資料８
南極地域観測統合推進本部
第 39 回観測・設営計画委員会
H30.5.30

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。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）年次報告（Annual Report）＝2017 年４月～2018 年３月に行った活動の事後報告

ア　今期に実施した研究・観測活動を別紙にて提出（2.1）

イ　使用基地，観測船（しらせ）・航空機・飛翔体，保護地域への立入りについて報告（2.2，2.3）

ウ　環境保護関連事項に関する報告（環境保護法施行規則の改正，廃棄物処理の実施等）（2.4）

（２）常設報告（Permanent Information）＝恒久的に設置されている設備などの報告

ア　基地・観測船・航空機，自動観測点につき報告（3.1，3.2）

イ　環境保護関連事項に関する報告（廃棄物管理計画，燃料漏出緊急対応計画等）(3.3)

なお，年次報告（Annual Report）の Scientific Information 中，Forward Plans 及び事前報告（Pre-season Information＝2018 年～2019 年に行う活動の事前の通告。使用予定基地，観測船・航空機・飛翔体等）については，第 60 次観測隊の計画が確定次第，本年秋に開催される南極地域観測統合推進本部総会で報告予定。

（了）

2. Annual Report (2017 / 2018)

2.1 Scientific Information

2.1.1 Forward Plans (None)

2.1.2 Science Activities in Previous Year

Please see Table in Excel format.

2.2 Operational Information

2.2.1 National Expeditions

A. Stations

-Name: Syowa Station
Type: Wintering
Location:
Site Name: Syowa
Latitude: 69° 00′ 25″ S
Longitude: 39° 35′ 01″ E
Maximum Population: 130
Medical Facilities: Minimum required surgical operation facilities and dental emergency facilities are equipped. Two medical doctors stay at the station.
Remarks/ Description:
Location: Higashi-Ongul To (Island), Lützow-Holmbukta
Elevation: 28.9m
Established: January 29, 1957
Major Field Activities: Oversnow traverse to Dome Fuji Station / Biological and geophysical observations in Lützow-Holmbukta area

B. Vessels

Name: R/V Shirase
Country of registry: Japan
Number of Voyages: 1
Maximum Crew: 179
Maximum Passengers: 80
Departure date: December 2, 2017
Port of Departure: Fremantle, Australia
Arrival Date: March 20, 2018
Port of Arrival: Sydney, Australia
Areas of Operation: Lützow-Holmbukta, Kronprins Olav Kyst
Purpose: Transportation of cargo and personnel / Support of oceanographic and field observations

C. Aircraft

Type: CH-101
Period of Flights: from December 18, 2017 to February 22, 2018
General Task / Remarks: transportation of cargo and personnel / support of field observations

Type: AS350BA
Period of Flights: from December 18, 2017 to February 12, 2018
General Task / Remarks: transportation of cargo and personnel / support of field observations

D. Research Rockets

-Location Launch:
Site Name: Syowa
Latitude: 69° 00′ 22″ S
Longitude: 39° 35′ 24″ E
Date: Twice daily, throughout the year and up to 4 times during the summer (January - February, 2018)
Direction: All directions, depending on wind
Max. Altitude: 30,000 m
Impact Area: Within a radius of 200-300 km from the site
Type: Rubber balloon
Specification: Radiosonde
Purpose: Aerological observation
Project Title / Number: Meteorological observations

-Location Launch:
Site Name: Syowa
Latitude: 69° 00′ 22″ S
Longitude: 39° 35′ 24″ E
Date: 1 to 2 times a week, throughout the year
Direction: All directions, depending on wind
Max. Altitude: 30,000 m
Impact Area: Within a radius of 200-300 km from the site
Type: Rubber balloon
Specification: ECC（Electrochemical Concentration Cell）Type Ozone sonde
Purpose: Ozone vertical profile measurement
Project Title / Number: Meteorological observations

-Location Launch:
Site Name: Syowa
Latitude: 69° 00′ 22″ S
Longitude: 39° 35′ 24″ E
Date: 4 times, throughout the year
Direction: All directions, depending on wind
Max. Altitude: 30,000 m
Impact Area: Within a radius of 100 km from the site
Type: Rubber balloon
Specification: Water vapor & Radiosonde
Purpose: Water vapor measurement
Project Title / Number: Long-term observation of water vapor in the Antarctic stratosphere

-Location Launch:
Site Name: R/V Shirase
Areas: Lützow-Holmbukta
Date: 9 times in the summer (December, 2017)
Direction: All directions, depending on wind
Max. Altitude: 30,000 m
Impact Area: Within a radius of 100 km from the site
Type: Rubber balloon
Specification: Radiosonde
Purpose: Aerological observation
Project Title / Number: Mechanism of variation in surface condition of the ice sheet and heat and moisture budget in east Antarctica

E. Military (None)

2.2.2 Non-governmental Expeditions

Vessel-Based Operations (None)
Land-Based Operations (None)
Aircraft Activities (None)

