

## 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）（案）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が「電子情報交換システム(Electronic Information Exchange System: EIES)としてATCMで2008年に合意された。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。

### 2 今回提出する資料

事前報告（Pre-season Information＝2020年～2021年に行う活動の事前の通告。）

#### ア 活動関連事項（1.1、1.2）

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、保護地域への立入りにつき報告

#### イ 科学関連事項（2.1）

実施予定の研究及び観測活動

なお、年次報告(Annual Report＝2019年4月～2020年3月に行った活動の事後報告)、常設報告(Permanent Information＝恒久的に設置されている設備などの報告)については、6月の第155回本部総会で承認済み。

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## 2020/2021 Pre-season Information

### 1. Pre-season Information

#### 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

###### *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: 2 December, 2019

Voyage Departure Port: Fremantle, Australia

Voyage Arrival Date: 19 March, 2020

Voyage Arrival Port: Sydney, Australia

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

Site Name: Lützw-Holmbukta, Kronprins Olav Kyst

Latitude:

Longitude:

Area Operation Date:

### *C. Aircraft*

Type: CH-101

Quantity: 2

Category: Local helicopter flights

Period From: December, 2019

Period To: March, 2020

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

Flight Departure Date: December, 2019

Flight Route:

Flight Purpose: Logistics

### *D. Research Rockets*

(Please see Table 1)

### *E. Military*

None

## **1.1.2 Non-governmental Expeditions**

### **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, 2020

Period To: 31 March, 2021

People Permitted: 28

Purpose: Research and management

Summary of Activities: Research and management

Event Project Name/Number: 62th Japanese Antarctic Research Expedition

## **2. Annual Report**

### **2.1 Scientific Information**

#### **2.1.1 Forward Plans**

(Please see Table 2)

(END)

## 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	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	Water vapor sonde	Water vapor measurement	Advanced balloonborne observations of the Antarctic upper troposphere and lower stratosphere (UTLS)
Syowa	At most 100 times, throughout the year (mainly in winter)	All directions, depending on wind	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	Radiosonde and Temperature reference sonde	High-resolution temperature measurement	A study on the global atmosphere system based on high-resolution observations of the Antarctic atmosphere
Syowa	40 times, throughout the year	All directions, depending on wind	30,000 m	Within a radius of 100 km from the site	Rubber balloon	Radiosonde	Aerological observation	Detection of influences of global warming in East Antarctic atmosphere and ice-sheet surface, and clarifying the mechanisms
travers route from S16 to Dome Fuji	40 times from July to December	All directions, depending on wind	30,000 m	Within a radius of 100 km from the site	Rubber balloon	Radiosonde	Aerological observation	Detection of influences of global warming in East Antarctic atmosphere and ice-sheet surface, and clarifying the mechanisms
Syowa	Appropriately throughout the winter	All directions, the vicinity of the site	500m	The vicinity of the site	UAV	Multicopter	Aerological observation	Meteorological observations
Syowa	Once in the summer	All directions, the vicinity of the site	40-150m	The vicinity of the site	UAV	Multicopter	Aerial photography	Topographic survey
Lützow-Holm Bay	Once in the summer	All directions, the vicinity of the site	100-500m	The vicinity of the site	UAV	Multicopter	Aerial photography	Topographic survey
Syowa	1 to 2 times a month, throughout the winter except for polar night	All directions, the vicinity of the site	3,000m	The vicinity of the site	UAV	UAV	Aerzols observation	Changing of East Antarctic aerosols in global biogeochemical environment
Higashi-Ongul Island, Langhovde, Akarui-misaki, Skarvsnes, Skallen, Rundvagshetta, Padda Island	Before and after blizzards, throughout the winter	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography	Integrated Geodetic monitoring observation
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 on the global atmosphere system based on high-resolution observations of the Antarctic atmosphere
Syowa	Once a month, throughout the summer Once a month after blizzards, through the winter	All directions, the vicinity of the site	20m	The vicinity of the site	UAV	Multicopter	Aerial photography	Multi purpose receiving antenna radome maintenance
Syowa/ R/V shirase	5 to 10 times in the summer 1 to 2 times in the winter	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography	Public relations

