

## Factsheet – Tropical Cyclone Hamish, March 2009

### Summary

On Saturday 07 March, TC Hamish became the fourth **'Category 5'** cyclone, in five years, in Queensland waters. The Bureau of Meteorology had issued a number of Top Priority Cyclone Warnings for coastal communities between Cape Melville and Double Island Point from 06 to 10 March 2009.

### Extreme values and events for TC Hamish

- 925 hPa low located 175 km northeast of Mackay.
- Maximum sustained wind speed 215 km/h.
- Maximum wind gust 295 km/h.
- TC Hamish tracked mostly in parallel to the mainland coastline.
- A drifting wave buoy, 'BOB' (Baby Ocean Buoy), was deployed at Hervey Bay on 09 March at 7:30am & recovered on 16 March at 12:30pm.
- 09 March, fishing trawler capsized in the Swains Reef area.
- 11 March, container ship *Pacific Adventurer* lost 31 containers of ammonium nitrate. The falling containers ruptured the ship's fuel tanks.
- Severe TC Hamish threatened to track near a number of offshore Islands, with associated damaging winds, large waves and elevated sea levels. Evacuations of the Whitsunday group of Islands, Heron, Lady Elliott and Fraser Island were organised prior to the potential impact of the system.
- Moderate erosion damage to beaches reported but very minor damage to local infrastructure.

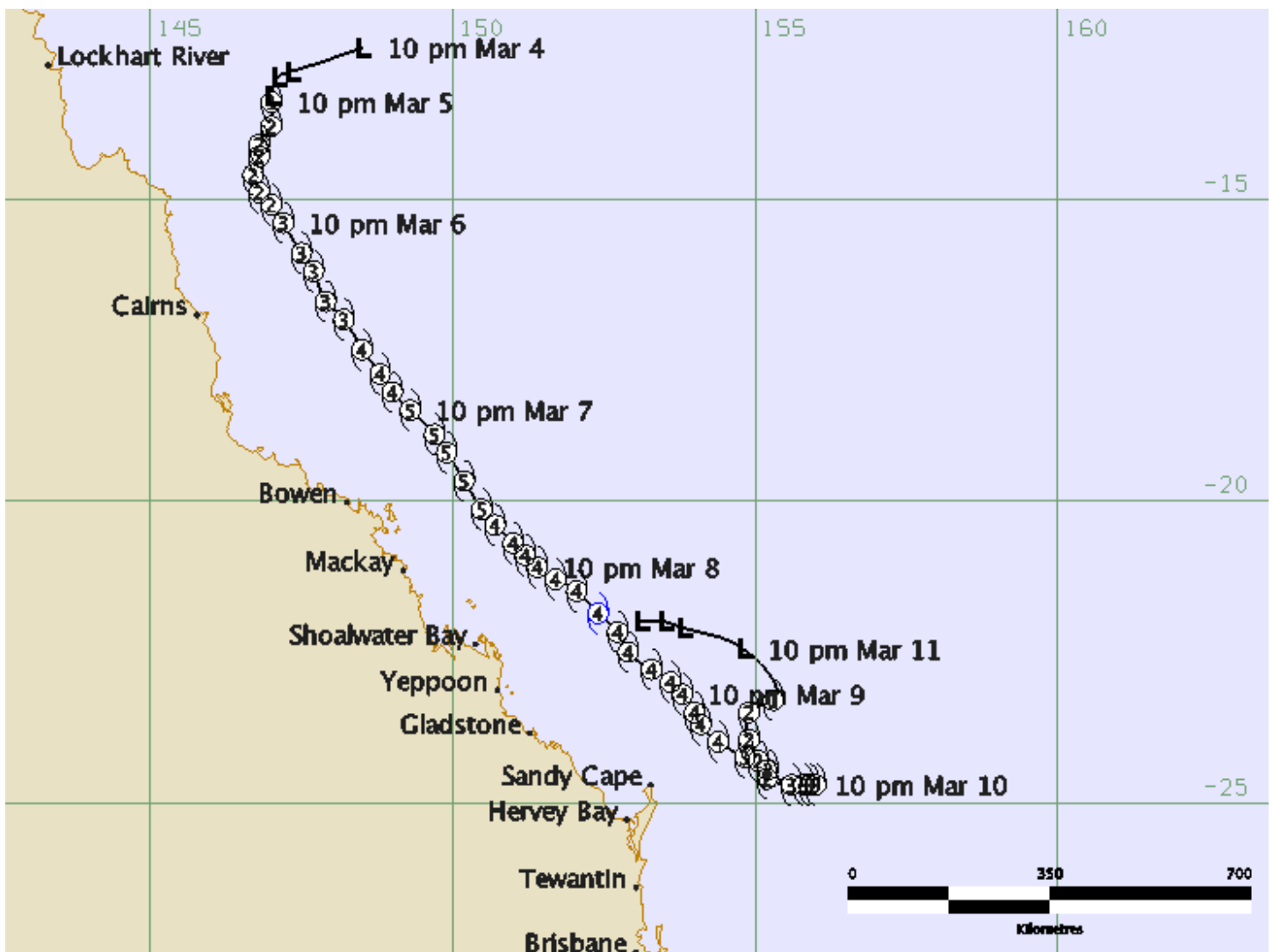


Figure 1 – TC Hamish track map (courtesy of BoM)

