

A User Looking for a support group!

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Thank you to the assistance from the
US Global Climate Observing System Program at NOAA's
National Climatic Data Center



ACRE – an important tool for linking climate change science to decisions



FAIRWEATHER
CLIMATE



Projections Framework

climate
models

Seasonal changes
evapotranspiration
hail

Greenhouse

Storm tides

Cumulative
effects

gases

rainfall

Sea level rise
wind

Climate Change

dynamical
downscaling

extremes

frosts

Annual
averages

Floods

factors
Climate Change

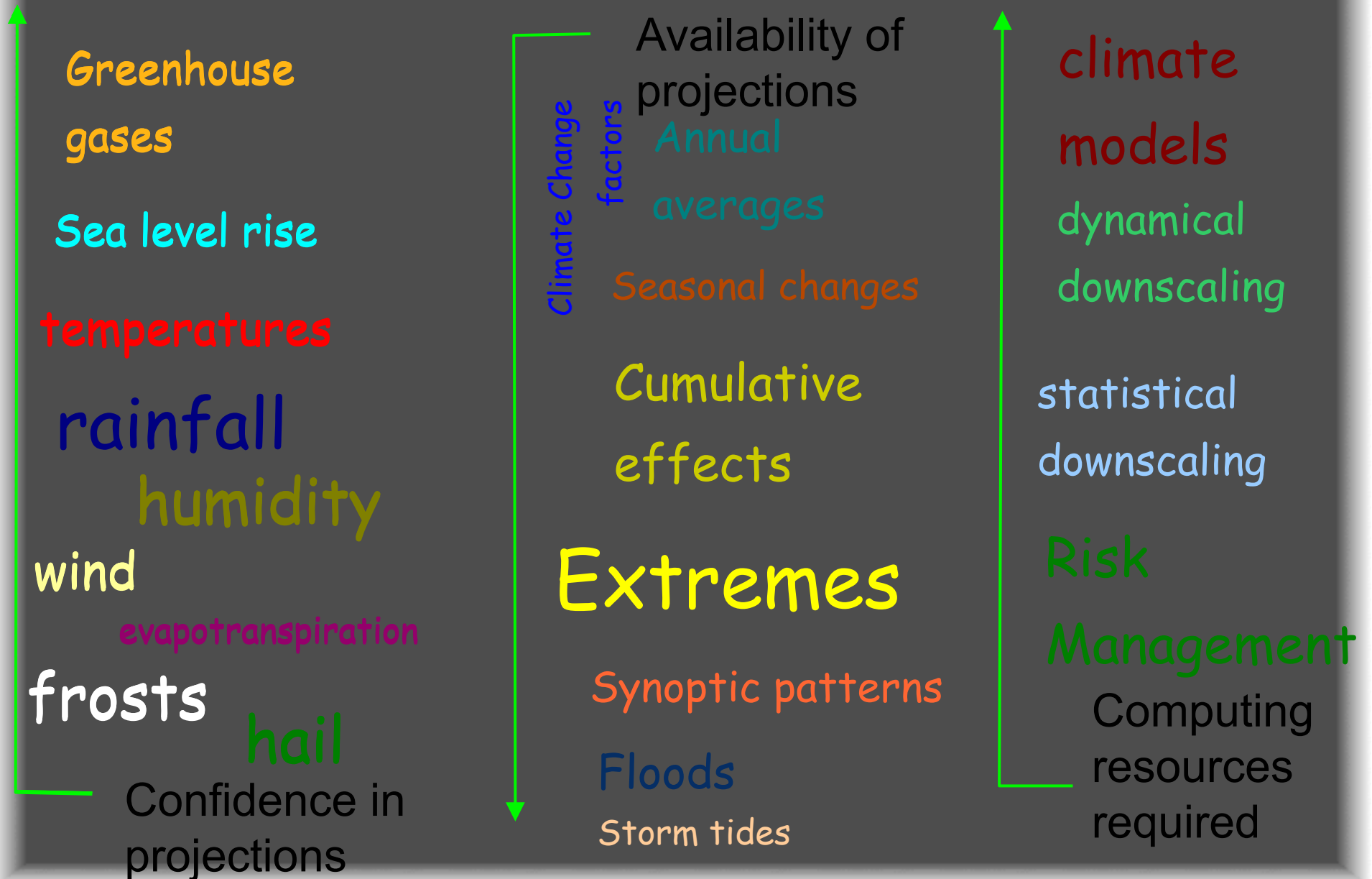
humidity

Synoptic patterns

statistical
downscaling

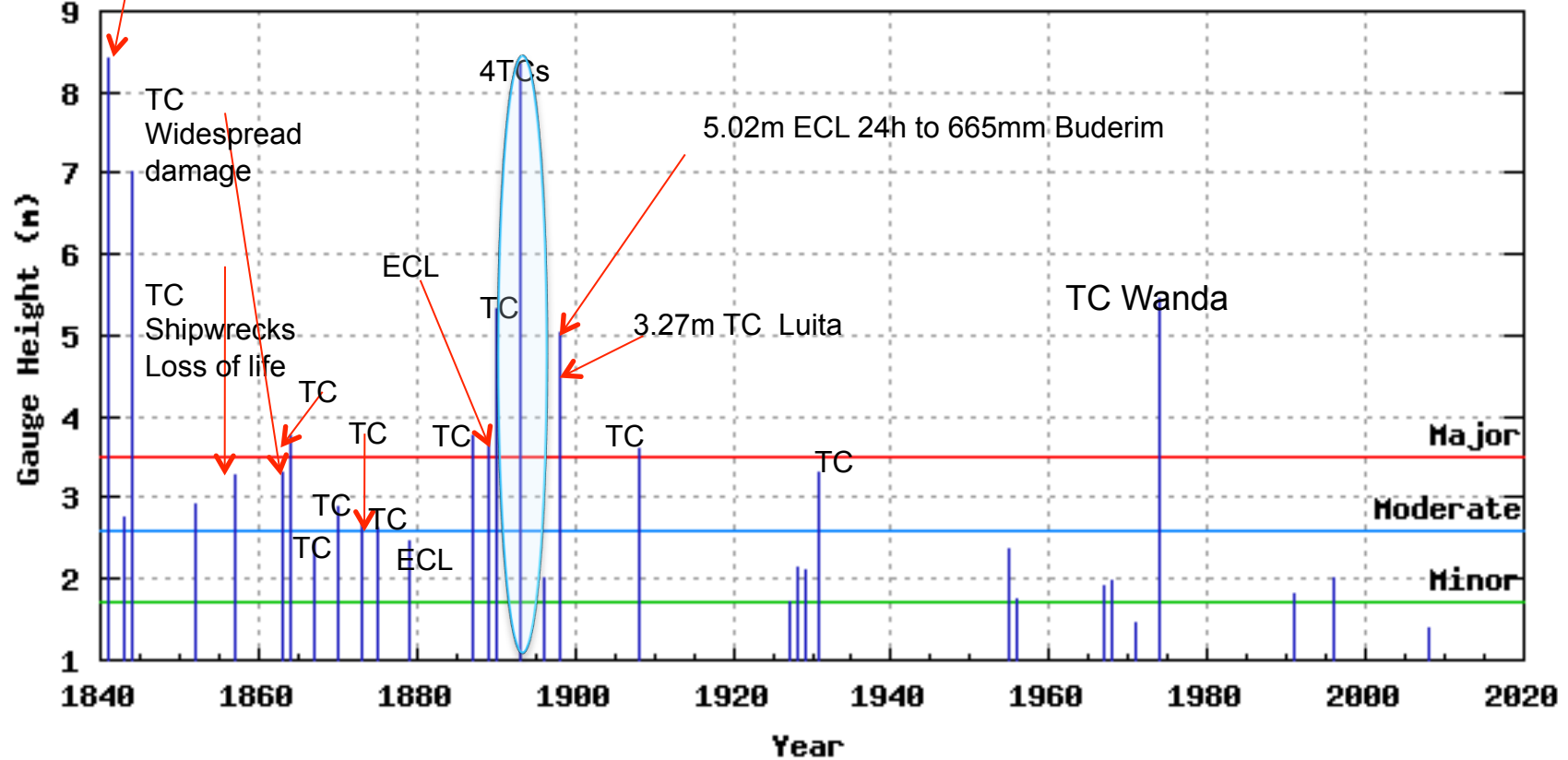
Risk
Management

Projections Framework – hierarchy of uncertainty



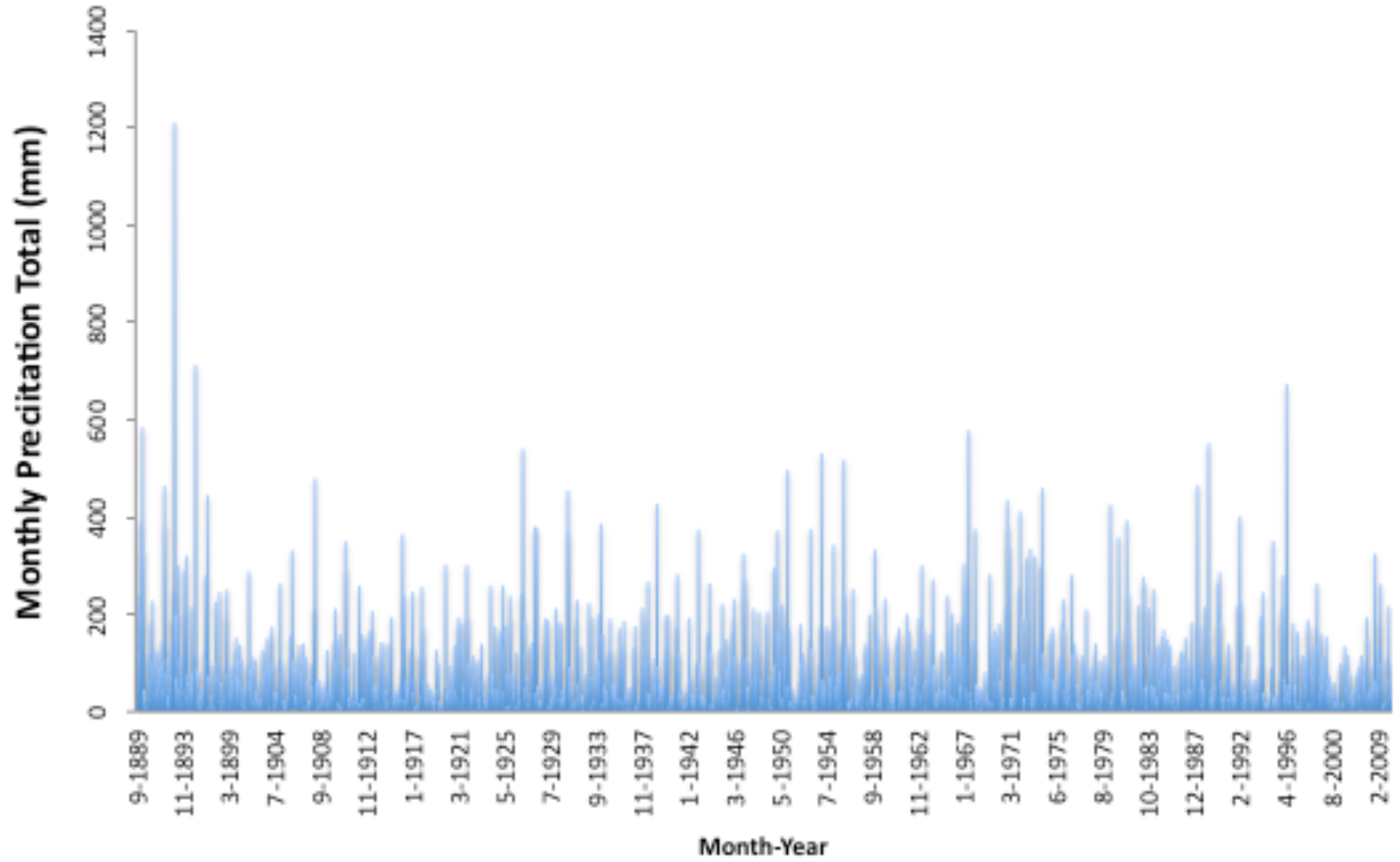
TC geological evidence
of storm erosion
Gold Coast

