資料６
南極地域観測統合推進本部
第 52 回観測・設営計画委員会
R5.10.23

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(案)

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。

A)　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

B)　自国の国民が占拠する南極地域におけるすべての基地

C)　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、通報のための共通フォーマットとして「電子情報交換システム(Electronic Information Exchange System: EIES)」　が、2008 年の ATCM で合意された。EIES は、各締約国がフォーマットに必要事項を入力、承認することで通報内容が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）=2023～2024 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 162 回南極地域観測統合推進本部総会で承認済み。

（了）

2023/2024 Pre-season Information

1.Pre-season Information

1.1 Operational information

1.1.1 National Expeditions 文(極)

A. Stations

Name: Syowa Station
Type: Station
Seasonality: Year-Round
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 Station
Type: Station
Seasonality: 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

B. Vessels

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: 30 November, 2023
Voyage Departure Port: Fremantle, Australia
Voyage Arrival Date: 18 March, 2024
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
Latitude:
Longitude:
Area Operation Date:

C. Aircraft

Type: CH-101
Quantity: 2
Category: Local helicopter flights
Period From: December, 2023
Period To: March, 2024
Remarks: transportation of cargo and personnel / support of field observations
Flight Departure Date: December, 2023
Flight Route:
Flight Purpose: Logistics

Type: AS350
Quantity: 1
Category: Local helicopter flights
Period From: December, 2023

Period To: March, 2024
Remarks: transportation of cargo and personnel / support of field observations
Flight Departure Date: December, 2023
Flight Route:
Flight Purpose: Logistics

D. Research Rockets
None

E. Military
None

1.1.2 Non-governmental Expeditions[1]
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. 2023
Period To: 31. Mar. 2025
People Permitted: 11
Purpose: Research and management
Summary of Activities: Research and management
Event Project Name/Number: 65

[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’.

th 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 文(極)

(Please see Table 1)

(END)

Forward Plans - JARE 65

ID	Project name	Detail/ Description (Forward Plans - JARE 65)	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
	Fundamental Observation								
	Routine Observation								
TN01	Ionospheric observations	Ionospheric vertical sounding, Multi-GNSS 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://iono-syowa.nict.go.jp/
TN02	Data acquisition for monitoring space weather conditions	Data acquisition of ionospheric vertical sounding, multi-GNSS 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://iono-syowa.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 Precipitation observation experiment	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.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: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.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: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.html
TJM04	Radiation observation	Global solar radiation, Direct solar radiation, Diffuse solar radiation, Downward longwave radiation,UV-B radiation, Reflected solar radiation Upward longwave radiation, Atmospheric turbidity Spectral ultraviolet radiation	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.html
TJM05	Weather analysis	Weather Conditions	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.html
TJM06	Another observation	Automatic Weather Station observation	Syowa, S17site	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Osamu Surname: Ijima Job Title or Position: Head, Office of Antarctic Observation, Atmospheric Environment and Ocean Division, 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/indexe.html
TC01	Bathymetric survey and Tidal observation	Bathymetric survey Tidal observation	Lützow-Holmbukta Syowa	69°00'25"S, 39°35'01"E	○	○	Oceanography	Name: Tsuyoshi Surname: Yoshida 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) Local tie survey Photocontrol points surveying Aerial photography	Syowa Station Ongul Islands Coastal area of Lützow-Holmbukta Kronprins Olav Kyst Coastal area of Khmara bay P50,S16 and S17 site	69°00'25"S, 39°35'01"E	○	○	Geophysics, seismology and Geomorphology	Name: Shuto Surname: Sugai 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	
AMU1002	Space weather and space climate monitoring observation	With SENSU SuperDARN HF radars at Syowa station, long-term continuous monitoring observation according to the international SuperDARN schedule including special campains with satellites such as ERG/Arase (except maintenance periods) will be conducted to obtain fundamental physical parameters in upper atmosphere, which will also be combined with all other SuperDARN radars data to create large-scale ionospheric convection map, or "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/

ID	Project name	Detail/ Description (Forward Plans - JARE 65)	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
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 CO2, CH4, CO, N2O and O2 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 depth measurements from Syowa Station to Tottuki Misaki and from Syowa Station to Mukaiiwa, and snow accumulation measurements by snow stake method and surface snow samplings from Mukaiiwa and/or Tottuki Misaki to S16 site wiill be carried out. Snow accumulation measurements and maintenances of automatic weather stations will be conducted during the inland traverses from S16 to Dome Fuji area.	From Syowa Station to S16 site via Mukaiiwa 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, 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 mult-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. During the summer, DORIS antenna is moved to a new site after precise local tie survey. 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 O-ike, in Nishi-Ongul To (Island).	Syowa Nishi-Ongul Is. (ground temperature) Langhovde (ground temperature) Akarui-misaki Tottuki-misaki Mukai-iwa Langhovde Skarvsnes Skallen Rundvagshetta 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	Sea-surface gravity and marine geomagnetic observations were carried out onboard the R/V Shirase along the cruise tracks. Seafloor bottom pressure is monitored with a pressure gauge about 4,000 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 rockeries 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 T/V Umitaka-maru are carried out. Surface water is pumped up to measure physical, chemical and biological parameters, including Chlorophyll a and pCO2 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 T/V 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 will be collected at fixed points around Syowa station. Meteorological data recorded by AWS will be downloaded from Langhovde (Yukidori Zawa), Skarvsnes (Kizahashi Hama), and Skallen (Skallen Ôike) on Soya Coast.Photographs of quadrats along Yukidori Zawa valley (ASPA No. 147) will be taken.	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, shallow ice coring, reaming of borehole, casing.	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, National 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 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.	Lutzow Holm bay Ongul Islands Skarvsnes Off Totten Glacier	69°00' - 70°00'S, 39°00' - 39°45'E	○		Geology	Name: Yusuke Surname: Suganuma Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0702 Email: suganuma.yusuke@nipr.ac.jp	
AJ1003	The Heart of the East AnTarctic CRyosphere-Ocean Synergy System (HEAT-CROSS)	Multi-beam SONAR and ice radar and oceanographic observations using mooring observation systems will be conducted. 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.	Lutzow-holm Bay 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	In-situ observations are carried out to study glacier dynamics of Langhovde, Honor, Telen and Shirase Glaciers. Instruments used for the measurements are GNSS devices, ice radar, unmanned aircraft, seismometers, weather staion, and pressure sensors. Some of the instruments are to be installed on the glaciers until retrieval in the 2024/25 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	