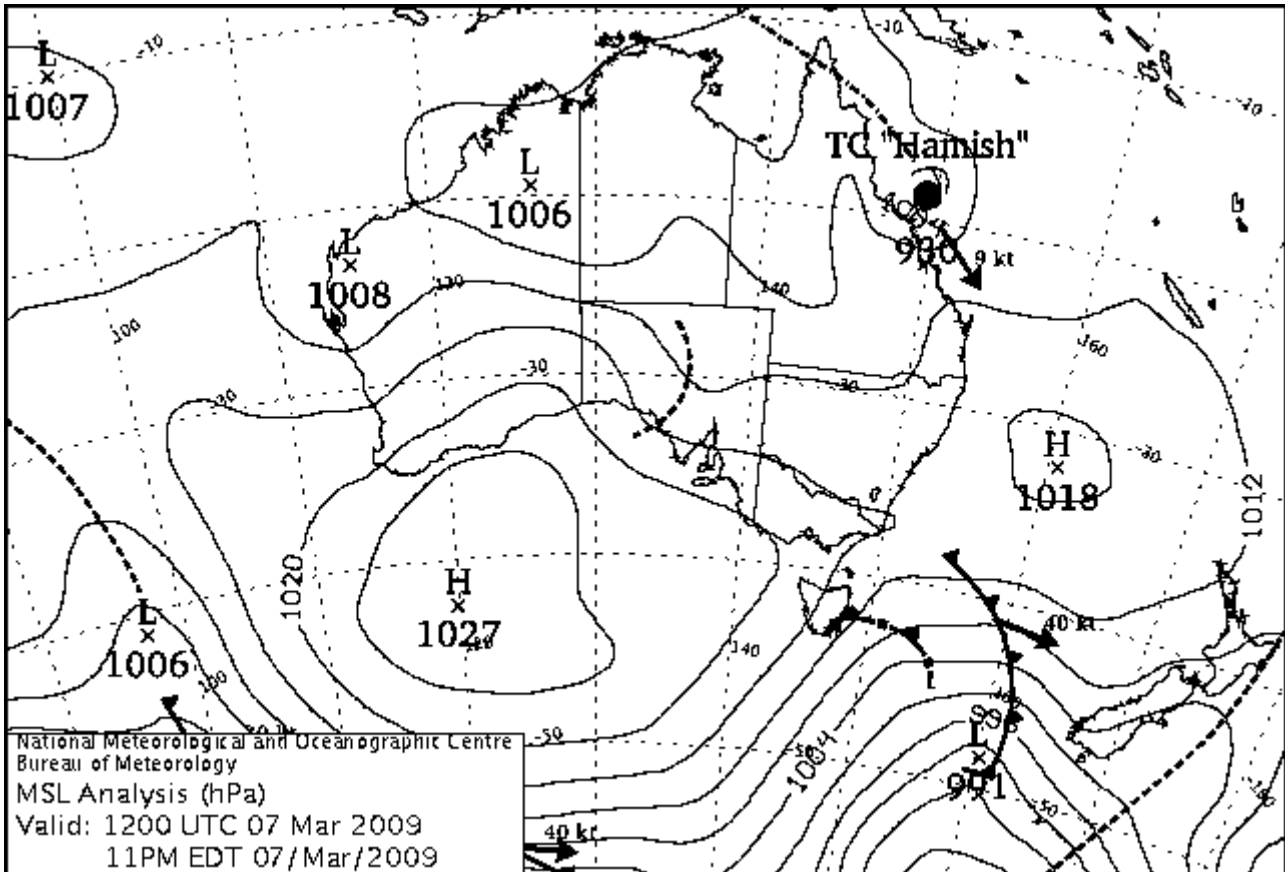


Figure 2 – TC Hamish 07/03/2009 (courtesy of BoM)

### Wave recording

DERM operates a network of wave monitoring stations along the Queensland coastline. Central Queensland has a wave buoy near Emu Park (figure 3). Also a DERM drifting buoy 'BOB' was deployed off the coast at Hervey Bay (figure 3). BOB transmitted wave data back to DERM officers via satellite and this data was provided to the Storm Tide Advisors. For more information about the deployment of BOB during TC Hamish please refer to **DERM's fact sheet "BOB's brush with Hamish"**.

