An Assessment of a Hurricane Force Extratropical Cyclone over the Eastern Pacific - Impacts to the Mariner

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Introduction

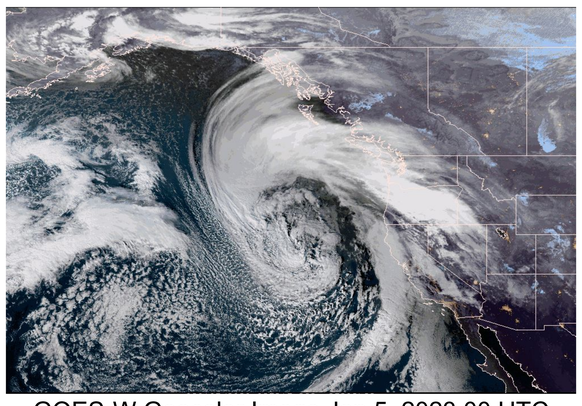
Our report will analyze the storm that impacted the West Coast of the United States on the 4-5 January 2023. Specifically, this poster will examine how the storm impacted marine activities, including shipping and two major ports in the US. Furthermore, we will illustrate how the support from Impact-Based Decision Support Services (IDSS) from the Ocean Prediction Center (OPC) has helped to ensure safety at sea.

Event Overview

Low pressure formed 12/31/22 near 34N147E, and traversed across the North Pacific for over a week before finally dissipating 1/7/23. As the low interacted with an upper level jet, it began rapidly intensifying into a hurricane force low. Central pressure of the low dropped 52 mb in 48 hours, and 29 mb in the 24 hours preceding the lowest analyzed pressure. OPC forecasters analyzed winds to 75 KT and significant wave heights to 45 FT. Skillful forecasting by OPC gave mariners 4 days of lead time on the rapidly intensifying cyclone to develop hurricane force winds.

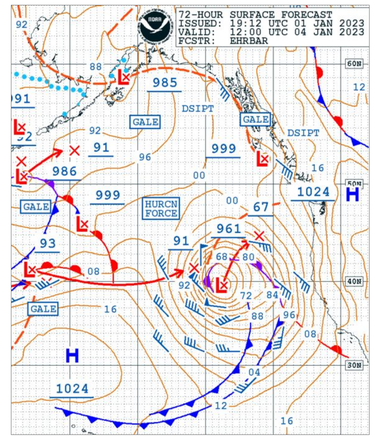
OPC Website

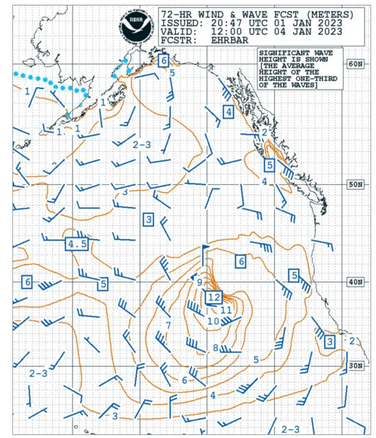
About OPC

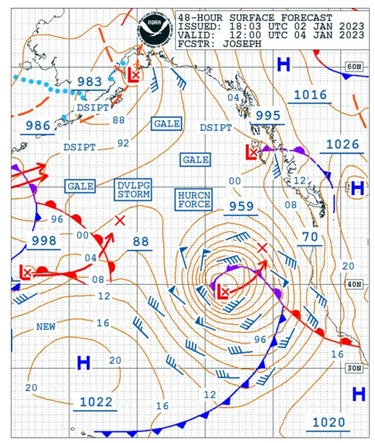


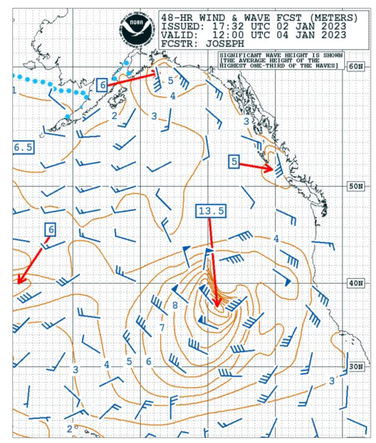
GOES-W Geocolor Image Jan 5, 2023 00 UTC