2.3 Permit Information

2.3.1 Visits to Protected Areas

ASPA No	Number of people:	Permit Period:	Purpose:	Summary of activities:	Event or project name/number:
No.141 Yukidori Valley, Langhovde	8	From: 25 Oct 2017 To: 31 Jan 2019	Research	Taking aerial photograhs	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	5	From: 25 Oct 2017 To: 31 Jan 2019	Research	Sampling lake sediment in Yukidori Ike	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	6	From: 25 Oct 2017 To: 31 Jan 2019	Research	Water quality analysis in lake Yukidori Ike	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	14	From: 25 Oct 2017 To: 31 Jan 2019	Research	Ecological survey of birds	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	2	From: 25 Oct 2017 To: 31 Jan 2019	Research	Gathering information for educational purposes	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	6	From: 25 Oct 2017 To: 31 Jan 2019	Research	Observing community structure in lake Yukidori Ike	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 25 Oct 2017 To: 31 Jan 2019	Research	Research activity including gathering of information for study	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	47	From: 25 Oct 2017 To: 31 Jan 2019	Research	Removal of waste	59th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	2	From: 25 Oct 2017 To: 31 Jan 2019	Research	Reporting	59th Japanese Antarctic Research Expedition

2.3.2 Taking and harmful interference with flora and fauna

No	Permit period:	Species:	Location:	Amount:	Sex:	Age:	Purpose:
1	From: 25 Oct 2017 To: 31 Jan 2019	Adelie penguin, snow petrel and south polar skua	Ongul islands (69°00'S, 39°35'E), Langhovde (69°14'S, 38°44'E) and Skarvsnes (69°28'S, 39°36'E)	270 Adelie penguins, 25 snow petrels, 20 south polor skuas and 20 Weddell seals	-	-	Research
2	From: 25 Oct 2017 To: 31 Jan 2019	Adelie penguin, Chinstrap penguin and Gentoo penguin	South Orkney Islands (69°44'S, 45°35'E; 69°41'S, 45°37'E)	40 Adelie penguins, 30 Chinstrap penguins and 10 Gentoo penguins	-	-	Research
3	From: 25 Oct 2017 To: 31 Jan 2019	Moss plants and algae	Ongul Island (69°01'S, 39°36'E), Langhovde (69°14.5'S, 38°44'E), Breivagnipa (69°20'S, 39°45'E), Skarvsnes (69°27'S, 39°40'E) and Skallen (69°40'S, 39°30'E)	At 15 lakes ×25 kg:375 kg in total	-	-	Research
4	From: 25 Oct 2017 To: 31 Jan 2019	Moss plants and algae	Skarvsnes (69°27'S, 39°40'E) and Skallen (69°40'S, 39°30'E)	At 3 lakes ×50 kg:150 kg in total (wet weight, approximately 90% of the weight is water)	-	-	Research

5	From: 25 Oct 2017 To: 31 Jan 2019	Moss plants and algae	Langhovde (69°14.5'S, 38°44'E), Breivagnipa (69°20'S, 39°45'E), Skarvsnes (69°27'S, 39°40'E) and Skallen (69°40'S, 39°30'E),	At 20 lakes ×10 kg:200 kg in total (wet weight, approximately 90% of the weight is water)	-	-	Research
6	From: 25 Oct 2017 To: 31 Jan 2019	Moss plants lichens and algae	Botsunnuten (70°24'S, 37°57'E), Innhovde (69°52'S, 37°07'E), Riiser-Larsen (67°S, 50°E)	At 2 locations ×10 kg:20 kg in total	-	-	Research
7	From: 25 Oct 2017 To: 31 Jan 2019	Algae (e.g. *Prasiola* spp.)	Syowa Station (69°00'S, 39°35'E)	At 20 locations ×5 g:100 g in total	-	-	Research

2.3.3 Introduction of non-native species (None)

2.4 Environmental Information

2.4.1 Compliance with the Protocol*(Notification of measures adopted during the past year)*

Measure Title:

Revision of the Ministerial Ordinance of "*the Law relating to Protection of the Environment in Antarctica*."

Measure Description:

The Government of Japan worked to implement the Measures, new and revised management plans for ASPAs adopted at the 40th Antarctic Treaty Consultative Meeting (ATCM), through revision of the Ministerial Ordinance of "*the Law relating to Protection of the Environment in Antarctica*."

Date of Effect:

August 31, 2017

2.4.2 Contingency Plans

No new plans were made or implementation action taken during this reporting

2.4.3 List of IEEs and CEEs

Type: IEE

Activity: Construction (Constructions at Syowa station)

Year: 2017

Title: 59th Japanese Antarctic Research Expedition

Location: Syowa Station (69°00'S, 39°35'E)

Organization responsible: Headquarters of the Japanese Antarctic Research Expedition

Decision: Proceed (No more than a minor or transitory impact)

2.4.4 Monitoring activities report (None)

2.4.5 Waste Management Plans

Title: Waste Management Guide
Fixed Site / Field Camp / Ship: Station and Field
Implementation Report: Disposal of wastes in the stations and fields is implemented in accordance with Annex III of the Protocol on Environmental Protection to the Antarctic Treaty and the relevant national legislation. Sewage and gray water from summer accommodation are treated by non-biological method (Coagulation-Sedimentation Method), and Sewage and gray water from year-round accommodation are treated by membrane separation activated sludge process and the treated water is discharged into the sea. All the wastes are sorted and treated properly. Combustible wastes are disposed of by a two-stage incinerator. The ash is taken back to Japan. Wet food waste is treated by a dehydrating instrument. The residue is directly taken back to Japan or incinerated, and its ash is also taken back to Japan. The other waste is taken back to Japan.
Contact Point:
Name: Kazuo
Surname: Higuchi
Job Title or Position: Head of Logistics Section, National Institute of Polar Research
Phone: +81-42-512-0779
Email: higuchi.kazuo@nipr.ac.jp