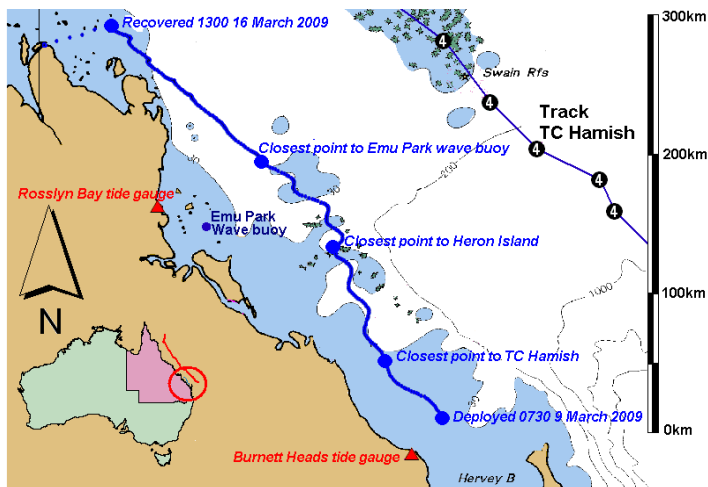


Figure 3 – Drift track of BOB and TC Hamish

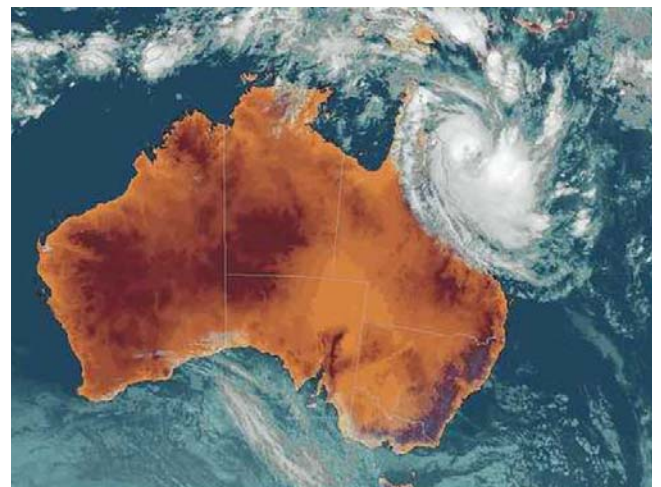
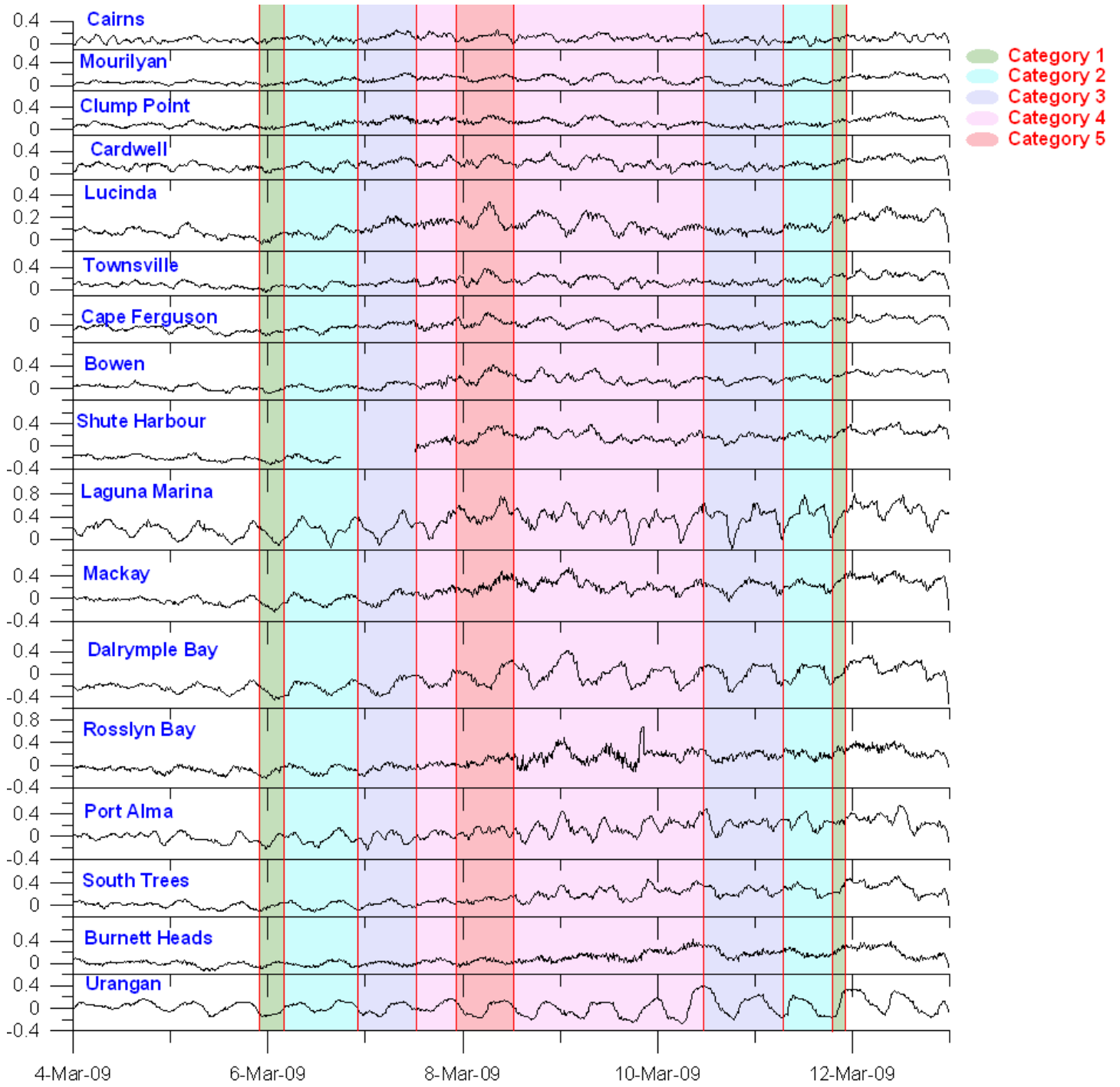
