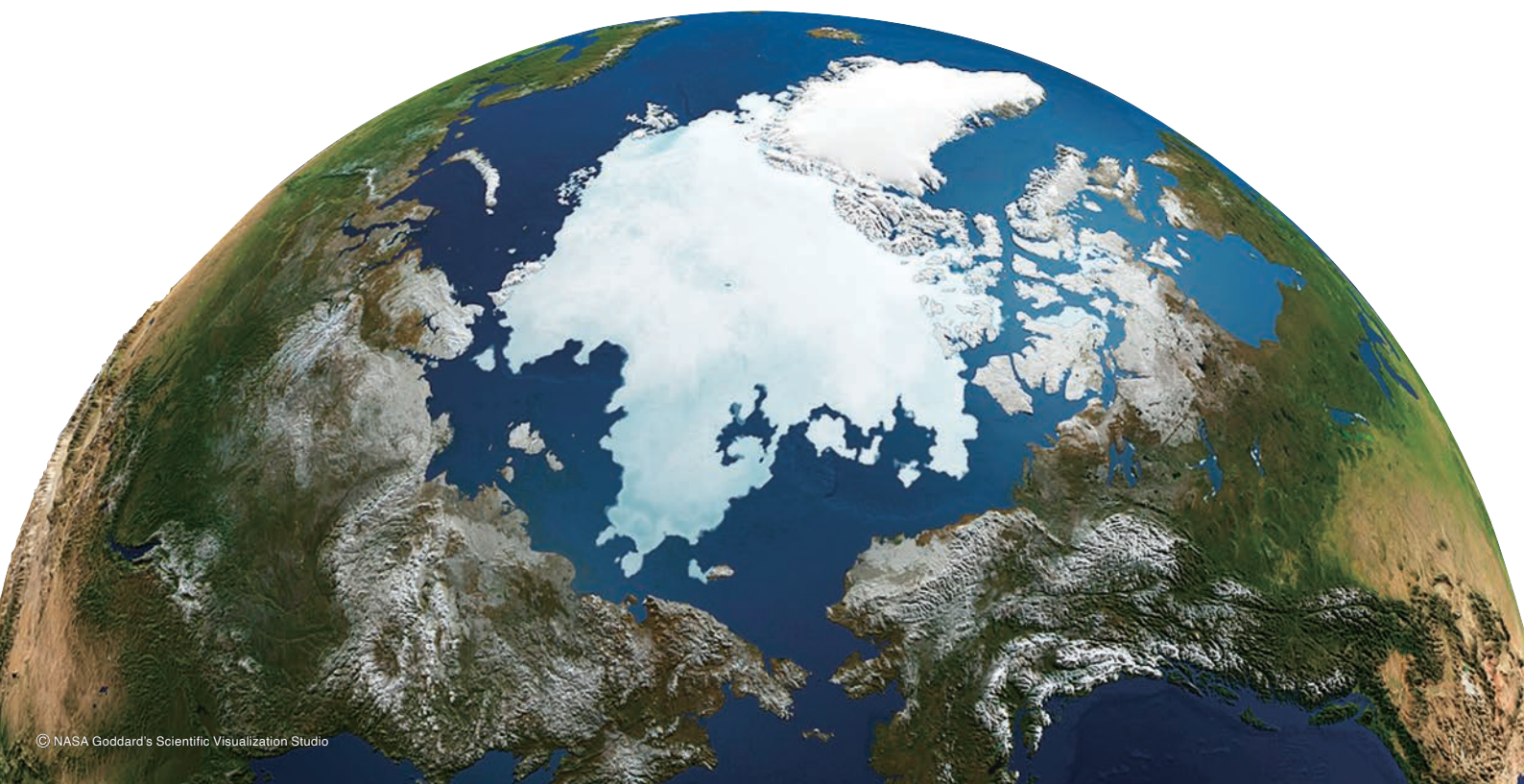




National Institute of Polar Research
Inter-University Research Institute Corporation
Research Organization of Information and Systems

