

April 15, 2026

**Weathernews Develops a New Global Weather and Wave Forecasting System with World-Class Accuracy
23% Improvement in Forecast Accuracy, with a Marine Weather Dataset Now Available
via an API Geared for the Maritime Transport Market
Achieving Data-Driven Operations Management and Advanced Performance Analysis
to Drive Digital Transformation in Maritime Transport**

Weathernews Inc. has developed a new Global Weather and Wave Forecasting System with world-class accuracy and has also commenced sales of a marine weather dataset tailored to the maritime transport market. Highly accurate weather, marine, and navigation data from SeaNavigator, Weathernews' marine weather service, will be provided via an API.

With recent surges in fuel prices and stricter environmental regulations compounded by unforeseen route changes caused by geopolitical risks significantly impacting costs and environmental footprints, demand has risen for precise data that can be used to objectively assess and analyze voyage safety and economic efficiency, as well as to build more sophisticated operations management systems. Weathernews developed the proprietary Global Weather and Wave Forecasting System to provide data with even greater precision and has found it to be 23% more accurate in forecasting wave height than its predecessor. The system provides high-accuracy, high-resolution forecasts of such maritime conditions such as wind direction, wind speed, and waves on a 0.125-degree (approximately 10+ km) grid.

This dataset packages a vast amount of weather and oceanographic data, including forecasts and historical data on waves and wind generated using the Global Weather and Wave Forecasting System, as well as data on typhoon tracks and sea ice for oceans worldwide and approximately 2,300 major ports, along with “navigation data” provided by SeaNavigator, such as route simulations, fuel consumption, and vessel speed. Weathernews aims to support voyage safety, economic efficiency, and environmental performance through data, helping captains and operations managers around the world make informed decisions.

Inquiries about this service	See here for Weathernews' data lineup
https://sea.weathernews.com/contact	https://sea.weathernews.com/api-integrations

Driving DX in Maritime Transport Through High-Accuracy Marine Weather Data

In recent years, dramatic improvements in maritime communications infrastructure have accelerated digital transformation (DX) in maritime transport, with companies pursuing system integration, AI utilization, and the development of autonomous navigation technology. With rising fuel costs and unforeseen route changes caused by geopolitical risks, demand has also grown

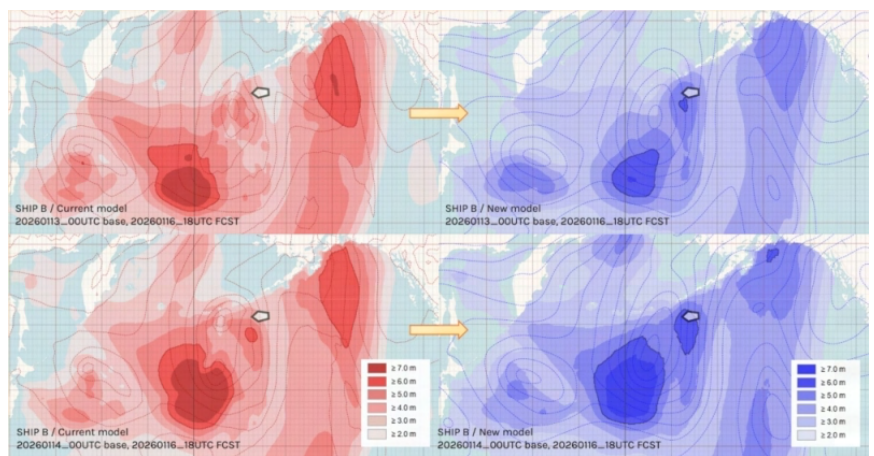


for real-time forecast data that can help make timely navigational decisions, such as quickly redesigning optimal routes that balance safety and economic efficiency.

Moreover, amid increasingly stringent environmental regulations worldwide, CO2 emissions are now positioned as a direct cost that affects corporate profits, with historical data growing in importance for regulatory compliance and vessel performance analysis. It is against this backdrop that Weathernews has begun offering the Marine Weather Dataset, a package featuring weather, marine, and navigation data.

New Global Weather and Wave Forecasting System Increases Wave Forecast Accuracy by 23%

Weathernews has developed a new Global Weather and Wave Forecasting System with world-class accuracy and high resolution to capture rapid weather changes at the earliest stage possible. The system uses an approach that combines over 80 forecast scenarios generated from ensemble forecasts operated by the world's leading meteorological agencies, along with meteorological satellites and the vast volume of vessel observation data possessed by Weathernews. Rather than relying on a single forecast model, it extracts the most statistically probable data from a large number of forecast scenarios, and then corrects this data to achieve high-accuracy forecasts of waves and maritime winds.

