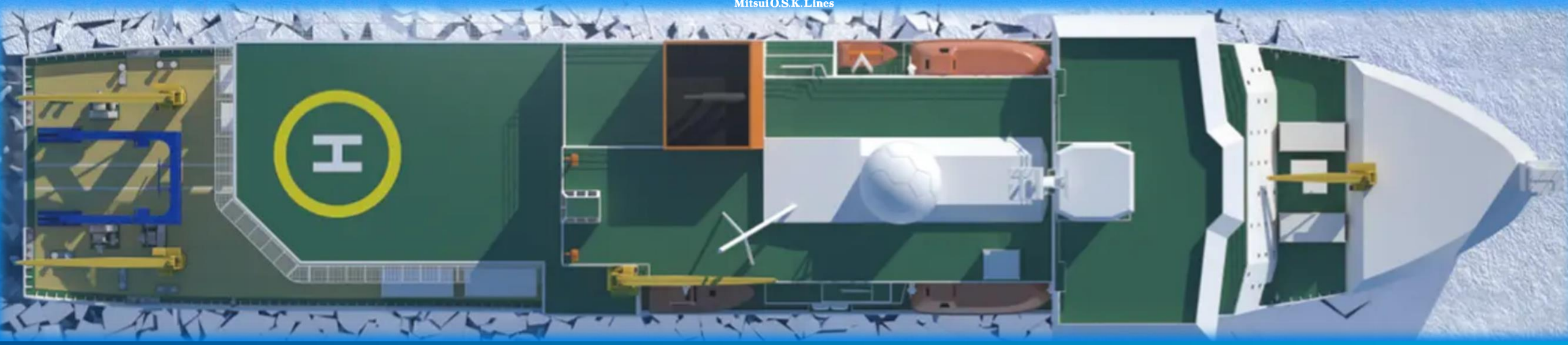
Introduction of Japan's new Arctic research icebreaker

2023/10/17

Arctic research vessel project team
Mitsui O.S.K. Lines Ltd.,



1 NEW ARCTIC RESEARCH ICEBREAKER WILL BE READY IN 2026 !

Japan’s new Arctic research icebreaker

JAMSTEC 国立研究開発法人 海洋研究開発機構 Japan Agency for Marine-Earth Science and Technology

- In 2021, the construction of Japan's first Arctic research vessel with icebreaking capabilities began.
- The construction of this new Arctic research icebreaker by JAMSTEC is aiming to investigate and find solutions to various issues and environmental changes occurring in the Arctic region.
- The vessel is now under construction at Yokohama, Japan and scheduled to be delivered in November 2026.

(Reference)

・YouTube

・JAMSTEC’s site for the project

Source : https://www.jamstec.go.jp/parv/j/overview/

Selected as a planned operator of Arctic research icebreaker by JAMSTEC

- MOL Group will offer the pre-commissioning crew dispatch services until the vessel is delivered, which is expected to be completed around November 2026, and take charge of vessel operation after delivery.
  (PR dated on 10th Aug. 2023)
- MOL Group is also now under a contract of construction supervisor for the vessel.

MOL Mitsui O.S.K. Lines News Release

August 10, 2023

JAMSTEC Picks MOL Group Companies for Key Roles in Arctic Research Vessel Development and Operation

TOKYO—Mitsui O.S.K. Lines, Ltd. (MOL; President & CEO: Takeshi Hashimoto) today announced that MOL Ship Management Co., Ltd. and MOL Marine & Engineering Co., Ltd., both wholly owned MOL subsidiaries, have been selected as a pre-commissioning crew dispatcher (Note 1) and expected operator for the Arctic research vessel (Note 2) ordered by the Japan Agency for Marine-Earth Science and Technology (JAMSTEC; President: Dr. Hiroyuki Yamato; Headquarters: Yokosuka-shi, Kanagawa Prefecture). JAMSTEC's decision is based on the results of the review process in the Call for Proposals.

