Republic of the Philippines
DEPARTMENT OF SCIENCE AND TECHNOLOGY
Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
Weather Division

TROPICAL CYCLONE PRELIMINARY REPORT
Tropical Storm HELEN (PULASAN)

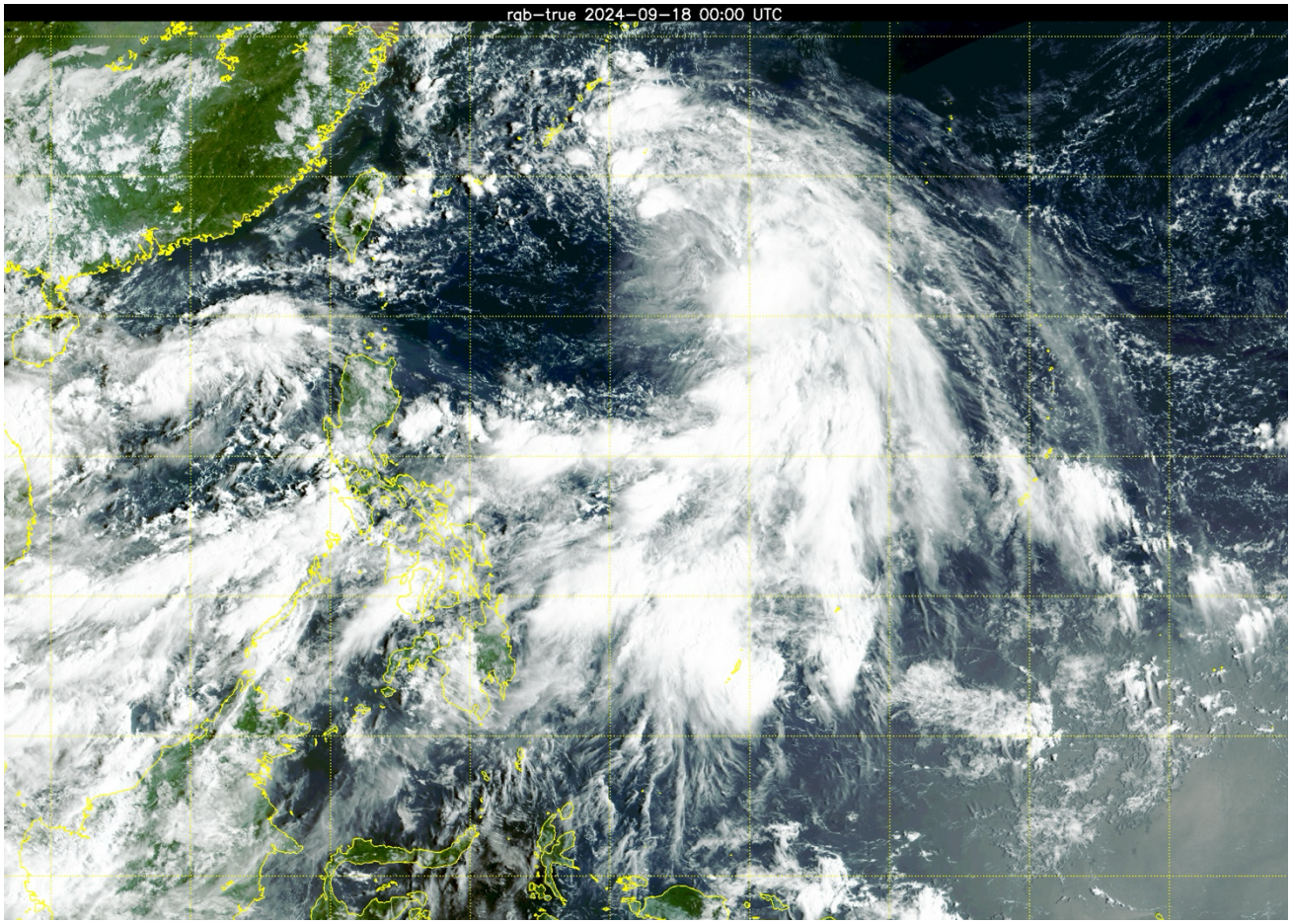

Fig. 1. GK2A AMI true color RGB image of Tropical Storm HELEN at 00 UTC on 18 September 2024. Image courtesy of the National Meteorological Satellite Center, Korea Meteorological Administration.