Brisbane R at City Gauge * Highest Annual Flood Peaks

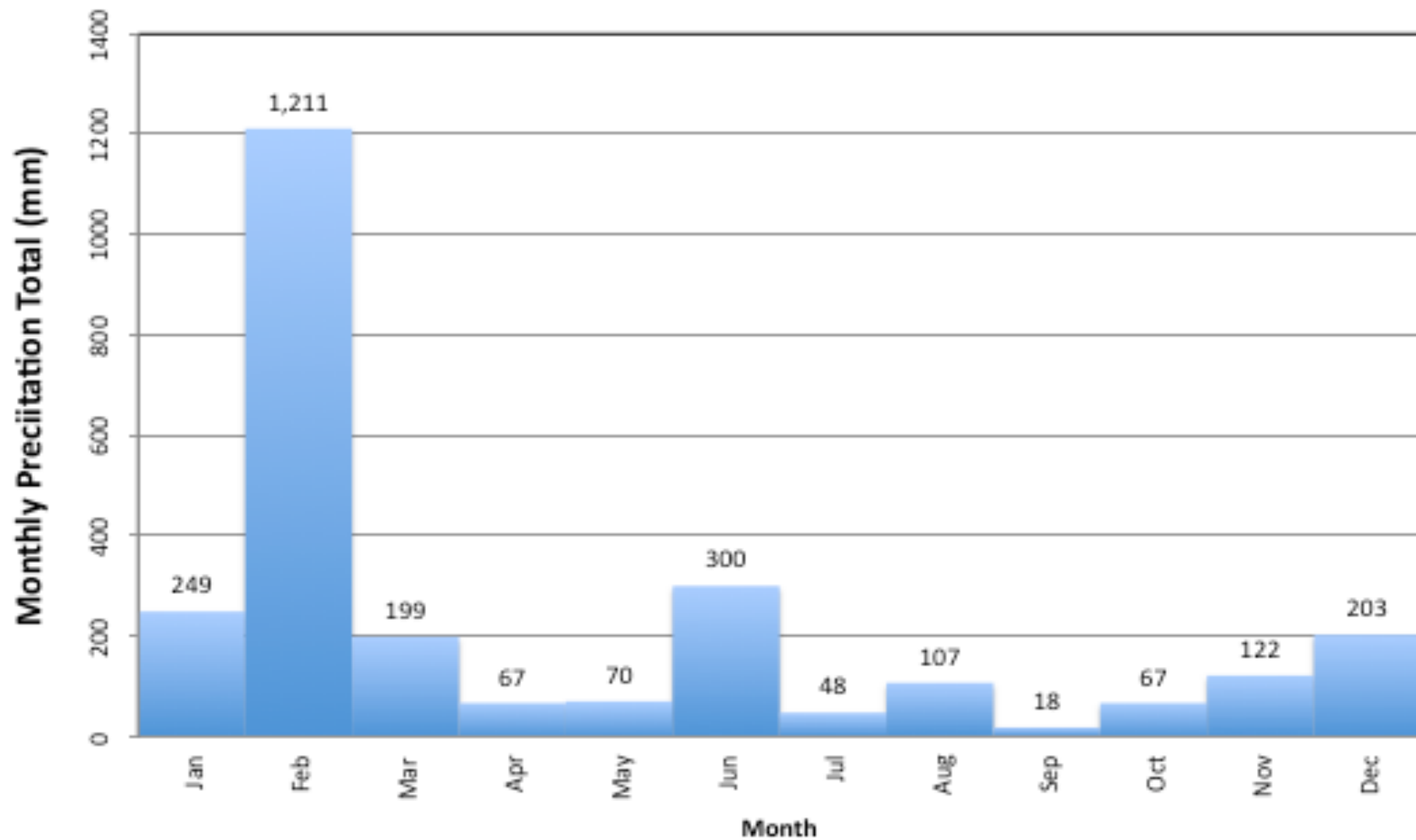


Slide courtesy of Bureau of Meteorology and
enhanced by Jeff Callaghan

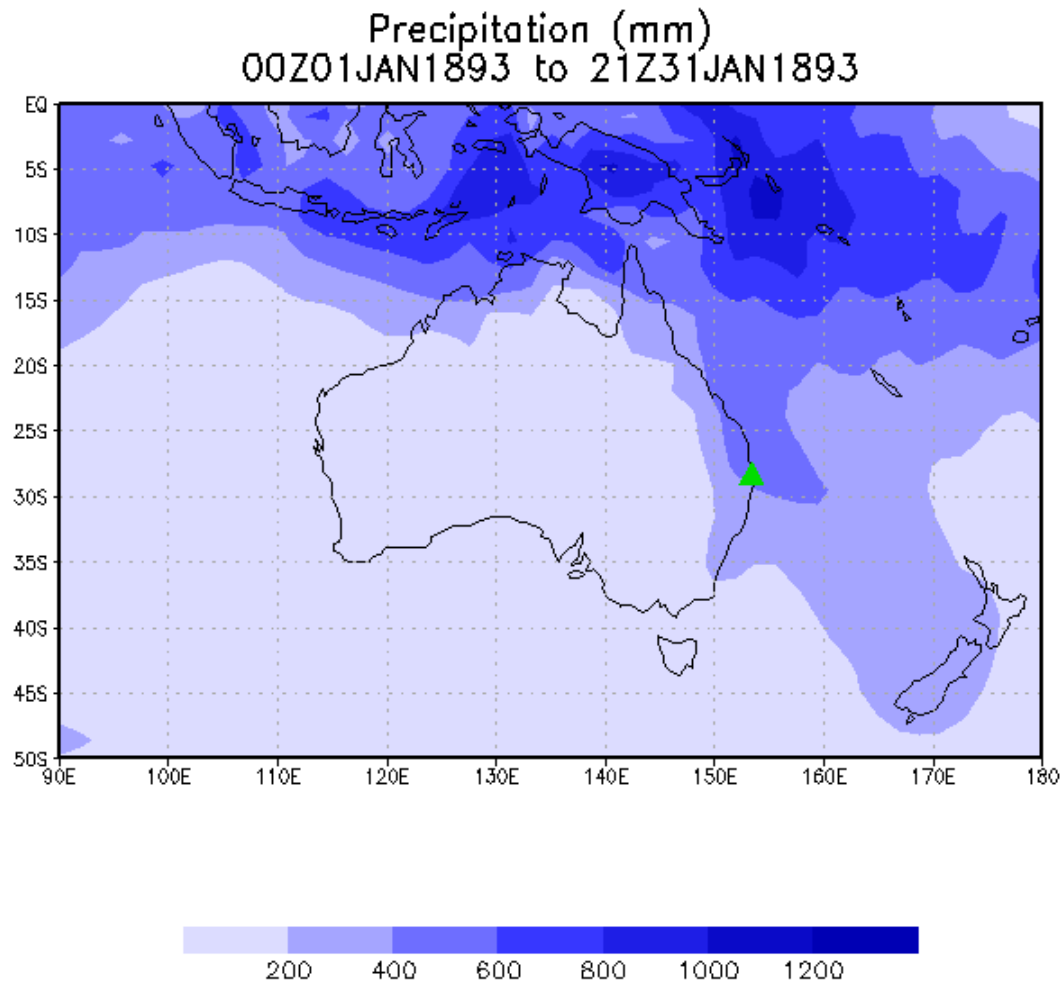
Toowong Monthly Rainfall



Toowong Monthly Rainfall - 1893

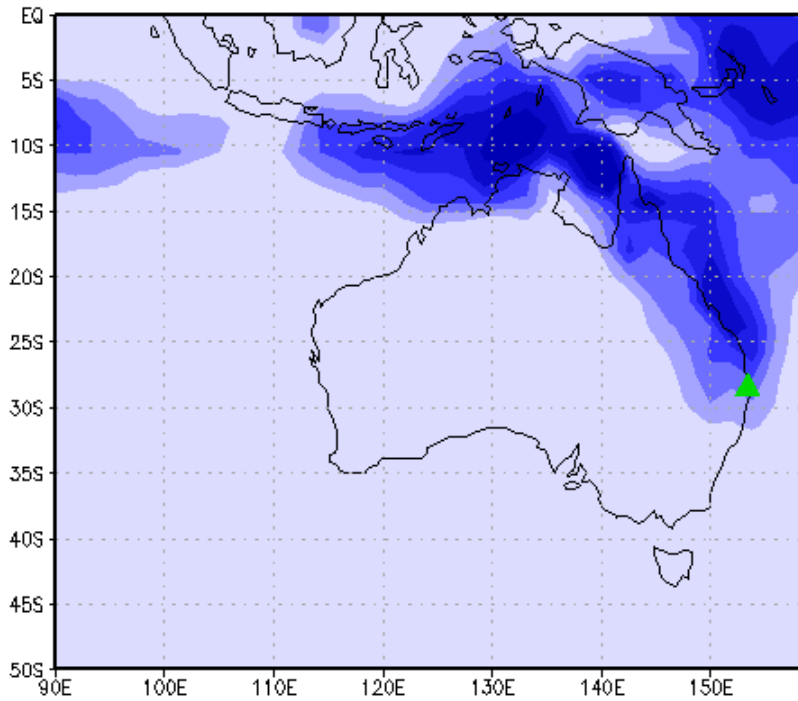


Toowong Total:
249 mm

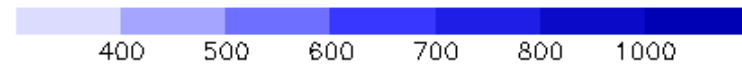
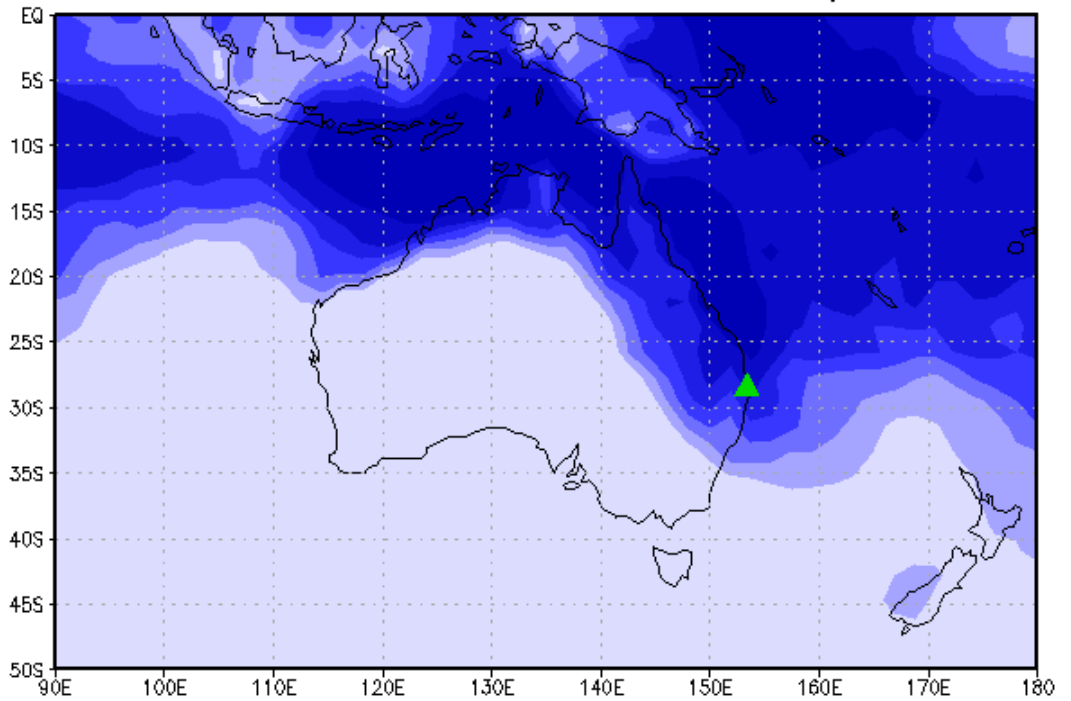


