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Future Collaboration by Research Vessels and Icebreakers
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Technology & Engineering Session

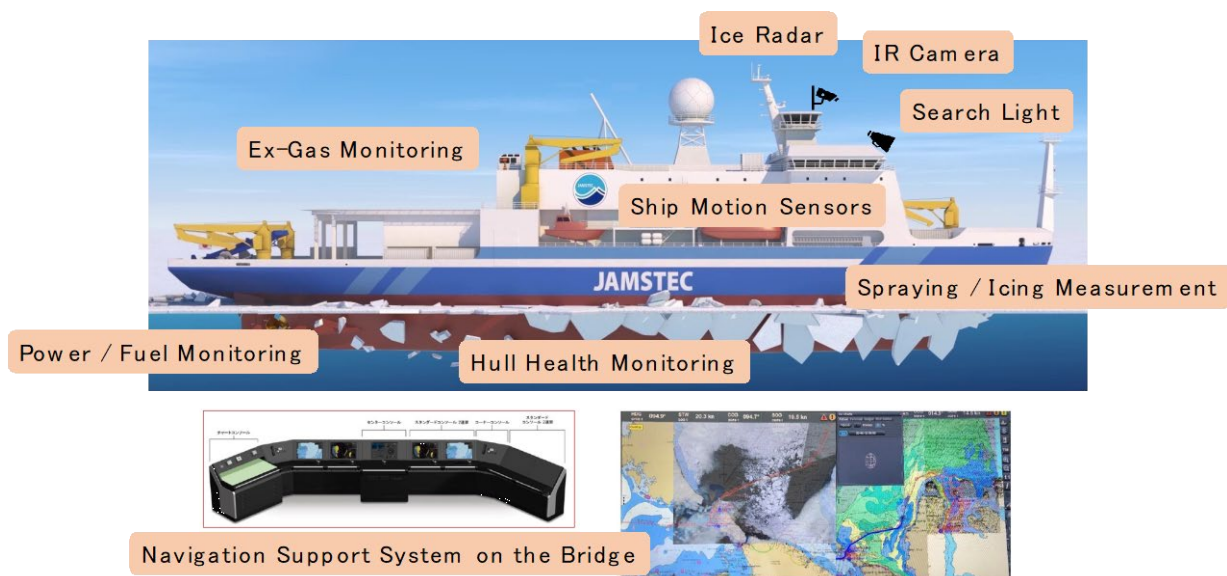
Arctic Research Vessel as a Monitoring Tool for Engineering

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Abstract

- Ice-related industry in Japan has been activated since the 1980's. We have developed ice-going ships, ice model basins, and instruments/methods for measuring ice properties. Despite our technology, we have had small businesses due to less realistic in Japan. Sea ice in the Arctic is rapidly changing, and the need for ice engineering is becoming worldwide.
- Arctic engineering is highly empirical and data-driven because ice as material is complicated and erratic. We need continuous monitoring of the Arctic to retrieve ground truth data so that we can take more analytic/reasonable approach for sustainable, safe, and efficient activities. Arctic observation onboard ships must be indispensable.
- JAMSTEC's new Arctic Research Vessel plans to retrieve valuable data equipped with state-of-the-art instruments and techniques for measuring ice-related parameters. The PC4 ability to navigate in level ice of 1.2m thick can cover almost first-year ice areas in the Arctic Sea.
- In this session, we introduce the past, present, and prospects in ice engineering by four speakers from Canada, Germany, and Japan and summarize their opinions on below topics:
 - ✓ Examples of knowledge gaps in the Arctic engineering field,
 - ✓ Ways to utilize Arctic research vessels to retrieve valuable data for engineering,
 - ✓ And thoughts on research collaboration using the JAMSTEC's new Arctic Research Vessel as an international research platform.



References

- 1) MATSUZAWA, T. (2022). JAMSTEC's New Icebreaking Arctic Research Vessel. Presented in Maritime Arctic Conference, 11-13 May 2022, Victoria, BC Canada.