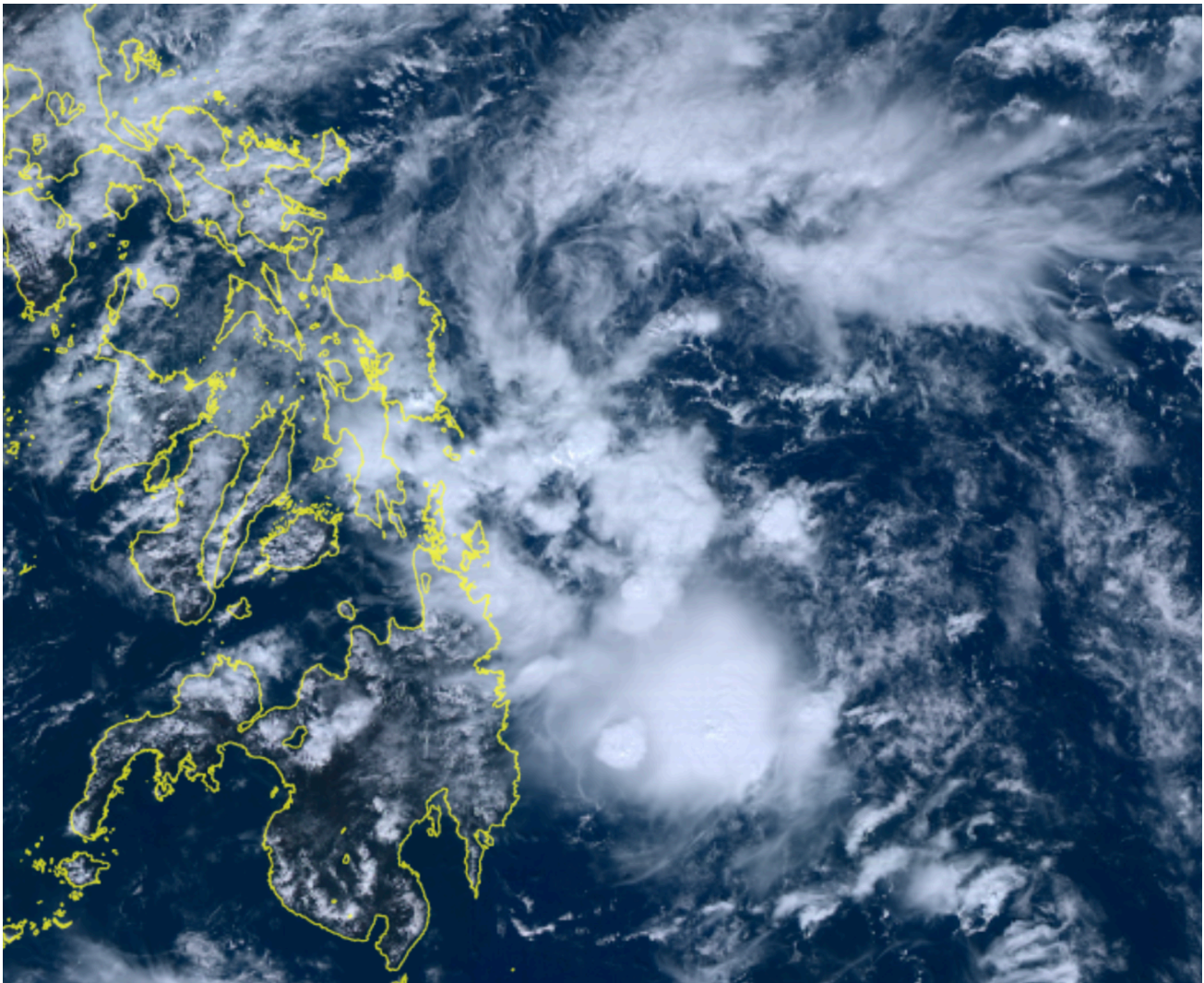


## TROPICAL CYCLONE PRELIMINARY REPORT

**Tropical Depression QUERUBIN**  
UNNAMED

16 to 19 December 2024



**Fig. 1.** Himawari-9 AHI true color RGB image of Tropical Depression QUERUBIN at 03 UTC on 18 December 2024 while off the coast of eastern Mindanao. Image courtesy of National Institute of Information and Communications Technology (NICT), Japan.

