

南極条約第7条5に基づく事前通告のための電子情報交換システム (EIES) について

外務省地球環境課

1 背景

- (1) 南極条約第7条5は、各締約国に以下の活動について事前の通報を求めている。
「各締約国は、この条約がその国について効力を生じた時に、他の締約国に対し、次のことについて通報し、その後は、事前に通告を行う。
- (ア) 自国の船舶又は国民が参加する南極地域向けの又は同地域にあるすべての探検隊及び自国の領域内で組織され、又は同領域から出発するすべての探検隊
 - (イ) 自国の国民が占拠する南極地域におけるすべての基地
 - (ウ) 第1条2に定める条件に従って南極地域に送り込むための軍の要員又は備品
- (参考：第1条2「この条約は、科学的研究のため又はその他の平和的目的のために、軍の要員又は備品の使用を妨げるものではない。」)
- (2) これに基づき、南極条約協議国会議 (ATCM) は 2001 年に「決議 6」を採択し、事前に通報・通告すべき事項をとりまとめた。
- (3) その後、2008 年の ATCM において、電子情報交換システム (Electronic Information Exchange System: EIES)」を通報のための共通フォーマットとすることとした。EIES は、各締約国がフォーマットに必要事項を入力し、システム上で必要な手続きを行うことにより通報内容がウェブ上で公開されるというもの。

2 今回提出する資料

- (1) 事前報告 (Pre-session Information) =2022~2023 年に行う活動の事前報告
使用予定基地、観測船 (しらせ)、観測用航空機、観測用ロケット、保護地域への立ち入り
- (2) 年次報告 (Annual Report) (2.1.1 科学関連の活動予定)
今後実施予定の研究及び観測活動

なお、年次報告 (Annual Report) の 2.1.1 以外の項目及び常設報告 (Permanent Information=恒久的に設置されている設備等の報告) については、本年6月の第160回南極地域観測統合推進本部総会で承認済み。

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INFORMATION EXCHANGE REQUIREMENTS

1. Pre-season Information

The following information should be submitted as early as possible, preferably by 1 October, and in any event no later than the start of the activities being reported.

1.1 Operational information

1.1.1 National Expeditions

A. Stations

Name: Syowa

Type: winter

Location: Higashi-Ongul To, Lützow-Holmbukta

Latitude: 69° 00' 25" S

Longitude: 39° 35' 01" E

Max. Population: 130

Medical Facilities: Minimum required surgical operation facilities and dental emergency

Remarks / Description:

Elevation: 28.9 m

Established: January 29, 1957

Major Field Activities: Biological and geophysical observations in Lützow-Holmbukta area

Name: Dome Fuji

Type: Seasonal

Location: On the top of Dronning Maud Land

Latitude: 77° 19' 01" S

Longitude: 39° 42' 12" E

Max. Population: 14

Medical Facilities: None

Remarks / Description:

Elevation: 3,810m

Established in January 29, 1995

There are 9 buildings below snow surface. 9 people can be accommodated.

Operating Period: from November to February

Major Field Activities: Glaciological survey

One traverses between S17 point (20km east of Syowa Station) and the vicinity of Dome Fuji Station from November 2021 to February 2022.

B. Non-Military Ships

None.

C. Non-Military Aircraft

Helicopter

Type: AS350FX2

Quantity: 1

Category: Local helicopter flights

Period From: December, 2022

Period To: March, 2023

Remarks: transportation of cargo and personnel / support of field observations

Flight Departure Date: December, 2022

Flight Route:

Flight Purpose: Logistics

D. Research Rockets

(Please see Table 1)

E. Military

- Ship:

Name: R/V Shirase

Country of registry: Japan

Maximum Crew: 179

Maximum Passengers: 80

Remarks: The Indian sector of the Southern Ocean (SO) and SO south of Australia will be visited.