<CG rendering of the Arctic Research Vessel>

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2 WHO WE ARE: MOL

- Company name: Mitsui O.S.K. Lines, Ltd.
- Head Office: Tokyo, Japan
- Founded: in 1884

MOL Group Fleets
799 vessels

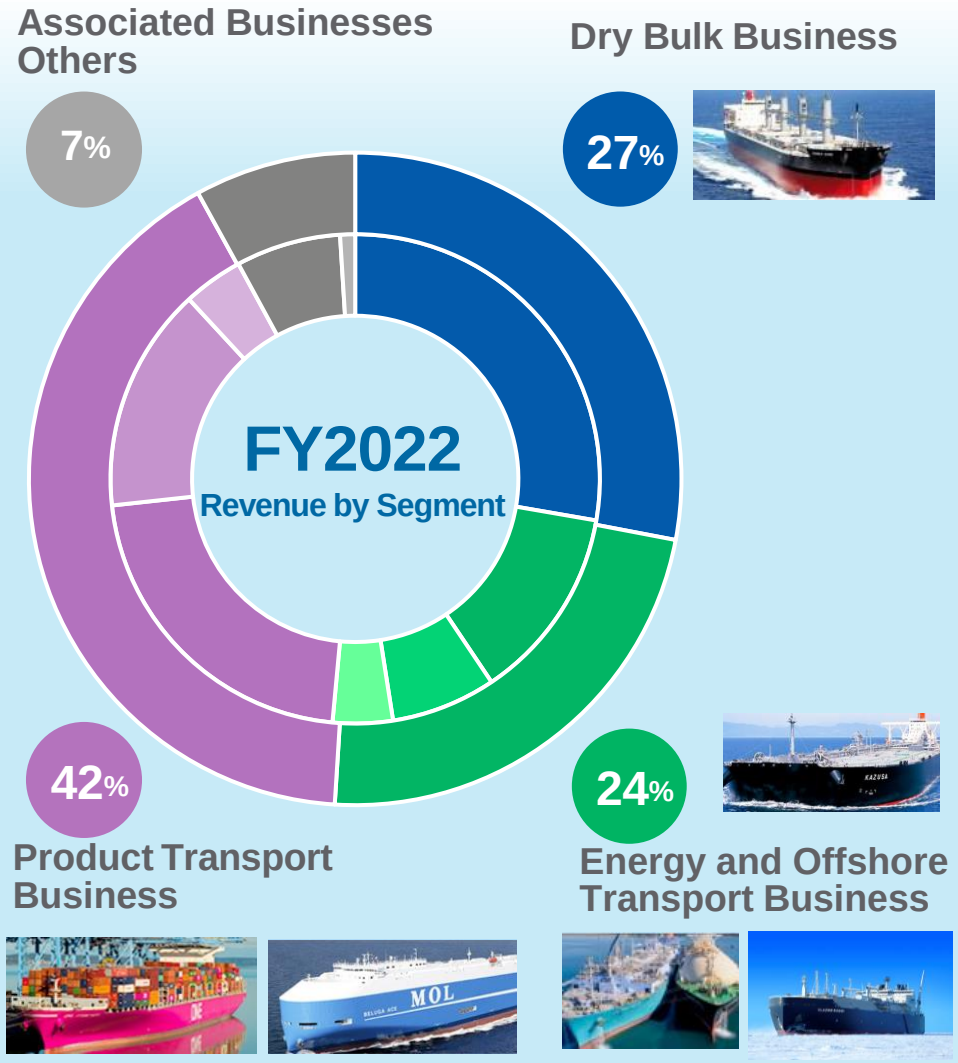
# of Countries MOL Group Bases
44

Revenues
JPY 1612 billion

# of MOL Group Employee
8,748

# of Group Companies
509

Ordinary profit
JPY811.5 billion



3 WHY WE DO?

Contribution to a better future of the earth

- The MOL Group fully recognizes the significance of the new Arctic research icebreaker, which brings new value to people, society, and the Earth.
- Contribution through safe operation of the vessel and creation of an international research platform by utilizing its accumulated know-how and human resources developed in the operation of Arctic shipping routes and handling of LNG fuel.

