（Joint Release）

November 12, 2024
Hokkaido University
Japan Airlines Co., Ltd.
Hokkaido Air System Co., Ltd.

Hokkaido University and JAL Group to Commence World's First Regular Flight-Based Ocean Observation

～Starting Summer 2025, HAC Aircraft to be Equipped with External Cameras for Red Tide Monitoring～

Hokkaido University (Location: Sapporo, Hokkaido; President: Kiyohiro Houkin) and Japan Airlines Co., Ltd. (Headquarters: Shinagawa, Tokyo; President: Mitsuko Tottori, “JAL”) signed a partnership agreement in June 2022 to address various social issues in Hokkaido and lead the creation of a sustainable society. As part of this collaboration, Hokkaido Air System Co., Ltd. (Headquarters: Sapporo, Hokkaido; President: Eiji Takemura, “HAC”) will equip one of its aircraft with an external camera to commence the world's first (*1) regular flight-based red tide monitoring starting in the summer of 2025.

The captured image data will be used to detect red tide occurrences early and promptly provide information to fisheries stakeholders, thereby preventing damage to marine environment as well as the fishing industry. In the future, the system is also expected to be used for broader environmental monitoring of forests and oceans.

（*1）As of November 12, 2024, based on research by Hokkaido University, JAL, and HAC.

（Initial monitoring will focus on Hakodate Bay.）

Background

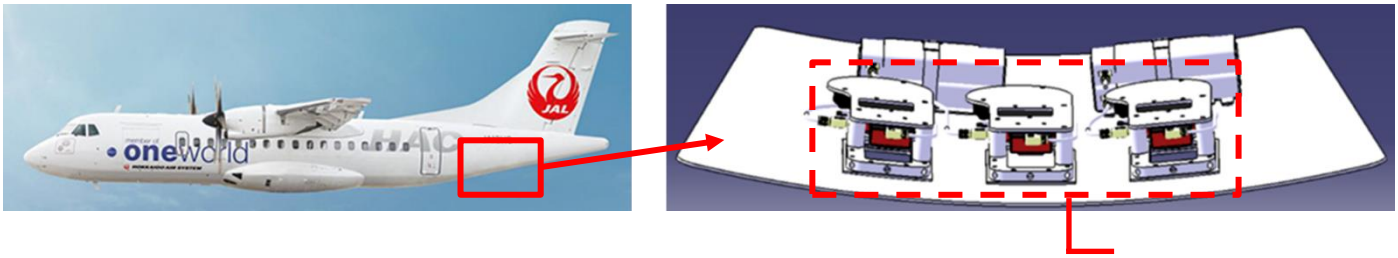
Red tide is a phenomenon in which marine phytoplankton blooms, turning seawater reddish-brown, causing mass fish deaths and significant damage to the fishing industry. With the increase in red tide occurrences due to global warming, Hokkaido experienced over 9.7 billion yen in damages in 2021. Therefore, early detection and prevention of red tide damage through monitoring are essential.

Regular flight-based monitoring is expected to be effective due to the frequent and consistent flight routes of regular flights, allowing for extensive and high-frequency observations.

（Reference image of red tide）

Overview of Red Tide Monitoring

An ATR42-600 aircraft (registration number: JA13HC) owned by HAC will be equipped with a multispectral camera (*2) on the lower rear fuselage panel for monitoring from regular flights.
The monitoring routes will include Sapporo (Okadama) - Hakodate, Hakodate - Okushiri, and Sapporo (Okadama) - Rishiri, targeting Hakodate Bay, Funka Bay, Okushiri Strait, and Rishiri Channel. (Initial monitoring will focus on Hakodate Bay.)

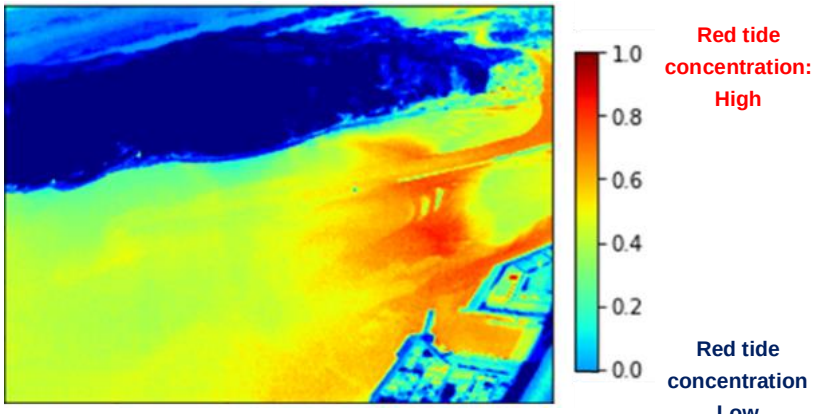


(*2) A camera capable of capturing images in multiple wavelength bands simultaneously by detecting light of different wavelengths.

The images captured by the cameras will be transferred to Hokkaido University, where Professor Akihide Kasai of Faculty of Fisheries Sciences will use a red tide detection method to visualize the distribution(*3). The accuracy of red tide detection will be improved through repeated validation, and methods for communicating information to fisheries stakeholders will be explored.

(*3) A method for detecting red tide by utilizing the differences in fluorescence characteristics emitted by phytoplankton from sea surface images captured in multiple wavelengths.

(Visible image)



(Image after analysis by red tide detection method)

Hokkaido University and JAL will continue to address various social issues in Hokkaido and lead the creation of a sustainable society.

About Hokkaido University:
Founded in 1876 as Sapporo Agricultural College, Hokkaido University is one of the oldest, largest, and most prestigious universities in Japan. The university attracts prospective students from all around the globe with the diverse degree programs offered and the year-round scenic beauty. The campuses are located in the cities of Sapporo and Hakodate of Hokkaido, and 21 facilities are spread throughout Hokkaido and mainland Japan.

For more information, please visit https://www.global.hokudai.ac.jp/

About Japan Airlines:
Japan Airlines (JAL), Japan's first private aviation company, was established in 1951 and is a member of the oneworld® Alliance. The airline operates a fleet of 227 aircraft (as of March 2024) and began renewing its international long-haul aircraft with the Airbus A350-1000 starting 2023 Winter Schedule. Together with other JAL Group and partner airlines, JAL offers an extensive domestic and international network that serves 384 airports across 64 countries/regions. The airline has received numerous accolades for its exceptional service, including being recognized as a certified 5-Star Airline by Skytrax and being awarded the prestigious "World Class" Airline title by APEX, the Airline Passenger Experience Association. The airline is dedicated to ensuring the highest standards of flight safety and overall service quality, striving to be the most preferred airline by customers worldwide.

For details and to learn more, visit JAL's official website at https://www.jal.com/en/.

About Hokkaido Air System:
Hokkaido Air System Co., Ltd. (HAC), a member of the JAL Group and part of the oneworld® alliance, was established in 1997 and commenced operations in 1998. As of November 2024, HAC operates a fleet of four ATR42-600 aircraft. Based at Sapporo Okadama Airport, which is conveniently located approximately 6 km from the center of Sapporo, HAC serves as a regional airline in Hokkaido with a network of nine routes - seven within Hokkaido and two connecting to the Tohoku region.
HAC is committed to addressing various environmental challenges. The airline operates the eco-friendly ATR42-600 turboprop aircraft, known for its low CO_2 emissions, and is actively promoting the "HAC eco AIRPORT" project aimed at decarbonizing airports.
Striving to be "an airline loved by the community," HAC is dedicated to providing safe and comfortable air travel for its customers.

For more information, please visit our website: https://www.info.hac-air.co.jp/

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