Voyage Departure Date: 1 December, 2022

Voyage Departure Port: Fremantle, Australia

Voyage Arrival Date: 20 March, 2023

Voyage Arrival Port: Fremantle, Australia

Voyage Purpose : Transportation of cargo and personnel / Support of oceanographic and field observations

Site Name: Lützow-Holmbukta, Kronprins Olav Kyst

- Aircraft (Helicopter):

Type: CH-101

Quantity: 1

Category: Local helicopter flights

Period From: December, 2022

Period To: March, 2023

Remarks: transportation of cargo and personnel / support of field observations

Flight Departure Date: December, 2022

Flight Route:

Flight Purpose: Logistics

1.1.2 Non-governmental Expeditions¹

A. Vessel-based Operations

None

B. Land-based Operations

None

C. Aircraft Activities

None

D. Denial of Authorizations

None

1.2 Visits to Protected Areas

Area Type: ASPA

Area Number: 141 ('Yukidori Valley', Langhovde, Lützow-Holmbukta)

Period From: 1. Dec. 2022

Period To: 31. Mar. 2024

People Permitted: 42

Purpose: Research and management

Summary of Activities: Research and management

Event Project Name/Number: 64th Japanese Antarctic Research Expedition

2. Annual Report

The following information should be submitted as early as possible after the end of the austral summer season, but in all cases before 1 October, with a reporting period of 1 April to 30 March.

2.1 Scientific Information

2.1.1 Forward Plans

(Please see Table 2)

¹ provision of information on Non-governmental expeditions will be allowed for it to be provided as soon as possible after completion of national processes, with the relevant timing description being: 'as soon as possible following completion of national processes, preferably by the pre-season target date of 1 October, and no later than the start of the activity'.

2022/2023 Pre-season Information - Research Rocket

1.1 Operational information

1.1.1 National Expeditions

D. Research Rockets

Location Launch	Date/Period/Frequency	Direction	Max. Altitude	Impact Area	Type	Specifications	Purpose	Project Title/Number
Syowa	Twice daily, throughout the year	All directions, depending on wind	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	Radiosonde	Aerological observation	Meteorological observations
Syowa	1 to 2 times a week, throughout the year	All directions, depending on wind	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	ECC (Electrochemical Concentration Cell) Type Ozone sonde	Ozone vertical profile measurement	Meteorological observations
Syowa	4 to 5 times, throughout the year	All directions, depending on wind	25,000 m	Within a radius of 200-300 km from the site	Rubber balloon	SKYDEW (Chilled mirror Type Water vapor sonde)	Water vapor vertical profile measurement	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques
Syowa/ R/V Shirase	30 launches in the summer	All directions from R/V Shirase, depending on wind	25km	Within a radius of 200-300 km from R/V Shirase	Rubber balloon	Radiosonde and cloud particle sensor sonde	Meteorological profiling including aerosols and clouds	Clouds and atmospheric circulations over the Southern Ocean
Ongul Islands, Langhovde, Akarui misaki, Skarvsnes, Breivagnipa, Vesthovde, Padda, Kumihimo Iwa, Karamete misaki, Hinode misaki, Niban Iwa	10-30 times in the summer	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Multicopter & VTOL	Topographic mapping	Geodetic and geographic survey
Ongul Islands, Langhovde, Skarvsnes, Skallen, Rundvagshetta, Padda	A few times in the summer Once a month, throughout the winter	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Fixed wing	Topographic mapping	Integrated Geodetic monitoring observation
Ongul Islands, Langhovde, Rundvagshetta, Strandnibba, Okuhyoga Iwa, Instekleppane	10-50 times in the summer	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Multicopter	Aerial photography	Reconstruction of the East Antarctic Ice Sheet variability and understanding of the abrupt ice mass loss
Dome-Fuji	10 times in the summer	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography for surveying the ice sheet surface	Third Dome Fuji Deep Coring: an Oldest Ice Core
Lutzow-Holmbukta, Totten	10-100 times in the summer	All directions, the vicinity of the R/V Shirase	100m	The vicinity of the R/V Shirase	UAV	Multicopter	Aerial photography for sea ice observations	Understanding the mechanism of the marginal, packed, and fast ice variations and its application for optimized routing of Shirase
Ice sheet	5-50 times in the summer	All directions, the vicinity of the site	300m	The vicinity of the site	UAV	Multicopter	Penetrator test	Development of penetrator system applying to Antarctic region and geophysical observations at Shirase glacier
Syowa	Once a month, throughout the winter	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques