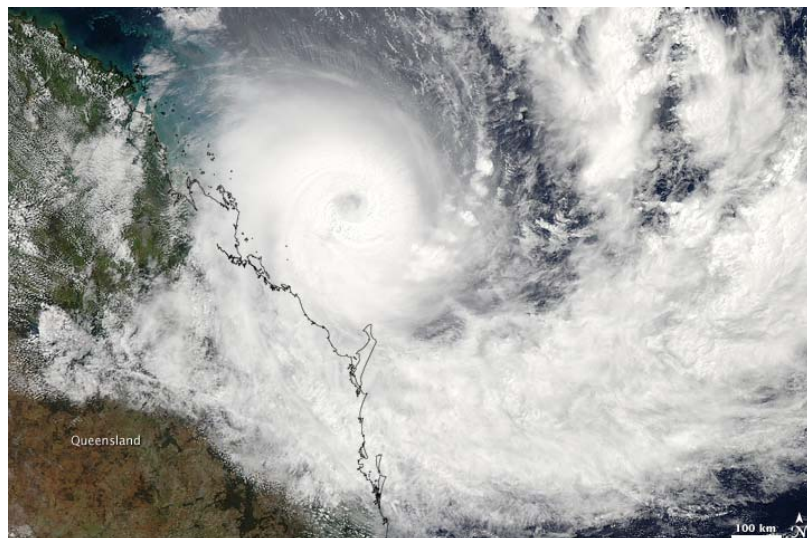


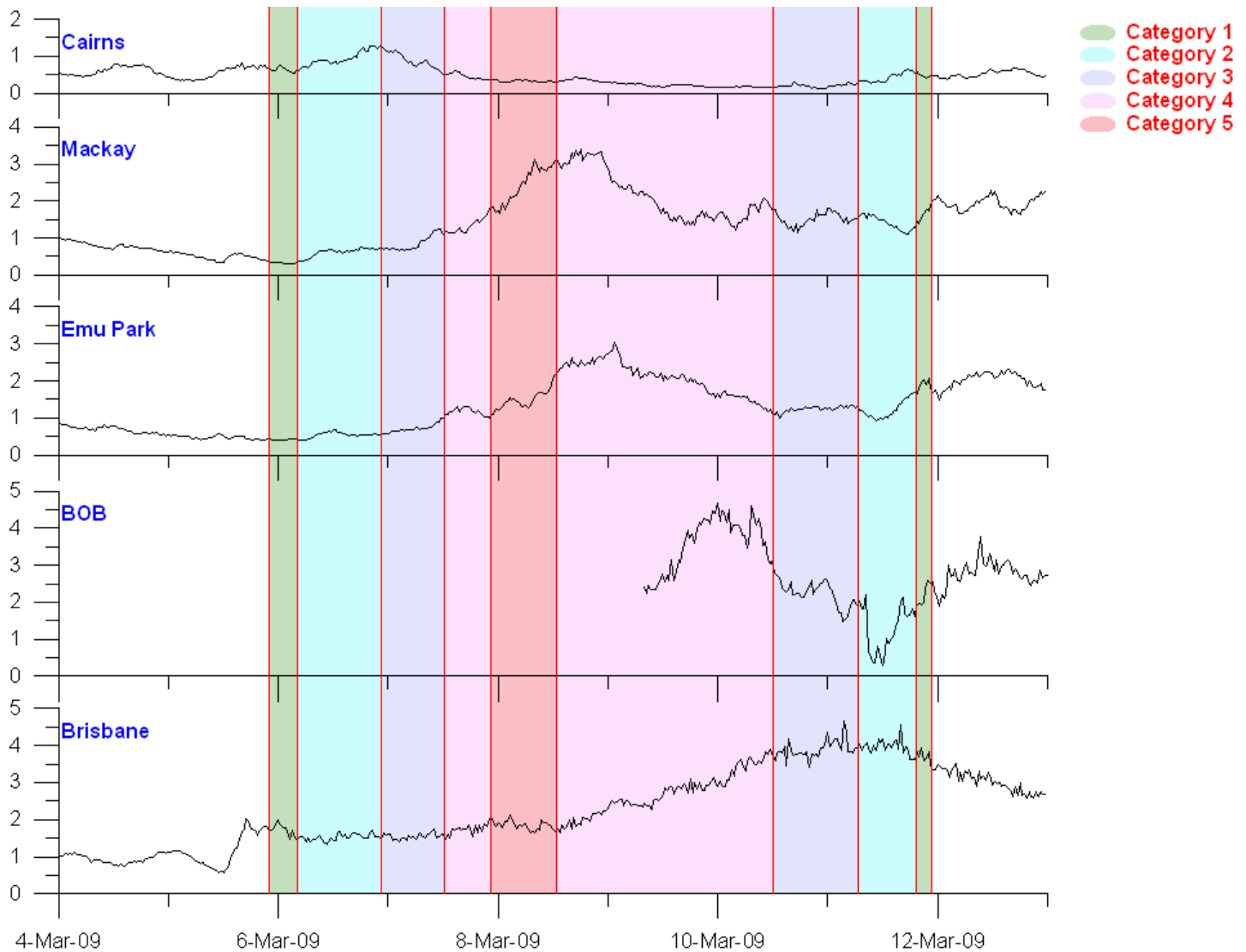
Figure 4 – Satellite image of tropical cyclone Hamish approaching Queensland coast on March 6, 2009 (courtesy of BoM).