Forward Plans - JARE 62

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Discipline	PI	URL
<b>Research Project</b>							
<b>Prioritized Research Project: Investigation of changes in the Earth system from Antarctica</b>							
AJ0901	A study on the global atmosphere system based on high-resolution observations of the Antarctic atmosphere	Studies of various processes on the global atmospheric environmental change using Antarctic observations with (1) PANSY (Program of the ANtarctic SYowa MST/IS) radar, a large atmospheric radar and (2) various instruments such as MF radar, OH spectrometer, millimeter wave spectrometer, radiosondes etc. operated/developed already during the VIIIth term.	Syowa	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Kaoru Surname: Sato Job Title or Position: Professor, Graduate School of Science, The University of Tokyo Phone: +81-3-5841-4668 Email: kaoru@eps.s.u-tokyo.ac.jp	
AJ0902	Research of Ocean-ice Boundary Interaction and Change around Antarctica	Unmanned observations such as under-ice oceanographic, seafloor and cryospheric observations using 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 new horizons such as Lützow-Holm Bay for the understandings of the mechanisms of different ice-ocean interaction regimes.	Lützow-Holmbukta Shirase Glacier		Climate studies	Name: Shigeru Surname: Aoki Job Title or Position: Associate Professor, ILTS, Hokkaido University Phone: Email: shigeru@lowtem.hokudai.ac.jp	
<b>Ordinary Research Project</b>							
AP0925	Space weather study during the cycle 24/25 solar activity minimum using cosmic ray observations at Syowa base	Continue cosmic ray observations with newly installed a pair of neutron monitor and muon detector at Syowa base. These observations will be used for better understanding the space weather, utilizing a unique location in Antarctica for cross-calibrating the different responses of two types of detectors to the variations of primary cosmic rays and the atmosphere.	Syowa Station	69°00'25"S, 39°35'01"E	Astrophysics	Name: Chihiro Surname: Kato Job Title or Position: Professor, Shinshu University Phone: +81-263-37-2514 Email: ckato@shinshu-u.ac.jp	
AP0926	Large area network observation of auroral phenomena using unmanned system	Low-power autonomous auroral observation system at Amundsen Bay and Princess Elisabeth Antarctica Station work continuously all through the year. An auroral imager system at Maitri Station is operated from March to September. Unmanned magnetometer network around Amundsen Bay and Lützow-Holmbukta area and along the route from Mizuho to Dome Fuji is maintained.	Syowa Station Amundsen Bay Skallen, Innhovde, H68 Mizuho, MD364, Dome Fuji Princess Elisabeth Station Maitri Station		Earth and atmospheric sciences - other	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AP0927	Dynamics of magnetosphere and ionosphere by using multi-wavelength, simultaneous observations of auroras at South Pole and McMurdo stations	We have remotely operated all-sky imagers at South Pole Station and McMurdo Station to observe high-latitude auroras.	South Pole Station McMurdo Station		Earth and atmospheric sciences - other	Name: Yusuke Surname: Ebihara Job Title or Position: Associate Professor, Kyoto University Phone: +81-774-38-3844 Email: ebihara@ish.kyoto-u.ac.jp	
AP0928	Study on polar upper atmosphere in possible grand minimum period and inner magnetosphere dynamics with SuperDARN radars	With SENSU SuperDARN HF radars at Syowa station, continuous observation according to the international SuperDARN schedule including special campaigns with satellites such as ERG/Arase will be conducted to try to reveal the influence of low solar activity period on upper atmosphere and the dynamics of inner magnetosphere as well as to contribute to space weather research.	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, NIPR Phone: Email: sdsensuats@uap.nipr.ac.jp	URL: <a href="http://polaris.nipr.ac.jp/~SD/">http://polaris.nipr.ac.jp/~SD/</a>
AP0940	Generation Mechanism of the Lightning-exciting AC & DC Global Electrical Circuits and Their Relation to Atmospheric Disturbances	Continuous measurements of ELF electromagnetic waves in the frequency range of 1-100Hz and atmospheric DC electric field will be carried out. At Nishi-Ongul To (Island), two horizontal induction magnetometers were installed for the ELF measurement, while the field mill sensors were installed at Higashi-Ongul To (Island) for the atmospheric electric field measurement. From these data, it is possible to monitor global activities of lightning discharges and the global electric circuit.	Nishi-Ongul To (Island) Higashi-Ongul To (Island)	for ELF observation: 69°01'05"S 39°30'21"E for DC electric field obs.: 69°00'18"S 39°35'08"E	Earth and atmospheric sciences - other	Name: Mitsuteru Surname: Sato Job Title or Position: Professor, Faculty of Science, Hokkaido University Phone: +81-11-706-2763 Email: msato@ep.sci.hokudai.ac.jp	
AP0931	Advanced balloonborne observations of the Antarctic upper troposphere and lower stratosphere (UTLS)	Balloon-borne observations of water vapor in the stratosphere will be performed at Syowa Station in 2020. An instrument onboard a super-pressure balloon will be developed in Japan.	Syowa	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Yoshihiro Surname: Tomikawa Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0660 Email: tomikawa@nipr.ac.jp	
AP0932	Changing of East Antarctic aerosols in global biogeochemical environment	Observation of optical property, concentration and sampling of aerosol along cruise track of R/V Shirase by ship borne instruments, skyradiometer, condensation particle counter, optical particle counter, nephelometer, aethalometer, ceilometer, aerosol samplers. Aerosol sampling and observation of optical property and aerosol concentration at Syowa station by ground based instruments and UAV (Unmanned aerial vehicle) borne instruments.	Along cruise track of R/V Shirase Syowa Station	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Masahiko Surname: Hayashi Job Title or Position: Professor, Faculty of Science, Fukuoka University Phone: +81-871-6631 ex.6168 Email: mhayashi@fukuoka-u.ac.jp	
AP0933	Detection of influences of global warming in East Antarctic atmosphere and ice-sheet surface, and clarifying the mechanisms	Radiosonde, UAV (unmanned aerial vehicle), ground-based remote sensing, and maintaining AWS (Automatic Weather Station) at key stations around Droning Maud Land to record climatic change and to understand its mechanism.	Syowa Droning Maud Land (along traverse route from S17 through Relay Point to Dome Fuji)	69°00'25"S, 39°35'01"E	Climate studies	Name: Naohiko Surname: Hirasawa Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0685 Email: hira.n@nipr.ac.jp	
AP0934	Annual observation of amount of snowfall by using a precipitation radar around Syowa Station, Antarctica	X-band Doppler radars are continuously operated to detect the intensity of precipitation and the velocity by horizontal scan (PP) and vertical scan (RH).	Syowa	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Hiroyuki Surname: Konishi Job Title or Position: Osaka Kyoiku Univ./Faculty of education/ Professor Phone: *81-72-978-3640 E-mail: konishi@cc.osaka-kyoiku.ac.jp	