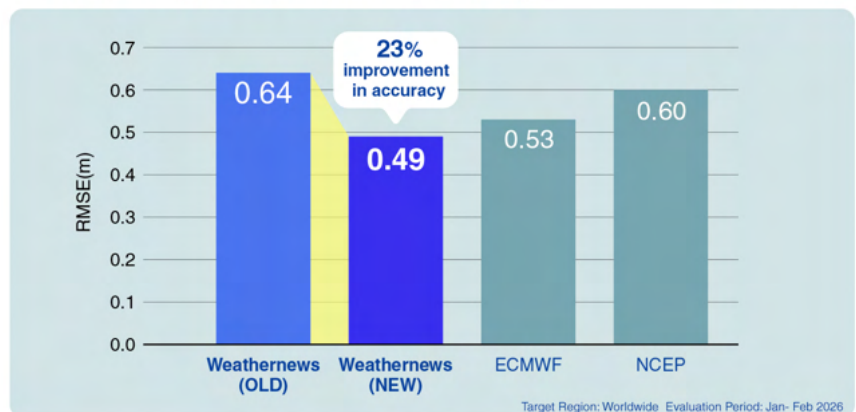


Significant difference in wave height forecasts between the previous system (left) and the new system (right). According to reports from a vessel (at the icon position near the Alaska Peninsula), waves were 6 m; the new system was able to forecast this more accurately approximately 3 days in advance.

This system has successfully reduced significant wave height forecast errors by approximately 23% compared to the previous system (comparing the root mean square error (RMSE) of wave height forecasts up to 7 days ahead across all ocean areas from January to February 2026). Weathernews has also verified that its wave height forecasts are more accurate than those of the European Centre for Medium-Range Weather Forecasts (ECMWF) and the National Centers for Environmental Prediction (NCEP). This makes it possible to more accurately capture rising wave heights caused by rapidly developing low-pressure systems.

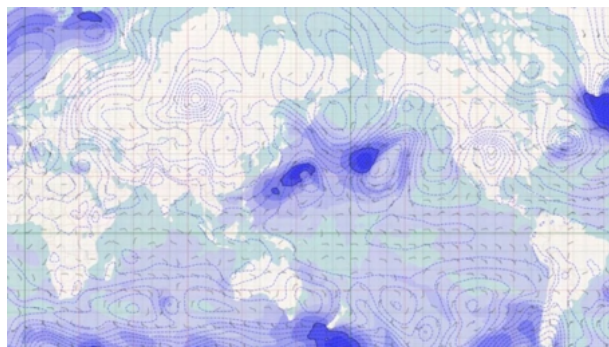
Wave, wind direction, and wind speed forecast data from this system will be provided through the Marine Weather Dataset for the maritime shipping industry.

Wave Height Forecast Accuracy



Provision of a Marine Weather Dataset for the Maritime Transport Market Begins

This dataset packages two types of data: weather and marine data and navigation data. Data can be retrieved via API through the cloud, making integration with existing corporate systems easy. Users can specify latitude and longitude to retrieve relevant data easily.



The weather and marine data includes a comprehensive range of data, such as wave height, wind direction, wind speed, and temperature, for approximately 2,300 major ports and shipping routes worldwide, along with forecast trackers for tropical cyclones (typhoons, hurricanes, and cyclones) worldwide and composite data on tidal currents and ocean currents. The dataset also includes the high-accuracy, high-resolution wave and wind forecasts from the newly developed Global Weather and Wave Forecasting System.

While the navigation data is available only when using the weather routing service on Weathernews' SeaNavigator, it can provide data on voyage records, reports, and performance analysis, such as vessel tracks, voyage plans, fuel consumption, and noon reports from vessels.

Service Specifications

Data Type	Marine Weather Dataset for the Maritime Transport Market
Spatial Resolution	0.125-degree grid (1.0-degree grid for some data)
Update Frequency	Every 6 hours or once daily
Forecast Interval	1 hour, 3 hours, 6 hours, or 1 day (depending on the data type)
Forecast Period	Up to 15 days ahead
Delivery Method	API (GRIB/BINARY/JSON/XML format, with some data available in KML format)

Details on Data Lineup (*1)