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Date Published: 31 December 2024

NOTE:
All information provided in this report is considered preliminary only and will be superseded by the information that will become available once the Annual Report on Philippine Tropical Cyclones (ARTC) is released.

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

Summary of Meteorological History

Based on PAGASA preliminary best track[1] position and intensities

First tracked as a low pressure area	1800 UTC, 14 September 2024 Over the Western North Pacific waters near Chuuk and Pohnpei, Federated States of Micronesia
Developed into a tropical cyclone	0600 UTC, 15 September 2024 Over the Western North Pacific waters near Guam 2,155 km E of Southeastern Luzon (12.9ºN, 144.1ºE)
Weakened into a remnant low or transitioned into a post tropical low	0600 UTC, 21 September 2024 Over the Jeju Strait near South Jeolla Province, South Korea 1,540 km NNE of Extreme Northern Luzon (34.1ºN, 126.0ºE)
Peak intensity (lifetime[2])	45 kt (85 km/h), 994 hPa, Tropical Storm 0000 UTC, 17 September 2024
Period of occurrence (lifetime)	6 days
Entered the PAR region (as tropical cyclone)	1100 UTC, 17 September 2024
Exited the PAR region (as tropical cyclone)	0900 UTC, 18 September 2024
Peak intensity (within the PAR)	45 kt (85 km/h), 994 hPa, Tropical Storm 1200 UTC, 17 September 2024
Period of occurrence (within the PAR)	22 hours
Observed landfalls in the Philippines	None

Extremes of Surface Weather Observations during Tropical Cyclone Days[3]

Based on reports from PAGASA manned surface weather stations

Table 1. Highest storm duration (17 to 18 September 2024) rainfall over land.

Location of weather station	Rainfall (mm)
Dumangas, Iloilo	206.0
Dagupan City, Pangasinan	126.3
Abucay, Bataan	122.8
Cubi Pt., Subic Bay	115.2
Clark International Airport, Mabalacat, Pampanga	105.0

[1] 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.
[2] 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.
[3] Also called "storm duration", it refers to the meteorological days of occurrence of the tropical cyclone within the PAR region.

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Table 2. Highest 24-hour rainfall over land.

Location of weather station	Rainfall (mm)	Date
Dumangas, Iloilo	156.0	17 September 2024
Dagupan City, Pangasinan	99.1	17 September 2024
Coron, Palawan	86.1	17 September 2024
Abucay, Bataan	84.7	18 September 2024
Tagum City, Davao del Norte	70.6	17 September 2024

Summary of Tropical Cyclone Product Issuances

Issued by the Weather Division, DOST-PAGASA

Tropical Cyclone Products:

- Tropical Cyclone Advisories:
  - First issuance: 11:00 PM, 15 September 2024
  - Last issuance: 11:00 PM, 17 September 2024
  - Total issued: 6
- Tropical Cyclone Bulletins:
  - First issuance: 11:00 PM, 17 September 2024
  - Last issuance: 11:00 PM, 18 September 2024
  - Total issued: 5
- Tropical Cyclone Warnings for Shipping:
  - First issuance: 11:00 PM, 17 September 2024
  - Last issuance: 11:00 PM, 18 September 2024
  - Total issued: 5
- WC SIGMET: None issued

Tropical Cyclone Wind Signals:
None hoisted

Other Pertinent Information

- HELEN had the characteristics of a monsoon depression at the time of its occurrence. Despite its vast distance from the Philippines, the prevailing synoptic situation over the Western North Pacific favored an enhanced Southwest Monsoon over the country. This monsoon activity, which started with the passage of Tropical Cyclone FERDIE, continued with the subsequent passage of IGME. Reports from the National Disaster Risk Reduction and Management Council (NDRRMC) listed 26 dead, 17 injured and 3 missing individuals, as well as total cost of damage to houses, agriculture, infrastructure, and other assets amounting to PHP 1.121 billion due to the compounding impacts of the prolonged monsoon rains.
- The international name “PULASAN” (meaning: a kind of fruit) was contributed by Malaysia.

