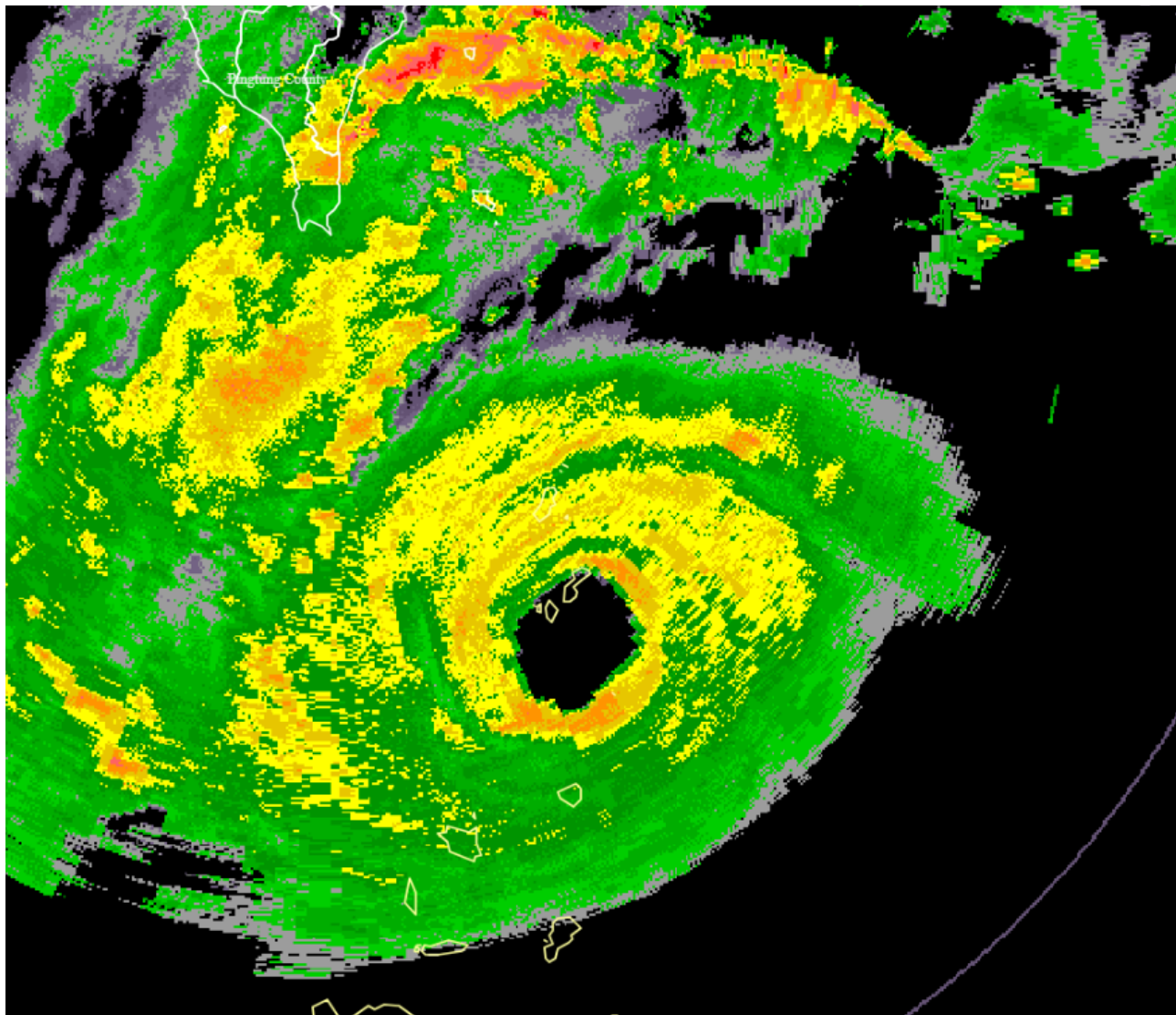




## TROPICAL CYCLONE PRELIMINARY REPORT

**Super Typhoon JULIAN**  
KRATHON (2418)

26 September to  
04 October 2024



**Fig. 1.** Weather radar imagery of Super Typhoon JULIAN at 0100 UTC on 30 September 2024 when most of Batanes Province went inside the eye. Image courtesy of the Central Weather Administration of Taiwan.