2.4.6 Measures taken to implement the provisions of Annex V (None)

2.4.7 Procedures relating to EIAs (None)

2.4.8 Prevention of marine pollution (None)

(END)

Scientific Activities - JARE 58W 59S

EIES用番号	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
	Research Project （研究観測）						
	Prioritized Research Project: Investigation of changes in the Earth system from Antarctica（重点研究観測：南極から迫る地球システム変動）						
AJ0901 9-J1-SW 東京大学 佐藤薫教授 堤准教授	A study on the global atmosphere system based on high-resolution observations of the Antarctic atmosphere 南極大気精密観測から探る全球大気システム	Observations of the Antarctic atmosphere were performed during JARE58 in order to examine various processes and their role in the global atmospheric system by utilizing (1) the PANSY (Program of the ANtarctic SYowa MST/IS) radar, which is the largest atmospheric radar in the Antarctic, and (2) related instruments such as resonance/Rayleigh scatter lidar, millimeter wave spectrometer, MF radar, OH IR airglow imager, OH spectrometer, high-speed auroral imager, and proton auroral spectrograph. The second and third campaigns of Interhemispheric Coupling Study by Observations and Modeling (ICSOM) were also successfully conducted.	Syowa	69°00'25"S, 39°35'01"E	Meteorology, middle and upper atmospheric sicence	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 9-J2-S 北海道大学 青木准教授 田村准教授	Research of Ocean-ice Boundary Interaction and Change around Antarctica 氷床・海氷縁辺域の総合観測から迫る大気－氷床－海洋の相互作用	Unmanned observations such as under-ice oceanographic, seafloor and cryospheric observations using ROV, glaciological and oceanographic observations using hot water drill, geodetic network observations of ice/ocean motion and deformation using GPS/ GNSS/ApRES, and oceanographic observations using tethered and moored profiling observation systems were carried out. These remote observation techniques were applied to the new horizons such as Lützow-Holmbukta, Cape Darnley and Totten Glacier regions for the understandings of the mechanisms of different ice-ocean interaction regimes.	Lützow-Holmbukta, Shirase/Langhovde Glacier, Cape Darnley, Totten Glacier		Oceanography Glaciology	Name: Shigeru Surname: Aoki Job Title or Position: Associate Professor, ILTS, Hokkaido University Phone: Email: shigeru@lowtem.hokudai.ac.jp	
AJ0903 9-J3-SW 川村准教授	Antarctic paleoenvironmental reconstructions for unraveling the Earth system variations 地球システム変動の解明を目指す南極古環境復元	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, ice radar and other glaciological/meteorological observations. Transportation of the second phase Dome Fuji ice core samples on the return trip. An automatic weather station installed near Dome Fuji. Sampling of lake sediment and observation of surface topography with UAV in the areas of Ongul Islands, Langhovde, Skallen, and Skarvsnes.	Syowa, 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, NIPR Phone: +81-42-512-0684 Email: kawamura@nipr.ac.jp	
	Ordinary Research Project （一般研究観測）						
AP0901 9-P01-SW 信州大学 加藤准教授	Space weather study using cosmic ray observations at Syowa Station in Antarctica 南極昭和基地での宇宙線観測による宇宙天気研究の新展開	A neutron monitor and a muon detector system were installed at Syowa. Cosmic ray observation with those detectors was started in this expedition. The observation is continuing and the data will be used for space weather studies.	Syowa	69°00'25"S, 39°35'01"E	Astrophysics	Name: Chihiro Surname: Kato Job Title or Position: Associate Professor, Shinshu University Phone: Email:	
AP0902 9-P02-SW 門倉教授	Large area network observation of auroral phenomena using unmanned system 無人システムを利用したオーロラ現象の広域ネットワーク観測	Low-power autonomous auroral observation system at Amundsen Bay has been working continuously all through the year. Unmanned magnetometer network around Amundsen Bay and Lützow-Holmbukta area was maintained.	Amundsen Bay (aurora), Amundsen Bay (magne), Skallen, H68, Innhovde		Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AP0903 9-P03-SW 京都大学 海老原准教授	Dynamics of magnetosphere and ionosphere by using mult−wavelength, simultaneous observations of auroras at South Pole and McMurdo stations 南極点・マクマード基地オーロラ多波長同時観測による磁気圏電離圏構造の研究	In total, 6 cameras were operated in the main building of the South Pole Station, and 4 cameras at Arrival Heights in the McMurdo Station. The observation starts in the middle of April, and lasts at the end of August.	South Pole Station and McMurdo Station		Earth and atmospheric sciences - other	Name: Yusuke Surname: Ebihara Job Title or Position: Associate Professor, Kyoto University Phone: Email:ebihara@rish.kyoto-u.ac.jp	