Toowong Total: 1211 mm

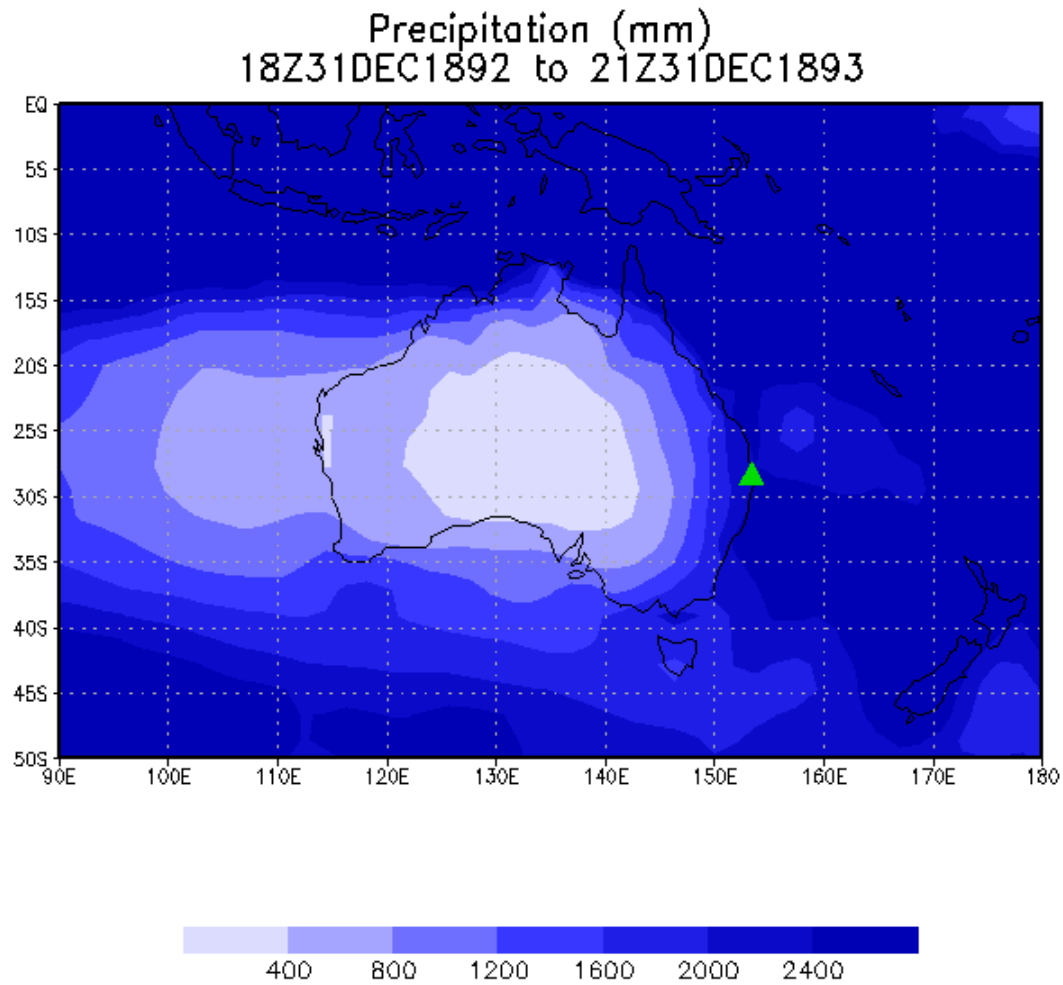
Precipitation (mm)
00Z01FEB1893 to 21Z28FEB1893