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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, 16 December 2024 Over the Philippine Sea east of Davao Region
Developed into a tropical cyclone	1200 UTC, 16 December 2024 Over the Philippine Sea east of Davao Region 255 km E of General Santos City (6.2°N, 127.4°E)
Weakened into a remnant low or transitioned into a post tropical low	1200 UTC, 19 December 2024 Over the coastal waters of General Luna, Surigao del Norte (9.6°N, 126.2°E)
Peak intensity (lifetime <sup>2</sup> )	25 kt (45 km/h), 1004 hPa, Tropical Depression 1200 UTC, 16 December 2024
Period of occurrence (lifetime)	3 days
Entered the PAR region (as tropical cyclone)	Not applicable (developed within the PAR region)
Exited the PAR region (as tropical cyclone)	Not applicable (did not exit the PAR region)
Peak intensity (within the PAR)	25 kt (45 km/h), 1004 hPa, Tropical Depression 1200 UTC, 16 December 2024
Period of occurrence (within the PAR)	Not applicable
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.

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## Extremes of Surface Weather Observations during Tropical Cyclone Days<sup>3</sup>

Based on reports from PAGASA manned surface weather stations

**Table 1.** Highest storm duration (16 to 19 December 2024) rainfall over land.

Location of weather station	Rainfall (m)
Borongan City, Eastern Samar	333.4
Juban, Sorsogon	289.6
Guiuan, Eastern Samar	254.3
Tacloban City, Leyte	237.5
Tayabas, Quezon	182.0

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

Location of weather station	Rainfall (mm)	Date
Tayabas, Quezon	122.5	17 December 2024
Borongan City, Eastern Samar	122.2	17 December 2024
Juban, Sorsogon	120.0	19 December 2024
Daet, Camarines Sur	114.9	16 December 2024
Tagum City, Davao del Norte	109.8	17 December 2024

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

Location of weather station	Minimum MSLP (hPa)	Date (MM/DD) and Time (UTC)
Hinatuan, Surigao del Sur	1002.5	12/19 0600
Davao International Airport, Davao City	1003.2	12/19 0700
General Santos City	1003.7	12/19 0600
Tacloban City, Leyte	1004.6	12/19 0700
Surigao City, Surigao del Norte	1004.7	12/19 0600

**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)
Tacloban City, Leyte	8	E (90°)	12/19 0315
General Santos City	7	NW (320°)	12/19 0835

### 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.
- Due to the weak nature of the tropical depression and limited meteorological reports within the areas with hoisted Wind Signal, overland extremes for MSLP and peak gust included reports from manned weather stations in surrounding provinces. In Eastern Visayas and the eastern regions of Mindanao.

<sup>3</sup> Also called “storm duration”, it refers to the meteorological days of occurrence of the tropical cyclone within the PAR region.

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## 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 PM, 17 December 2024
  - Last issuance: 5:00 PM, 18 December 2024
  - Total issued: 5
- Tropical Cyclone Warnings for Shipping:
  - First issuance: 5:00 PM, 17 December 2024
  - Last issuance: 5:00 PM, 18 December 2024
  - Total issued: 5
- WC SIGMET: None issued