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Date Published: 31 December 2024

Last Revision: 08 May 2025 (Rev.2)

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## Summary of Meteorological History

Based on PAGASA preliminary best track<sup>1</sup> position and intensities

First tracked as a low pressure area	0000 UTC, 26 September 2024 Over the Philippine Sea SE of Okinawa Islands, Japan
Developed into a tropical cyclone	1200 UTC, 26 September 2024 Over the Philippine Sea E of Taitung County, Taiwan 590 km ENE of Itbayat, Batanes (21.8°N, 127.4°E)
Weakened into a remnant low or transitioned into a post-tropical low	0000 UTC, 04 October 2024 Over the Taiwan Strait off the coast of Pingtung County, Taiwan 225 km NW of Itbayat, Batanes (22.1°N, 120.2°E)
Peak intensity (lifetime <sup>2</sup> )	105 kt (195 km/h), 920 hPa, Super Typhoon 0000 UTC, 01 October 2024
Period of occurrence (lifetime)	7 days and 12 hours
Entered the PAR region (as tropical cyclone)	Initial entry: Not applicable (developed within the PAR region) Re-entry: 0000 UTC, 03 October 2024
Exited the PAR region (as tropical cyclone)	Initial exit: 0020 UTC, 01 October 2024 Final exit: Not applicable (did not exit the PAR region again)
Peak intensity (within the PAR)	105 kt (195 km/h), 920 hPa, Super Typhoon 0000 UTC, 01 October 2024
Period of occurrence (within the PAR)	7 days and 12 hours <sup>3</sup>
Observed landfalls in the Philippines	None

<sup>1</sup> With preliminary best track as reference, the information provided in this report may be different from those reported during the warning period of the subject tropical cyclone.

<sup>2</sup> Lifetime is the period from the development into a tropical depression to its weakening into a remnant low or its transitioning into a post-tropical low.

<sup>3</sup> For statistics purposes, this period of occurrence includes the brief period from 0020 UTC, 01 October 2024 to 0000 UTC, 03 October 2024 when JULIAN was outside the PAR region.

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## Extremes of Surface Weather Observations during Tropical Cyclone Days<sup>4</sup>

Based on reports from PAGASA manned surface weather stations

**Table 1.** Highest storm duration (26 September to 03 October 2024) rainfall over land.

Location of weather station	Rainfall (mm)
Basco, Batanes	859.9
Laoag City, Ilocos Norte	783.6
Calayan, Cagayan	447.0
Sinait, Ilocos Sur	339.7
Baguio City	301.0

**Table 2.** Highest 24-hour rainfall over land.

Location of weather station	Rainfall (mm)	Date
Basco, Batanes	728.0	30 September 2024
Laoag City, Ilocos Norte	481.6	30 September 2024
Calayan, Cagayan	201.5	30 September 2024
Batac, Ilocos Norte <sup>5</sup>	193.4	30 September 2024
Sinait, Ilocos Sur	162.4	29 September 2024

**Table 3.** Lowest mean sea level pressure over land.

Location of weather station	Minimum MSLP (hPa)	Date (MM/DD) and Time (UTC)
Basco, Batanes	947.6	09/30 0300
Itbayat, Batanes <sup>6</sup>	985.7	09/30 0100
Calayan, Cagayan	991.8	09/29 2000
Aparri, Cagayan	998.0	09/29 1800
Casiguran, Aurora	999.9	09/29 0600
		09/29 0900

**Table 4.** Highest peak gust over land.

Location of weather station	Peak gust speed (m/s)	Peak gust direction	Date (MM/DD) and Time (UTC)
Basco, Batanes	66	ENE (70°)	09/29 2229
Itbayat, Batanes	50	ENE (70°)	09/30 0317
Calayan, Cagayan	42	W (270°)	09/30 0124
Laoag City, Ilocos Norte	18	NW (320°)	09/29 1021
	18	SW (220°)	09/30 1240
Aparri, Cagayan	16	WNW (300°)	09/29 0841
Baler, Aurora	16	-	09/28 0300 <i>rep.</i>
			09/28 1200 <i>rep.</i>
			09/29 0300 <i>rep.</i>
			09/29 1500 <i>rep.</i>

### Note:

- For peak gust data retrieved using hourly synoptic observation reports, “*rep.*” indicates the time when the observation was reported in the message, but not necessarily its time of occurrence.

