

TYPES OF FLOODING IN AUSTRALIA

In Australia, the most common form of flooding is along rivers after heavy rainfall. Overflow of drainage systems in urban areas can also be a major problem, particularly in heavily populated areas. Low lying coastal areas can be inundated by storm surges usually caused by tropical cyclones. Our rivers can be broadly grouped as those around the coast draining more or less directly to the sea, and those draining large areas of the inland. Flooding patterns in each group can be quite different

Inland Rivers – Slow Onset Flooding

Flooding of rivers in the vast flat areas of central and western New South Wales and Queensland, as well as parts of North West Victoria and Western Australia, may last for one or more weeks, or even months on some occasions. Floods in these areas can lead to major losses of livestock and damage to crops, as well as extensive damage to rural towns and road and rail links. This may result in the isolation of whole communities

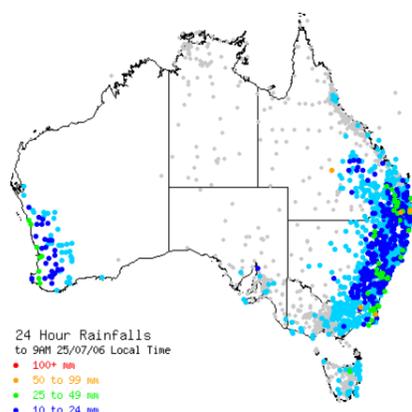
Mountain/Coastal Rivers – Quick Onset Flooding

Flooding can occur more quickly in the mountain headwater areas of large rivers, as well as in the rivers draining to the coast. In these areas, the rivers are steeper and flow more quickly, with flooding sometimes only lasting for one or two days. These floods can potentially pose a greater risk to loss of life and property because there is generally much less time to take preventative action, and flow of water is faster and more dangerous. This type of flooding can affect most of our major towns and cities, especially along the East and South of Australia and Tasmania.

Flash Flooding

Flash flooding results from relatively short, intense bursts of rainfall, often from severe thunderstorms. It can occur in almost all parts of Australia and poses the greatest threat of loss of life. People are often swept away after entering floodwaters on foot or in vehicles. These floods can also result in significant property damage and major social disruption. They are a serious problem in urban areas where drainage systems are often unable to cope. They also can occur in rural areas where the nature of terrain and steepness of the streams could lead to very rapid development of flooding.

MONITOR YOUR FLOOD



The Bureau web site provides rainfall and river level data from observation stations in many of the flood prone areas of Australia. Your Council and other agencies such as the Emergency Services also provide data on their web site. If you have access to internet, monitoring the observations that are available should be helpful in assessing your personal risk and in preparing for the flood.

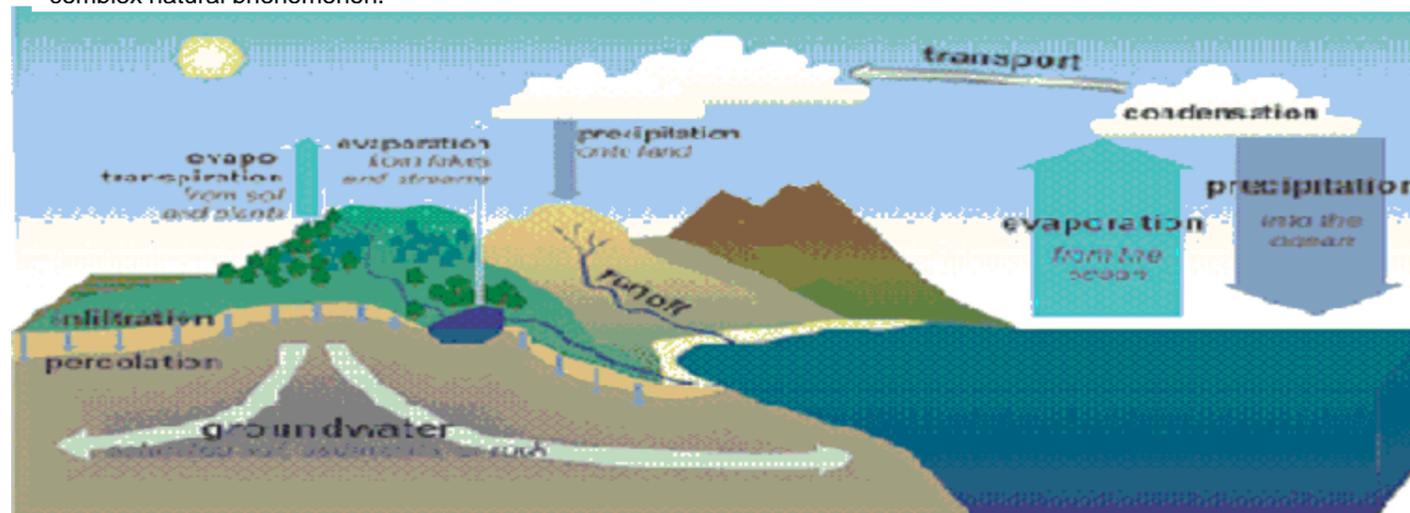
FLOODS – THE HYDROLOGIC CYCLE

Floods are part of the natural water cycle or a “Hydrologic Cycle”. In this natural cycle, the energy of the sun causes water to evaporate and form clouds, which move inland and become rain. This rain will then runoff either directly through the river systems or be absorbed into the soil to later form groundwater flow.