AP0941	Elucidation of circulation field in Antarctica slope and oceanic junction area from Totten to Vincennes	Mooring observations with MicroCat (CT-meter) and current meters, and Hydrographic survey in the continental slope region.	110°E line, off Vincennes Bay		Oceanography	Name: Yujiro Surname: Kitade Job Title or Position: Professor, Tokyo University of Marine Science and Technology Email: ykitade@kaiyodai.ac.jp	
AP0935	Study on surface environmental variation in polar region by using seismic and infrasound	Multiple-sites arrayed observation of infrasound has been studied to reveal the energy transportation among the ionosphere, atmosphere, ocean, cryosphere, and geosphere in Antarctica. The target is to identify the infrasound generated by icequake, motion of icesheets and ice fields, blizzard, aurora, etc. by the arrayed observation. The infrasound, long-period barometric waves, might be a good proxy for studying climate changes.	Syowa Langhovde Skarvsnes Skallen Rundvågshetta Akarui-Misaki	69°00' 25" S, 39°35' 01" E 69°15'00"S, 39°43'01"E	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Discipline	PI	URL
AP0924	Medical researches on Antarctic expeditioners under extreme environment	Activity amount, and changes in body composition and psychological state will be analyzed.	Syowa		Biological sciences – other	Name: Satoshi Surname: Imura Job Title or Position: Professor, NIPR Phone: +81-42-512-0602 Email: imura@nipr.ac.jp	
	<b>Exploratory Research Project</b>						
AH0909	Aurora and airglow observations with all-sky imagers on Shirase to fill the observation gap over the ocean	Aurora and Airglow observations using a monochromatic all-sky imager on a 3-axis stabilized gimbal onboard R/V Shirase.	Along cruise track of R/V Shirase		Earth and atmospheric sciences - other	Name: Takeshi Surname: Sakanoi Job Title or Position: Associate Professor, Tohoku University Phone: +81-22-795-6609 Email: tsakanoi@pparc.gp.tohoku.ac.jp	
AH0908	Development of safety education program for field sciences based on practical knowledge of risk treatment	This study investigates practical knowledge of treating risk in extreme natural environment, which might be obtained in experience of Antarctic research expedition. Interview based on observation of research activities in the field will be conducted.	Syowa, and coastal area of Lützow-Holm bay.		Psychology	Name: Shin Surname: Murakoshi Job Title or Position: Professor, Shizuoka University Phone: +81-54-238-4665 Email: murakoshi.shin@shizuoka.ac.jp	
	<b>Fundamental Observation</b>						
	<b>Monitoring Observation</b>						
AMS0901	Data acquisition of Earth observing satellites	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: Naohiko Surname: Hirasawa Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0685 Email: hira.n@nipr.ac.jp	
AMU0901	Auroral optical observation	Auroras are monitored with all-sky electron and proton auroral imagers (EA 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.	Syowa	69°00'25"S, 39°35'01"E	Earth and atmospheric sciences - other	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AMU0902	Geomagnetism 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.	Syowa	69°00'25"S, 39°35'01"E	Earth and atmospheric sciences - other	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AMU0903	Monitoring observation of Geospace phenomena at West Ongul Island	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: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AMP0901	Monitoring of atmospheric greenhouse gases and related constituents	Monitoring of atmospheric CO <sub>2</sub> , CH <sub>4</sub> , CO, N <sub>2</sub> O and O <sub>2</sub> 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, NIPR Phone: +81-42-512-0673 Email: goto.daisuke@nipr.ac.jp	
AMP0902	Monitoring of aerosol and clouds	All observation items carried out at Syowa Station: 1) Size distribution of aerosol by an OPC and number of condensation nuclei with a CPC throughout the year. 2) Concentration of black carbon (BC) with an aethalometer throughout the year. 3) All atmospheric turbidity with a sky radiometer using solar radiation from mid-August to early May and using moon radiation for night and for polar night. 4) Vertical distribution of cloud and aerosols with a micro-pulse lidar throughout the year. 5) All-sky image to monitor cloud cover every 10 minutes throughout the year.	Syowa	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Naohiko Surname: Hirasawa Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0685 Email: hira.n@nipr.ac.jp	<a href="http://mplinet.gsfc.nasa.gov/">http://mplinet.gsfc.nasa.gov/</a>
AMP0903	Monitoring of Antarctic ice sheet mass balance	Sea ice thickness and snow accumulation along a route from Syowa Station to S16 site via Tottuki Misaki is carried out as much as possible all year-round. Snow accumulation measurement and surface snow sampling are conducted during inland traverse, when implemented.	From Syowa Station to S16 site via Tottuki Misaki Inland sites from S16 to Dome Fuji		Glaciology	Name: Hideaki Surname: Motoyama Job Title or Position: Professor, NIPR Phone: +81-42-512-0680 Email: motoyama@nipr.ac.jp	
AMP0904	Sea ice and hydrographic observations onboard icebreaker Shirase and in Lützow-Holm Bay oceanography	Measurements of sea ice thickness, ice concentration, and water current profile. Monitoring of vessel movement during ice navigation.	Along cruise track of R/V Shirase		Oceanography	Name: Shuki Surname: Ushio Job Title or Position: Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp	
AMG0901	Integrated Geodetic monitoring observation	Monitoring of a fixed point location in Syowa Station is carried out with a DORIS antenna operating all year-round. Ground temperature is monitored all year-round at sites near the Zakuro lke in Langhovde and near the Ö-ike, in Nishi-Ongul To (Island). VLBI experiments are carried out 6-8 times a year using a multi-purpose 11 meter diameter dish and gravity is monitored with a super-conductivity gravimeter at Syowa Station. Tide is monitored near Syowa Station with a GPS buoy all year-round. GNSS observations are carried out at several outcrops on Soya Coast and Prince Olav Coast.	Syowa Nishi-Ongul Is. (ground temperature) Langhovde (ground temperature) Akanui-misaki Tottuki-misaki Mukai-iwa Langhovde Skarvsnes Skallen Rundvagshetta Padda Is.	69°00'25"S, 39°35'11"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: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMG0902	Seismic monitoring observation	Seismometers are installed to monitor earthquakes at Syowa Station and four sites on the Sōya Kaigan all year-round.	Syowa Station and four sites on the Sōya Kaigan	69°00'25"S, 39°35'01"E	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: Email: kanao@nipr.ac.jp	
AMG0903	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: Yoshifumi Surname: Nogi Job Title or Position: Professor, NIPR Phone: +81-42-512-0603 Email: nogi@nipr.ac.jp	

ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Discipline	PI	URL
AMG0904	Infrasound observation	Arrayed observation of infrasound has been carried out at Syowa Station all year-round.	Syowa	69°00' 25" S, 39°35' 01" E	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	
AMB0901	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, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AMB0902	Marine ecosystem monitoring	Oceanographic observations in the Southern Ocean along the cruise track of R/V Shirase is 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		Biological sciences – other	Name: Tsuneo Surname: Odate Job Title or Position: Professor, NIPR Phone: +81-42-512-0738 Email: odate@nipr.ac.jp	
AMB0903	Monitoring of Antarctic 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	Bioscience	Name: Satoshi Surname: Imura Job Title or Position: Professor, NIPR Phone: +81-42-512-0602 Email: imura@nipr.ac.jp	
<b>Routine Observation</b>							
TC01	Bathymetric survey	Bathymetric survey	Lützow-Holmbukta		Oceanography	Name: Katsuhiro Surname: Kusunoki 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	
TC02	Tidal observation	Tidal observation	Syowa	69°00'25"S, 39°35'01"E	Oceanography	Name: Katsuhiro Surname: Kusunoki 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 (Relative Gravity Survey) Leveling	Syowa Coastal area of Lützow-Holm bay Ongul Island P50,S16 and S17 site	69°00'25"S, 39°35'01"E	Geophysics and seismology	Name: Takuya Surname: Nojiri Job Title or Position: Executive Officer for Promoting International Cooperation, Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6910 Email: gsi-antarctic@gxb.mlit.go.jp	<a href="https://www.gsi.go.jp/antarctic/index-e.html">https://www.gsi.go.jp/antarctic/index-e.html</a>
TG02	Topographic survey	Photocontrol points surveying Aerial photography	Ongul Island	69°00'25"S, 39°35'01"E	Geomorphology	Name: Takuya Surname: Nojiri Job Title or Position: Executive Officer for Promoting International Cooperation, Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6910 Email: gsi-antarctic@gxb.mlit.go.jp	<a href="https://www.gsi.go.jp/antarctic/index-e.html">https://www.gsi.go.jp/antarctic/index-e.html</a>
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: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>
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: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>
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: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>
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: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>