Forward Plans - JARE 64

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
Fundamental Observation									
Routine Observation									
TN01	Ionospheric observations	Ionospheric vertical sounding, GPS scintillation monitoring.	Syowa	69°00'25"S, 39°35'01"E			Earth and atmospheric sciences - other	Name: Takuya Surname: Tsugawa Job Title or Position: Director, Space Environment Laboratory, Radio Propagation Research Center, Radio Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-5239 Email: tsugawa@nict.go.jp	https://wdc.nict.go.jp/IONO/wdc/index.html https://ionosyowa.nict.go.jp/
TN02	Data acquisition for monitoring space weather conditions	Data acquisition of ionospheric vertical sounding, GPS scintillation monitoring, and magnetic field variations.	Syowa	69°00'25"S, 39°35'01"E			Earth and atmospheric sciences - other	Name: Takuya Surname: Tsugawa Job Title or Position: Director, Space Environment Laboratory, Radio Propagation Research Center, Radio Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-5239 Email: tsugawa@nict.go.jp	https://ionosyowa.nict.go.jp/ https://swc.nict.go.jp/en/
TJM01	Surface synoptic observation	Air Pressure Air Temperature Humidity Wind speed Wind direction Sunshine duration Global solar radiation Snow depth	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TJM02	Upper-air observation	Radiosonde/ Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TJM03	Ozone observations	Total ozone Umkehr Surface ozone Ozonesonde/ Ozone amount, Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TJM04	Radiation observation	Global solar radiation, Direct solar radiation, Diffuse solar radiation, Composite global solar radiation, Downward longwave radiation, Downward total radiation, UV-B radiation, Reflected solar radiation Upward longwave radiation, Upward total radiation, Atmospheric turbidity Surface spectral ultraviolet radiation	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TJM05	Weather analysis	Weather Conditions	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TJM06	Another observation	Automatic Weather Station observation	Syowa	69°00'25"S, 39°35'01"E			Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/ndex.html
TC01	Bathymetric survey and Tidal observation	Bathymetric survey Tidal observation	Lützow-Holmbukta Syowa	69°00'25"S, 39°35'01"E			Oceanography	Name: Tetsuichiro Surname: Yabuki Job Title or Position: Director, Coastal Surveys Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3606 Email: nankyoku@jodc.go.jp	
TG01	Geodetic observations	Precise Geodetic Observation (GNSS Observation) Precise Geodetic Observation (Absolute Gravity Survey and Relative Gravity Survey) Leveling Photocontrol points surveying Aerial photography	Syowa Coastal area of Lützow-Holm bay Kronprins Olav Kyst Ongul Island P50,S16 and S17 site	69°00'25"S, 39°35'01"E			Geophysics, seismology and Geomorphology	Name: Shuichi Surname: Taki Job Title or Position: Deputy Director of international Affairs Div. Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6264 Email: gsi-antarctic-1@gxb.mlit.go.jp	https://www.gsi.go.jp/antarctic/index-e.html
Monitoring Observation									
AMU1001	Electromagnetic environment ground-based monitoring observation	Optical Observation: Auroras are monitored with all-sky electron and proton auroral imagers (EAI and PAI), an all-sky color digital camera (CDC), all-sky black and white TV cameras (ATV), and Scanning photometer (SPM) from late February to early October at Syowa. Geomagnetic Observation: Absolute geomagnetic observation is carried out every month and geomagnetic variation observation with a 3-axis fluxgate magnetometer is carried out continuously all through the year at Syowa. Plasma Wave Observation: Cosmic Noise Absorption (CNA) is observed with two set of riometers and natural VLF and ULF waves are observed with two set of loop antennas and two set of induction magnetometers at West Ongul Island continuously all through the year.	Syowa West Ongul Island	69°00'25"S, 39°35'01"E			Earth and atmospheric sciences - other	Name: Masaki Surname: Okada Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0665 Email: okada.masaki@nipr.ac.jp	