<sup>4</sup> Also called “storm duration”, it refers to the meteorological days of occurrence of the tropical cyclone within the PAR region.

<sup>5</sup> The weather station in Batac, Ilocos Norte could have reported one of the highest storm duration accumulated rainfall for JULIAN. However, missing reports from 02 to 03 October 2024 means that total rainfall during the occurrence of the super typhoon could not be reliably determined.

<sup>6</sup> Itbayat, Batanes made its last MSLP report at 0100 UTC on 30 September 2024. All weather observations were suspended after 0200 UTC due to life-threatening conditions experienced by station personnel. This means that the station experienced even lower MSLP after 0100 UTC. For comparison, the manned weather station at Basco, Batanes reached its lowest MSLP at 0300 UTC.



- Over land extremes for MSLP and peak gust only covered areas with hoisted Wind Signals to ensure that the extremes are more likely associated with the tropical cyclone itself. There may be lower MSLP and higher peak gust outside these coverage areas.
- The brief period JULIAN went outside the PAR via the northwestern boundary will be considered part of the period of occurrence within the PAR when defining “storm duration”.

## Summary of Tropical Cyclone Product Issuances

Issued by the Weather Division, DOST-PAGASA

### Tropical Cyclone Products:

- Tropical Cyclone Advisories: None issued
- Tropical Cyclone Bulletins:
  - First issuance: 5:00 AM, 27 September 2024
  - Last issuance: 11:00 AM, 04 October 2024
  - Total issued: 35
- Tropical Cyclone Warnings for Shipping:
  - First issuance: 5:00 AM, 27 September 2024
  - Last issuance: 11:00 AM, 04 October 2024
  - Total issued: 30
- WC SIGMET
  - First issuance: 10:45 AM, 28 September 2024
  - Last issuance: 6:20 PM, 01 October 2024
  - Total issued: 15

