



Tropical Low (10U)
22-26 January 2012

A. Summary

A tropical low pressure system with gale-force monsoonal winds affected the Northern Territory's northwest coast in the days leading up to Australia Day, 26 January 2012. Exposed coastal areas around Darwin experienced a combination of large waves, spring tides and a storm surge, causing significant erosion of cliffs and beaches. There was heavy rain and localised flooding in Darwin and the adjacent rural area, with many trees were felled around Dundee Beach (60 kilometres southwest of Darwin).

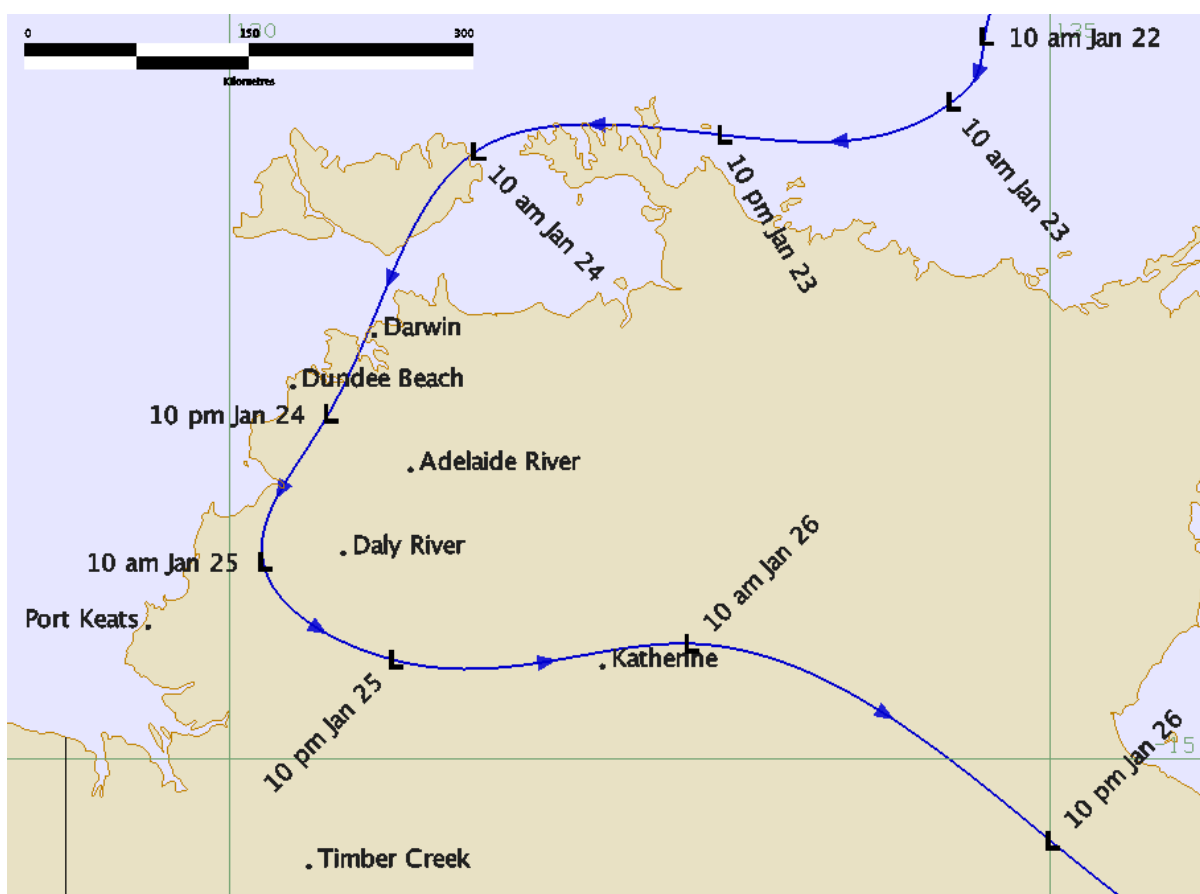


Figure 1. Operational analysis of tropical low (10U), 22-26 January 2012

B. Meteorological Description

An active phase of the North Australian Monsoon commenced during the weekend of 21-22 January, and a tropical low developed in the monsoon trough over the Arafura Sea north of the coast of Arnhem Land. The low moved slowly south and then west during the next few days, as a belt of gale-force monsoonal westerly winds developed to its north. The low moved over Cobourg Peninsula and Melville Island on 23 and 24 January, then turned southward and moved along the west coast of the Top End while remaining over land but deepening slightly. During 25 January the low began to move towards the east, further inland