**Figure 5 – Time series plots from selected sites, showing sea-surface fluctuations that differ from the normal predicted tides. The highlights show TC Hamish's severity category over the time series plot.**



**Figure 6 – Image captured on 09 March**



**Figure 7 – Significant wave heights (in metres) 4/03/09 to 13/03/09.**  
*The highlights show TC Hamish's severity category over the time series plot.*

## Glossary

- Hsig** The significant wave height (in metres), defined as the average of the highest one third of the zero up-crossing wave heights in a 26.6-minute wave record. This wave height closely approximates the value a person would observe by eye.
- Significant wave heights are the values reported by the Bureau of Meteorology in their forecasts.
- Hmax** The maximum zero up-crossing wave height (in metres) in a 26.6-minute record.
- Tz** The average of the zero up-crossing wave periods (in seconds) in a wave record.
- Tp** Wave period at the peak spectral energy (in seconds). This is an indication of the wave period of those waves that are producing the most energy in a wave record. Depending on the value of  $T_p$ , waves could either be caused by local wind fields (sea) or have come from distant storms and have moved away from their source of generation (swell).
- Direction** The direction that peak wave period ( $T_p$ ) waves are coming from (in ° True North). In other words, where the waves with the most energy in a wave record are coming from.

## DERM Web Sites

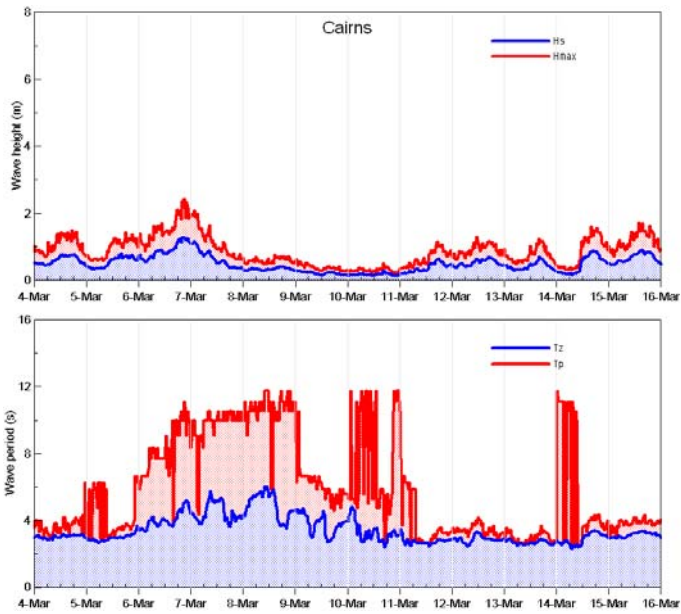
- [www.epa.qld.gov.au/waves](http://www.epa.qld.gov.au/waves)  
[www.epa.qld.gov.au/tides](http://www.epa.qld.gov.au/tides)

### Wave Monitoring Publications -

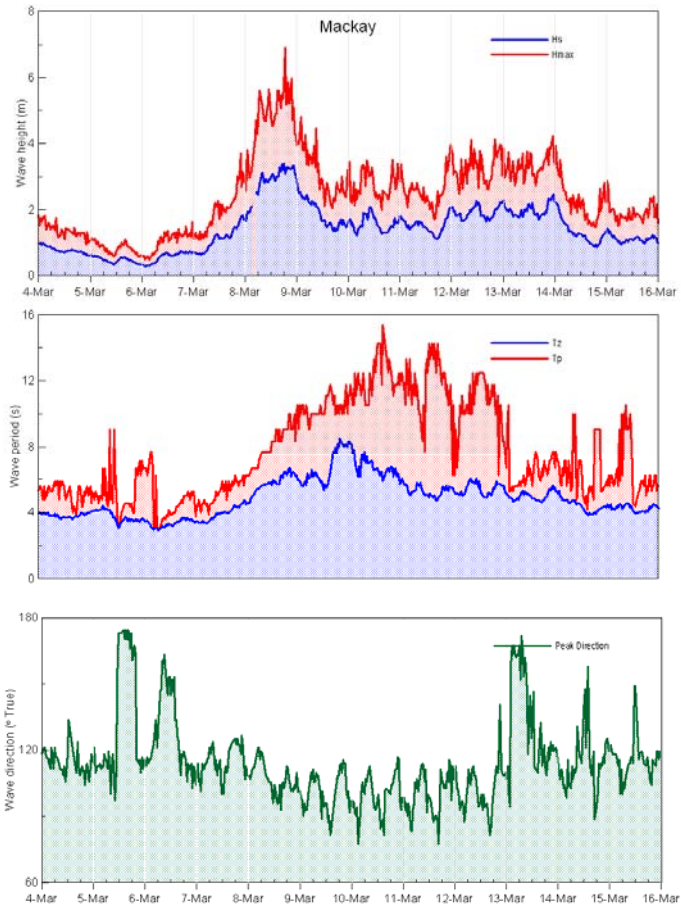
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### Storm Tide Monitoring Publications -