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
AMU1002	Space weather and space climate monitoring observation	With SENSU SuperDARN HF radars at Syowa station, long-term continuous observation according to the international SuperDARN schedule including special campaigns with satellites such as ERG/Arase will be conducted to obtain fundamental physical parameters in upper atmosphere, which will be combined with all other SuperDARN radars data to create large-scale space weather map, for monitoring space weather and space climate phenomena in a variety of temporal and spatial scale in order to contribute widely to space weather and space climate research and applications.	Syowa station	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Akira Sessai Surname: Yukimatu Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0659 Email: sdsensuats@uap.nipr.ac.jp	URL: http://polaris.nipr.ac.jp/~SD/
AMU1003	Monitoring of middle and upper atmosphere	Monitoring of gravity waves in the mesosphere and lower thermosphere region using an all-sky airglow imager. This observation gets involved in the ANtarctic Gravity Wave Instrument Network (ANGWIN) that is operated by different nations working together in a spirit of close scientific collaboration, in order to elucidate contribution of gravity wave activity over Antarctica to global circulation.	Syowa station	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Mitsumu Surname: Ejiri Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0661 Email: ejiri.mitsumu@nipr.ac.jp	
AMP1001	Atmospheric trace gas observation	Monitoring of atmospheric CO ₂ , CH ₄ , CO, N ₂ O and O ₂ concentrations is carried out all year-round at Syowa Station. Whole air samples are collected periodically for subsequent analyses in Japan.	Syowa	69°00'25"S, 39°35'01"E	○	○	Atmospheric sciences	Name: Daisuke Surname: Goto Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0673 Email: goto.daisuke@nipr.ac.jp	
AMP1002	Monitoring of surface mass balance on Antarctic ice sheet	Sea ice thickness and snow accumulation along a route from Syowa Station to S16 site via Mukaiwa is carried out as much as possible all year-round. Snow accumulation measurements and maintenances of automatic weather stations are conducted during inland traverses..	From Syowa Station to S16 site via Mukaiwa Inland sites from S16 site to Dome Fuji Station	69°04'48"S, 40°46'22"E 69°23'34"S, 41°33'34"E	○	○	Glaciology	Name: Fumio Surname: Nakazawa Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0713 Email: nakazawa@nipr.ac.jp	
AMP1003	Satellite-based climate monitoring	Data acquisition of NOAA, DMSP, AQUA and TERRA satellites with L/S/X-band receiving system at Syowa Station.	Syowa	69°00'25"S, 39°35'01"E	○	○	Other	Name: Masaki Surname: Okada Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0665 Email: okada.masaki@nipr.ac.jp	
AMG1001	Integrated geodetic monitoring observation	VLBI experiments are carried out 6-8 times a year using a multi-purpose 11 meter diameter dish and gravity variations are monitored with a superconducting gravimeter at Syowa Station. GNSS measurements are carried out at several sites on outcrops along Soya Coast and Prince Olav Coast. DORIS antenna is operating all year-round for a precise orbit determination of satellite altimeter and a precise positioning of antenna site. Various geodetic measurements are conducted on outcrops, sea ice, and icesheet for validating satellite observations. Ground temperature is monitored all year-round at sites near the Zakuro Ike in Langhovde and near the Ō-ike, in Nishi-Ongul To (Island).	Syowa Nishi-Ongul Is. (ground temperature) Langhovde (ground temperature) Akarui-misaki Tottuki-misaki Mukai-awa Langhovde Skarvsnes Skallen Rundvågshetta Padda Is.	69°00'25"S, 39°35'1"E 69°01'20"S, 39°33'31"E 69°10'41"S, 39°38'49"E 68°29'58" S 41°24'23" E 68°54'40"S, 39°49'10"E 69°01'48"S, 39°41'43"E 69°14'34"S, 39°42'51"E 69°28'26"S, 39°36'25"E 69°40'16"S, 39°23'56"E 69°54'27"S, 39°02'24"E 69°37'06"S, 38°16'34"E	○	○	Geophysics and seismology	Name: Yuichi Surname: Aoyama Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0712 Email: aoyama@nipr.ac.jp	