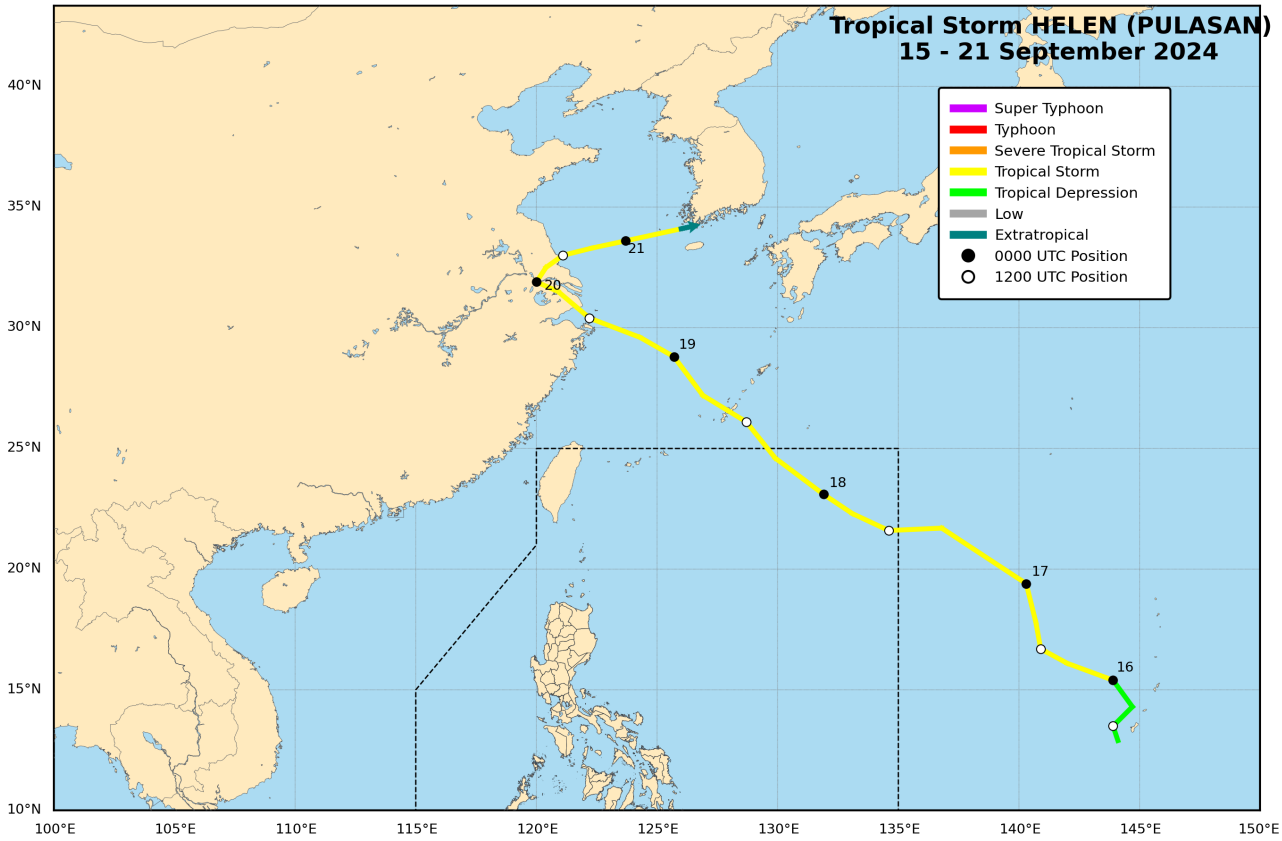

Fig. 2. Preliminary best track positions and intensities (as categories) of Tropical Storm HELEN. Line color indicates the category of tropical cyclone. Shaded circles with date labels indicated 00 UTC positions while open circles indicate 12 UTC positions.