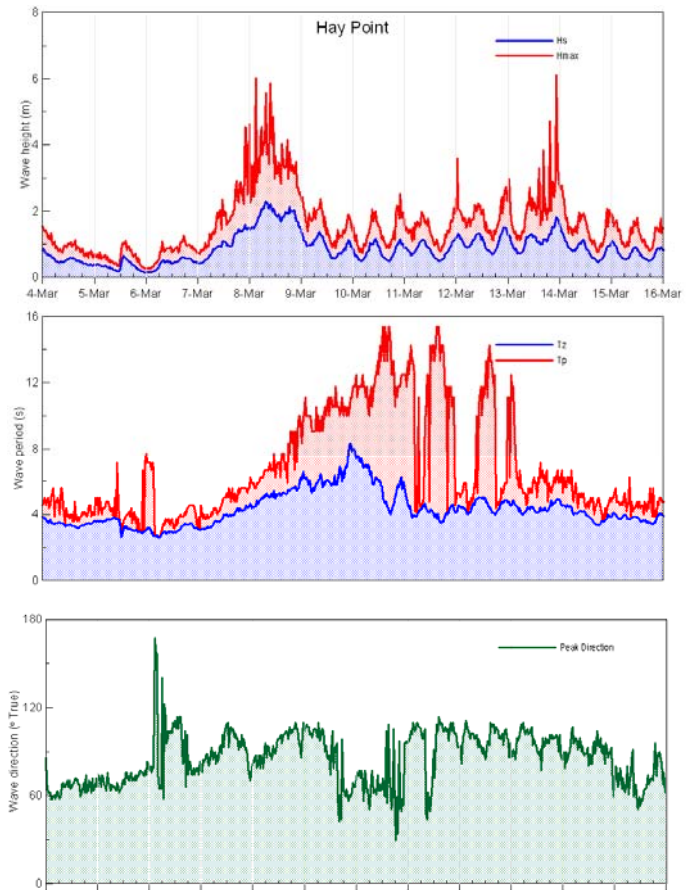
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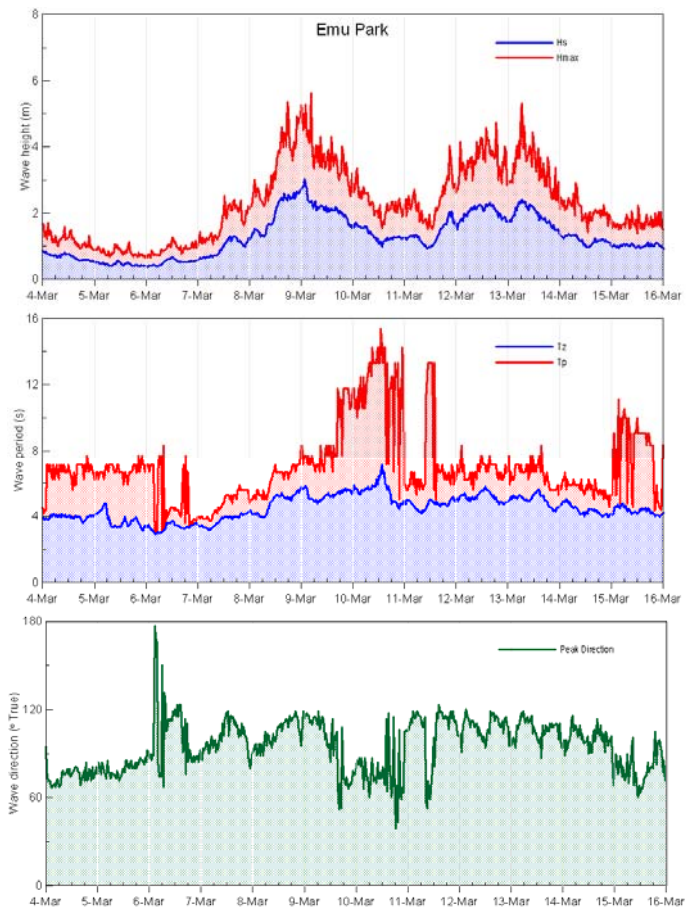
**Figure 8 – Cairns Wave monitoring site.**



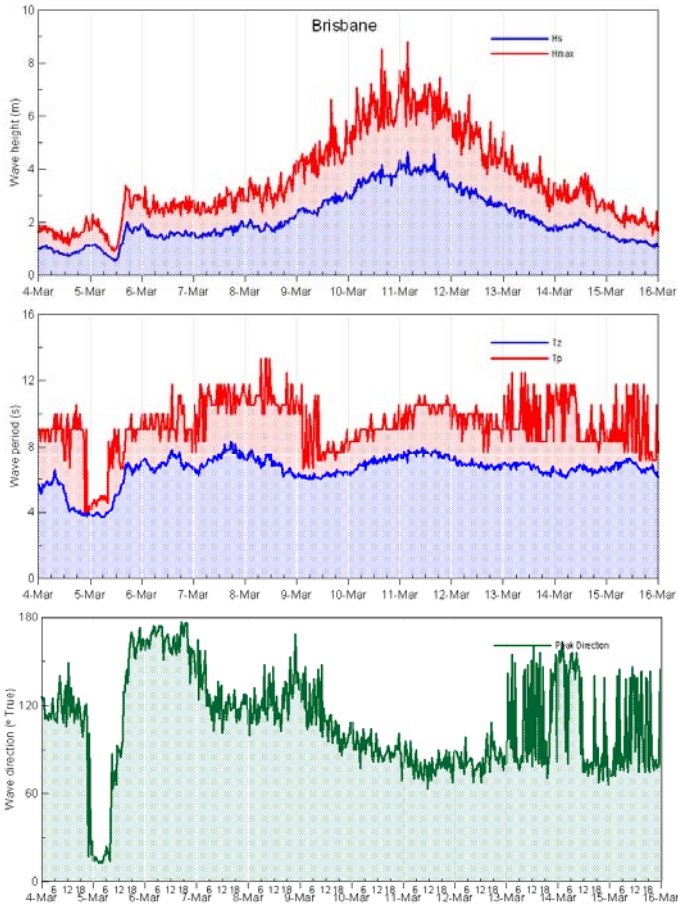
**Figure 9 – Mackay Wave monitoring site.**



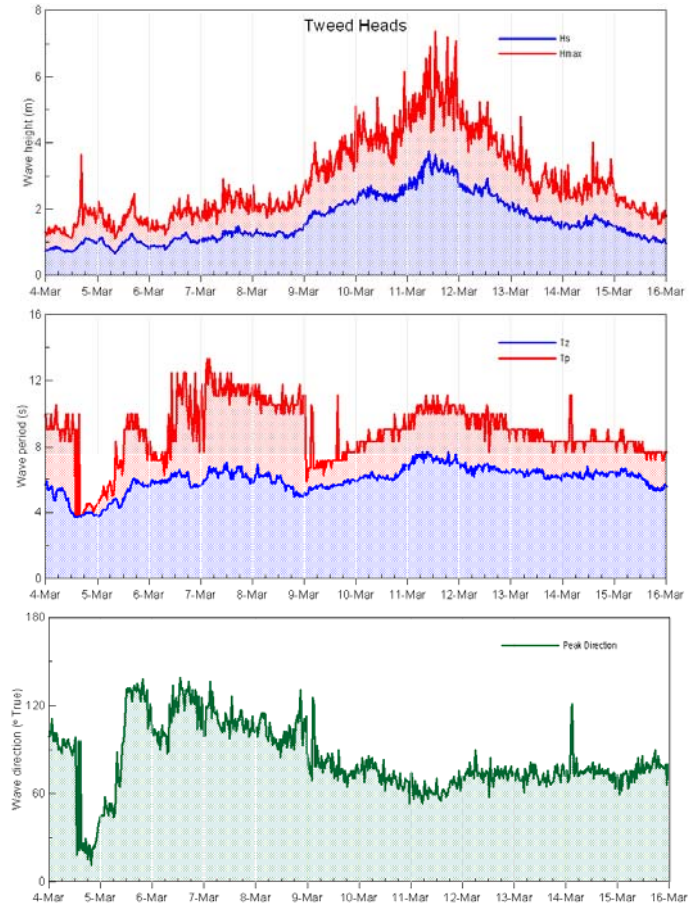
**Figure 10 – Hay Point Wave monitoring site.**