2025-2026



FOREWORD

The Intergovernmental Panel on Climate Change (IPCC) published “Special Report on the Ocean and Cryosphere in a Changing Climate” in 2019. The report stresses that the ocean and cryosphere are essential for predicting global climate change. As described by the IPCC, the importance of research and observation in both the Antarctic and the Arctic—which has an ice sheet— is growing in the global environmental problems like global warming. The National Institute of Polar Research (NIPR) of the Research Organization of Information and Systems, the core institute for conducting research and observation of the polar regions, is playing an increasingly critical role. The NIPR must conduct research and observations of the polar regions with a global perspective and consistently produce results internationally while also widely educating the public on the importance of such activities. As global warming accelerates, the NIPR functions as a research institute that conducts polar research and observations to predict future changes in the global environment. We will highlight the various changes in the Arctic and Antarctic from past to present on the temporal scale and spatial scales for more accurate predictions about the global environment.

The NIPR is an inter-university research institute established in 1973 to conduct polar observations and comprehensive research. This type of institute boosts the research capabilities of universities around Japan through collaborative domestic and international research. With a research target of global-scale environmental changes focused on the polar region, international cooperation is essential. While conducting collaborative observational research with various countries within a framework of academic organizations under the International Science Council (ISC), including the Scientific Committee on Antarctic Research (SCAR), International Arctic Science Committee (IASC), the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP), and the Scientific Committee on Oceanic Research (SCOR), we pursue world-leading scientific research of the polar regions.

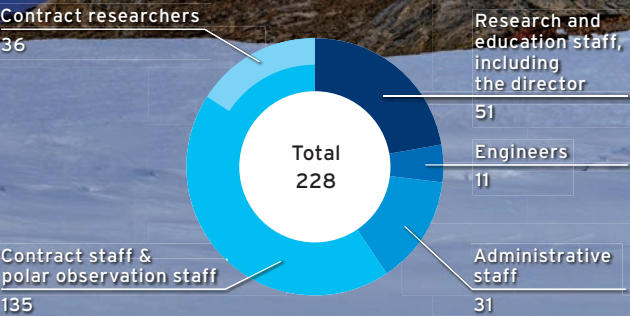
The primary topic for Antarctic observation in the six-year plan (FY2022-2027) of Phase X of the Japanese Antarctic Research Projects is “the future global environment system as inferred through investigating the past and present of the Antarctic,” around which we are engaged in activities such as drilling of the oldest ice core at the Dome station and intensive marine observation with the Antarctic research vessel “Shirase”. In 2025, a new Arctic research project, “Arctic Challenge for Sustainability III” (ArCS III) was initiated. This project aims to create comprehensive knowledge that will contribute to solving various social issues arising from changes in the Arctic environment and society based on the findings and results obtained from previous projects. As we pursue these observational research projects, we look forward to your support and understanding of the activities of the NIPR in fulfilling its role as Japan’s only research institute conducting comprehensive observational research in the polar regions.



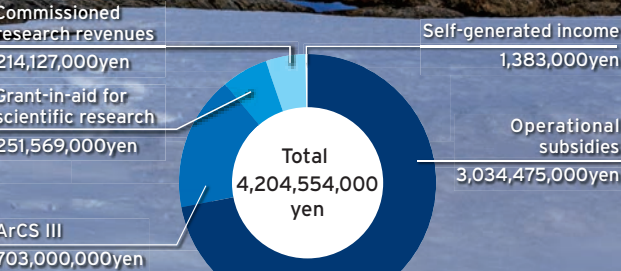
Dr. Yoshifumi NOGI
Director-General, National Institute of Polar Research

Institute Data

Number of Employees (as of April 1, 2025)



Funding for Operations (as of April 1, 2025)



History

History of the National Institute of Polar Research

- (1961) The Science Council of Japan advised the creation of the “Institute of Polar Research” (tentative) to the government
- (1962) (“Polar Department” of the National Science Museum established)
- 1973 The National Institute of Polar Research (NIPR) established (September 29) Four research divisions, two document and data divisions, a management department, and an administrative department
- 1990 Arctic Environment Research Center established Information Science Center (Current Communications and Computing Science Center) established
- 1993 NIPR became a Foundational institution for the Graduate University for Advanced Studies (SOKENDAI)
- 1995 Antarctic Environmental Monitoring Research Center established (~2004)
- 1998 Antarctic Meteorite Research Center established (Current Polar Science Resources Center SHRIMP Laboratory)
- 2004 NIPR was reorganized as part of Research Organization of Information and Systems (ROIS) Center for Antarctic Programs established Polar Science Resources Center established
- 2009 NIPR relocated to new campus in Tachikawa
- 2010 NIPR Polar Science Museum opened
- 2014 Ice Core Research Center established
- 2022 Advanced Radar Research Promotion Center established
- 2023 International Polar and Earth Environmental Research Center established 50th anniversary