ID	Project name	Detail/ Description	Site Name	Latitude, Longitude	Discipline	PI	URL
TJM05	Weather analysis	Weather Conditions	Syowa	69°00'25"S, 39°35'01"E	Meteorology	Name: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>
TJM06	Another observation	Automatic Weather Station observation	Syowa	69°00'25"S, 39°35'01"E	Meteorology	Name: Yoshinobu Surname: Tanaka Job Title or Position: Head, Office of Antarctic Observation, Observation Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	<a href="http://www.jma.go.jp/jma/indexe.html">http://www.jma.go.jp/jma/indexe.html</a>
TN01	Ionospheric observations	Ionospheric vertical sounding, GPS scintillation monitoring	Syowa	69°00'25"S, 39°35'01"E	Earth and atmospheric sciences - other	Name: Hideo Surname: Maeno Job Title or Position: Contract Employee, Space Environment Laboratory, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-6096 Email: maeno@nict.go.jp	<a href="http://wdc.nict.go.jp/ONO/wdo/index.html">http://wdc.nict.go.jp/ONO/wdo/index.html</a> <a href="http://ionosyowa.nict.go.jp/">http://ionosyowa.nict.go.jp/</a>
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	Astrophysics	Name: Hideo Surname: Maeno Job Title or Position: Contract Employee, Space Environment Laboratory, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-6096 Email: maeno@nict.go.jp	<a href="http://ionosyowa.nict.go.jp/">http://ionosyowa.nict.go.jp/</a> <a href="http://swc.nict.go.jp/en/">http://swc.nict.go.jp/en/</a>
<b>Others</b>							
AAK0901	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: Team Leader, Marine Networks, Bureau of Meteorology, Australia Phone: +61 3 9669 4651 Email:	
AAK0902	Deployment of Argo floats requested from JAMSTEC	Profiling floats will be deployed from the icebreaker Shirase in the Southern Ocean. Temperature and salinity profiles measured by floats are to be transmitted via satellite systems.	Along cruise track of R/V Shirase		Oceanography	Name: Mizue Surname: Hirano Job Title or Position: Research Scientist, JAMSTEC Phone: +81-46-867-9845 Email: hiranom@jamstec.go.jp	