

Tropical Cyclone Maud 28/01/1973 - 31/01/1973

(i) General

“Maud” was the fifth cyclone of the season and the third to develop near the Western Australian coast. The cyclone’s whole life was spent over tropical waters yet it was an organised storm for only four days. After “Maud” filled synoptic conditions apparently did not favour development of tropical cyclones for over a month, the next development in this region being early in March. “Maud” was a cyclone of moderate intensity with reported winds of 93 km/h during its most intense period. No damage was reported; however the operations of the oil rigs drilling on the North-West Shelf were interrupted for about one day.

(ii) Development

Prior to the development of cyclone “Maud” a broad low pressure area covered the entire tropical region of Western Australia. Within this zone a distinct low pressure cell had been present near Troughton Island for some days. On 27th January this depression began to move in a generally southwesterly direction and in doing so moved partly overland. By 280100 GMT the depression was located close to Adele Island some 210 km north of Derby. During this period the central pressure of the system had varied only a little, but subsequently the low deepened and became a tropical cyclone of moderate intensity on 29th January.

The value of the first anticyclonically curved isobar outside the mature cyclone was 1000 mb on 20th January.

(iii) Features of the Track (fig. 5.1)

“Maud” had a lifetime of four days and travelled a distance of about 450 km. In the circumstances of its development and decay the track of cyclone “Maud” showed no unusual features.

A low pressure system which was present near Adele on 28th January moved southwest at about 11 km/h. It developed rapidly becoming a tropical cyclone of moderate intensity by 29th January. Thereafter its track became more westerly and its speeds decreased to about 4 km/h. By 30th January the system was virtually stationary and weakening.

An increase in surface pressures associated with a new cell of high pressure in the Great Australian Bight had occurred as far north as Port Hedland by 282300 GMT. The resultant easterly flow over the north western parts of Australia persisted for several days during which time the track taken by “Maud” showed a constant westerly component.

(iv) Rainfall

Although cyclone “Maud” did not cross the coast at any time it did cause rain at most places in the West Kimberley, De Grey and Fortescue.

The cumulative isohyets for the period 27th January to 1st February are displayed in Fig 5.2. The readings used were taken at 0900 WST. As can be seen from the map, the

greatest rainfall occurred near the coast and on northern slopes of the ranges in the Pilbara.

High daily rainfall totals occurred throughout the entire period in the coastal areas north of Broome whereas stations in the De Grey and Fortescue received most of their totals on one or two days. The strong westerly monsoonal flow to the north of the cyclone no doubt influenced the distribution.

(v) Winds

“Maud” formed near several shipping lanes used by the State Shipping Service and by ore carries on the route between the Pilbara and Japan. Thus ship reports added to the knowledge of this cyclone especially in its early stages. In the later stages ship reports were still available but at a greater distance from the centre. Selected ship reports are noted in Table 5.1. The first gale force wind mentioned was that the “Smit Lloyd” at 290257 GMT. At that time the ship registered a pressure of 997.5 mb and was located 80 km southwest of the centre. Winds near this ship increased to storm force by 290600 GMT when it was 40 km from the cyclone centre on a bearing of 130 degrees. Thereafter gales were experienced by other ships in both the northern and southern sectors. A strong westerly monsoonal flow northwards of the centre increased the areal extent of stronger winds with westerly components.

After 291200 GMT no winds exceeding Force 7 were reported from any ship within 500 km of the cyclone.

Apart from winds of 46 km/h at the exposed coastal station at Cape Laveque on 29th January winds reported from land stations did not exceed 37 km/h.

In summary, “Maud” was a cyclone of moderate intensity with maximum reported winds of 93 km/h during its most intense period.

(vi) Sea and Swell

A list of selected ship reports noting sea and swell conditions is given in Table 5.1. Rough seas and a moderate to heavy swell were reported by ships within 100 km of the centre on 29th January. During the next two days the swell remained moderate but the seas decreased. Of the quantitative reports the highest sea was 2 m with an accompanying swell of 4 m. This was reported by the “Smit Lloyd” at 291200 GMT.

(vii) Damage

Several ships experienced winds of gale force or greater but no reports of damage were received.

Man-hours were lost for approximately one day on the oil rigs operating on the Northwest Shelf as evacuation procedures were undertaken, however cyclone “Maud” filled before reaching the drilling locations and no actual damage was sustained.

Rain associated with the cyclone delayed repair work on the roads of the Northwest damaged by cyclone “Kerry” one week previously.

(viii) Satellite Photograph Analysis

Interpretation of the movement and developmental stages of cyclone “Maud” were aided by regular photographs from ESSA 8 and NOAA 2. Data from ESSA 8 photographs is shown in Table 5.2.

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The minimum sea level pressures tabulated in Table 5.2 are those derived using the Current Intensity Number in Dvorak’s technique and the empirical relationships for the North Pacific region. The pressures in brackets indicate those estimated from surface reports. In general the estimated pressure is lower than that of derived using Dvorak’s technique.

(ix) Radar Observations

The cyclone centre was out of range of the radar at Port Hedland however, cloud bands were observed on the radar from 291535 to 301720 GMT.

Table 5.1 Selected Ship Reports

Ship	Pos. °S °E	Date/ Time GMT	Bearing/ Distance From centre (km)	Wind (km/h)	Sea (m)	Swell	Weather	Pressure (mb)
Smit Lloyd	18.4 120.5	290257	220/ 80	120/ 69	Rough		Rain squalls	997.5
Smit Lloyd	18.2 121.2	290600	140/ 40	070/111		ENE 3		993
Australia Maru	17.2 120.2	290900	320/110	290/ 69	1	SW	Moderate cont rain	997.2
Mount Eden	18.5 119.5	291000	220/150	200/ 69	Rough Mod.	Mod.	Heavy cont rain	998.9
Mount Eden	19.2 119.2	291300	220/200	180/ 56	Rough		Light intermit rain	999.1

Table 5.1 Data from the Satellite Photographs

Satellite Name	Orbit Number	Date/Time (GMT)	Estimated posn. of centre °S	Estimated posn. of centre °E	Final T No.	Min. Sea Level Pressure (mb)
ESSA 8	18886	280219	15.5	123.0	1.5	1004 (1002)*
	18898	290121	17.8	121.3	2	1001 (996)
	18911	300206	18.0	120.7	2.5	997 (992)
	18923	310102	18.0	120.2	1.5	997 (996)

*Estimates of central pressure using surface reports