Scientific Activities - JARE 58W 59S

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AP09-04	9-P04-SW Study on polar upper atmosphere in possible grand minimum period and inner magnetosphere dynamics with SuperDARN radars SuperDARNレーダーを中心としたグランドミニマム期における極域超高層大気と内部磁気圏のダイナミクスの研究	With SENSU SuperDARN HF radars at Syowa station and auroral all-sky imager network at Zhongshan and South Pole stations (as well as Dome Fuji - not operational currently) under FOVs of the SENSU radars, simultaneous observation was conducted to try to study on polar upper atmosphere in possible grand minimum or very low solar activity period and inner magnetosphere dynamics with SuperDARN radars as well as to contribute to broader space weather research. / Remarks: During JARE58 (Feb 2017 to Jan 2018) season, twin-radar operation was conducted throughout the year (except Feb to mid-June, 2017 when Syowa South was not operational). Simultaneous special campaigns with ARASE (ERG) satellite (launched in Dec. 2016 and started full operation in Mar. 2017) were also conducted under international SuperDARN schedule. During JARE59 austral summer season (Nov 2017 to Jan 2018), optical imager data and all the instrument at Dome Fuji station was deinstalled and brought back to Japan.	Syowa, Dome Fuji, Zhongshan & South Pole stations	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:	http://polaris.nipr.ac.jp/~SD/
AP09-05	9-P05-W Global lightning activities and atmospheric disturbances derived from electromagnetic wave and electric field measurements 電磁波・大気電場観測が明らかにする全球雷活動と大気変動	Continuous measurements of ELF electromagnetic waves in the frequency range of 1-100Hz and atmospheric DC electric field were carried out. At Nishi-Ongul To (Island), two horizontal induction magnetometers were installed for the ELF measurement, while the 4 field mill sensors were installed at Higashi-Ongul To (Island) for atmospheric electric field measurement. From these data, it is possible to monitor activities of global lightning discharges and global electric circuit.	Nishi-Ongul To (Island), Higashi-Ongul To (Island)		Atmospheric electricity Space and upper atmosphere sciences	Name: Mitsuteru Surname: Sato Job Title or Position: Lecturer, Faculty of Science, Hokkaido University Phone: +81-11-706-2763 Email: msato@ep.sci.hokudai.ac.jp	
AP09-08	9-P08-W Long-term observation of water vapor in the Antarctic stratosphere 南極成層圏水蒸気の長期観測	Balloon-borne water vapor observations were performed in Feb., Apr., Jul., and Oct. 2017 at Syowa. They successfully captured seasonal variations of water vapor concentration in the Antarctic upper troposphere and lower stratosphere.	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	
AP09-10	9-P10-SW Changing of East Antarctic aerosols in global biogeochemical environment 全球生物地球化学的環境における東南極域エアロゾルの変動	1) Observation of optical property and aerosol concentration along cruise track of R/V Shirase by ship borne, aureolemeter, condensation particle counter, optical particle counter, nephelometer, aethalometer, ceilometerduring summer. 2) Aerosol sampling for chemical constituent analyses along cruise track of R/V Shirase during summer. 3) Measurement of optical absorption coefficient of aerosol at Syowa by an aethalometer and MAAP all year round.	Along cruse track of R/V Shirase Along cruse track of R/V Shirase, Syowa	69°00'00"S, 39°36'00"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	
AP09-11	9-P11-S Mechanism of variation in surface condition of the ice sheet and heat and moisture budget in east Antarctica 東南極における氷床表面状態の変化と熱・水循環変動の機構	1) Radiosonde observation was carried out at Dome Fuji and on Shirase in 2017/18 summer. 2) AWS (Automatic Weather Station) was installed at Dome Fuji and S17 (collaborated with project:9-O08-S) in 2017/18 summer. A trouble in AWS installed at H128 was fixed. 3) Surface snow sampling was done every 10 km along the traverse route from S17 to Dome Fuji to obtain the isotopic properties. 4) Isotopic properties (water vapor and Be7) over Antarctic Ocean from Fremantle, Australia to Syowa and from Syowa to Sydney was observed on Shirase in 2017/18 summer.	S17, H128, Shirase, Dome Fuji		Meteorology and glaciology	Name: Naohiko Surname: Hirasawa Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0685 Email: hira.n@nipr.ac.jp	
AP09-13	9-P13-S A study on physical interaction between the atmosphere, ocean, cryosphere and solid earth by using seismic and infrasonic waves 地震波・インフラサウンド計測による 大気-海洋-雪氷-固体地球の物理相互作用解明	Multiple-sites arrayed observation of infrasound was carried out to reveal the energy transportation among the ionosphere, atmosphere, ocean, cryosphere, and geosphere in Antarctica. The target was to identify the infrasound generated by icequake, motion of ice sheets 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		Geoscience	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-9026 Email: kanao@nipr.ac.jp	

