



TROPICAL CYCLONE REPORT

Tropical Depression CHEDENG 17 – 19 March 2019

Tropical Depression (TD) CHEDENG is the 3rd tropical cyclone (TC) in 2019 that entered the Philippine Area of Responsibility (PAR) and the only TC for the month of March. CHEDENG remained inside the PAR from 17 to 19 March. Although it is considered a weak TC, it brought moderate to heavy rains over most parts of Caraga and Davao Region. After its landfall, it weakened into a low pressure area (LPA).

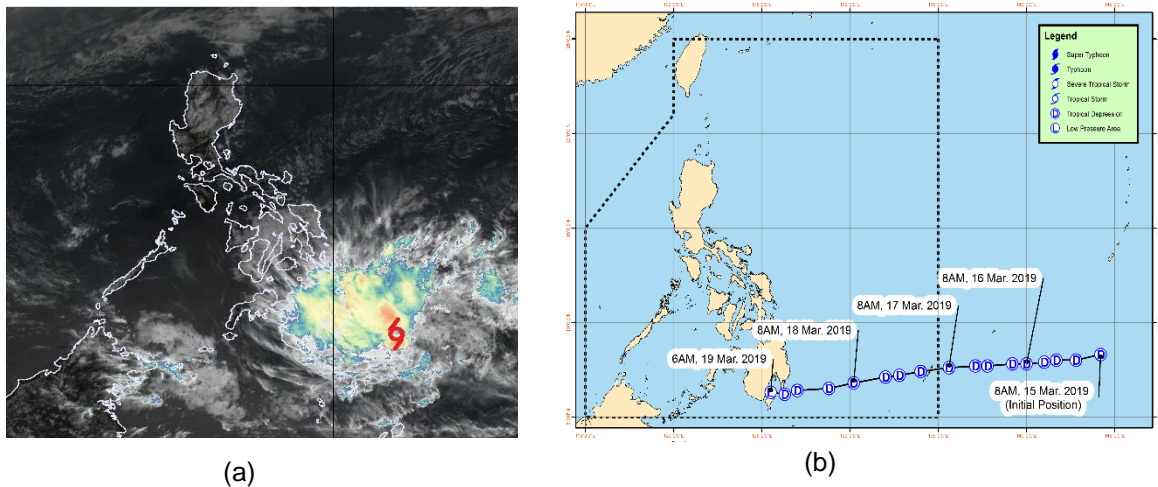
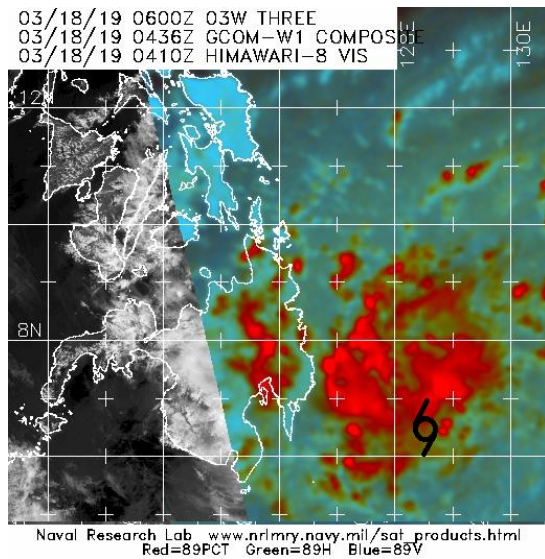


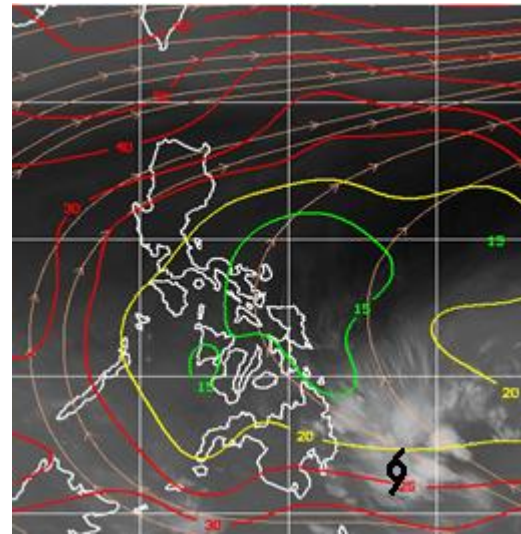
Figure 1. (a) Enhanced infrared - visible composite image. The low level circulation of CHEDENG is depicted by a red marked cyclone symbol. (b) DOST-PAGASA warning best track of tropical depression of CHEDENG.

Meteorological History

CHEDENG developed from a tropical disturbance along a wave or inverted trough in the vicinity of Caroline Islands in the Central Pacific. It was first noted as LPA on the surface weather map in the afternoon of 14 March. On the next day at 8:00 AM, it developed into TD with an estimated maximum sustained winds of 45 km/h and central pressure of 1006 hPa. It entered the PAR at 11:00 AM of 17 March (Fig. 1b) while it moved generally westward. CHEDENG is a small and disorganized system with weak flaring convection sheared to the northwest and shallow rainbands spiraling into obscured low-level circulation (Fig. 2a). Strong vertical wind shear and strong divergence due to strong southeasterly upper level flow (Fig. 2b) prevented it from further developing. From a westward track, CHEDENG changed its course to generally west-southwestward before it made landfall over Malita, Davao Occidental at around 5:00 AM of 19 March. Shortly after its landfall, the TD weakened into an LPA due to land interaction and lack of moisture.