Category	Name	Main Content & Data Collected
Weather and Marine Data	Weather Data	Forecasts and historical data for sea level pressure, wind direction and speed, temperature, humidity, precipitation, and visibility
	Marine Weather Data	Forecasts and historical data for waves (significant wave height and mean wave period; primary wave, secondary wave, swell, and wind wave height, direction, and period), ocean currents, and sea surface temperature
	Front Data	Front types (warm front, cold front, occluded front, and stationary front), position coordinates, and central pressure forecasts
	Global Storm Data	Total number of tropical cyclones (tropical depressions, tropical storms, typhoons, hurricanes, and cyclones), along with basic information, track forecasts, real-time analysis, and historical tracks (name, type, current position, central pressure, maximum sustained wind speed, maximum gust speed, radius of storm and gale force winds, and direction of movement)
	Iceberg Data	Iceberg forecasts and historical data (number of icebergs, latitude and longitude)
	Ice pack Data	Ice pack forecasts and historical data (number of ice packs, latitude and longitude)

	High Resolution Weather Data	High-resolution weather forecasts (0.125-degree grid) for specific sea areas in the North Pacific, North Atlantic, and Southeast Asia Forecasts and historical data for sea level pressure, wind direction and speed
	<u>High-resolution Marine Weather Data</u>	High-resolution wave forecasts (0.125-degree grid) for specific sea areas such as the North Pacific, North Atlantic, and Southeast Asia Forecasts and historical data for waves (significant wave height and mean wave period; primary wave, secondary wave, swell, and wind wave height, direction, and period)
	<u>Global High-resolution Weather & Marine Weather Data</u>	High-resolution weather and marine data worldwide (0.125-degree grid) Forecasts and historical data for wind direction and speed; significant wave height and mean wave period; primary wave, secondary wave, swell, and wind wave height, direction, and period; and ocean currents
	Tidal Composite Current Data	High-accuracy composite tidal current forecasts and historical data combining tidal current and ocean current forecasts for 20 major sea areas worldwide (waters around Japan, the Strait of Malacca, the east coast of North America, and others)
Weather and Marine Data Along Tracks	<u>Weather & Marine Weather on Tracks</u>	Weather and marine forecasts and historical data for specified points (latitude and longitude) and times along tracks Waves (significant wave height and mean wave period; primary wave, secondary wave, swell, and wind wave height, direction, and period), wind direction and speed, ocean currents, sea level pressure, temperature, and water temperature
	<u>High Resolution Weather & Marine Weather on Tracks</u>	High-resolution wind, wave, and ocean current forecasts and historical data (0.125-degree grid) for specified points (latitude and longitude) and times along tracks Wave forecasts (composite wave, primary wave, secondary wave, swell, and wind wave height, direction, and period), wind direction and speed, and ocean currents
Port Weather and Marine Data	Global Port Forecast (Port weather and marine forecasts)	Weather and marine forecasts for major ports worldwide Wind direction and speed, gusts, waves (significant wave height; maximum wave height; wave direction, primary wave, swell, and wind wave height, direction, and period), general weather data (weather icons, temperature, pressure, precipitation, and visibility), and risk indicators (ice risk level and typhoon impact level)
	Global Coastal Port Forecast (Weather and marine forecasts for specific locations other than ports)	Weather and marine forecasts for specific locations other than ports (coastal facilities, etc.) General weather information (weather icons, temperature, pressure, humidity, dew point index, precipitation, and visibility), wind direction and speed, and waves (significant wave, primary wave, secondary wave, swell, and wind wave height, direction, and period)
Navigation Data (*2)	Voyage Track	Voyage data, route records, and voyage plans for vessels using the Weathernews weather routing service Basic vessel and voyage data (vessel name, IMO number, departure/arrival port, etc.), report data from vessels (position, measured speed, engine RPM, fuel consumption, etc.), and analysis and forecast values for routes and waypoints (actual routes, recommended routes, estimated time of arrival, and weather and marine data)
	Vessel Report (QRT)	Report data submitted by vessels to Weathernews Voyage plans, noon reports (NOON), arrival reports (ARR), departure reports (DEP), remaining fuel on board, etc.
	Logbook+ Data	Data provided through SeaNavigator's Logbook+ Over 100 items of data covering a wide range of categories, available in standardized form Primarily useful for vessel performance evaluations and extracting fuel consumption data for environmental regulations such as CII (Carbon Intensity Indicator) ratings Basic data, position data, weather and marine data, speed and performance, fuel