AMG1002	Seismic Monitoring Observation	Seismometers are installed to monitor earthquakes at Syowa Station and one site on the Sôya Kaigan all year-round.	Syowa Station and one site on the Sôya Kaigan	69°00'25"S, 39°35'01"E	○	○	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-9026 Email: kanao@nipr.ac.jp	
AMG1003	Marine geophysical observations	Marine geomagnetism is measured onboard the R/V Shirase along the cruise tracks. Sea bottom pressure is monitored with a pressure gauge installed and recovered every summer on the sea bottom about 4000 meters deep in the Southern Ocean.	Along cruise track of R/V Shirase	-	○		Geophysics and seismology	Name: Masakazu Surname: Fujii Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0925 Email: fujii.masakazu@nipr.ac.jp	
AMG1004	Infrasound observation	Arrayed observation of infrasound has been carried out at Syowa Station and one site on the Sôya Kaigan all year-round.	Syowa Station and one site on the Sôya Kaigan	69°00'25"S, 39°35'01"E	○	○	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	
AMB1001	Population census of Adélie penguins	Census of Adélie penguins at rookeries in the Sôya Kaigan area is carried out in mid-November and early December. Number of the penguins and the pairs are counted.	Sôya Kaigan area	-		○	Biological sciences – other	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AMB1002	Marine ecosystem monitoring	Oceanographic observations in the Southern Ocean along the cruise track of R/V Shirase and TV Umitaka-maru are carried out. Surface water is pumped up to measure physical, chemical and biological parameters, including Chlorophyll a and pCO ₂ concentrations. Water collections at some depths and plankton collections are carried out at stations, including those in ice covered areas.	Along cruise track of R/V Shirase and TV Umitaka-maru	-		○	Biological sciences – other	Name: Kunio Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0743 Email: takahashi.kunio@nipr.ac.jp	
AMB1003	Monitoring of terrestrial ecosystems	Soil samples for analyzing micro-organisms are collected at fixed points around Syowa station.	Syowa	69°00'25"S, 39°35'01"E	○		Biological sciences – other	Name: Sakae Surname: Kudoh Job Title or Position: Professor, NIPR Phone: +81-42-512-0739 Email: skudoh@nipr.ac.jp	
Research Project									
Prioritized Research Project: Investigation of changes in the Earth system from Antarctica									
AJ1001	Third Dome Fuji Deep Coring: an Oldest Ice Core	Inland traverse from S16 to Dome Fuji: Snow observations and sampling along the route and in the vicinity of Dome Fuji station. Around Dome Fuji: glaciological/meteorological observations.	Syowa station, Dome Fuji, Droning Maud Land	69°00'25"S, 39°35'01"E	○		Environmental sciences	Name: Kenji Surname: Kawamura Job Title or Position: Associate Professor, ational Institute of Polar Research Phone: +81-42-512-0684 Email: kawamura@nipr.ac.jp	
AJ1002	Reconstruction of the East Antarctic Ice Sheet variability and understanding of the abrupt ice mass loss	Deep-sea, shallow-sea, lake/lake/land sediment drilling, glacial landform geological surveys, and UAV surveys will be carried out to reconstruct the large scale East Antarctic ice sheet change since the last interglacial period and to understand it's mechanisms.	Ongul Islands Langhovde Rundvågshetta Strandnibba Shirase Glacier	69°00' - 70°00'S, 39°00' - 39°45'E	○		Geology	Name: Yusuke Surname: Suganuma Job Title or Position: Associate Professor, ational Institute of Polar Research Phone: +81-42-512-0702 Email: suganuma.yusuke@nipr.ac.jp	