History of Antarctic Expeditions History of Arctic Researches

- 1912 Nobu Shirase Antarctic Expedition team reached lat. 80°
- 1956 First Antarctic expedition team departed upon the icebreaker ship “Soya”
- 1957 “Syowa Station” established
- 1962 “Syowa Station” closed temporarily
- 1965 Research vessel “Fuji” launched
- 1966 “Syowa Station” reopened
- 1969 Round-trip to the South Pole achieved
- 1970 First Antarctic meteorite discovered Observation by rocket “Mizuho Station” (observation base) established
- 1976 Japan-France International Joint Observation in Norway
- 1977 Geomagnetic Conjugate Point Observation in Iceland
- 1982 “Ozone hole” observed
- 1983 Research vessel “Shirase” launched
- 1985 “Asuka Station” established
- 1983 Bipolar Aurora Conjugate Observation in Iceland started
- 1991 Ny-Ålesund Research Station established Joined International Arctic Science Committee (IASC)
- 1995 “Dome Fuji Station” established
- 1996 Ice core drilled to a depth of 2,503 m
- 1996 Joined European Incoherent Scatter Scientific Association (EISCAT)
- 1998 Japanese-German airborne Arctic expedition
- 2002 Specialized ship was added for South Pacific expedition
- 2004 Intelsat satellite communication system activated Obtained consistent Internet connection
- 2005 Aircraft observation base established on the continent of Antarctica
- 2007 Ice core drilled to a depth of 3,035 m
- 2008 North Greenland Eemian Ice Drilling (NEEM) began (~2012)
- 2009 New “Shirase” launched
- 2010 Tokyo University of Marine Science and Technology’s training ship “Umitaka-Maru” joined Antarctic research project
- 2011 GRENE - Arctic Project started (~2016)
- 2015 “Arctic Science Summit Week” was held in Toyama Arctic Challenge for Sustainability (ArCS) Project started (~2020)
- 2016 Japanese Antarctic Research Project Phase IX started (~2023)
- 2016 Japan Arctic Research Network Center (J-ARC Net) started (~2022)
- 2018 Initiated Totten Glacier observation
- 2018 Joined Svalbard Integrated Arctic Earth Observing System (SIOS)
- 2019 Relocation of Ny-Ålesund NIPR Observatory
- 2020 Arctic Challenge for Sustainability II (ArCS II) Project started (~2025)
- 2022 Japanese Antarctic Research Project Phase X started Second deep ice-core drilling site at Dome Fuji II Camp area established
- 2025 Arctic Challenge for Sustainability III (ArCS III) Project started

What We Do

As the Core Station for Polar Scientific Research in Japan and Polar Observation

NIPR has both Arctic and Antarctic observation stations and is engaged in comprehensive polar science research with polar observation as the foundation. As an inter-university research institute, it provides researchers around Japan with the infrastructure for Arctic and Antarctic observation and promotes polar science through joint use of the institution; for example, by public solicitation for collaborative research projects and the provision of samples, materials, and information.

Research Groups

NIPR has established five foundational research and education groups in the Division for Advanced Research Promotion. These groups utilize the unique characteristics of their field while also collaborating for the pursuit of comprehensive polar science research.

Space and Upper Atmospheric Sciences Group



The Space and Upper Atmospheric Sciences Group aims to clarify the effects of changes in geospace surrounding the earth on the earth's environment, and the global characteristics of the earth's atmosphere. The group uses ground-based observation networks and advanced remote sensing techniques in the Antarctic and Arctic regions maintained through international collaborations to carry out comprehensive observational research on aurora phenomena and middle and upper atmospheric phenomena.

Meteorology and Glaciology Group



The Polar Meteorology and Glaciology Group aims to determine past, present, and future conditions of the global environment and climate through studies on the polar atmosphere (including the troposphere and stratosphere), the cryosphere, and the ocean. To this end, the group conducts research in atmospheric science, meteorology, glaciology, sea ice and marine science, and paleoclimatology, primarily through on-site observations, satellite remote sensing, and numerical modeling.

