

# A Community Focus on Flooding

## EMERGENCY FLOOD ALERT

### 'Floods: Where, When, How High?'



The **ALERT system** is a network of field stations that measure rainfall and water levels in rivers and creeks. The Nerang River ALERT system was completed in early 1990's.



The field stations send data to base station computers located at the Gold Coast City Council and the Brisbane Bureau of Meteorology. The flood is monitored in '**real-time**' by reporting each millimetre of rainfall and water levels when they change by 50mm.



The base stations computers have software to display and analyse the data to forecast flood levels several hours in the future (typically 6 hours).



The Bureau of Meteorology (BOM), Brisbane, and Gold Coast City Council operate the ALERT system and Council is responsible for maintenance. There are approximately 30 ALERT stations spread throughout the Gold Coast.



The **Bureau of Meteorology** uses this data when issuing flood warning bulletins.



**Gold Coast City Council** uses this data to forecast flooding throughout the City approximately 6 hours ahead of time. These forecasts indicate:

- Where flooding is expected
- When that is likely to occur
- The height of flood waters may reach
- How fast they are rising or falling



Reading rain gauges alone are not sufficient to predict flooding throughout the City. Flood Strategies Section has developed an **automated system** to produce flood forecast maps specific to the local area.



This system integrates three types of specialist modelling software used extensively throughout the world.





Information about a specific river system is combined with real-time rainfall data and water levels from the ALERT field stations to produce **flood forecast maps**. Potential flood depths can then be readily accessed for all areas throughout the City.



This **unique system** has been developed by hydraulic engineers within Council's Flood Strategies Section. It provides simplified warning information for residents to enable them to ensure their personal safety and take actions to reduce damage to their property.



When faced with an impending flood the **Counter Disaster Committee** will activate the Flood Disaster Plan. Flood forecast maps will be issued to the Executive Officer and advice will then be issued to residents to enable them to take appropriate action. Emergency response organisations will be alerted and take action according to the Flood Disaster Plan.



**Flood Triggers:** An impending flood is likely for the Nerang River when:

- Rainfall continues for at least 15 hours with a minimum rainfall across the catchment of 250 mm
- Minimum rate of rise of 200 mm/hr in the water level at the Hinze dam
- The Hinze dam starts spilling with 3.0 m of water over the spillway



Of the Hinze Dam is full at the start of a flood, 15 hours of continuous rain with a minimum rainfall depth of 250mm will raise the water level to 3 metres above the spillway. This is considered the first trigger for an impending flood.



When the water depth over the dam spillway reaches about 3 metres, it is likely that the Nerang River will spill into the Carrara floodplain.



An ALERT station at Hinze Dam continuously monitors the height of the dam and the intensity of the rainfall. This information is transferred to Council's base station computer and is analysed by our hydraulic engineers.

The function of the floodplain is to act as a storage area for excess rainfall. The Merrimac / Carrara floodplain can hold a substantial quantity of water before flood waters inundate residential properties.



Council's Flood Alert System enables sufficient warning time for residents in the event of a major flood. The Counter Disaster Committee ensures that appropriate plans are in place should that event occur. Emergency organisations remain ready to provide assistance to the community.

