Cleland	Joshua Kaye Hennig	Denis Parslow
Jayne Collett	Mike Hoeller	Dean A Podger
Thomas Cook	Stephen Ingman	Ross Roberts
Celeste Corin	Novika Ivkovic	Tony Rogers
Michael Cowley	Tomimir Kovac	Gavin Sain
Andrew Crocker	Carolyn Lang	Stephen Sharpe
Ralph S Depasquale	Kiong Oon Ling	Pontip Sonthavong
Frances Dudley	David McCarthy	Brett Stewart
Cathy Dunn	Rebecca McMahon	Eric Wood
Peter Duong	Ken Maddigan	Steven Wynniatt
David Featherstone	Roderick Mallard	

Staff worked in the following skill areas:

Administration Assistant	Editor	Records Manager
Administrator	Filing Assistant	Research Assistant
Book Designer	GIS Developer	Researcher
Data Entry Operator	Historian	Supervisor
Database Developer	Manager	Web Page Designer
Desktop Publisher	Marketing Assistant	Web Page Designer
Digital Record	Marketing Officer	Web Page Writer
Management	Multimedia Editor	Word Processing Operator
DVD Content Developer	Photographer	Writer
DVD Designer	Programmer	
Editorial Assistant	Proof Reader	

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