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Weathernews to Participate in The Nippon Foundation's Autonomous Ship Program The world's first crewless ship trial run Working toward the development of a "route planning system" that uses AI to recommend the optimum sea route

Weathernews Inc. (Head Office: Mihama-ku, Chiba-shi; CEO: Chihito Kusabiraki) has been selected as a member of the "Designing the Future of Full Autonomous Ship Project" (hereafter, DFFAS Project) (*), made up of 22 domestic companies who will collaborate on the Joint Technological Development Programme for the Demonstration of Unmanned Ships (**), administered by the Nippon Foundation. In 2021, this project will carry out field testing of crewless domestic container ships navigating over long distances through congested waters, working toward the commercialization of autonomous ships by 2025. The organizers expect that successful field trials ahead of the rest of the world will lead to the world's first demonstration of the crewless operation of ships in congested waters and the early implementation of autonomous shipping, which will improve the industry's international competitiveness.

Weathernews is responsible for the development of a navigation planning system that combines AI with weather and operational data to select the optimal route. This technology will also serve as the core of Weathernews' upcoming autonomous ship support service.

Cooperating in the development of a Route Planning System that uses AI to find the optimal route for ship navigation

-This technology will also serve as the core of Weathernews' upcoming autonomous ship support service

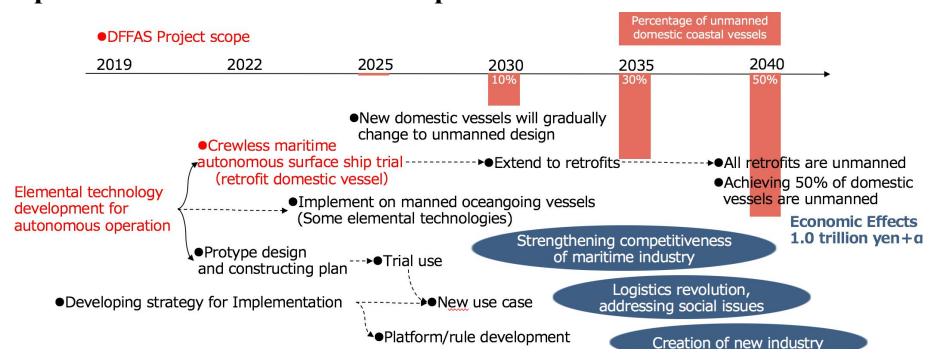
The practical use of crewless vessels requires a comprehensive system that encompasses all of the functions needed to operate a ship, including functionality to deliver feedback from land to ship, and operation by remote control in case of emergency. To achieve this, 22 domestic companies will participate in the DFFAS Project, developing and implementing the systems needed for practical use, including automated navigation, land support, remote maneuvering, and communication channels.

Weathernews is responsible for the development of the navigation planning system as part of the land support system. In order to achieve automatic navigation planning, the company will develop the following three technologies.

1. Optimal route selection with outstanding safety and economy
2. Unique meteorological and oceanographic analysis and prediction using physical models and machine learning
3. Ship performance estimation updated frequently from operational data

In developing these systems, Weathernews will use AI in combination with the analysis of weather models and operational results data from over 1 million voyages made using the company's services to further improve weather routing. The company also aims to achieve environmentally friendly ship operation through improved energy efficiency and optimizing routing and engine speeds. In the future, this technology will also serve as the core of an autonomous ship support service provided by Weathernews.

Schedule for the implementation of autonomous ships



Features of DFFAS Project

The DFFAS project has the following characteristics under the concept of "creating the future of crewless maritime autonomous surface ships — a grand design devised by various experts."

- a) A project structure that values the concept of open collaboration among 22 domestic companies that are responsible for creating the future of the Japanese shipping industry, cooperating together with various domestic and foreign experts.
- b) Development and demonstration of comprehensive system functions required for crewless maritime autonomous surface ships including remote operation in case of an emergency, automation of berthing/unberthing, operations in accordance with the approved route plan and action plan, and the monitoring of support functions from the fleet operation center (including ship-shore data communication system).

* Companies participating in the DFFAS project include Japan Marine Science Inc. (project leader); MTI Co., Ltd.; IKOUS Corporation; BEMAC Corporation; SKY Perfect JSAT Corporation; TOKYO KEIKI INC.; Nippon Telegraph and Telephone Corporation; NTT DOCOMO, INC., Japan Radio Co., Ltd.; NYK; FURUNO ELECTRIC CO., LTD.; Weathernews Inc.; EIZO Corporation; NTT Communications Corporation; Japan Hamworthy Co., Ltd.; Japan Marine United Corporation; Nabtesco Corporation; Nippon Shipping Co., Ltd.; pluszero Inc.; Honda Heavy Industries Co., Ltd.; Yokogawa Denshikiki Co., Ltd. and Mitsubishi Research Institute Inc.; The DFFAS project will consider adding new participants as needed.



** A subsidization scheme to cultivate further momentum for technological development in the field of crewless maritime autonomous surface ships, promoting changes in logistics, economies, and social infrastructure in Japan, and supporting such technological development through the success of the world's first crewless autonomous operation trials by domestic coastal vessels.

Weathernews promotes activities that contribute to the achievement of SDGs (Sustainable Development Goals) through the company's business activities, and digital-technology use and technology-development efforts to realize crewless maritime autonomous surface ships will contribute to the below goals.