Geoscience Group



Various phenomena and processes on the "Solid Earth" and "Planetary materials" are the research targets of the group. The Geoscience Group applies geology, mineralogy, geomorphology, Quaternary research, geodesy, and solid earth geophysics to reveal the formation of the solar system 4.6 billion years ago, changes in the earth's crust, changes in the Quaternary environment as well as present-day changes in the earth's crust and surface accompanying the retreat and advancement of the ice sheet.

Bioscience Group



The Bioscience Group has three core research areas: research on polar marine production and biological oceanographic processes, research on behavioral ecology of large animals using a bio-logging approach, and research on ecosystems that develop on land and in lakes. The group studies topics such as polar biodiversity, biological adaptation to recent changes in the global environment, and ecosystem response.

Polar Engineering Group



Technical backup is essential for conducting high-quality observation in the unique polar environment of below-freezing temperatures, strong winds, and snow fall, and under constraints such as limited means for transportation. The Polar Engineering Group addresses technical challenges associated with polar observation and logistics by studying, for example, the stable use of renewable energy and developing technology related to unmanned observation.

Collaborative Research

Research Projects

Research projects led by NIPR researchers aim at studying polar sciences in a focused and systematic manner through collaboration with researchers at universities and other research institutes.

Special Collaboration Project

Collaboration Projects promote polar sciences, especially those related to both Arctic and Antarctic regions. In 2025, 8 projects are underway.

General Collaboration Projects

General Collaboration Projects are polar research projects conducted by individuals outside NIPR or multiple researchers working with NIPR researchers that use NIPR as a collaborative space. In 2025, 22 projects are underway. NIPR also has research meetings to discuss articles on research directions and results, and publicly recruits collaborative research training researchers to foster younger researchers.

Symposia

The Symposium on Polar Science is held every year around November as an international symposium to promote networking and sharing of information among polar science researchers.

International Academic Journals

NIPR has published the Polar Science academic journal since 2007 and the Polar Data Journal, Japan's first data journal by an academic organization, since 2017. These publications promote polar research globally and help to increase the international visibility of Japan's research findings.



Research Facilities

To promote the joint use of polar science data and samples obtained by polar observation, NIPR has established research facilities that provides joint use services to researchers from Japan and other countries.

Communications and Computing Science Center



With the aim of promoting polar science, the Communications and Computing Science Center promotes the joint use of satellite links, the Polar Science Computer System, and the Polar Science Data Library System, which are required to obtain, send, store, analyze, and publish the results of polar observation data.

Polar Science Resources Center



The Polar Science Resources Center consists of four laboratories: the Antarctic Meteorite Research Center, the SHRIMP (Sensitive High Resolution Ion Microprobe) Laboratory, the Biological Specimen Archive, and the Rock Specimen Archive. These facilities serve domestic and international researchers by providing materials and samples, and by operating advanced analytical equipment.

Ice Core Research Center



Ice core samples drilled from the polar ice sheets are extremely valuable, containing information that enables precise reconstruction of the past global environment. The Ice Core Research Center fosters collaborative research and encourages joint use by focusing on the technological development, storage, and analysis of these ice cores.

Advanced Radar Research Promotion Center



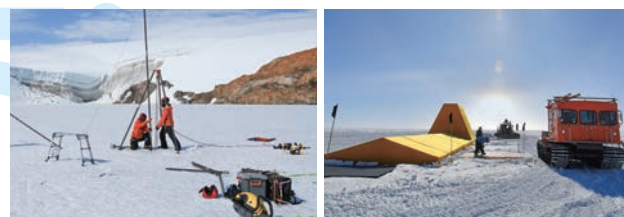
The Advanced Radar Research Promotion Center promotes joint usage of advanced large-scale radars such as the EISCAT_3D radar in the Arctic and the PANSY radar in Antarctica and their collaborative research, and contributes to understanding of future climate change and space weather forecasting.

International Polar and Earth Environmental Research Center

The Center aims to promote integrated and pioneering international collaborative research and joint use related to polar and global environmental changes in the past and present, and increase the precision of future predictions by collaborating with domestic and international universities and research institutes, in addition to acting as an international base for polar research and other types of global warming research.