Scientific Activities - JARE 58W 59S

		Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AP0914	9-P14-S 山口准教授	Search for extraterrestrial materials in Antarctica 南極における地球外物質探査	Surface snow near the Dome Fuji station which contains fresh micrometeorites was collected.	Done Fuji	77°19'00"S, 39°42'12"E	Planetary science	Name: Akira Surname: Yamaguchi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0707 Email: yamaguchi@nipr.ac.jp	
AP0917	9-P17-S 青山助教	Study on the Ice sheet changes and GIA by absolute gravity measurements and GNSS observations in Soya Coast and inland mountain area, Antarctica. 絶対重力測定とGNSS観測による南極氷床変動とGIAの研究 -宗谷海岸およびセール・ロンダーネ山地-	With objective of investigating crustal movements and mass redistribution associated with Glacial Isostatic Adjustment, we conducted the field absolute gravity and GNSS measurements at six sites on outcrops in East Antarctica as follows: Botnnuten, Rundvaugshetta, Skallen, Langhovde, Akarui Misaki, Mt. Riiser-Larsen. The A10 gravimeter (MGL inc.) was used for the field absolute gravity measurements and was calibrated with the FG-5 gravimeter on IAGBN in Gravity Observation Hut, Syowa Station.	Sôya Kaigan, Sør Rondane		Geomorhology	Name: Yuichi Surname: Aoyama Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0712 Email: aoyama@nipr.ac.jp	
AP0921	9-P21-SW 工藤准教授	Major succession/transition of terrestrial/lake ecosystems 露岩域と生物の変遷から探る生態系のメジャートランジション	Limnological survey of lakes, biological sampling, lake sediment-core sampling and year-around environmental observations using automated equipments in Sôya Kaigan.	Sôya Kaigan		39 - 40 °E	Name: Sakae Surname: Kudoh Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0739 Email: skudoh@nipr.ac.jp	
AP0922	9-P22-SW 高橋准教授	Responses of marine predators to environmental change: year-round tracking approach 一年を通した生態計測で探る高次捕食動物の環境応答	Foraging location, diving behaviour, feeding rate, under-ice prey field, diet composition, reproductive success, and winter migrations of Adélie penguins were examined at a breeding colony in the Langhovde area in Lützow-Holmbukta. Weddell seal's movement and diving behaviour were also monitored with satellite relay data loggers.	Langhovde		Bioscience	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AP0923	9-P23-S 東京海洋大学 茂木准教授 小達教授	Marine Ecosystem of the Indian Ocean Sector of the Southern Ocean 南大洋インド洋セクターにおける海洋生態系の統合的研究プログラム	A drifting buoy system with two sediment traps and several sensors including those for biological parameters was deployed.	Along cruse track of R/V Shirase	63°10.38'S, 110°04.99'E	Bioscience	Name: Masato Surname: Moteki Job Title or Position: Associate Professor, Tokyo University of Marine Science and Technology Email: masato@kaiyodai.ac.jp	
AP0924	9-P24-W 大野客員教授 渡邉教授	Medical researches on Antarctic expeditioners under extreme environment 極限環境下における南極観測隊員の医学的研究	A study on dental health of expedition personnel was carried out.	Syowa		Biological sciences – other	Name: Kentaro Surname: Watanabe Job Title or Position: Professor, NIPR Phone: +81-42-512-0646 Email: kentaro@nipr.ac.jp	
		Exploratory Research Project（萌芽研究観測）						
AH0903	9-H03-S 一橋大学 大坪教授 青山助教	Development of Satellite Laser Ranging system for Antarctic 南極仕様 SLR 観測システム開発	An all-sky camera and a cloud sensor were installed in Syowa and the data archiving procedure was automated. We plan to operate them for one year to see the feasibility of Satellite Laser Ranging operation.	Syowa	69°00'25"S, 39°35'01"E	Other	Name: Toshimichi Surname: Ohtsubo Job Title or Position: Professor, Hitotsubashi University Phone: Email: t.otsubor.hit-u.ac.jp	
		Fundamental Observation（基本観測）						
		Monitoring Observation（モニタリング観測）						
AMU0901	9-MU1-W 門倉教授	Auroral optical observation オーロラ光学観測	Auroras were 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.	Syowa	69°00'25"S, 39°35'01"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	

Scientific Activities - JARE 58W 59S

		Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AMU 0902	9-MU2-W 門倉教授	Geomagnetism observation 地磁気観測	Absolute geomagnetic observation was carried out every month and geomagnetic variation observation with a 3-axis fluxgate magnetometer was carried out continuously all through the year at Syowa.	Syowa	69°00'25"S, 39°35'01"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AMU 0903	9-MU3-W 門倉教授	Monitoring observation of Geospace phenomena at West Ongul Island 西オングル島における宙空モニタリング観測	Cosmic Noise Absorption (CNA) was observed with two sets of riometers and natural VLF and ULF waves were observed with two sets of loop antennas and two sets of induction magnetometers at West-Ongul To (Island) continuously all through the year.	Syowa, West-Ongul To (Island)	69°00'25"S, 39°35'01"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, ROIS Phone: +81-42-512-9105 Email: kadokura@nipr.ac.jp	
AMP0 901	9-MP1-W 後藤助教	Monitoring of atmospheric greenhouse gases and related constituents 大気微量成分観測（温室効果気体）	Monitoring of atmospheric CO2, CH4, CO and O2 concentrations was carried out all year-round at Syowa. Whole air samples were 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	
AMP0 902	9-MP2-W 塩原准教授	Monitoring of aerosol and clouds エアロゾル・雲の観測	Aerosol and clouds were monitored by remote-sensing and in-situ measurements at Syowa for investigating their climate impact. All-sky images were recorded every 10 minutes to monitor cloud cover all year-round. Vertical distributions of cloud aerosols were monitored continuously with a micro-pulse lidar. A sky radiometer was installed to monitor solar radiation and aerosol optical properties from mid-August to early May. Size distribution of aerosol was monitored continuously at the aerosol observation hut all year-round as well as aethalometer observation.	Syowa	69°00'25"S, 39°35'01"E	Atmospheric sciences	Name: Masataka Surname: Shiobara Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0678 Email: shio@nipr.ac.jp	http://mplnet.gsfc.nasa.gov/
AMP0 903	9-MP3-W 本山教授	Monitoring of mass balance in Antarctic ice sheet 南極氷床の質量収支モニタリング	Sea ice thickness and snow depth measurements from Syowa to Tottuki Misaki. Snow accumulation measurements by snow stake method and surface snow samplings from Tottuki Misaki to S16 site. Snow accumulation measurements and surface snow samplings from S16 to Dome Fuji.	from Syowa to S16 site via Tottuki Misaki, S16 site, 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	
AMP0 904	9-MP4-S 牛尾准教授	Sea ice and hydrographic observations onboard icebreaker Shirase and in Lützow-Holm Bay oceanography しらせ航路上及びリュツオ・ホルム湾の海氷・海洋物理観測	Measurements of sea ice thickness and ice concentration. Monitoring of vessel movement during ice navigation.	Along cruise track of R/V Shirase, Near Syowa		Glaciology	Name: Shuki Surname: Ushio Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp	
AMG 0901	9-MG1-W 土井准教授	Integrated Geodetic monitoring observation 統合測地モニタリング観測	Monitoring of a fixed point location in Syowa was carried out with a DORIS antenna operating all year-round. Ground temperature was monitored all year-round at sites near the Zakuro Ike in Langhovde and near the Ô-ike, in Nishi-Ongul To (Island). VLBI experiments were carried out 6-8 times a year using a mult-purpose 11 meter diameter dish and gravity was monitored with a super-conductivity gravimeter at Syowa. Tide was monitored near Syowa with a GNSS buoy all year-round. Crustal movements were monitored by GNSS measurements on several outcrop rocks around Syowa.	Syowa, Nishi-Ongul To (Island)	69°00'25"S, 39°35'01"E	Geomorhology	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMG 0902	9-MG2-W 金尾准教授	Seismic monitoring observation 地震モニタリング観測	Seismometers were installed to monitor earthquakes at Syowa and four sites on the Sôya Kaigan all year-round.	Syowa and four sites on the Sôya Kaigan		Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-9026 Email: kanao@nipr.ac.jp	