		consumption, remaining fuel and bunkering volume, and cargo data
Sea Margin (Delay rate)		Simulation data showing how much additional time or fuel is required compared to calm sea conditions Delay rate (sea margin) due to weather and marine conditions between ports or areas, sailing distance, voyage time, fuel consumption, delay days, and excess fuel consumption or savings
Post-Voyage CP Warranty		Finalized (post-voyage) performance evaluation data on whether the vessel met the performance guaranteed under the charter party (CP) after the voyage is complete Basic vessel and voyage data (including port entry and departure times), contractual warranty conditions, performance records inside and outside Emission Control Areas (ECA) (sailing distance, voyage time, speed, ocean current impact, fuel consumed, engine RPM, and CO2 emissions), and evaluation results (assessment of time and fuel loss or savings)
En Route CP Warranty (In-voyage charter party evaluation)		Preliminary (enroute) performance evaluation data on whether the vessel is meeting the performance guaranteed under the charter party (CP) during the voyage Basic vessel and voyage data, contractual warranty conditions, performance records (speed in all weather and fair weather, sailing distance and time, ocean current impact, and fuel consumption), and evaluation results (assessment of time and fuel loss or savings)
Tonnage Allocation Planner Voyage simulation		Simulation results for the shortest route and the route recommended by Weathernews Allows users to obtain data for both the shortest route and the recommended route by having them specify vessel data, departure conditions, and scheduled port entry and departure Voyage summary (estimated arrival and departure times, sailing distance, voyage days, and days in port), estimated fuel consumption, speed, degree of impact from weather and ocean currents, and waypoint positions with scheduled passage dates and times
Hire Bunker Cost Report (Fuel cost forecast)		Calculates fuel costs based on estimated fuel consumption
Cost Sheet (Voyage cost forecast)		Forecasts total voyage costs to help in selecting and evaluating the lowest-cost route
Damage Risk		Risk of damage to the hull and cargo from encountering inclement weather
Emission Dashboard (CO2 emissions)		Visualizes CO2 emissions on in-house systems for compliance with environmental regulations (CII/EEXI/EU-ETS)

*1: Data with underlined names use forecast values from the Global Weather and Wave Forecasting System.

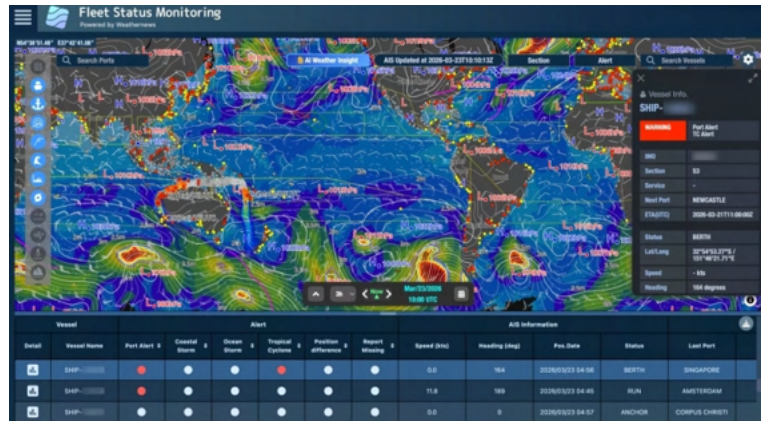
*2: Navigation Data is available only to companies using the Weathernews weather routing service.

SeaNavigator: A Single Marine Weather Service That Integrates All Navigation and Weather Data

Since October 2024, Weathernews has offered SeaNavigator, an integrated marine weather service that aids in environmentally sound, safe, and economically efficient operations for all types of vessels.

The service provides all the navigation and weather data needed for maritime operations on a single platform: from the latest high-resolution wave and wind forecasts to optimal route selection, calculation of arrival times and fuel consumption, and analysis of vessel performance and CO2 emissions.

AI accesses vast weather, marine, and navigation data to detect inclement weather risks for vessels in real time, automatically generate weather and marine condition reports, and perform in-depth analysis that would be time-consuming to perform manually.



SeaNavigator:
integrated marine weather service

In December 2025, Weathernews also launched SeaNavigator for Master, a next-generation operations support platform in which AI assists captains with operational decisions in an interactive format.

Weathernews has put into practical use the world's first AI service designed to help captains make operational decisions on board by enabling them to ask the AI about weather risks along routes and at ports, fuel efficiency and speed forecasts, and other data directly tied to voyage planning. Users can also check the latest high-resolution wave and wind forecasts and update voyage plans with optimal route simulations.



SeaNavigator for Master:
Designed to help captains make operational decisions

Weathernews provides solutions optimized for individual maritime transport operator workflows, from navigation-focused data via API to content that can be operated on the SeaNavigator screen. Weathernews aims to continue leveraging the navigation support expertise and vast weather and marine data it has built over more than 40 years to help vessels around the world achieve safe and efficient voyages.