Precipitation (mm)
00Z01FEB1893 to 21Z28FEB1893 Spread



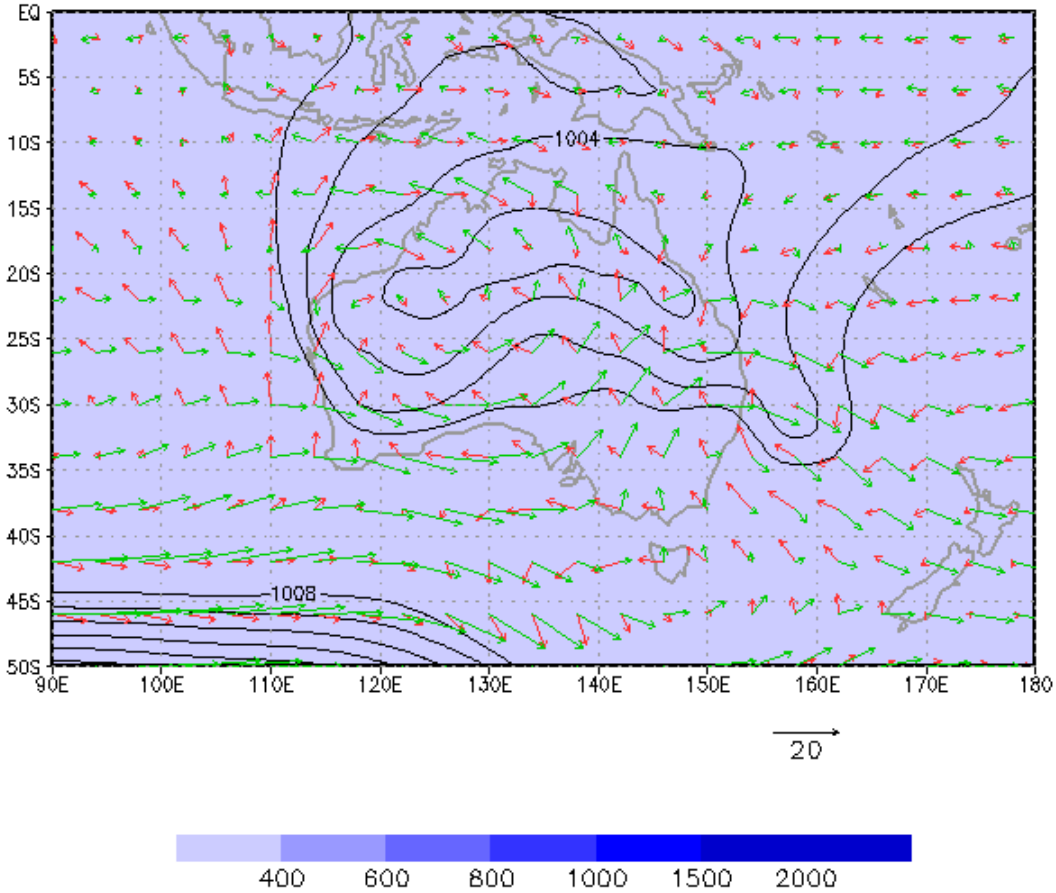
Toowong Total:
2663 mm



Brisbane Floods – Feb 1893

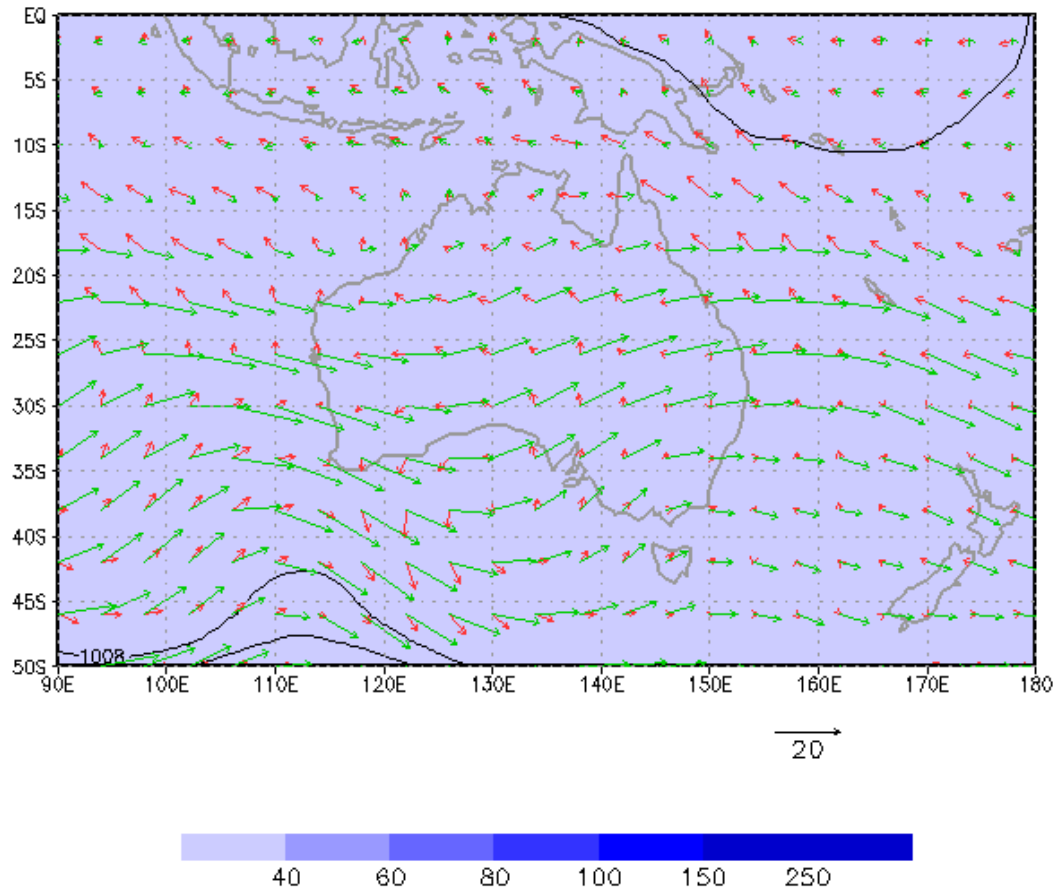
3/2/1893	Lower part of Brisbane submerged, and water still on the rise; the "Elamang" and the gunboat "Paluma" were carried by the flood into the Botanical Gardens, and the "Natone" on to the Eagle Farm flats.
4/2/1893	Disastrous floods in the Brisbane River; 8 feet of water in Edward Street at the Courier building. Numbers of houses at Ipswich and Brisbane washed down the rivers. Seven men drowned through the flooding of the Eclipse Colliery at North Ipswich. Telegraphic and railway communication in the north and west interrupted.
5/2/1893	The Indooroopilly railway bridge washed away by the flood. Heaviest floods known in Brisbane and suburbs.
6/2/1893	The lower part of South Brisbane completely submerged. The flood rose 23'9" above the mean spring tides and 10 feet above flood mark of 1890; north end of the Victoria Bridge destroyed.
7/2/1893	Flood waters subsiding. Sydney mail train flood bound at Goodna, unable to either proceed or return.
13/2/1893	Second flood for the year in the Brisbane River.
16/2/1893	More rain in the south east districts; another rise in the Brisbane; further floods predicted.
17/2/1893	A third flood occurred in the Brisbane River for the year.
18/2/1893	The "Elamang" floated off from the Botanical Gardens. Business at a standstill in Brisbane. Ipswich and other towns. Several deaths by drowning reported.
19/2/1893	The gunboat "Paluma" safely floated off the Gardens, and the "Natone" off Eagle Farm flats. Another span of the Indooroopilly railway bridge carried away. The third flood reached its maximum height at 12 noon, viz. 10 inches below the first flood.