Mission

From the blue oceans, we sustain people's lives and ensure a prosperous future.

Vision

We will develop a variety of social infrastructure businesses in addition to traditional shipping businesses, and will meet the evolving social needs including environmental conservation, with innovative technology and services.
MOL group aims to be a strong and resilient corporate group that provides new value to all stakeholders and grows globally.

4 THE NEW JAPAN'S ARCTIC RESEARCH ICEBREAKER IS LIKE…

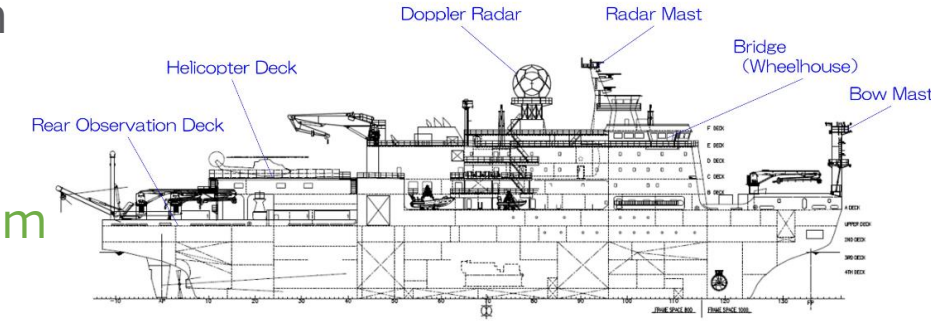
Main specifications (planned)

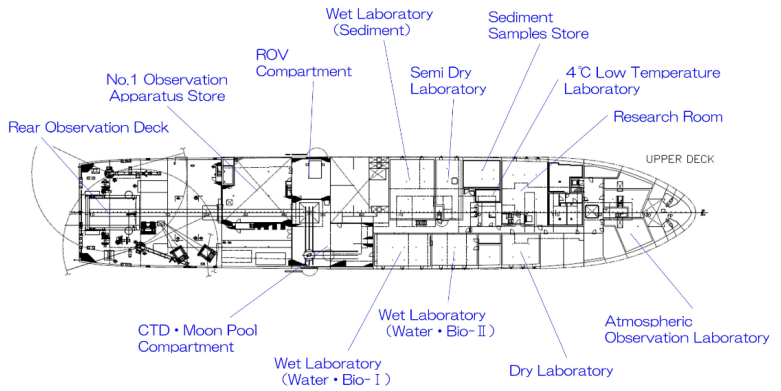
	The new Arctic research icebreaker	JAMSTEC "R/V Mirai"
LOA, Beam, Draft	**128m**, **23m,** 8m	**128.5m,** 19m, 6.9m
Gross tonnage	13,000GT	8,706GT
Ice-breaking capacity	capable of continuously breaking 1.2 m of flat, one-year ice at a speed of 3.0 knots	**NIL**
Ice Class	**Polar class 4**	Polar class7
Accommodations	99 (34 crew, 65 scientists/engineers)	80
DPS （Dynamic Positioning System)	**Class1**	NIL
Diesel Generator	approx. 5,600kW x 3, Dual fuel diesel (DFD) approx. 2,600kW x 1	1,838kW×4
Propulsion	**Variable pitch propeller (twin screw) Electric propulsion**	Variable pitch propeller (twin screw) Electric propulsion
Facility for helicopter	Helideck, Hunger	NIL