Scientific Activities - JARE 58W 59S

		Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AMG 0903	9-MG3-S 野木教授	Marine geophysical observations 船上地圏地球物理観測	Seasurface gravity and geomagnetism were measured on board the R/V Shirase from Fremantle to Sydney. Sea bottom pressure was monitored with a pressure gauge installed and recovered every summer on the sea bottom about 4000 meter deep in the Southern Ocean around 66°50'S and 37°50'E.	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	
AMG 0904	9-MG4-W 金尾准教授	Infrasound observation インフラサウンド観測	Arrayed observation of infrasound was carried out at Syowa all year-round.	Syowa		Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-9026 Email: kanao@nipr.ac.jp	
AMB0 901	9-MB1-W 高橋准教授	Population census of Adélie penguins アデリーペンギンの個体数観測	Census of Adélie penguins at rookeries in the Sōya Kaigan area was carried out in mid-November and early December. Number of the penguins and the pairs were counted.	Sōya 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	
AMB0 902	9-MB2-S 小達教授	Marine ecosystem monitoring 海洋生態系モニタリング	Oceanographic observations in the Southern Ocean along the cruise track of R/V Shirase were carried out between Fremantle and Sydney via water off Syowa. Surface water was 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		Bioscience	Name: Tsuneo Surname: Odate Job Title or Position: Professor, NIPR Phone: +81-42-512-0738 Email: odate@nipr.ac.jp	
AMS0 901	9-MS1-W 宮岡教授	Data acquisition of Earth observing satellites 極域衛星データ受信	Data acquisition of NOAA, METOP-1, DMSP, AQUA, TERRA and NPP polar orbiting Earth observation satellites with L/S/X-band receiving facility at Syowa.	Syowa	69°00'25"S, 39°35'01"E	Other	Name: Hiroshi Surname: Miyaoka Job Title or Position: Professor, NIPR Phone: +81-42-512-0662 Email: miyaoka@nipr.ac.jp	
		Routine Observation (定常観測)						
定常	8-TC1-S 海保	Bathymetric survey 海底地形調査	Bathymetric survey	Lützow-Holmbukta		Oceanography	Name: Katuhiro Surname: Kusunoki Job Title or Position: Director, Hydrographic Surveys Division, Hydrographic and Oceanographic Department, Japan Coast Guard Phone:+81-3-3595-3601 Email: -	
定常	8-TC2-WS 海保	Tidal observation 潮汐観測	Tidal observation	Syowa	69°00'25"S, 39°35'01"E	Oceanography	Name: Shinichi Surname: Toyama Job Title or Position: Director, Environmental and Oceanographic Research Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3601 Email: -	

Scientific Activities - JARE 58W 59S

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
定常 9-TG1-SW 国土地理院	Geodetic observations 測地観測	Precise Geodetic Observations (GNSS Observation) Precise Geodetic Observations (Relative Gravity Survey) Precise Geodetic Observations (Geoid Survey) Precise Geodetic Observations (Absolute Gravity Survey)	Syowa	69°00'25"S, 39°35'01"E	Geodesy	Name: Minoru Surname: Fujii Job Title or Position: Deputy Director of International Affairs Div., Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: gsi-antarctic@ml.mlit.go.jp	http://antarctic.gsi.go.jp/index-e.html
定常 9-TG2-S 国土地理院	Geodetic survey 地形測量	Ground laser scanner surveying Signal for aerial photography Aerial photography	Syowa	69°00'25"S, 39°35'01"E	Geodesy	Name: Minoru Surname: Fujii Job Title or Position: Deputy Director of International Affairs Div., Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: gsi-antarctic@ml.mlit.go.jp	http://antarctic.gsi.go.jp/index-e.html
定常 8-TJM1-W 気象庁	Surface synoptic observation 地上気象観測	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: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/indexe.html
定常 8-TJM2-W 気象庁	Upper-air observation 高層気象観測	Radiosonde/ Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'25"S, 39°35'01"E	Meteorology	Name: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/indexe.html
定常 8-TJM3-W 気象庁	Ozone observations オゾン観測	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: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/indexe.html
定常 8-TJM4-W 気象庁	Radiation observation 日射・放射観測	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: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/indexe.html