Precipitation (mm): Shading;
Wind 1000mb: Red Vector
12Z01JAN1893



10-12 June 1893: Flood in Brisbane River

Precipitation (mm): Shading;
Wind 1000mb: Red Vector
18Z05MAY1893

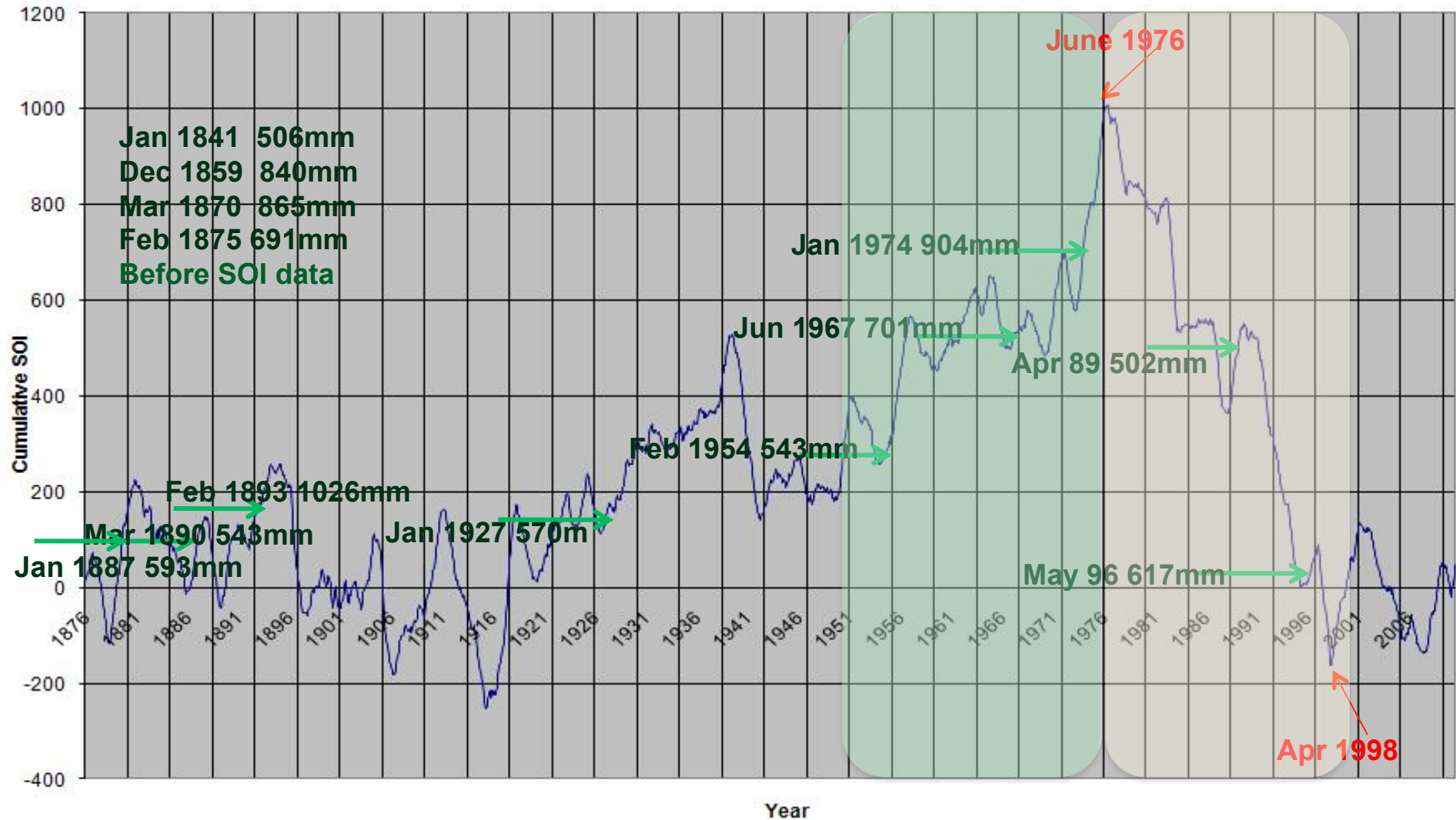


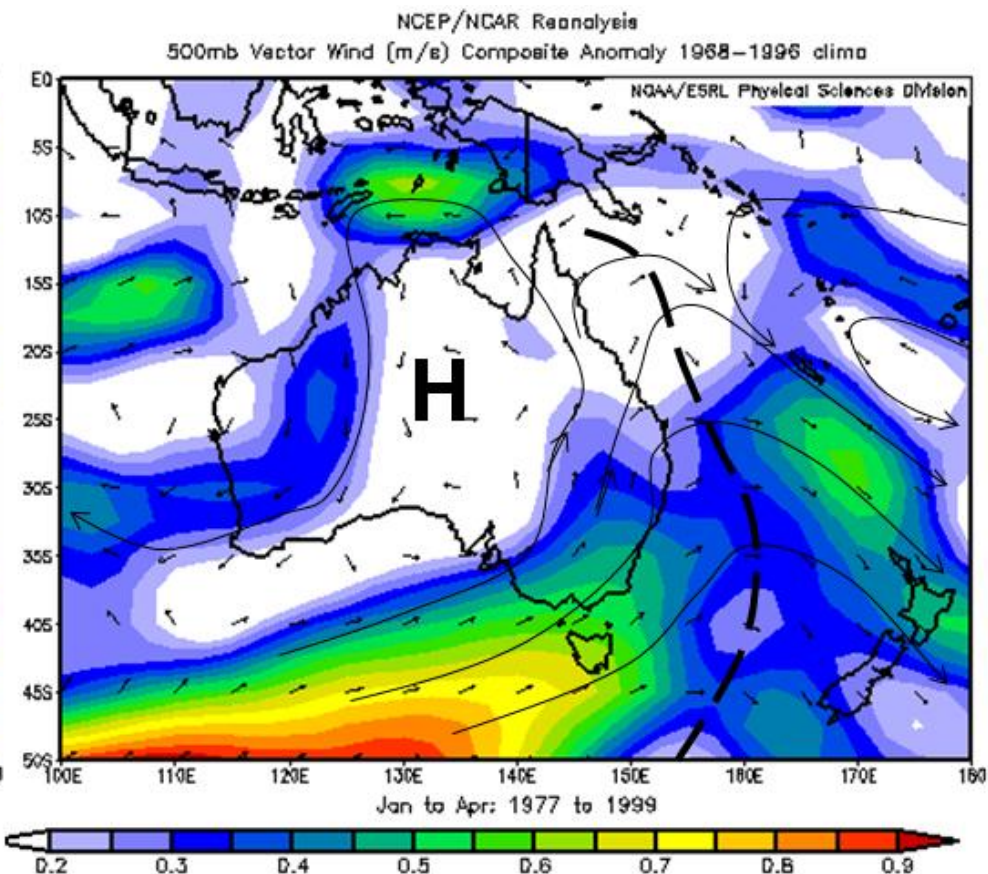
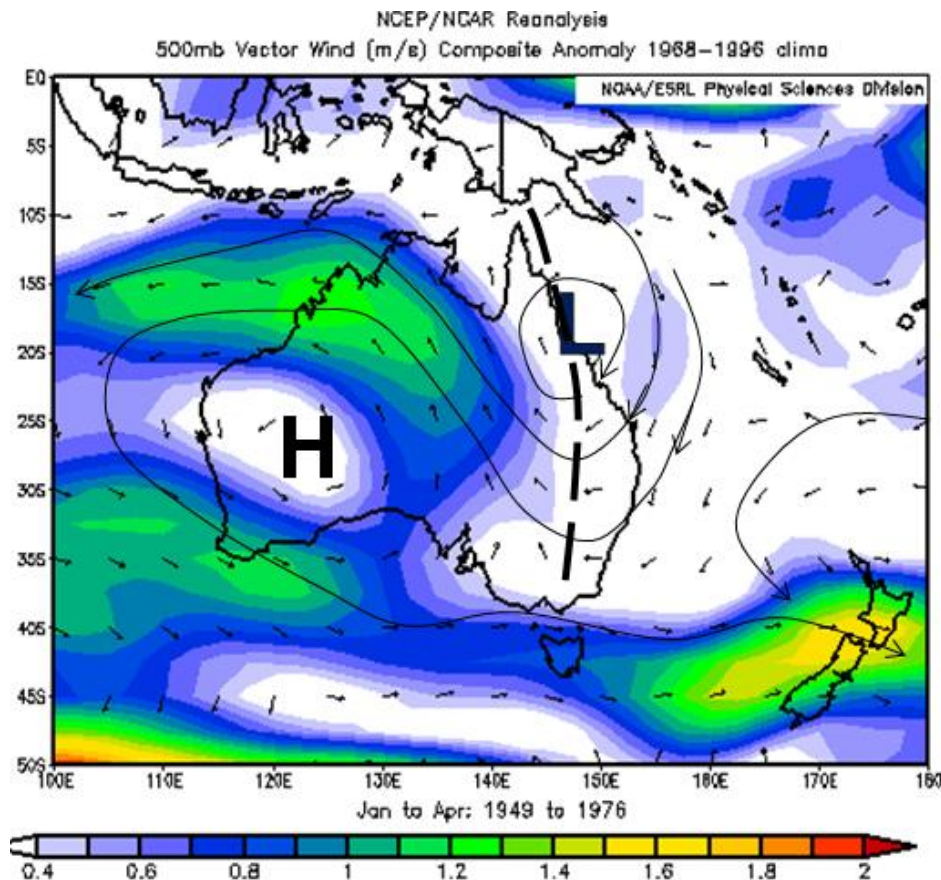
Taking a Longer Term View



Accumulated SOI index

La Nina periods rising curve – El Nino falling curve





500hPa (6km elevation) wind patterns 1949 to 1976 1977 to 1999

SUMMARY

- * Need to visualise the data to gauge its usefulness.