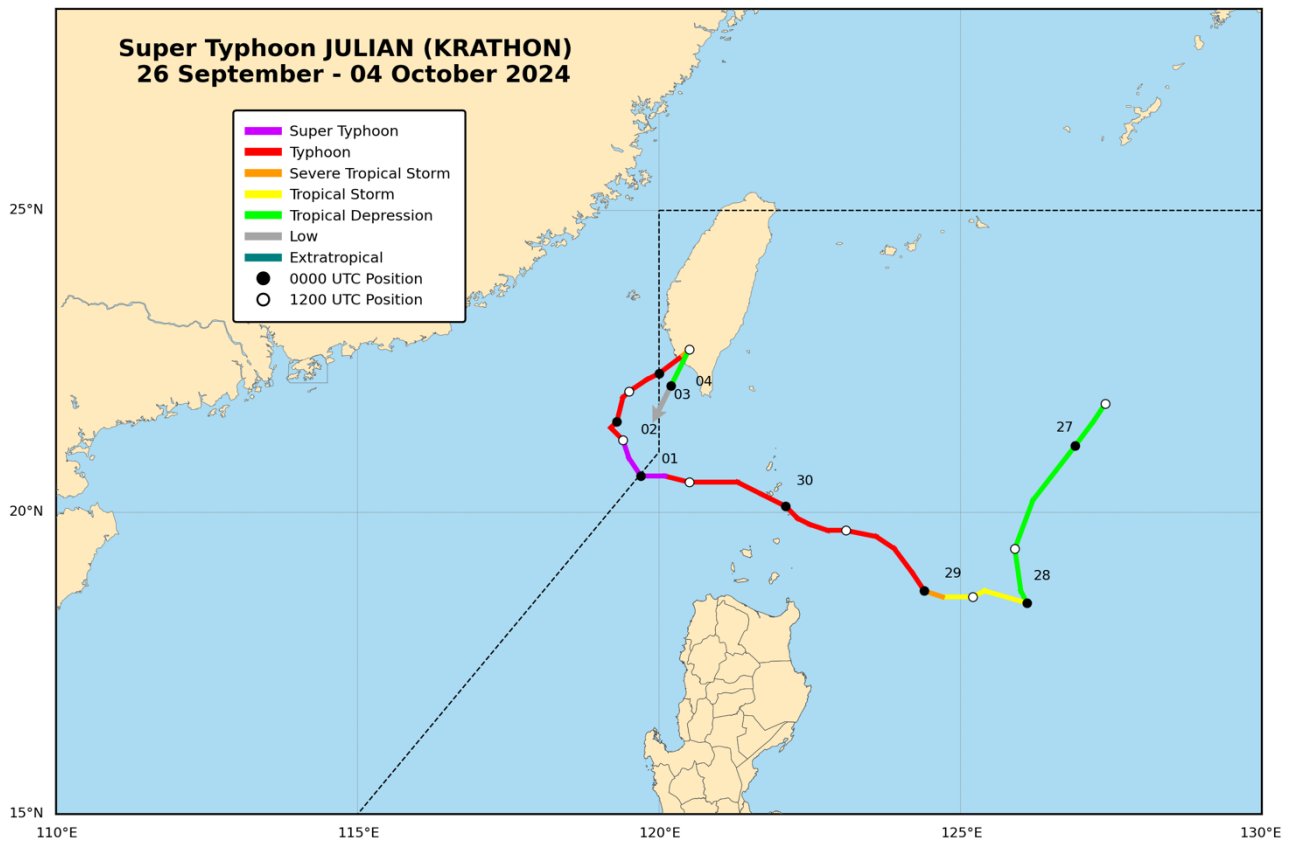
### Tropical Cyclone Wind Signals:

- Highest level of wind signal hoisted: Wind Signal No. 4
- Number of provinces where wind signals had been hoisted: 18
- Timeline of hoisting/lifting of wind signals:
  - 5:00 PM, 27 September 2024: Initial hoisting of Wind Signal No. 1
  - 5:00 AM, 29 September 2024: Initial hoisting of Wind Signal No. 2
  - 11:00 AM, 29 September 2024: Initial hoisting of Wind Signal No. 3
  - 8:00 PM, 29 September 2024: Initial hoisting of Wind Signal No. 4
  - 11:00 PM, 30 September 2024: Lifting of all hoisted Wind Signal No. 4
  - 5:00 AM, 01 October 2024: Lifting of all hoisted Wind Signal No. 3
  - 5:00 PM, 01 October 2024: Lifting of all hoisted Wind Signal No. 2
  - 5:00 PM, 03 October 2024: Lifting of all hoisted Wind Signals

### Other Pertinent Information

- The Southwest Monsoon was also enhanced during the period of occurrence of JULIAN. The resulting converging wind flow of JULIAN and the enhanced monsoon over northwestern Luzon, along with the presence of the Cordillera Central, resulted in torrential rains not only over Extreme Northern Luzon but also over mainland northwestern Luzon. This resulted in widespread incidents of flooding and rain-induced landslides.
- The National Disaster Risk Reduction and Management Council (NDRRMC) reported that a total of 380,778 individuals were affected by JULIAN. A total of 5 dead, 12 injured, and 1 missing individual were reported by disaster managers. Cost of damage to agriculture, infrastructure, housing, and other assets amounted to PHP 1.572 billion.
- The international name “KRATHON” (meaning: santol; fruit) was contributed by the Kingdom of Thailand.