(a)



(b)

Figure 2. (a) GCOM-W1 89GHz composite microwave image at 9:36 AM of 18 March. The low level circulation of CHEDENG is depicted by a cyclone symbol. The red and blue-green cloud signatures indicate deep convective and low-level clouds, respectively. (b) Satellite-derived vertical wind shear magnitude and direction at 8:00 AM of 18 March. The green, yellow and red represents respectively, favorable, neutral and unfavorable vertical wind shear area for TC formation or intensification. The direction of the wind shear is shown by the pink streamlines.

Significant Meteorological Observations

Even though weak in nature in terms of maximum winds, CHEDENG brought moderate to heavy rains over Caraga and Davao Region. During the TC passage, 18 March was the wettest day. Figure 3b shows that Hinatuan, Surigao del Sur recorded 121.1 mm of rainfall on 18 March which was the highest recorded 24-hr rainfall accumulation during the passage. On the following day, as it moved closer to Davao Region, the highest recorded rainfall accumulation (Fig. 3b) was recorded in Surigao City. In figure 3a, the highest 3-day accumulated rainfall was observed in Hinatuan, Surigao del Sur (174.2 mm) and the second highest was in Davao City (110.9 mm).

Reports from synoptic weather stations (Table 1) show that Cotabato City recorded the lowest mean sea level pressure during the passage of CHEDENG, reaching 1006.6 hPa at 5:00 AM on 19 March. Wind gust of 40 km/h was recorded in Hinatuan, Surigao del Sur at 1:00 PM on 18 March.

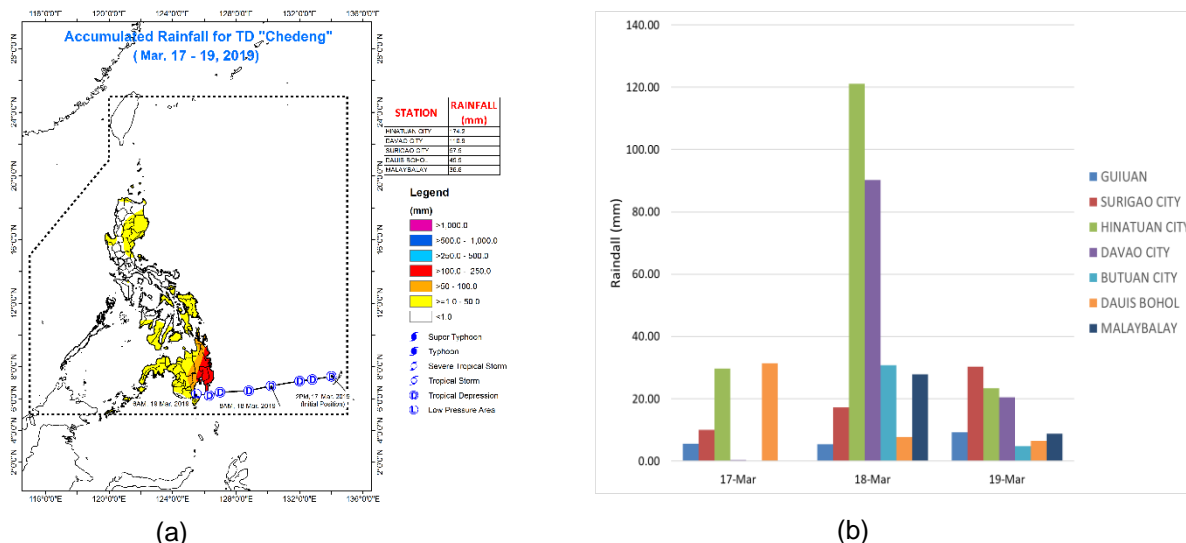


Figure 3. Accumulated 24-h rainfall (mm) during the period 17-19 March 2019 during the passage of TD CHEDENG (a) Spatial distribution of rainfall. (b) Daily 24-h rainfall from selected weather stations in Visayas and Mindanao.

Table 1. Selected surface observations for TD CHEDENG

Station Name	Lowest Minimum Sea Level Pressure (MSLP)		Peak Gust		
	Date and Time	Pressure (hPa)	Date and Time	Direction	Gust (km/h)
Hinatuan, Surigao del Sur	19 Mar, 5:00 AM	1008.2	18 Mar, 1:00 PM	NE	40
Davao City	19 Mar, 3:00 AM	1008.9	-	-	-
Malaybalay, Bukidnon	19 Mar, 2:00 AM	1009.0	-	-	-
General Santos City	19 Mar, 4:00 AM	1008.9	-	-	-
Cotabato City	19 Mar, 5:00 AM	1006.6	-	-	-

Warning Information

A total of nineteen (19) domestic information, in the form of eleven (11) severe weather bulletins (SWB) and eight (8) tropical cyclone warning for shipping (TCWS) were issued. The first SWB was issued on 17 March at 5:00 PM and the first warning was raised over Davao Oriental. A total of 12 provinces were placed under Tropical Cyclone Warning Signal (TCWS) #1 during the passage of TD CHEDENG. The last warning signal was lifted at 8:00 AM of 19 March.

Preliminary Damage Statistics

As of 22 March 2019, the National Disaster and Risk Reduction and Management Council (NDRRMC) reported approximately ₱ 1.2 million total cost of damages incurred from damaged roads and bridges in Region XI.

Note: All dates and times presented in this report are in Philippine Standard Time or PhST (UTC+8).

Disclaimer

This report presents a summary of pertinent information obtained during the **operational warning** period. As such, the information presented herein is intended for the general public, not final and subject to change when additional data becomes available.