Scientific Activities - JARE 58W 59S

		Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
定常	8-TJM5-W 気象庁	Weather analysis 天気解析	Weather conditions	Syowa	69°00'25"S, 39°35'01"E	Meteorology	Name: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/index.html
定常	8-TJM6-W 気象庁	Another observation 気象・その他の観測	Weather robot observation	S17		Meteorology	Name: Hiroyuki Surname: Ogihara 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	http://www.jma.go.jp/jma/index.html
定常	8-TN1-WS NICT	Ionospheric observations 電離層の観測	Ionospheric vertical sounding, GPS scintillarion monitoring	Syowa, SYO1, SYO2, SYO3	69°00'25"S, 39°35'01"E	Ionospheric Research	Name: Hideo Surname: Maeno Job Title or Position: Senior Research, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology Phone: +81-42-327-6096 Email: maeno@nict.go.jp	http://iono-syowa.nict.go.jp/
定常	8-TN2-WS NICT	Data acquisition for monitoring space weather conditions 宇宙天気予報に必要なデータ収集	Data acquisition of ionospheric vertical sounding, GPS scintillation monitoring, magnetic field variations, and cosmic noise absorption	Syowa	69°00'25"S, 39°35'01"E	Space Weather	Name: Hideo Surname: Maeno Job Title or Position: Senior Research, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology Phone: +81-42-327-6096 Email: maeno@nict.go.jp	http://iono-syowa.nict.go.jp/
		Others (その他)						
継続的国内外共同観測	9-K01-S 牛尾准教授	Deployment of drifting buoys requested from Australian Bureau of Meteorology オーストラリア気象局のブイ投入	Surface drifting buoys were deployed from R/V Shirase in response to the request of the Australian Bureau of Meteorology. Location and sea surface data at each buoy were 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:	
継続的国内外共同観測	9-K02-S 牛尾准教授	Deployment of Argo floats requested from JAMSTEC Argoフロートの投入	One profiling float was deployed from the icebreaker Shirase in the Southern Ocean. Temperature and salinity profiles measured by the float were transmitted via satellite systems.	Along cruise track of R/V Shirase		Oceanography	Name: Shigeki Surname: Hosoda Job Title or Position: Senior Research Scientist, JAMSTEC Phone: Email:	

Scientific Activities - JARE 58W 59S

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
公開利用研究 9-O04-S 奈良女子大学：久慈准教授 対応教員：塩原准教授	Cloud fraction with an all-sky camera onboard R/V Shirase しらせ搭載全天カメラ観測による南極航海中の雲の出現特性	Sky images were successfully obtained in every five-minute along the cruise track of R/V Shirase. The cloud amounts were derived from the sky images and the results were consistent with ceilometer and visual observations on R/V Shirase.	Along cruise track of R/V Shirase		Atmospheric sciences	Name: Makoto Surname: Kuji Job Title or Position: Associate Professor, Nara Women's University Phone: +81-742-20-3044 Email: makato@ics.nara-wu.ac.jp	
公開利用研究 9-O05-S 東京海洋大学：後藤助教 対応教員：工藤准教授	Habitat mapping using multidimensional observable underwater remotely operated vehicles in Antarctic lakes 多次元観測水中無人探査機を用いた南極湖沼のハビタットマッピング	3D-images of the Antarctic lake bottom microbial assemblages were remotely recorded by way of an underwater vehicle.	Skrvsnas		Biological sciences – other	Name: Shinpei Surname: Gotoh Job Title or Position: Assistant Professor, Tokyo University of Marine Science and Technology Phone: Email:	
公開利用研究 9-O05-S 東北大学 森本教授 対応教員：後藤助教	Continuous measurements of the atmospheric O2/N2 and CO2 on board R/V Shirase しらせ船上での大気中O2/N2及びCO2濃度の連続観測	Continuous measurements of the atmospheric O2/N2 ratio and CO2 were carried out using fuel-cell oxygen analyzer and non-dispersive infrared analyzer onboard R/V Shirase.	Along cruise track of R/V Shirase		Atmospheric sciences	Name: Shinji Surname: Morimoto Job Title or Position: Professor, Tohoku University Phone: +81-22-795-5780 Email: mon@m.tohoku.ac.jp	
公開利用研究 9-O06-S 静岡大学：村越教授 対応教員：菊池助教	Investigation of practical intelligence of risk treatment for developing safety education programme of field science フィールド安全教育プログラムの開発に向けたリスク対応の実践知の把握	Interview about risk and risk perception test were conducted both on the trip to and from the Antarctica from thirty-two participants. On-site interview about perception of risk was also conducted with glaciology survey team and with geographical survey team. Practical knowledge of risk management was extracted by qualitative analysis methods (Grounded Theory Approach) as well as process of risk perception process in which perceived information and existing knowledge interacts was identified.	Syowa, S17, and coastal area of Lützow-Holmbukta		Psychology	Name: Shin Surname: Murakoshi Job Title or Position: Professor, Shizuoka University Phone: +81-54-238-4665 Email: murakoshi.shin@shizuoka.ac.jp	
公開利用研究 9-O07-S 筑波大学：池田准教授 対応教員：土井准教授	Research on refrigerator performance of superconducting gravimeter 超伝導重力計の冷凍機性能に関する調査研究	Ambient air temperature and the temperature of the 1st stage freezing system for the gravimeter at Syowa were stabilized by enclosing it with heat insulating boards, and adjustments of thermal tilt and inner pressure of the gravimeter improved the measurement accuracy.	Syowa	69°00'25"S, 39°35'01"E	Other	Name: Hiroshi Surname: Ikeda Job Title or Position: Associate Professor, University of Tsukuba Phone: Email: Ikedabk.tsukuba.ac.jp	
公開利用研究 9-O08-S 名古屋大学：西村教授 対応教員：平沢助教	Studies on the blowing snow contribution on the surface mass balance of Antarctic ice sheet by the direct measurements and the elucidation of spatiotemporal structure 吹雪の広域自動観測と時空間構造の解明による南極氷床の質量収支の定量的評価	Field observations were carried out on blowing snow and the relevant surface deformation at S17 on the Antarctic ice-sheet near Syowa. The major measurements were on; 1) blowing snow transport by a snow particle counter (SPC), and automatic weather station (AWS), and 2) changes in snow surface topography by a laser scanner.	S17		Climate studies	Name: Kouichi Surname: Nishimura Job Title or Position: Professor, Nagoya University Phone: Email: knishinagoya-u.jp	
外国基地派遣 9-G03-S 対応教員：高橋准教授	Foraging ecology of *Pygoscelis* penguins breeding at Signy Island シグニー島に生息するペンギン類の採餌生態の解明 (英国：シグニー島基地)	Foraging location, diving behaviour, and underwater prey field of Adélie and chinstrap penguins were examined at breeding colonies on Signy Island.	Signy Island		Biological sciences – other	Name: Jean-Baptiste Surname: Thiebot Job Title or Position: Project Researcher, NIPR Phone: +81-42-512-0768 Email: jbthiebot@nipr.ac.jp	