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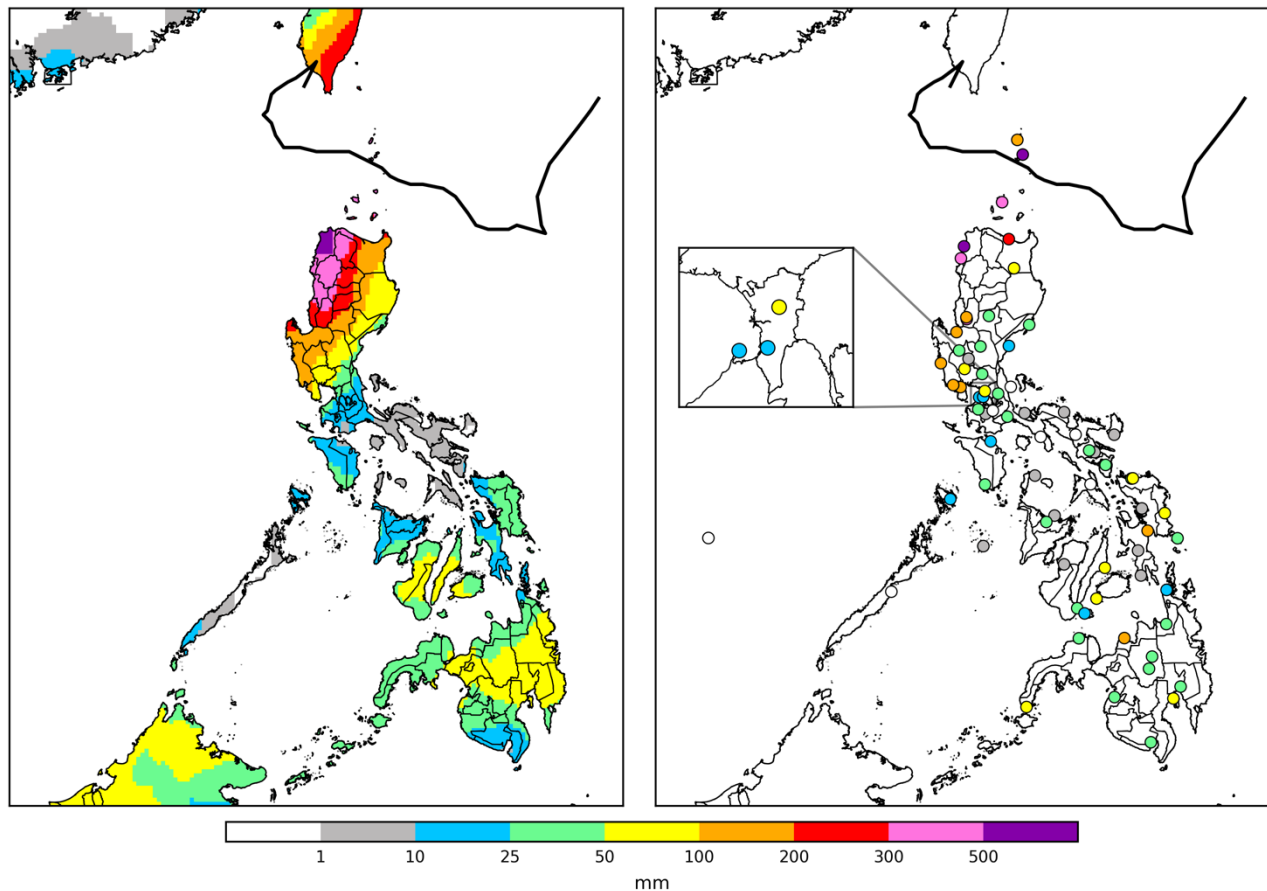
**Fig. 2.** Preliminary best track positions and intensities (as categories) of Super Typhoon JULIAN. Line color indicates the category of tropical cyclone. Shaded circles with date labels indicated 00 UTC positions while open circles indicate 12 UTC positions.