and passing over Katherine, before moving into the Roper-McArthur (Carpentaria) district on 26 January.

The low deepened to a central pressure of 997 hPa as it passed over the Darwin area, bringing near-gale force winds and very heavy rainfall to the northwest parts of the Top End between 24 and 26 January. The low did not spend sufficient time over the warm waters north of Darwin to develop into a tropical cyclone. However, the long fetch of gale-force monsoonal westerly winds across the Indian Ocean and Timor Sea provided favourable conditions for large swell to affect the western Top End coast.

Severe Weather Warnings for heavy rain, damaging winds, abnormally high tides and large waves were issued for the Darwin-Daly District. Gale Warnings were issued for the Timor and Arafura Seas and Flood Threat Advises were issued for rivers in the Darwin-Daly, Arnhem and Roper-McArthur (Carpentaria) Districts.

C. Impact

The strong winds and heavy rain in Darwin caused the closure of the Territory Wildlife Park and George Brown Botanic Gardens on 26 January and the cancellation of Australia Day commemorative events and entertainment in Darwin. Power outages were reported in rural areas around Darwin due to falling trees and branches and flights in and out of Darwin International Airport were disrupted.

A storm surge, large waves and spring tides combined to produce some inundation above the Highest Astronomical Tide (HAT) level in the northwest Top End. Large waves caused significant coastal erosion in exposed areas around Darwin, with sections of coastal cliffs collapsing at Nightcliff and East Point. At the peak of spring tides on 24 January, waves were breaking over the Nightcliff jetty and wind-blown spray was blanketing the coastal path and road. The sand dunes at the popular night market location of Mindil Beach were severely eroded and required significant repair work.

(Impact information courtesy of the NT News)

D. Observations

Wind

The strongest wind gust recorded was 93 kilometres per hour (km/h) at Darwin Airport at 5:50 am ACST 25 January.

The lowest pressure recorded was 997.4 hPa at Darwin Airport at 3 pm ACST 25 January.

Rainfall

New 24-hour rainfall records were set at Stokes Hill Wharf in Darwin Harbour with 229 mm to 9 am ACST 25 January and at Mallapunya in the Roper-McArthur district with 287 mm to 9 am ACST 27 January.

Other significant 24-hour rainfalls were recorded to 9am ACST on:

- 25 January - 210 mm at Point Fawcett, 178 mm at Darwin Airport, 170 mm at Geriatric Park, 166 mm at Leanyer, 161 mm at Dum In Mirrie Island (Darwin-Daly District);
- 26 January - 195 mm at Channel Point (Daly District);
- 27 January - 220 mm at Baileys Grave and 194 mm at Favenc Ridge (Roper-McArthur/Carpentaria District).

E. Storm Surge

Spring tides were predicted from 24 to 26 January, reaching a peak of 7.69 metres at 8 pm ACST on 25 January, just 0.31 metres below the HAT level in Darwin (AANT tide tables). A storm surge caused by the gale-force onshore winds and low atmospheric pressure was measured at Darwin's Fort Hill Wharf between 0.4 and 0.6 metres above the predicted tide level between the evening of 24 January and the morning of 26 January. The storm surge combined with the spring tides caused the sea level to exceed HAT and inundate areas not normally affected by wave action. Large swells up to 2 metres caused the coastal erosion effects seen at Nightcliff, East Point and Mindil Beach.