Floods happen when the capacity of the rivers is not enough to carry the water that has entered the river network, and the banks overflow. The area that gets inundated quite regularly is called a floodplain.

Floods are caused by prolonged or heavy rainfall. Cyclones bring huge amounts of moisture inland from the ocean and are a major cause of floods, particularly in coastal areas. Thunderstorms are relatively small in area but can produce very intense rainfall that can cause floods in smaller streams. Larger storm systems that form around moist air masses moving across the country cause floods over large inland areas. Other, less common but significant causes are storm surge and tsunami which involve rapid rise of the seas.

Several factors determine the size of flooding including; rainfall intensity (the rate of rainfall) and duration (how long the rain lasts); how dry or wet the land is; topography; ground cover and many more. Therefore flooding is considered a complex natural phenomenon.



HUMANS AND FLOODS

FLOOD RISK MANAGEMENT

People who live near rivers or in low-lying coastal areas live with the greatest threat of floods. Townships living in threat of flooding have taken steps to mitigate the impact of the regular floods they endure by constructing levees, dams etc. These mitigation measures are often successful in giving protection against the smaller floods, but they are not designed to withstand every flood that may occur. Flood hazard is sometimes called a “silent killer” because it can build up quietly and may not always seem dangerous. It is also one hazard against which we can prepare and respond properly. Flood warnings are issued by the authorities whenever there is a threat of flood, and except for flash floods, there is usually a reasonable warning period given to take protective action.

FREQUENCY OF FLOODING

Floods are a natural phenomenon that occur frequently. The frequency of flooding in an area is commonly described by the average interval (in years) between occurrences of such flooding. For example, a flood that occurs around 5 times in 25 years is said to have an average recurrence interval of 5 years (5 year flood). Need to remember that it will not necessarily occur regularly every 5 years. There is a one in five chance that such a flood will occur during any one year. Although a much bigger flood such as a 100 year flood is expected to happen rarely, there is still a one in a hundred chance that a flood of that size will happen in any one year.

HUMAN INTERVENTION & FLOODS

While floods are natural phenomena, they get affected by human intervention. Changing land use from farmland to housing developments, for example, can cause the runoff to increase and lead to an increase in the magnitude and frequency of flooding, and the speed of onset. Building dams that store water can reduce the magnitude and frequency of floods peaks below the dam. With the ongoing changes to catchments and floodplains, it is important to keep track of changes in flood behaviour.

FLOOD PREPAREDNESS AND SAFETY

Before a flood

- identify local risks in your area. Your local council or state/territory emergency service can inform you of local plans, warning systems, evacuation routes and strategies
- prepare a home emergency plan and identify risks around the home
- fix faults and remove leaves, debris and items that can cause localised flooding
- develop an evacuation strategy which identifies routes and safe locations in which to shelter
- prepare an emergency kit containing:
 - a first aid kit
 - a torch and portable radio with spare batteries
 - candles and waterproof matches
 - important papers including emergency contact numbers
 - a copy of your emergency plan
 - rubber gloves, and waterproof bags for clothing and valuables
- prepare a checklist of important family records, including wills, birth/marriage certificates, banking, financial records, etc
- keep a list of emergency phone numbers on display
- store poisons and chemicals on high shelves to reduce contamination of flood water

During a flood

- monitor current flood warnings
- avoid entering flood water unless absolutely necessary, and never underestimate the strength of flood water even if you are in the comfort of a vehicle.
- if advised of local evacuation
 - listen/watch for flood reports and instructions
 - follow all instructions by emergency authorities and react to changing conditions
 - turn off electricity, water and gas and take your mobile phone
 - place a strong plastic bag full of sand or earth in the toilet bowl and over shower and bath outlets to prevent back-flow of sewage into your home
 - lock your home and take recommended evacuation routes for your area
 - take pets with you
- If leaving of your own accord, tell police, State or Territory Emergency Service, or neighbours so that they know of your whereabouts.

After the flood

- wait until authorities have declared the area safe before entering a flood zone
- before entering your house, wait until water has fallen below floor level
- wear rubber boots (or at least rubber-soled shoes) and rubber or leather gloves
- if you are going into an isolated area notify the proper authorities
- check with electricity, gas and water authorities to determine whether supplies to your area have been interrupted and are safe to be turned on by you. If the water supply system has been flooded, you must assume it is contaminated.
- don't use gas or electrical appliances until they have been checked for safety
- beware of damaged power lines, bridges, buildings, trees, and don't enter floodwater until authorities have declared the area safe before entering a flood zone



Attorney-General's Department
Emergency Management Australia
Bureau of Meteorology

FLOODS

Warning,
Preparedness
and Safety



'Safer Sustainable Communities'

WHERE CAN I GET WARNING INFORMATION?