4 THE NEW JAPAN'S ARCTIC RESEARCH ICEBREAKER IS LIKE…

Main features

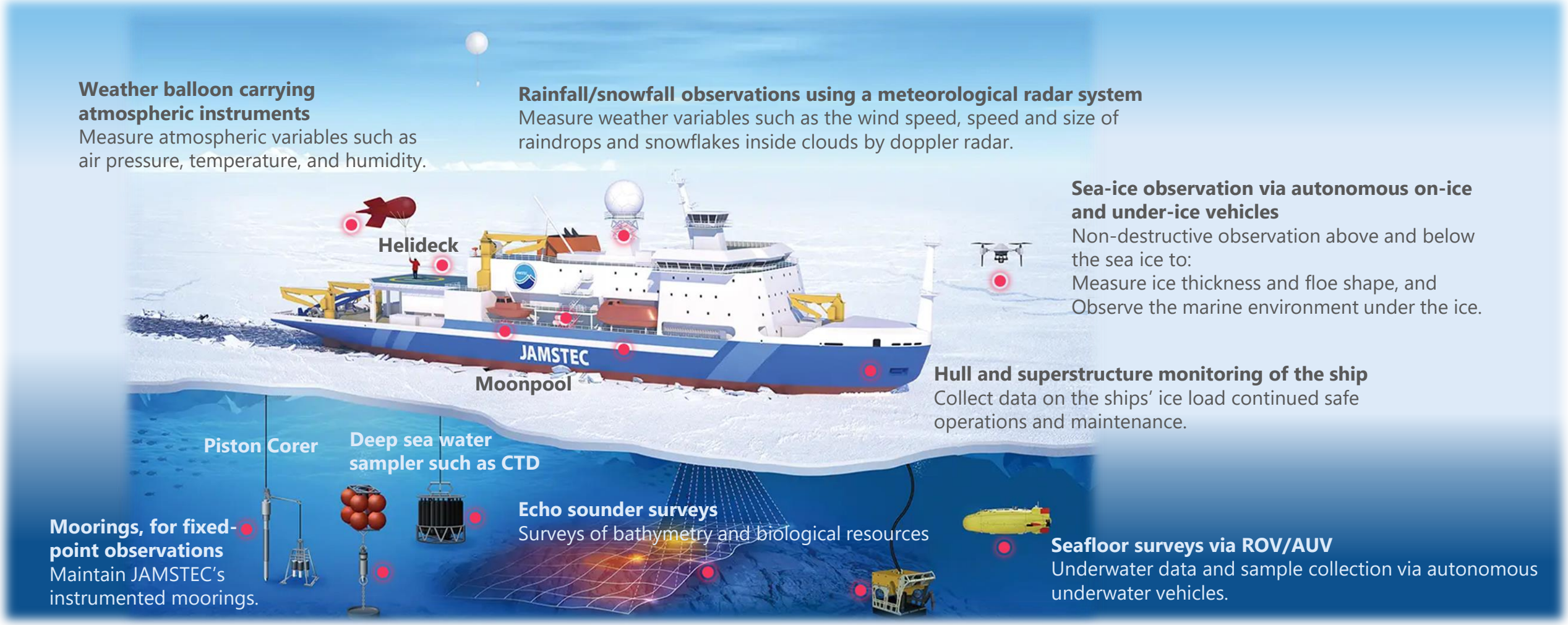
1. High-precision and multi-parameter observation equipment for atmospheric, oceanic, meteorological, and biological research
2. Fuel-efficient hull shape for ice-breaking, ice-resistant performance, and navigation in ice-free areas
3. Equipped with an advanced ice-sea navigation support system
4. Dual-fuel engine to reduce environmental impact
5. Dynamic positioning system
6. Facilities for deployment and operation of Unmanned Underwater Vehicles (ROV, AUV, etc.)
7. Helicopter facilities for safety and sea ice observation
8. Ideal research and analysis environment with a variety of laboratory spaces and excellent network infrastructure
9. Living & working environment for multinational teams
10. Potential for multi-use and expandable functions (e.g.. operatio and assistance in natural disaster-affected areas)