- * Provides a tool for constructing a climate change projections framework and focussing on the projections that are important.
- * Vote 1 for vorticity.
- * Still much more that can be done with it.
- * High overhead in time to access and analyse the data – but someone has to do it!



Applying Climate Change Projections to policy development

Global Temperature Change

% Change in Design Rainfall (1% AEP)

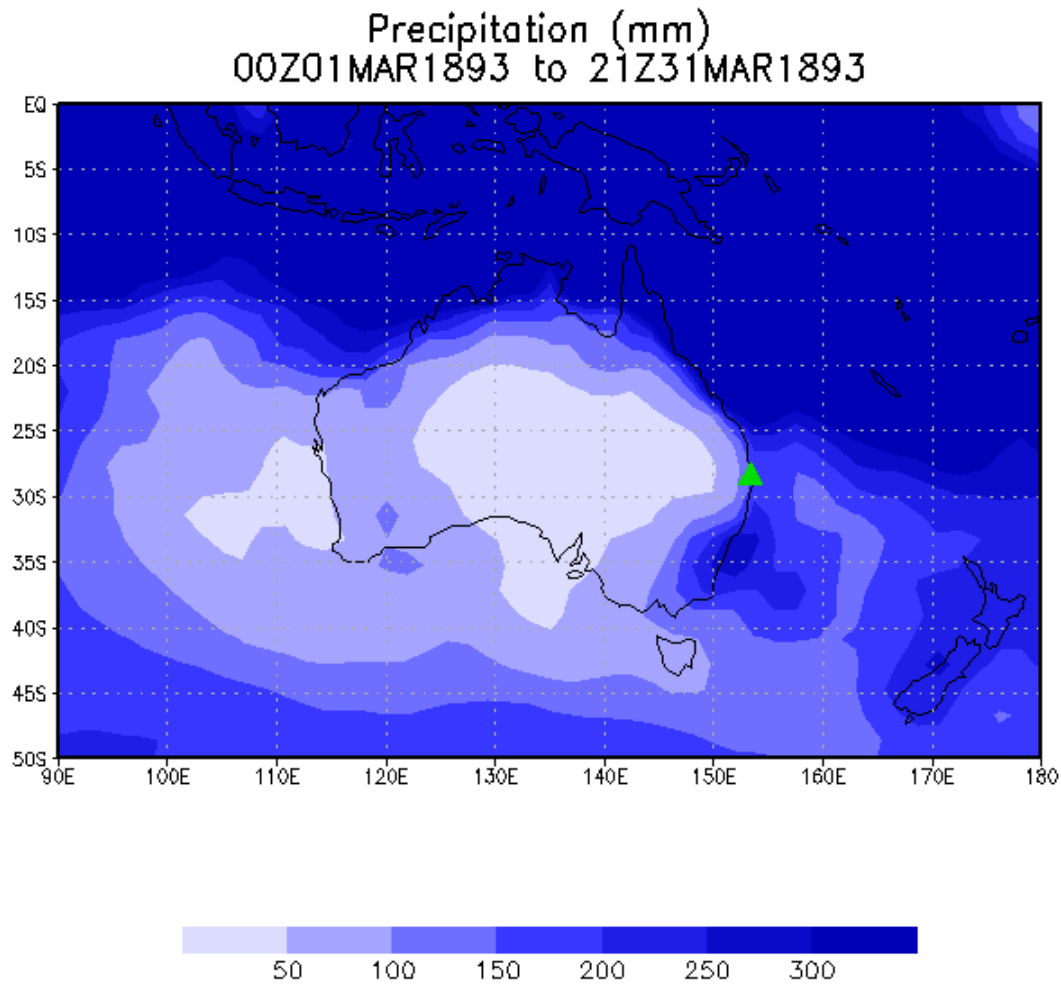
Input into Hydrological models calibrated on current climate