Radio:

Listen to ABC and/or local radio for emergency warnings, evacuation advice and weather updates. To find your local ABC station visit:
<http://www.abc.net.au>

Flood warning information provided by the **Bureau of Meteorology** can be obtained as follows:
<http://www.bom.gov.au/hydro/flood/>
Click on your region of interest.

Telephone Recorded Information Services:

Flood Warnings are available on a Bureau of Meteorology recorded message service. Charges apply.

National Directory 1900 926 113

FURTHER INFORMATION

For people who live in flood prone areas, more detailed information on flood preparedness, safety and recovery is available in the free booklet

"What to do Before, During and After a Flood" and the

"Flood Action Guide"

published by

Emergency Management Australia (EMA)

These are available online at

<http://www.ema.gov.au>

Or through your local state/territory emergency service.
- check the telephone directory for your nearest office.

FLOOD WARNINGS

The range of flood warning information, which may vary slightly between states and areas within a state, includes:

An Alert, Watch or Advice of possible flooding, if flood producing rain is expected to happen in the near future. The general weather forecasts can also refer to flood producing rain.

A Generalised Flood Warning that flooding is occurring or is expected to occur in a particular region. No information on the severity of flooding or the particular location of the flooding is provided. These types of warnings are issued for areas where no specialised warnings systems have been installed. As part of its Severe Weather Warning Service, the Bureau also provides warnings for severe storm situations that may cause flash flooding. In some areas, the Bureau is working with local councils and State and Territory governments to install systems to provide improved warnings for flash flood situations.

Warnings of 'Minor', 'Moderate' or 'Major' flooding in areas where specialised warning systems are installed. In these areas, the flood warning message will identify the river valley, the locations expected to be flooded, the likely severity of the flooding and when it is likely to occur.

Predictions of the expected height of a river at a town or other important locations along a river, and the time that this height is expected to be reached. This type of warning is normally the most useful in that it allows local emergency authorities and people in the flood threatened area to more precisely determine the area and likely depth of the flooding. This type of warning can only be provided where there are specialised flood warning systems and where flood forecasting models have been developed

TOTAL FLOOD WARNING SYSTEM



The purpose of flood warnings is to persuade people and enable them to take action to increase their safety and reduce the costs of flooding. A total flood warning system includes the following key elements and requires the cooperative involvement of agencies at all levels of government and the people at risk:

Prediction - detection of changes in the environment that lead to flooding and the prediction of future river levels during the flood.

Interpretation - identifying in advance the impacts of the predicted flood levels on the communities at risk.

Message construction - devising the content of the message in a way which will clearly warn people of impending flooding.

Communication - disseminating warning information in a timely way to people and organisations likely to be affected by the flood.

Response - getting the appropriate protective behaviour from the threatened community and from the agencies involved.

Review - examining the various aspects of the system with a view to improving its performance.

FLOOD SEVERITY CATEGORIES

To communicate the severity of flooding to emergency managers, water agencies who need flood information, and the community, we have devised a simple classification of severity levels.



MINOR FLOODING :

Causes inconvenience. Low-lying areas next to watercourses are inundated which may require the removal of stock and equipment. Minor roads may be closed and low-level bridges submerged.



MODERATE FLOODING:

In addition to the above, the evacuation of some houses may be required. Main traffic routes may be covered. The area of inundation is substantial in rural areas requiring the removal of stock.



MAJOR FLOODING:

In addition to the above, extensive rural areas and/or urban areas are inundated. Properties and towns are likely to be isolated and major traffic routes likely to be closed. Evacuation of people from flood affected areas may be required.

WHEN A FLOOD WARNING IS ISSUED

- be aware of all hazards warning systems that may be in place for your area, what the warning levels mean and what actions you should take
- listen to ABC and/or local radio for warnings and advice
- prepare to move vehicles, equipment, garbage, chemicals and poisons to higher locations
- farmers should plan to move livestock and equipment to high ground
- businesses should plan to relocate stock and equipment to high ground
- protect valuables and goods by moving household items to a high place
- secure dangerous or damageable items, and empty freezers and refrigerators, leaving doors open (to avoid damage or loss if they float about)
- locate your emergency kit and include items such as:
 - a good supply of required medications
 - any special requirements for family members
 - strong shoes, rubber boots, blankets and dry clothing
 - non perishable food and water for your family and pets
 - important papers, bank books, money and credit cards
 - valuables and cherished articles (jewellery, photographs etc)
- fill your petrol tank and stock your car with emergency supplies