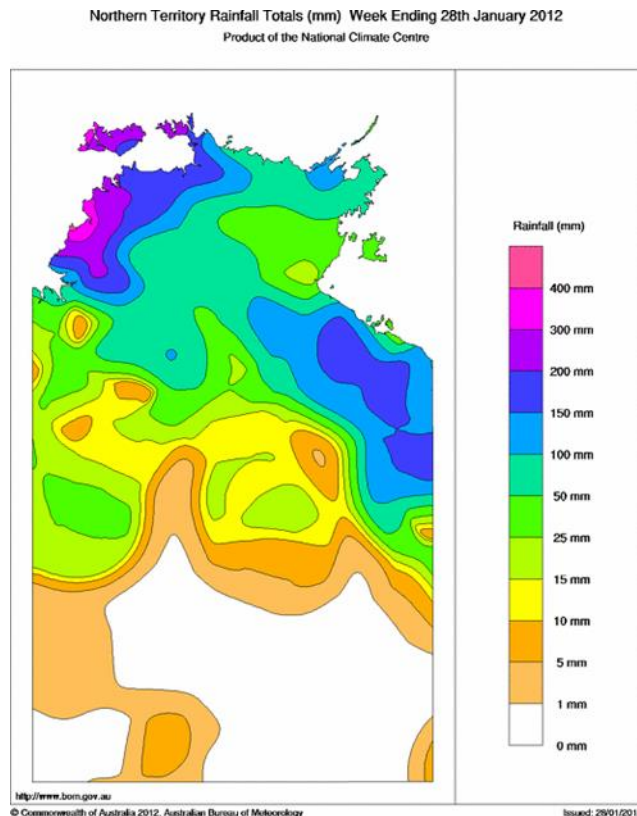


Figure 2. Rainfall totals for the week ending 28 January 2012.

FORT HILL WHARF, DARWIN, NORTHERN TERRITORY - LAST 7 DAYS

LAT 12° 28' 18.4" S LONG 130° 50' 45.1" E

ONE MINUTE RESIDUALS TO 23:08 29 JAN 2012 UTC

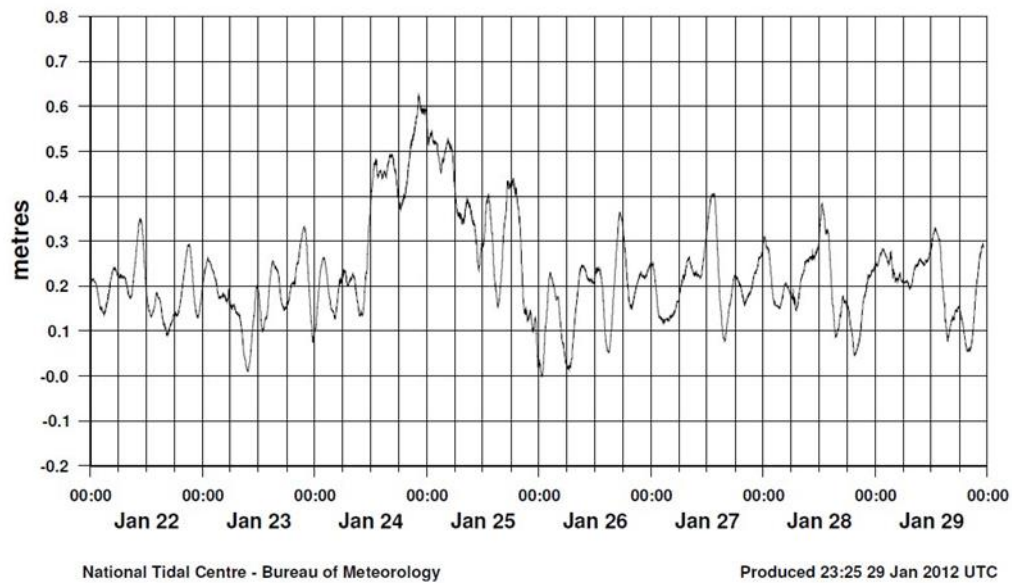


Figure 3. Tidal anomaly graph from Fort Hill Wharf, Darwin Harbour, 22-29 January 2012.