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
AJ1003	The Heart of the East Antarctic Cryosphere-Ocean Synergy System (HEAT-CROSS)	Unmanned observations such as under-ice oceanographic, seafloor and cryospheric observations using autonomous underwater vehicle, multi-beam SONAR and ice radar, geodetic network observations of ice/ocean motion and deformation using GPS/ GNSS, and oceanographic observations using mooring observation systems. Together with in situ hydrographical and glaciological measurements such as CTD/RMS, these remote observation techniques are applied to the Lutzow-holm Bay and off Totten Ice Shelf for the understandings of the mechanisms of different ice-ocean interaction regimes.	Lützow-Holmbukta Shirase Glacier Off Totten Ice Shelf	-		○	Climate studies	Name: Kohei Surname: Mizobata Job Title or Position: Associate Professor, Tokyo University of Marine Science and Technology Phone: +81-3-5463-0717 Email: mizobata@kaiyodai.ac.jp	
AJ1004	Glacier, grounding line and ice shelf dynamics: the driver of the rapid mass loss of the Antarctic ice sheet	Data and instrument retrieval from Langhovde Glacier. The instruments were installed for subglacial, englacial and ice dynamics measurements during the field campaign in the 2021/22 season.	Langhovde Glacier	-		○	Glaciology	Name: Shin Surname: Sugiyama Job Title or Position: Professor, Hokkaido University - Institute of Low Temperature Science Phone: +81-11-706-7441 Email: sugishin@lowtem.hokudai.ac.jp	
AJ1005	Clouds and atmospheric circulations over the Southern Ocean	Shipboard meteorological monitoring for understanding the cloud formation processes over the Southern Ocean is conducted by (1) remote sensing with a microwave radiometer and a lidar ceilometer, (2) vertical profiling of clouds and aerosols with radiosondes and drones, (3) automatic weather stations, (4) aerosol and water samplings, and (5) sea spray flux and wave height measurements.	Along cruise track of R/V Shirase	-		○	Climate studies	Name: Jun Surname: Inoue Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0681 Email: inoue.jun@nipr.ac.jp	
AJ1006	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques	Studies of various processes on the global atmospheric environmental change based on Antarctic observations with (1) PANSY (Program of the Antarctic SYowa MST/IS) radar, a large atmospheric radar and (2) complementary instruments such as MF radar, OH spectrometer, and various balloon measurements.	Syowa	69°00'25"S, 39°35'01"E		○	Atmospheric sciences	Name: Masaki Surname: Tsutsumi Job Title or Position: Professor, National Institute of Polar Research Phone: +81-42-512-0658 Email: tutumi@nipr.ac.jp	
AJ1007	Space environmental changes and atmospheric response explored from the polar cap	Ground-based observation of space weather such as auroras and cosmic rays, using high-speed cameras, millimeter wave spectrometer, riometer, neutron monitor, muon detector, and unmanned observation systems.	Syowa station Amundsen Bay Skallen, Inhhovde, H68 Mizuho, MD364, Dome Fuji Princess Elisabeth station Maitri station South Pole Station McMurdo Station	69°00'25"S, 39°35'01"E		○	Atmospheric sciences	Name: Ryuho Surname: Kataoka Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0631 Email: kataoka.ryuho@nipr.ac.jp	
Ordinary Research Project									
AP1001	Understanding the mechanism of the marginal, packed, and fast ice variations and its application for optimized routing of Shirase	The aim of the research is to obtain observational records related to the waves propagating into the MIZ, drifting packed ice, and land-fast ice. Numerous remote sensing will be conducted using a stereo imaging system, optical cameras (polarized and no-polarized), and an electromagnetic ice thickness measurement. A number of wave buoys will be deployed on ice as well as in open waters. Sensors attached to the ship will be used to record ship motion, hull deformation, and ship performance, concurrently with the sea spray data.	Onboard observations from Shirase between Fremantle to Syowa station; Lutzow Holm bay	-		○	Oceanography	Name: Takuji Surname: Waseda Job Title or Position: Professor, University of Tokyo Phone: +81-4-7136-4885, +81-70-1255-0681 Email: waseda@k.u-tokyo.ac.jp	