Input into revised hydrographs into hydraulic models

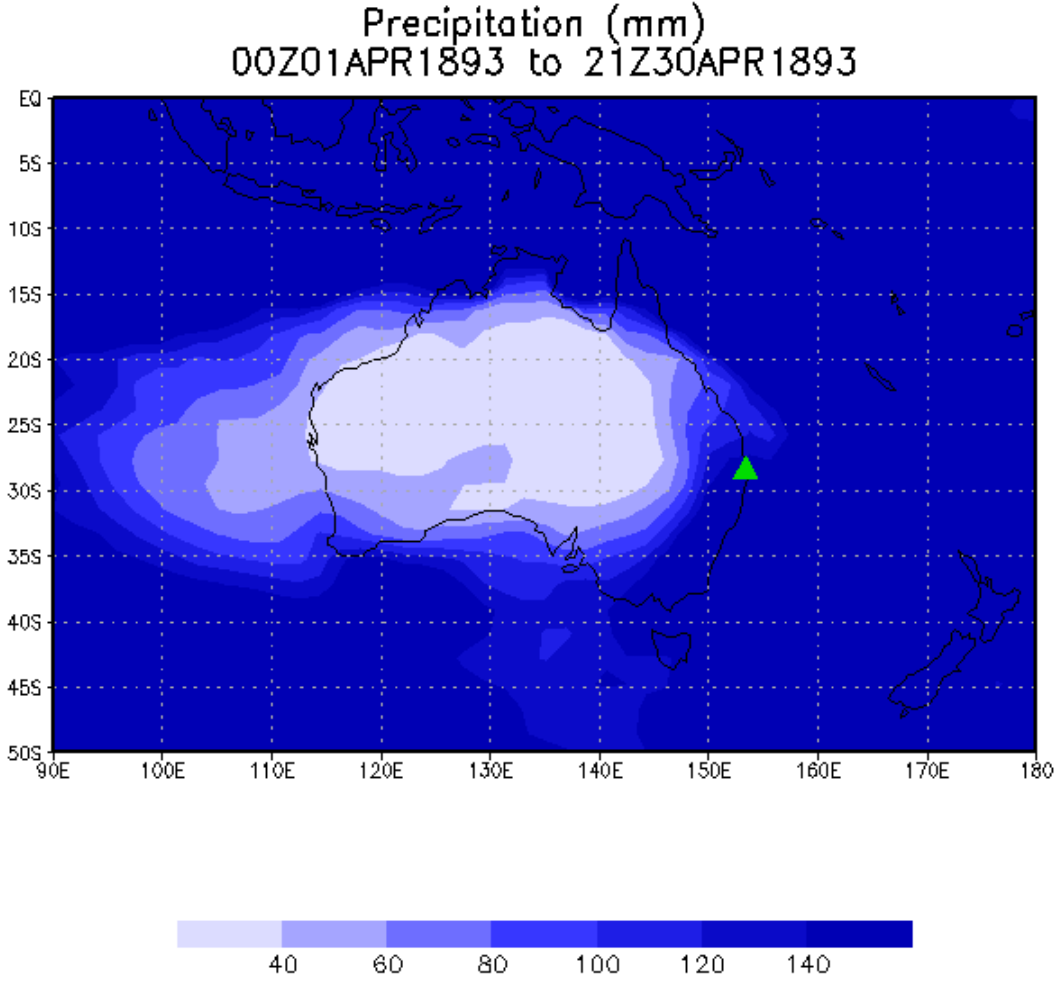
Assess climate change impacts and consequences