ID	Project name	Detail/ Description (Forward Plans - JARE 65)	Site Name	Latitude, Longitude	Season		Discipline	PI	URL
					Summer	Winter			
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 super-pressure 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 all-sky cameras, millimeter wave spectrometer, riometer, neutron monitor, muon detector, and unmanned observation systems: All of the instruments have been working well.	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 of 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 Induction Instrument (EM) to measure waves and sea ice. Total of 30-35 wave buoys will be deployed on ice (23) as well as in open waters (>10). Sensors attached to the ship will be used to record ship motion, hull deformation, and ship performance, concurrently with the sea spray data. Sea ice thickness of land-fast ice by drilling and by EM, current under land-fast ice will be measured.	Onboard observations from Shirase between Fremantle to Syowa station; Lutzow Holm bay. Syowa. Off Totten Ice shelf	-	○		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	
AP1003	Elucidation of the behavior and ecology of the fish under the sea ice	Behavioral studies of notothenіid 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 Genetics	Name: Yoshinori Surname: Miyamoto Job Title or Position: Professor, Tokyo University of Marin Science and Technology Phone: +81-3-5463-0488 Email: miyamoto@kaiyodai.ac.jp	
AP1004	Formation and evolution of continental crust and Archaean-Proterozoic global environmental changes in polar region	Geological field survey of outcrops and nunataks in Dronning Maud Land and Enderby Land will be carried out in order to understand the crustal structure and history of East Antarctica, and its geologic correlation with the surrounding continents.	Lützow-Holm Bay area Prince Olav Coast Enderby Land		○		Geology	Name: Tomokazu Surname: Hokada Job Title or Position: Professor, National Institute of Polar Research Phone: +81-42-512-0714 Email: hokada@nipr.ac.jp	
AP1006	Study of physical and biological oceanographic processes in the Antarctic coastal marine ecosystem by multi-scale measurements of penguin behavior and marine environment	Behavioural, tracking and oceanographic data will be recorded by a variety of data loggers deployed on breeding or fledged Adelie penguins near Syowa station, East Antarctica. Oceanographic and biological surveys and underwater communication tests underneath the land-fast ice by Remotely Operated Vehicle (ROV) will be also conducted near the penguin colony. Carbon and nitrogen stable isotope samples will be collected from penguin blood, regargetated diet, plankton and Particulate Organic Matter (POM). By combining these data, we aim to understand physical and biological processes connecting Antarctic sea ice environment, coastal marine food web and apex predators.	Ongul islands, Langhovde and Skarvsnes areas		○		Biological sciences – other	Name: Nobuo Surname: Kokubun Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0704 Email: kokbun@nipr.ac.jp	
AP1007	Coordinated Radar and HYFLITS Balloon Observations of Atmospheric Turbulence at Syowa Station	Balloon-borne observations of atmospheric turbulence in the troposphere and lower stratosphere above Syowa Station using HYFLITS equipments in austral summer. Coordination with the PANSY radar is also planned.	Syowa	69°00'25"S, 39°35'01"E	○		Atmospheric sciences	Name: Hubert Surname: LUCE Job Title or Position: Professor, Kyoto University Phone: +81-774-38-3874 Email: luce.hubert.3w@kyoto-u.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 cruse 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 and a UAV. 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.All experimental equipment will be recovered and returned to condition for the tests to be conducted at site S16 and Thelen Glacier. For the tests to be conducted at Langhovde Glacier, the equipment will not be recovered this season in order to continue observations after installation, but will be recovered as much as possible during next year's expedition.	S16 Thelen Glacier Langhovde Glacier	S69°01'45.8216 40°03'02.0716E S69°40' 20.30",E39° 56.48.54 S69°12'00.0", E39°.49'12.0"	○		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 observations were carried 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								
AAK6501	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 recieved via satellite system.	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	
AAK6502	Deployment of Argo floats requested from JAMSTEC	One profiling float will be deployed from the icebreaker Shirase in the Southern Ocean. Temperature and salinity profiles measured by a float will be transmitted via satellite system.	Along cruise track of R/V Shirase	-	○		Oceanography	Name: Shigeki Surname: Hosoda Job Title or Position: Group Leader, JAMSTEC Phone: +81-46-867-9456 Email: hosodas@jamstec.go.jp	