Antarctica - As a Core Institution

Antarctic research is a national project in which many government ministries and agencies as well as research institutes participate as implementing bodies under the Headquarters for the Japanese Antarctic Research Expedition headed by the Minister of Education, Culture, Sports, Science and Technology. In addition to carry out monitoring and research programs, NIPR plays a wide range of roles in the management of research expeditions as the core institution for conducting Antarctic research, such as organizing research expeditions, conducting trainings, transportation, safety management, and publicity. In promoting collaborative international research and observation and the use of ships and aircraft as key infrastructure for conducting observation, NIPR considers the environment and performs coordination and support activities to assist in the various research activities in the Antarctic region. It has four research stations in the Antarctic. The core of them, Syowa Station, can accommodate about 30 expedition team members in winter and over 100 in summer. Joint use of the research platform at Syowa Station and the other stations is offered to Japanese and foreign researchers, greatly contributing to the advancement of polar science.



Arctic - As a Core Institution

NIPR established research and observation sites in the Arctic, including the Ny-Ålesund observatory on the Svalbard archipelago, Norway, and other sites in northern Scandinavia, Alaska, Canada, Greenland, Iceland and Russia to carry out international joint research projects in geospace, atmosphere, cryosphere and terrestrial regions by providing these facilities with domestic researchers as an inter-university research organization. NIPR is facilitating data science as well by archiving integrated observation data in polar regions with use of visualization tools and transmitting Arctic sea ice data. As a representative organization in charge of the Arctic Challenge for Sustainability III (ArCS III), NIPR leads advanced and interdisciplinary research projects in the Arctic in cooperation with domestic universities and research institutes. Affiliated in the European Incoherent Scatter (EISCAT) Scientific Association (current EISCAT AB), NIPR is contributing to construct and operate the next generation EISCAT_3D radar, while carrying out cutting-edge studies on the arctic upper and middle atmospheres. Through these activities, NIPR plays a vital role as a core institute for Arctic research in Japan.



As an Institution that Develops Researchers

Graduate School Education

The Graduate University for Advanced Studies (SOKENDAI) was established in 1988 as Japan's first independent graduate university under close communication and cooperation with inter-university research institutes and other institutions. NIPR has been participating in SOKENDAI since 1993 and is currently responsible for graduate school education in the five-year doctoral program as the polar science course.

This course provides education and research centered on natural phenomena in the Arctic and Antarctic from a global perspective. It develops outstanding researchers with strong research capabilities and competencies as field scientists.

There were 23 students enrolled in the course as of April 2025 and, to date, a total of 86 students have obtained the doctoral degree.

Special Collaborative Research Fellows

NIPR has been accepting graduate students in polar science and related fields from other universities as special

collaborative research fellows since 1981.

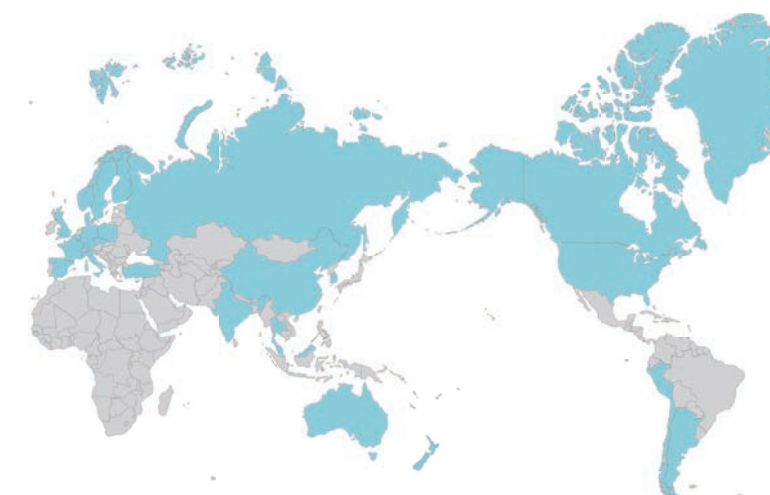
Partner Graduate Schools

NIPR and Kyushu University entered into an Agreement on Partnership and Cooperation in Education and Research in 2006 to collaborate on graduate school education in the field of environment in the polar region.