### Tropical Cyclone Wind Signals:

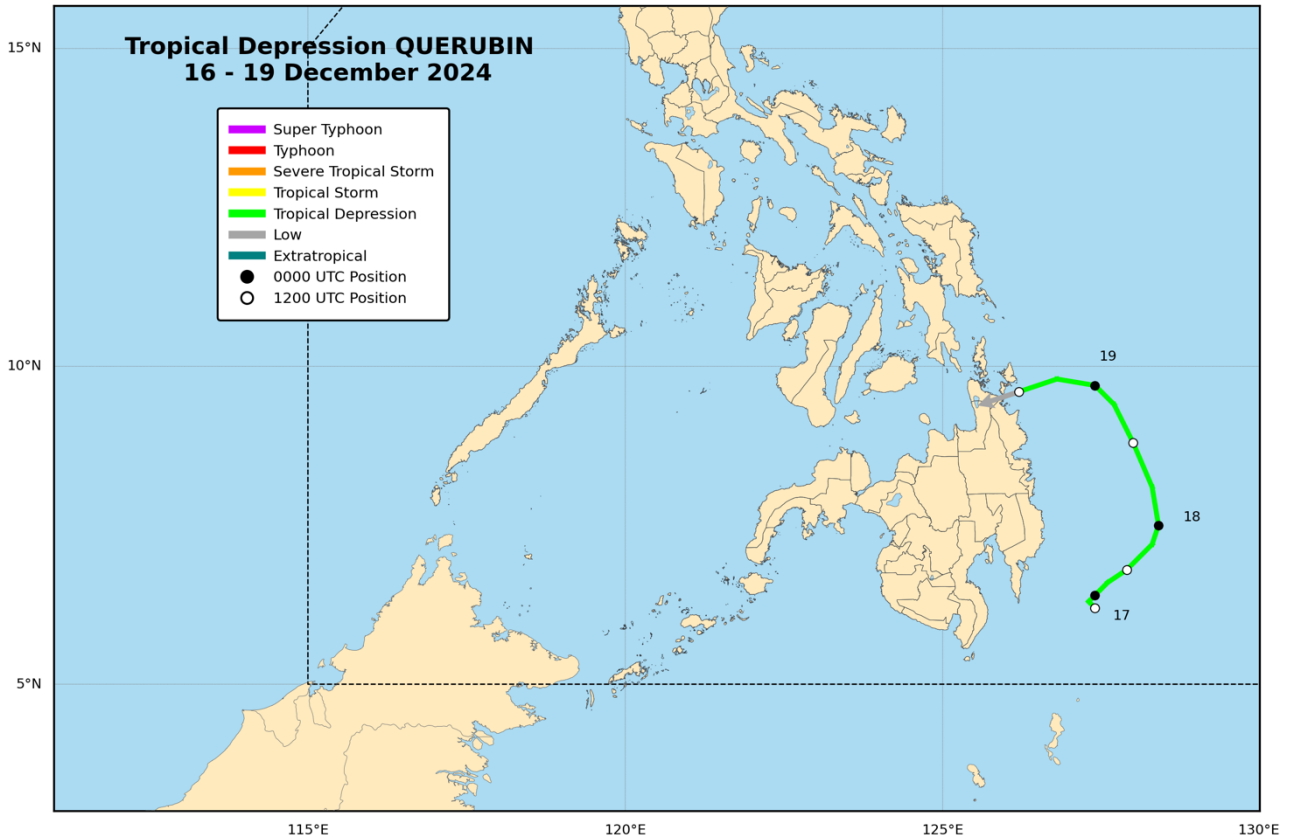
- Highest level of wind signal hoisted: Wind Signal No. 1
- Number of provinces where wind signals had been hoisted: 2
- Timeline of hoisting/lifting of wind signals:
  - 5:00 PM, 17 December 2024: Initial hoisting of Wind Signal No. 1
  - 5:00 AM, 18 December 2024: Lifting of all hoisted Wind Signals

### Other Pertinent Information

- The occurrence of QUERUBIN coincided with the cold surge of the Northeast Monsoon. Enhanced low-level wind convergence was noted to the north of the tropical depression along the boundary of shear line at the leading edge of the cold surge. This resulted in heavy rainfall occurrence triggered heavy rainfall over Eastern Visayas.
- No notable impacts were reported by the National Disaster Risk Reduction and Management Council due to the occurrence of QUERUBIN. However, flooding and rain-induced landslide incidents were reported by local disaster risk reduction and management offices in Eastern Visayas, where the shear line directly caused heavy rains.

