

南極海未探査領域への挑戦

Challenges for unexplored frontiers in the Southern Ocean

*野木 義史¹、青木 茂²、吉田 弘³、巻 俊宏⁴、沖野 郷子⁵、青山 雄一¹、田村 岳史¹、末吉 哲雄¹

*Yoshifumi Nogi¹, Shigeru Aoki², Hiroshi Yoshida³, Toshihiro Maki⁴, Kyoko Okino⁵, Yuichi Aoyama¹, Takeshi Tamura¹, Tetsuo Sueyoshi¹

1. 国立極地研究所、2. 北海道大学低温科学研究所、3. 海洋研究開発機構、4. 東京大学生産技術研究所、5. 東京大学大気海洋研究所

1. National Institute of Polar Research, 2. Institute of Low Temperature Science, Hokkaido University, 3. Japan Agency for Marine-Earth Science and Technology, 4. Institute of Industrial Science, the University of Tokyo, 5. Atmosphere and Ocean Research Institute, the University of Tokyo

The processes and the mechanism of the various kinds of interactions should be elucidated to understand the changes in the Southern Ocean and the Antarctic ice sheet from the viewpoints of giant reservoirs of heat, water and carbon dioxide, which drive changes in the global climate. Especially, the field observation data around ice shelf and sea ice areas is essential to understand the processes and the mechanism of the interactions between ice sheet and ocean. However, the field observation data around ice shelf and sea ice areas is very poor because of the difficulties with the observation. The acquisition of the field observation data in the unexplored area around the boundary between ice sheet and ocean is vital to understand the interactions between the Southern Ocean and the Antarctic ice sheet.

Unmanned research instruments and vehicles, especially such as underwater robots, namely ROV (Remotely Operated Vehicle) and AUV (Autonomous Underwater Vehicle), are urged to acquire the field observation data in the unexplored area. The underwater robots are widely used in the oceanographic observation in recent years associated with the development of robotics. The unmanned research vehicles should be applied to obtain the oceanographic and geological observation data around unexplored field, under ice shelf, sea ice and the surrounding areas. Moreover, the observation instruments accompanied with the unmanned research vehicles should be developed. We are progressing with preparation of AUV that can operate under sea ice to help understanding the interaction between ice and ocean. The outline of unmanned research vehicles and the development of the observation instruments in the unexplored area is introduced, and the future plan of observation is also discussed.

キーワード：南大洋、南極氷床、無人探査機、海氷、棚氷

Keywords: Southern Ocean, Antarctic ice sheet, unmanned research vehicles, sea ice, ice shelf