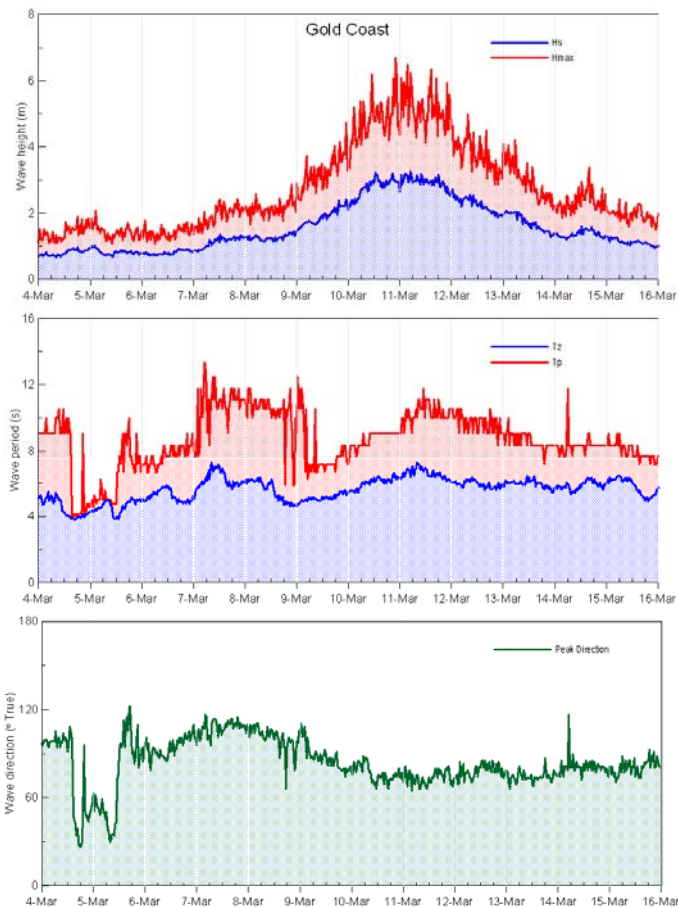
**Figure 11 – Emu Park Wave monitoring site.**



**Figure 12 – Brisbane Wave monitoring site.**

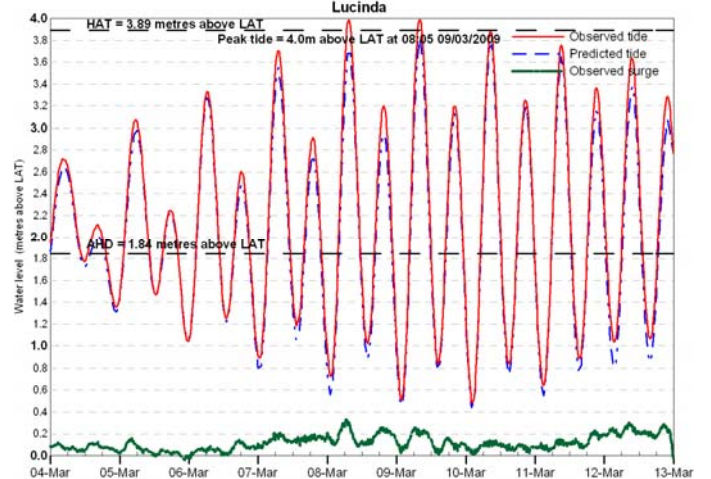
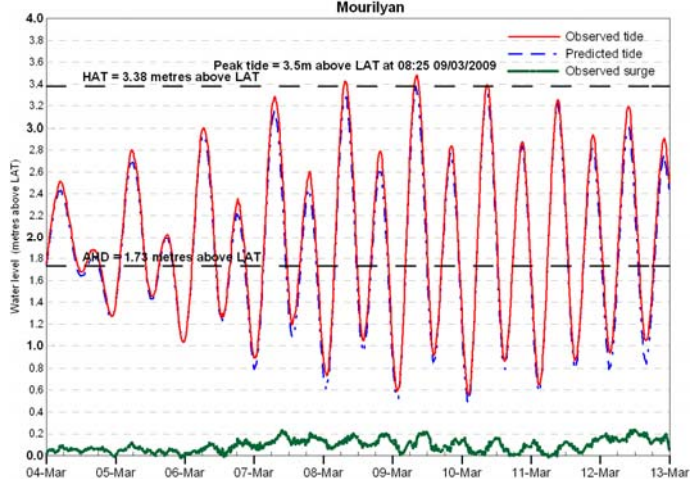
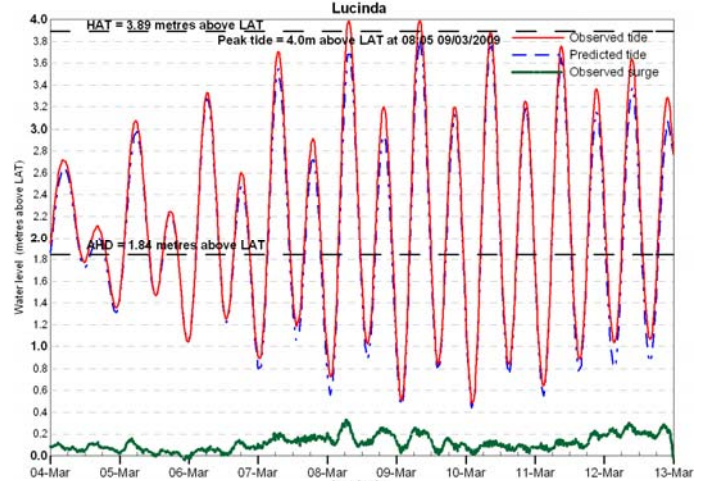
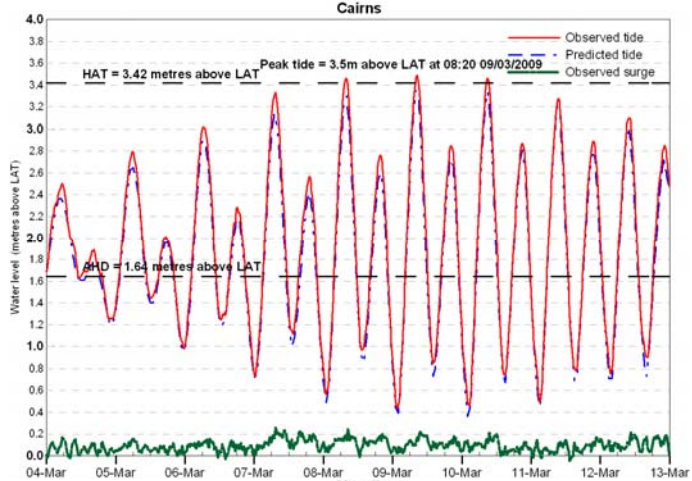
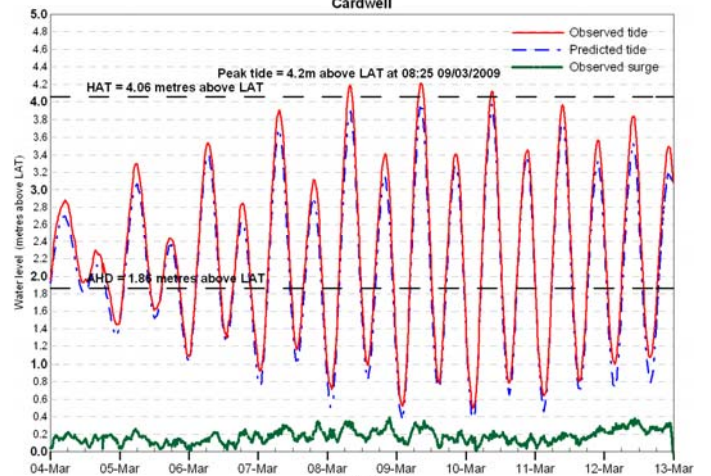
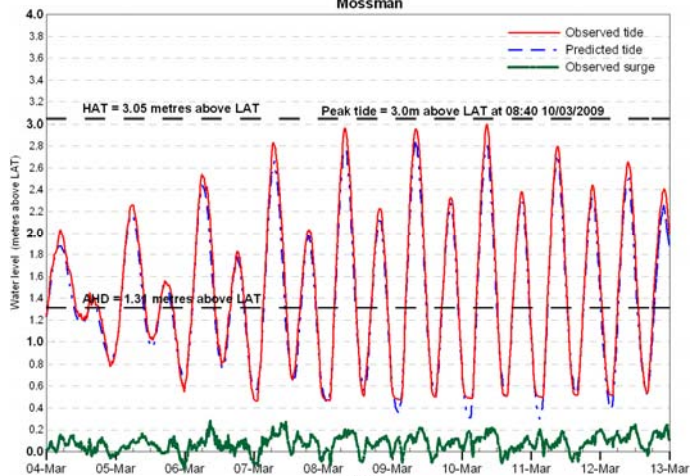
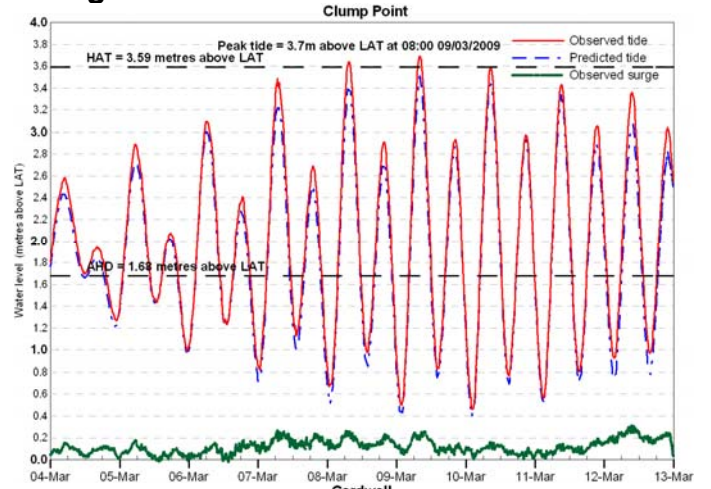
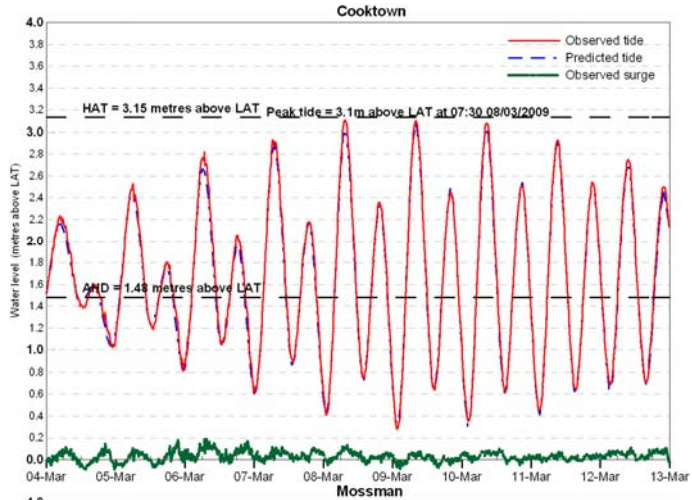