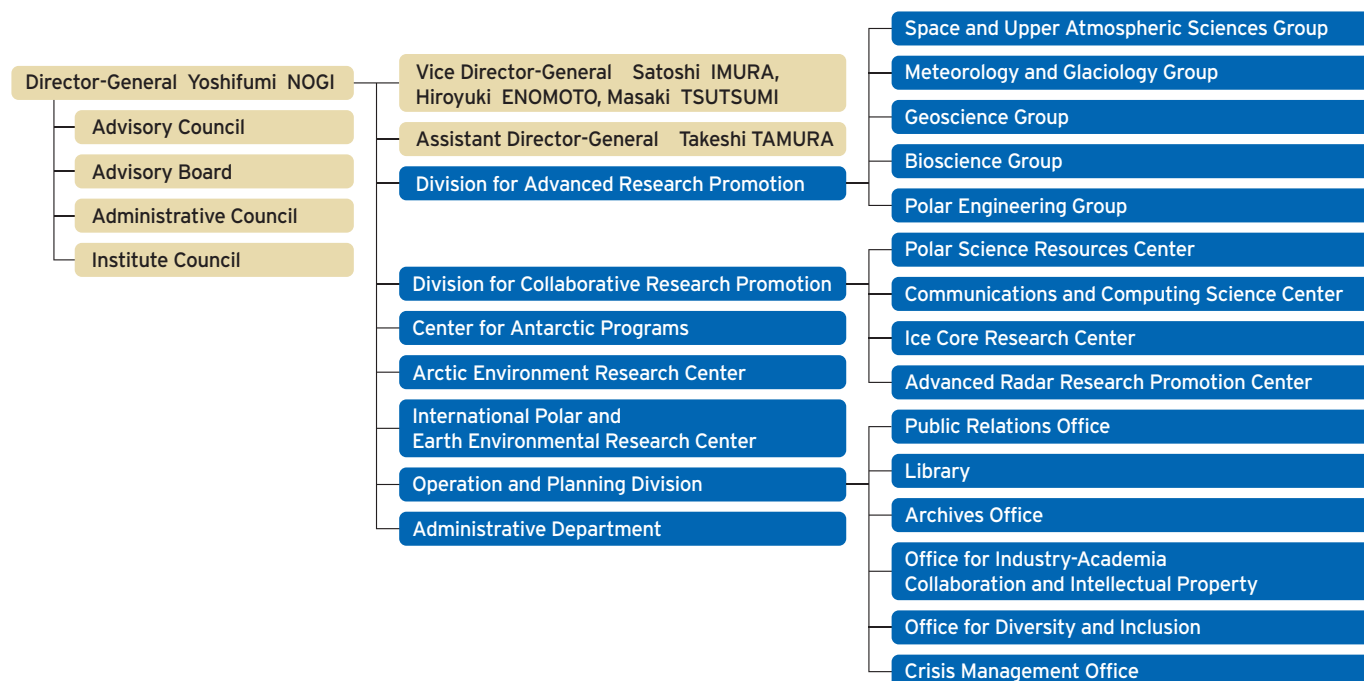


Collaboration with Domestic and International Partners

To spread polar science and related findings, NIPR has entered partnership agreements with domestic and international research institutions, companies, and local governments. As of April 2025, it has signed agreements with 41 Japanese institutions and 49 in 27 other countries. See NIPR's website below to view for details of each institution.



National Institute of Polar Research Organization Chart



Polar Science Museum

Polar Science Museum has no admission fee and is open to the public. It displays observation equipment used in actual polar regions and valuable academic materials and samples such as rocks, meteorites, or animal specimens. Visitors can see the latest research findings in polar science and information on NIPR's activities.

See here for details ►



Library

The library collects, organizes and provides materials in various fields with a focus on the polar regions. They are available to everyone. To disseminate research outputs, the library also issues academic publications and makes them available in NIPR repository.

See here for details ►



Industry-Academia Collaboration and Intellectual Property

The Office for Industry-Academia Collaboration and Intellectual Property is working for the wide application of research findings to benefit society. It also has the important mission of promoting technological development in the industrial sector using the geographical and environmental characteristics of the polar regions. Recently, NIPR collaborated with the industrial sector to develop technology to transmit 8K video footage from the Antarctic in real time.



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