AP1002	Quantitative evaluation of solar energetic storms detected in cosmogenic nuclides of ice core	The purpose of this study is to reconstruct the stratospheric production rate of 10Be from the 10Be records in ice cores. Through this project, we correct the snow samples accumulated after the 1950s at both H15 (985 mals) and H128 (1439 mals) sites along the Dome Fuji route and presented high-resolution measurements of 10Be over the last 70 years.	H15 H128	-		○	Atmospheric sciences	Name: Naoyuki Surname: Kurita Job Title or Position: Associate Professor, Nagoya University Phone: +81-52-789-3465 Email: nkurita@nagoya-u.jp	
AP1003	Elucidation of the behavior and ecology of the fish under the sea ice	Behavioral studies of nototheniid fish, Trematomus spp., under permanent sea ice in combination with physical oceanography and environmental DNA. Emerald rockcod, T. bernacchii and Sharp-spined notothen, T. pennellii, will be tagged with ultrasonic pingers and tracked using a receiver array. Fish behavior, homerange, distribution, marine environment, biodiversity and relationship between each other will be elucidated.	Syowa	69°00'25"S, 39°35'01"E		○	Biological sciences – other	Name: Yoshinori Surname: Miyamoto Job Title or Position: Professor, Tokyo University of Marine Science and Technology Phone: +81-3-5463-0488 Email: miyamoto@kaiyodai.ac.jp	
Exploratory Research Project									
AH1001	Estimation of mineral dust burden in the Southern Ocean using a combination of shipboard observations and remote sensing	Observation of concentration and total column amount of aerosol including mineral dust along cruise track of R/V Shirase by shipborne aureolemeter and polarization optical particle counter.	Along cruise track of R/V Shirase	-		○	Atmospheric sciences	Name: Hiroshi Surname: Kobayashi Job Title or Position: Associate Professor, University of Yamanashi Phone: +81-55-220-8341 Email: kobachu@yamanashi.ac.jp	
AH1002	Development of penetrator system applying to Antarctic region and geophysical observations at Shirase glacier	Penetration experiments of an observation device called a "penetrator" are conducted using a drone. The penetrator is an observation device that is free-fallen from the sky to penetrate the ice sheet. Since the main purpose of this test is to investigate the penetration into the ice sheet, the penetrator will not be equipped with seismometers, infrastructure sounding sensors, electronic circuits, communication equipment, or other observation devices that are planned for future observation. The experimental device will be recovered and restored to its original condition after the experiment.	S16 H128(TBD)	S69°01'45.8216 40°03'02.0716E S69°23'3 41°33'05E		○	Other	Name: Satoshi Surname: Tanaka Job Title or Position: Professor, Department of Solar System Sciences Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA) Phone: +81-70-1170-2768 Email: tanaka@planeta.sci.isas.jaxa.jp	
AH1003	Unveiling seafloor spreading mode and geodynamics in the Southeast Indian Ridge	Marine geophysical data are measured onboard the Shirase along the ship tracks in the Southeast Indian Ridge.	Along ship track in the Southeast Indian Ridge	-		○	Geophysics and seismology	Name: Masakazu Surname: Fujii Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0925 Email: fujii.masakazu@nipr.ac.jp	
Others									
AAK6401	Deployment of drifting buoys requested from Australian Bureau of Meteorology	Surface drifting buoys will be deployed from R/V Shirase in response to the request of the Australian Bureau of Meteorology. Location and sea surface data are transmitted to the satellite.	Along cruise track of R/V Shirase	-		○	Meteorology	Name: Joel Surname: Cabrie Job Title or Position: Manager, Marine Networks, Bureau of Meteorology, Australia Phone: +61 3 9669 4651 Email: joel.cabrie@bom.gov.au	