**Figure 14 – Tweed Heads Wave monitoring site.**

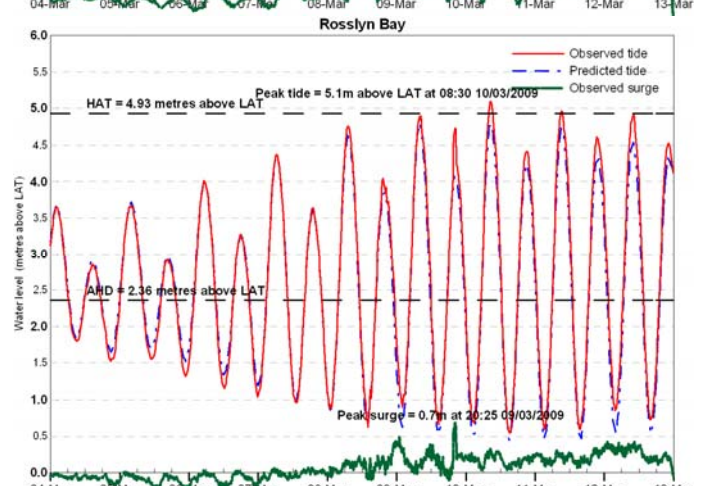
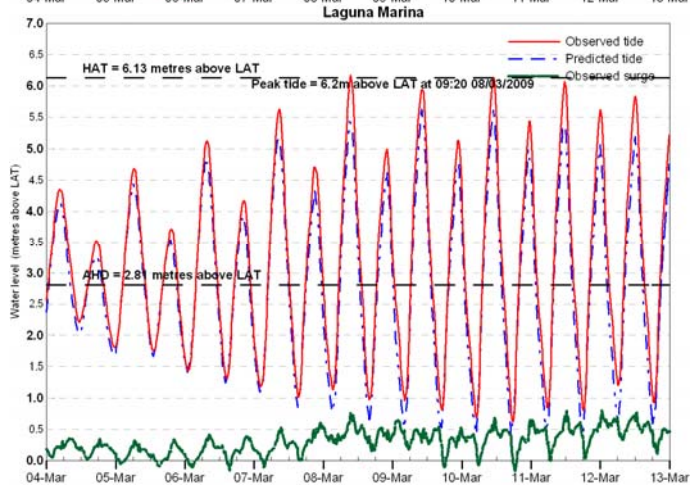
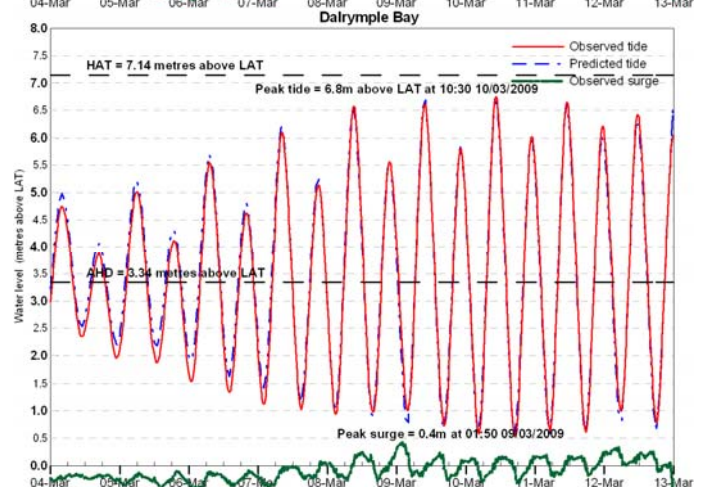
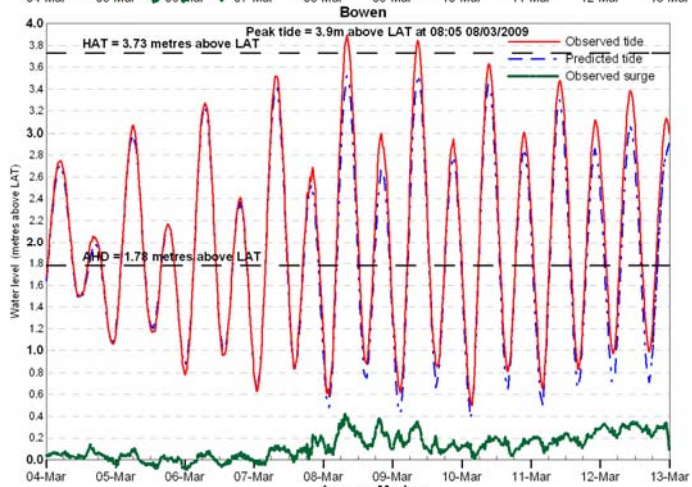
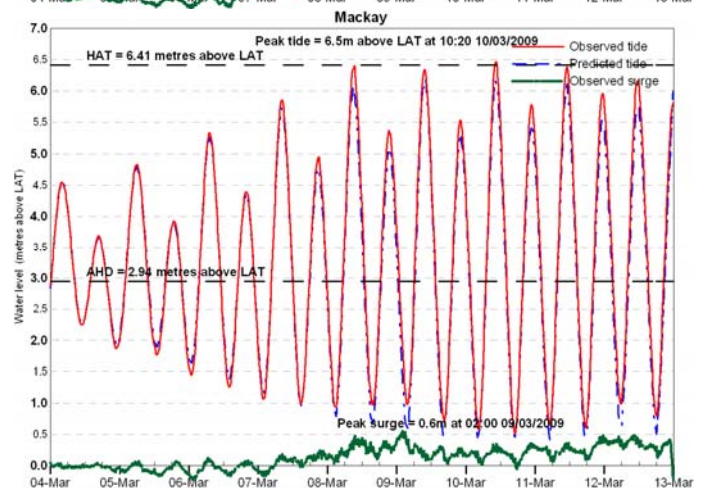
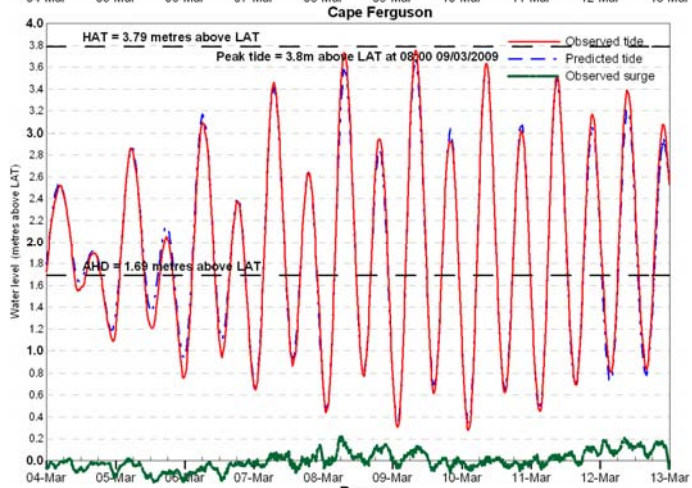
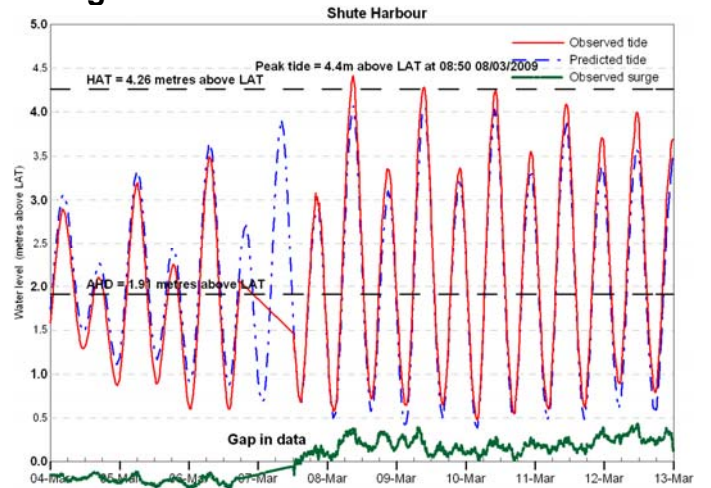
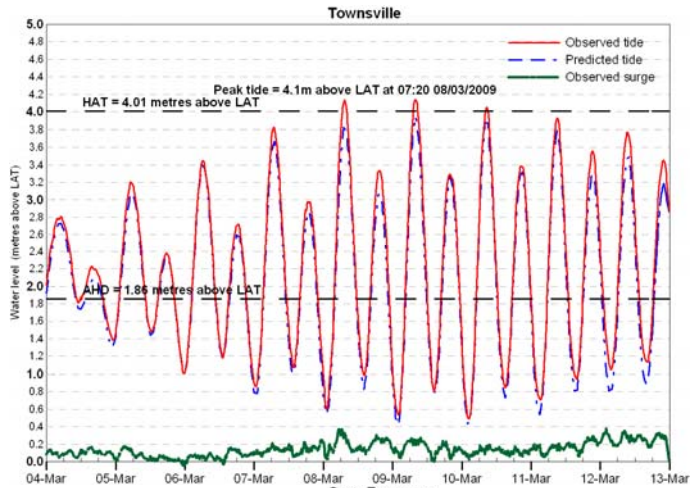


**Figure 13 – Gold Coast Wave monitoring site.**

# Storm Tide Monitoring sites



# Storm Tide Monitoring sites



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