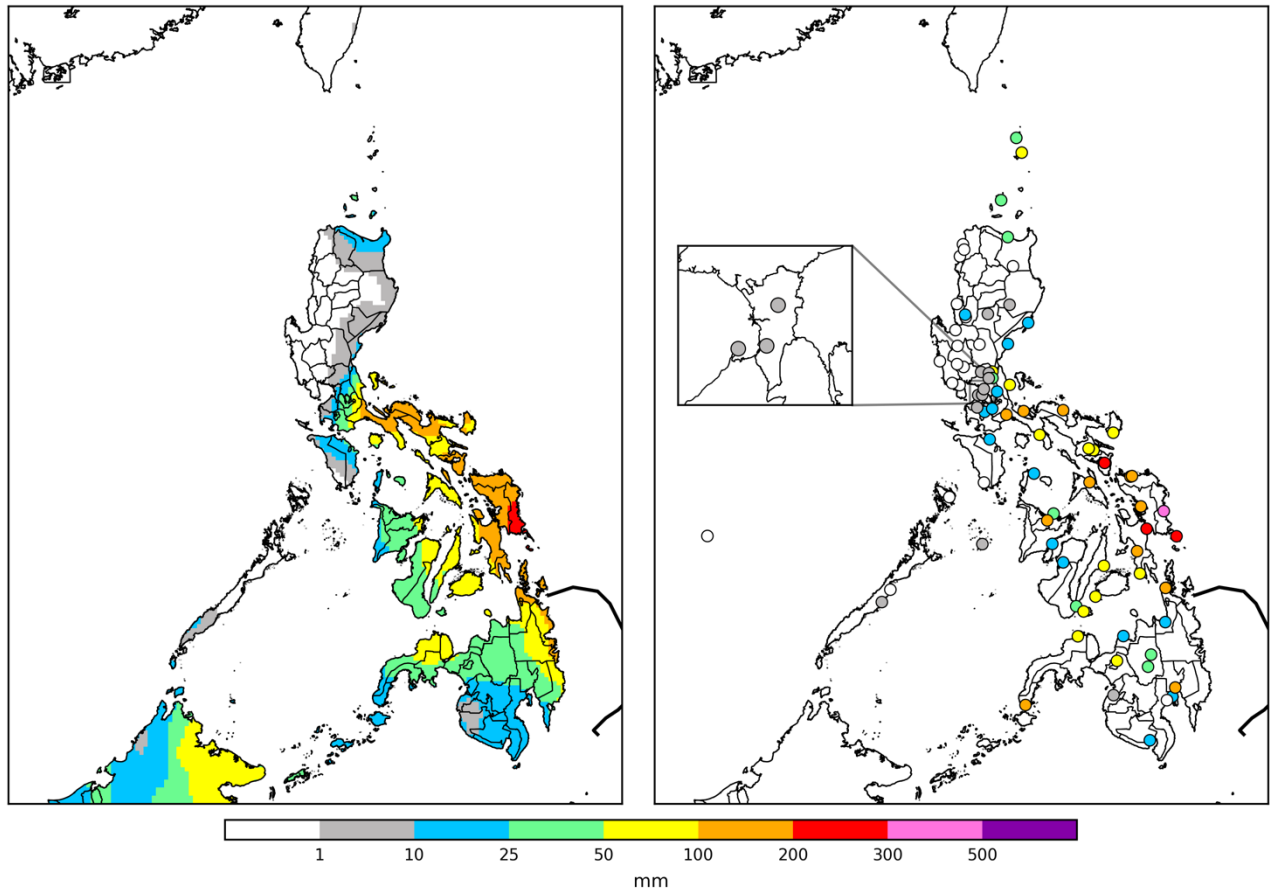
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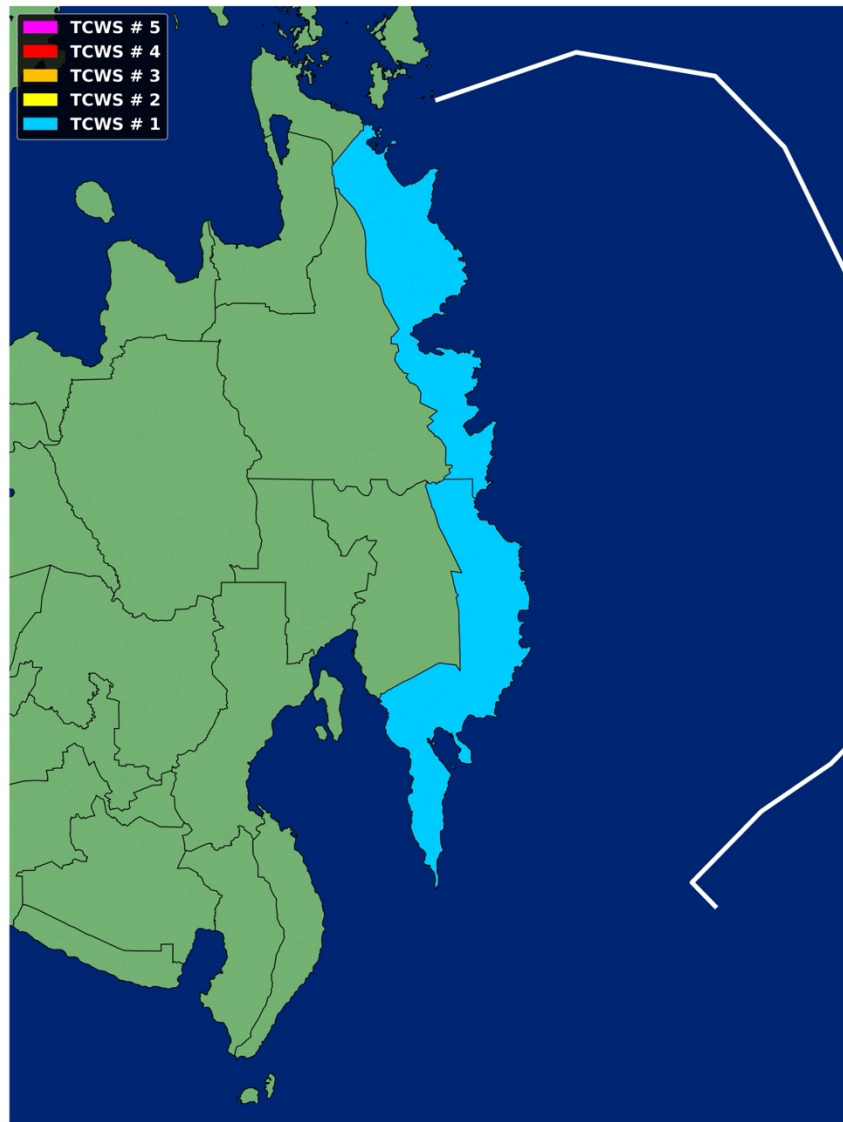
**Fig. 2.** Preliminary best track positions and intensities (as categories) of Tropical Depression QUERUBIN. Line color indicates the category of tropical cyclone. Shaded circles with date labels indicated 00 UTC positions while open circles indicate 12 UTC positions.

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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 16 to 19 December 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 Tropical Depression QUERUBIN. 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](mailto:typhoon.ops@pagasa.dost.gov.ph) with the subject "*Prelim Report [Name of TC], [Year]: For Correction*".

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