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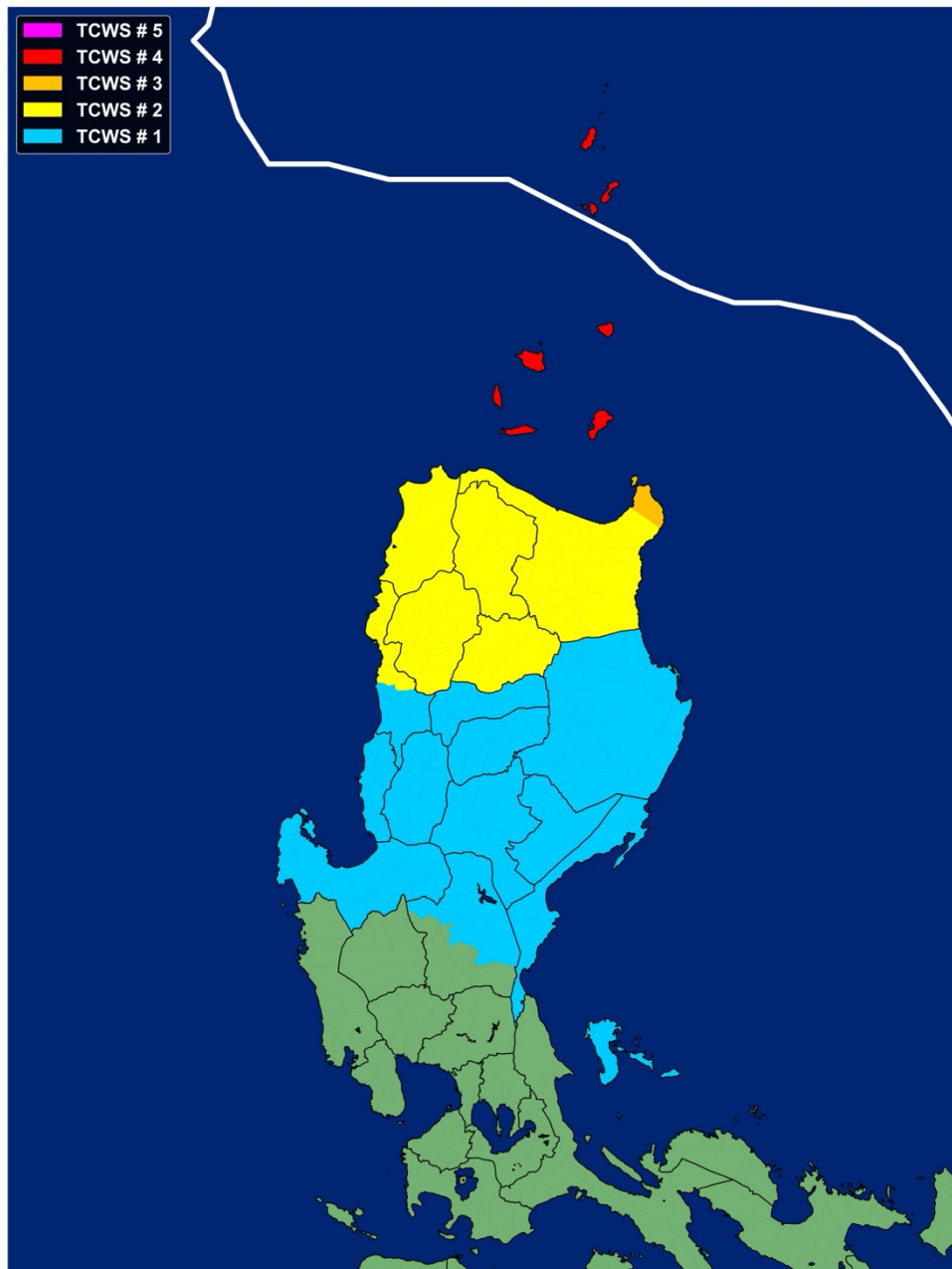


**Fig. 3.** Nationwide satellite-derived estimates and corresponding gauge observations from PAGASA manned surface weather stations of accumulated rainfall for the period of 26 September to 03 October 2024. The preliminary best track is shown as thick black line.

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**Fig. 4.** Highest level and maximum extent of hoisted wind signals during the occurrence of Super Typhoon JULIAN. The preliminary best track is shown as thick white line.

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This Report shall be properly acknowledged in any work connected, either in full or partly, to this publication.

While we ensure the factual correctness and accuracy of the entries in this preliminary tropical cyclone report, readers are advised to report any text or figure in this report which may require correction to the Marine Meteorological Services Section by email at **typhoon.ops@pagasa.dost.gov.ph** with the subject "*Prelim Report [Name of TC], [Year]: For Correction*".

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