Surface and Wind & Wave Forecast Charts

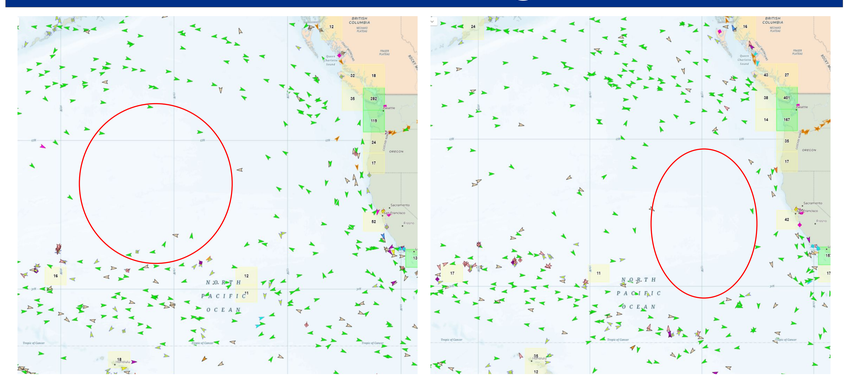






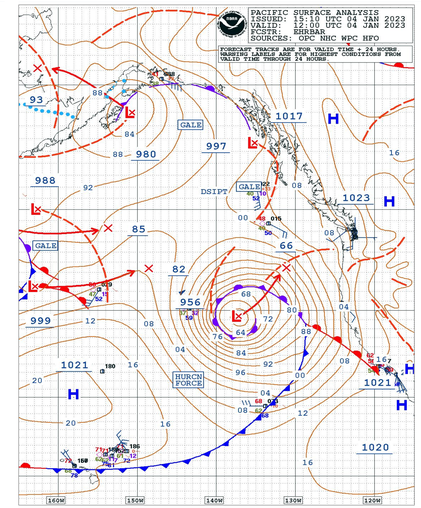


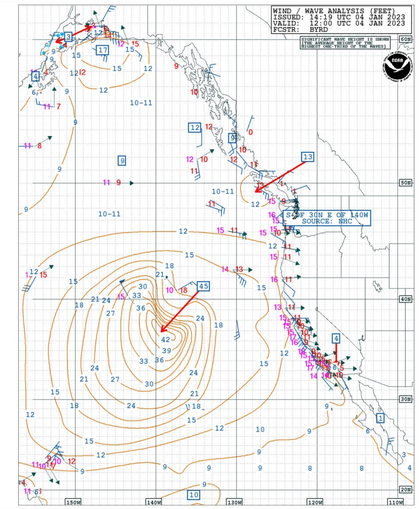
Seavision Images



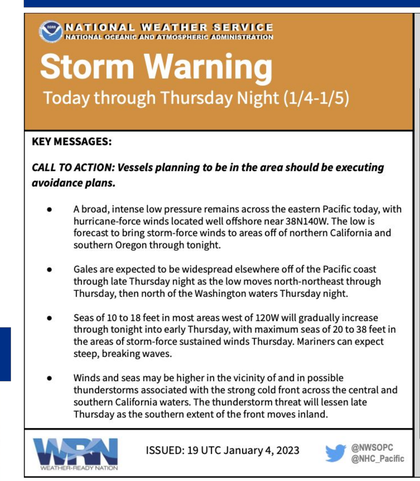
Ship traffic on January 2, 2024 12z (left) and January 5, 2024 00z (right) incidcating ship avoidance of hazardous conditions forecasted by OPC.

Surface and Wind/Wave Analysis Charts





IDSS



NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Storm Warning

Today through Thursday Night (1/4-1/5)

KEY MESSAGES:

CALL TO ACTION: Vessels planning to be in the area should be executing avoidance plans.

- A broad, intense low pressure remains across the eastern Pacific today, with hurricane-force winds located well offshore near 38N140W. The low is forecast to bring storm-force winds to areas off of northern California and southern Oregon through tonight.
- Gales are expected to be widespread elsewhere off of the Pacific coast through late Thursday night as the low moves north-northeast through Thursday, then north of the Washington waters Thursday night.
- Seas of 10 to 18 feet in most areas west of 120W will gradually increase through tonight into early Thursday, with maximum seas of 20 to 38 feet in the areas of storm-force sustained winds Thursday. Mariners can expect steep, breaking waves.
- Winds and seas may be higher in the vicinity of and in possible thunderstorms associated with the strong cold front across the central and southern California waters. The thunderstorm threat will lessen late Thursday as the southern extent of the front moves inland.

ISSUED: 19 UTC January 4, 2023

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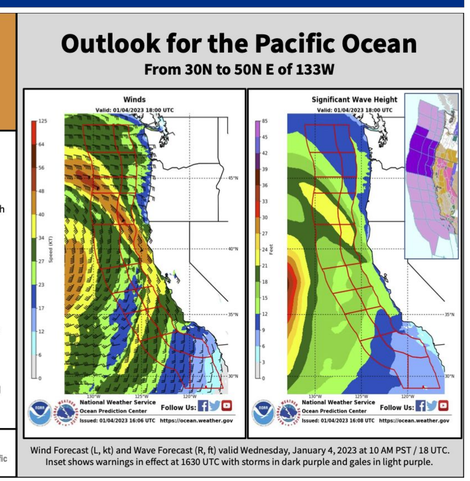
@NHC_Pacific



Wind Forecast (L, kt) and Wave Forecast (R, ft) valid Wednesday, January 4, 2023 at 10 AM PST / 18 UTC. Inset shows warnings in effect at 1630 UTC with storms in dark purple and gales in light purple.

Conclusion

OPC forecasted developing hurricane force conditions four days in advance, allowing mariners to redirect vessels and avoid hazardous wind and waves across a vast area. This proactive measure was instrumental in preventing potential damage to both life and property.