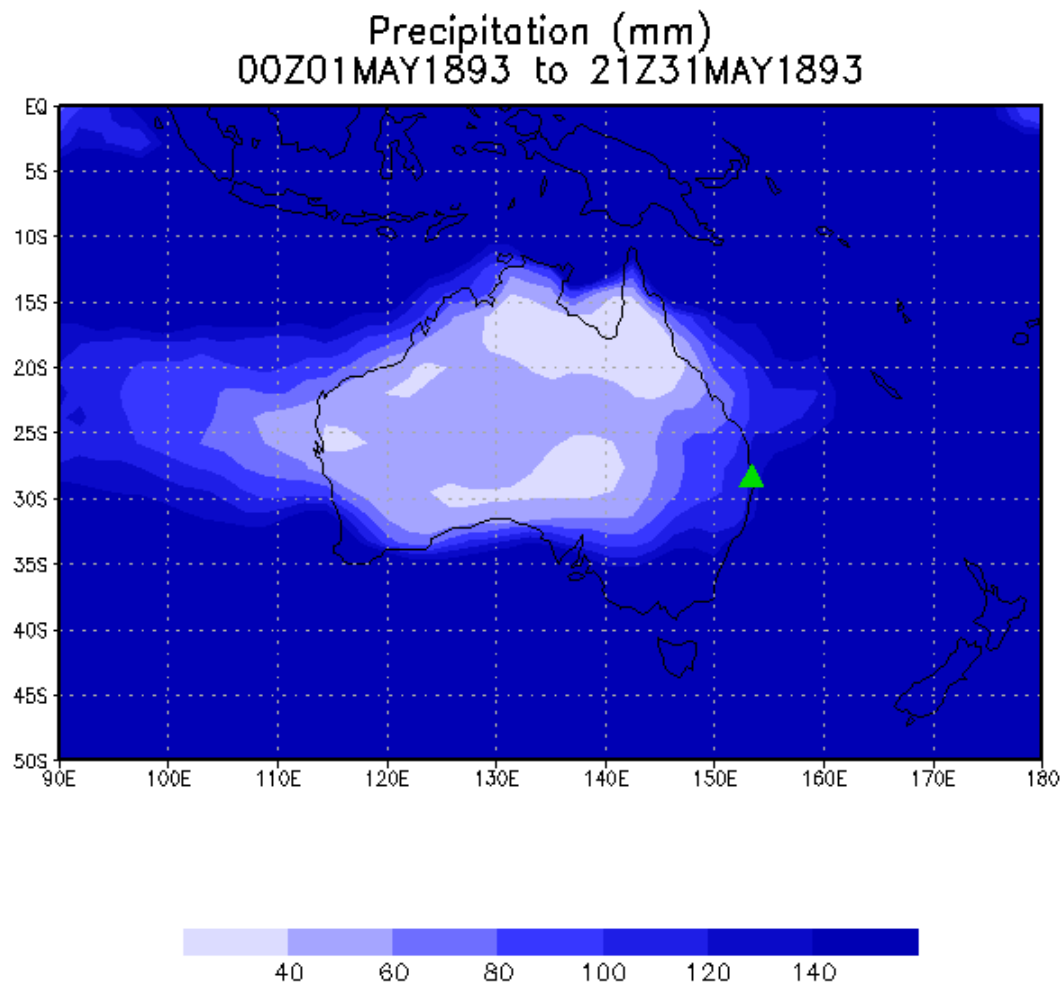
Toowong Total:
199 mm



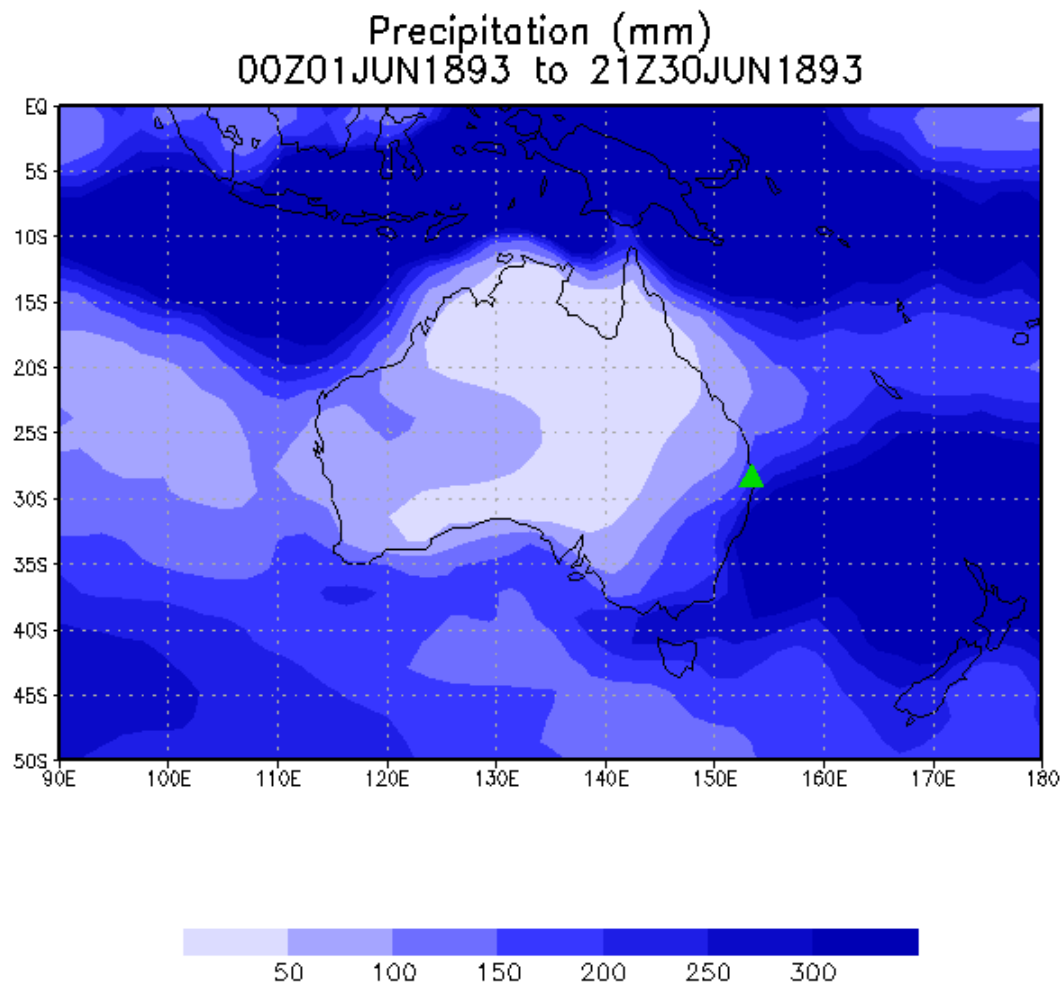
Toowong Total:
67 mm



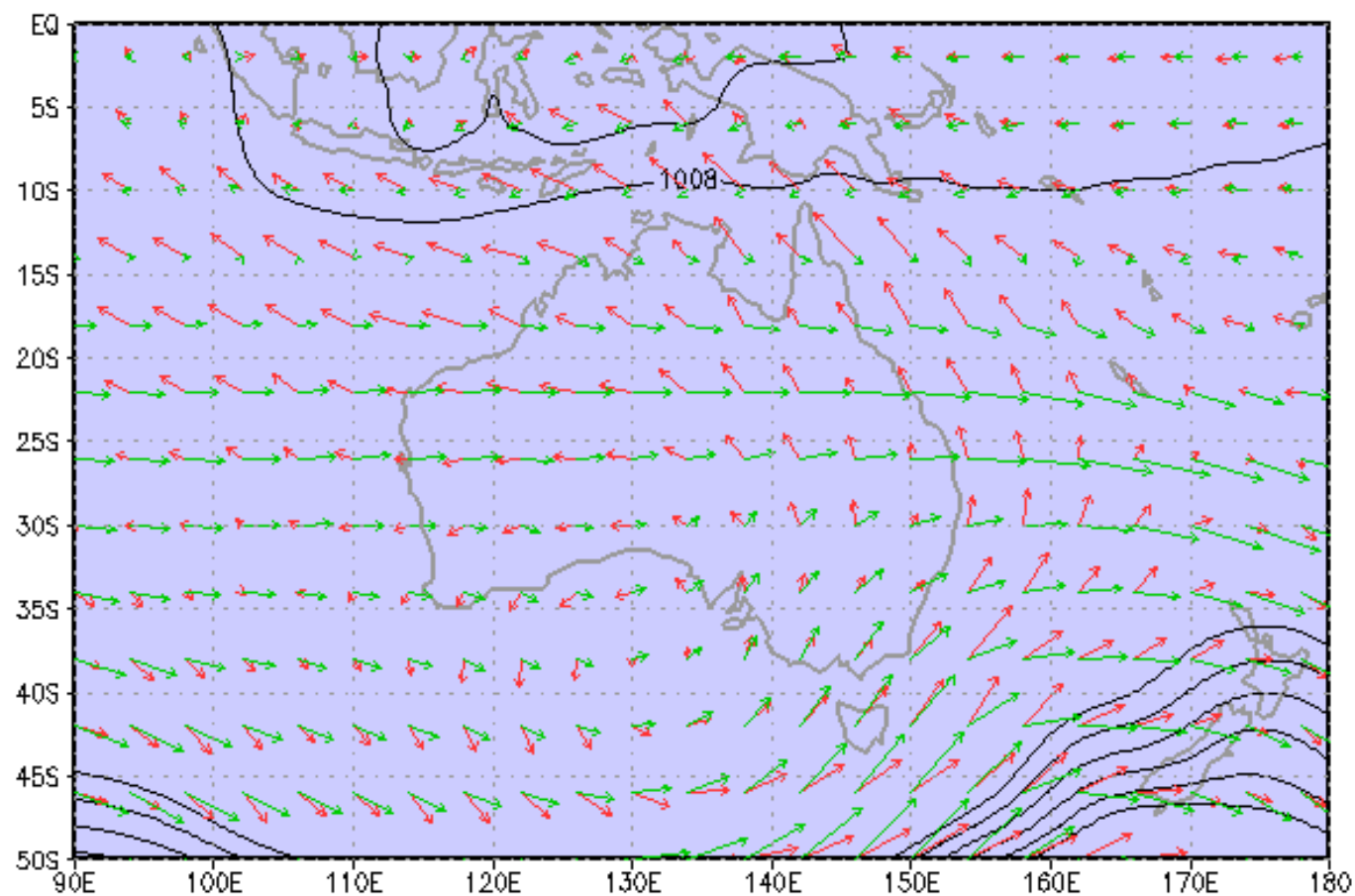
Toowong Total:
70 mm



Toowong Total:
300 mm



Precipitation (mm): Shading;
Wind 1000mb: Red Vector 500mb: Green Vector
06Z04JUN1893



→
30

