

Social implementation of ocean forecast data

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The social implementation of ocean forecasting data is presented through practical application cases. Our company (Weathernews Inc.) has supported more than one million voyages over approximately 40 years since its founding. By using meteorological and oceanographic data, we can not only avoid foreseeable severe-weather risks but also minimize CO2 emissions through fuel-consumption optimization. This makes it possible to maximize business value while maintaining environmental responsibility. In recent years, advances in satellite communications have significantly improved onboard internet connectivity, enabling real-time access at sea to high-resolution, diverse data that was previously available only on land. With these developments, our latest service, SeaNavigator for Master (launched in 2025), enables captains to make optimal navigation decisions through dialogue with AI-agent backed by large-scale data.

In the Arctic Ocean, where international navigation demand has grown since the 2000s, there are data needs unique to polar operations that differ from other regions. For Japan's first Arctic research vessel, Mirai II, scheduled to enter service in November 2026, a wide range of information is required, including sea-ice concentration, thickness, and compression, ship-icing risk caused by sea spray, and high-resolution satellite observations of current ice conditions. These data are being used to support observation voyages aiming to reach the North Pole.

In addition to these short-term forecasting needs, demand for medium- to long-term climate-change data is also increasing. A major driver is the TCFD (Task Force on Climate-related Financial Disclosures), established in 2015 at the request of the G20. TCFD provides a framework recommending that companies identify climate-related risks (transition risks and physical risks) and their responses, and disclose them as financial information. TCFD has since been carried forward into the ISSB (International Sustainability Standards Board), and disclosure expectations have become more advanced, including multi-scenario climate analysis, greenhouse-gas emissions reporting, and risk quantification. As a result, demand for climate forecasting data and related analytical technologies has grown markedly. As examples of climate risk analysis services addressing this demand, a case of future fish-stock projection in the fisheries sector, based on projected sea-temperature changes, will be introduced, as well as a case of physical climate-risk assessment in manufacturing that includes storm surge.