Source : https://www.jamstec.go.jp/parv/j/blog/20230630.html

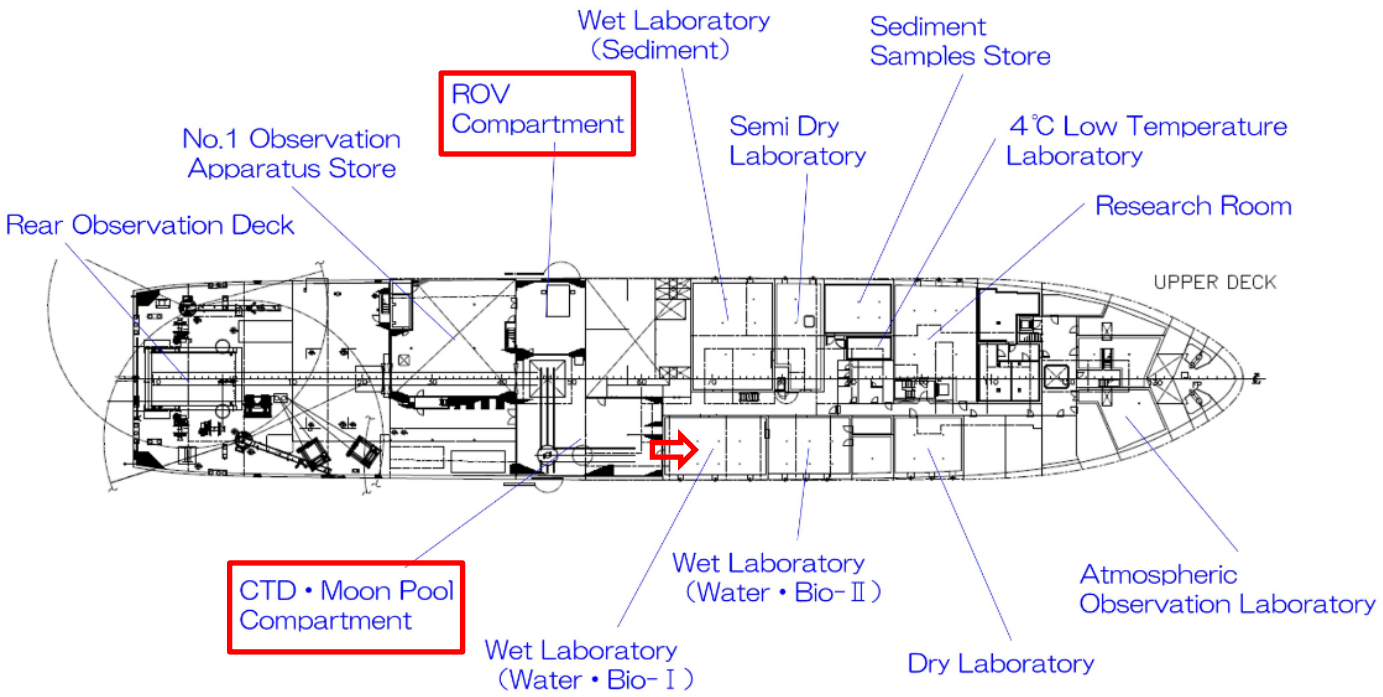
4 THE NEW JAPAN'S ARCTIC RESEARCH ICEBREAKER IS LIKE…



Source：https://www.jamstec.go.jp/parv/e/equipment/

4 THE NEW JAPAN'S ARCTIC RESEARCH ICEBREAKER IS LIKE…

Moon pool



Source : https://www.jamstec.go.jp/parv/j/blog/20230630.html

- Square shape moon pool
- Opening is approx. 4.0m×4.0m (planned)
- Sampling from moon pool section
  =>more safely and stably regardless of to the fluctuation of the hull, weather and sea conditions and surrounding ice condition etc.,
- Launch and retrieval of CTD from starboard side is also possible
- Efficient layout of laboratories
- ROV launch/retrieval from port side with dedicated LARS

5 OUR CHALLENGES

NEW VESSEL

- **Learn a lot, collaborate a lot in the great community**

NEW TEAM

- Crew training **for observation activities** (desktop/**hands-on**)
- Polar water navigation training
- DP operator, Dual Fuel
- Training for helicopter operation

NEW MANAGEMENT

- Polar Water Operation Manual
- **Safety Management** in extreme environment
- Safety management for scientists and researchers
- Helicopter operation


MOL
商船三井