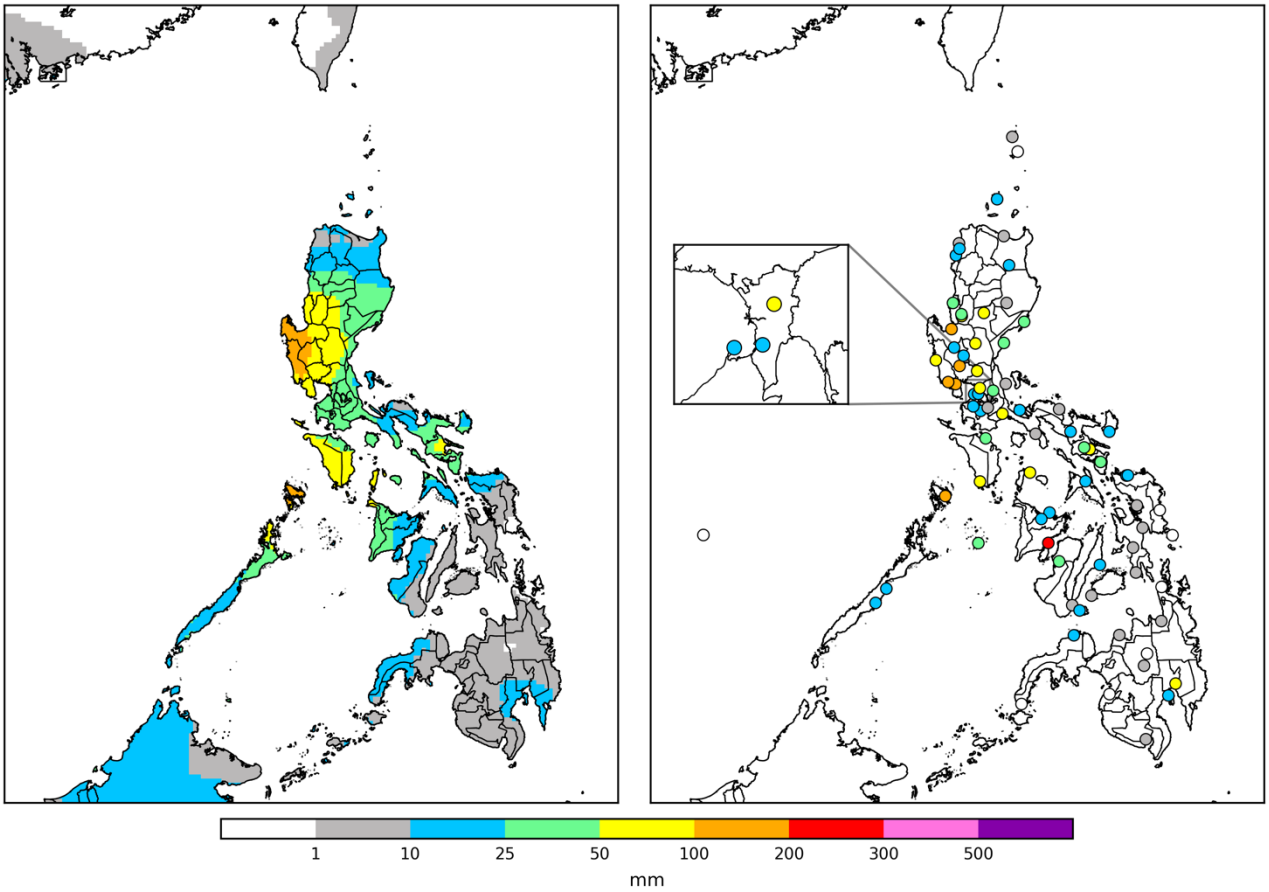

Fig. 3. Nationwide satellite-derived estimates and corresponding gauge observations from PAGASA manned surface weather stations of accumulated rainfall for the period of 17 to 18 September 2024. The preliminary best track of HELEN is outside the domain of this figure.

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This technical report is published on behalf of the DOST-PAGASA by the:

Marine Meteorological Services Section
Weather Division, DOST-PAGASA

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