3. Permanent Information (version 2018)

3.1 Science Facilities

3.1.1 Automatic Recording Stations / Observatories

-Location:
Site Name: Mizuho
Latitude: 70° 42′ 00″ S
Longitude: 44° 17′ 21″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: ellipsoidal height 2,244m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure
Observation Frequency: 10 minutes
Reference Number: AWS No. 21359
Scientific Equipment:

-Location:
Site Name: Relay Point (MD364)
Latitude: 74° 00′ 29″ S
Longitude: 42° 59′ 48″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: 3,353m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, humidity, surface height
Observation Frequency: 10 minutes
Reference Number: AWS No. 8918 / WMO No. 89744
Scientific Equipment:

-Location:
Site Name: Dome Fuji
Latitude: 77° 19′ 00″ S
Longitude: 39° 42′ 11″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: 3,810m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure

Observation Frequency: 10 minutes
Reference Number: AWS No. 8904 / WMO No. 89734
Scientific Equipment:

-Location:
Site Name: JASE2007 (DK379)
Latitude: 75° 53′ 17″ S
Longitude: 25° 50′ 01″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: 3,661m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure
Observation Frequency: 10 minutes
Reference Number: AWS No. 30305
Scientific Equipment:

-Location
Site Name: A candidate site of new Dome Fuji Station
Latitude: 77° 47′ 20″ S
Longitude: 39° 03′ 09″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: 3,763m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure relative humidity, snow height, downward/upward shortwave and longwave radiation, ice temperature
Observation Frequency: 10 minutes
Reference Number: None
Scientific Equipment:

-Location:
Site Name: H128
Latitude: 69° 24′ 05″ S
Longitude: 41° 32′ 41″ E
Type: Automatic Weather Station (ARGOS Type)
Elevation: 1,383m
Parameters Recorded: temperature, wind speed, wind direction, atmospheric

pressure relative humidity, snow height, downward/upward shortwave and longwave radiation, ice temperature
Observation Frequency: 10 minutes
Reference Number: None
Scientific Equipment

-Location:
Site Name: Langhovde
Latitude: 69° 15′ S
Longitude: 39° 43′ E
Type: Seismic observation by Guralp seismometer
Elevation: 28m
Parameters Recorded: 3 components (NS, EW, Z)
Observation Frequency: nearly year-round by 10 Hz sampling
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Skallen
Latitude: 69° 40′ S
Longitude: 39° 25′ E
Type: Seismic observation by Guralp seismometer
Elevation: 28m
Parameters Recorded: 3 components (NS, EW, Z)
Observation Frequency: nearly year-round by 10 Hz sampling
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Rundvågshetta
Latitude: 69° 55′ S
Longitude: 39° 02′ E
Type: Seismic observation by Guralp seismometer
Elevation: 37m
Parameters Recorded: 3 components (NS, EW, Z)
Observation Frequency: nearly year-round by 10 Hz sampling

Reference Number: None
Scientific Equipment:

-Location:
Site Name: S16
Latitude: 69° 02′ S
Longitude: 40° 04′ E
Type: Seismic observation by Guralp seismometer
Elevation: 604m
Parameters Recorded: 3 components (NS, EW, Z)
Observation Frequency: nearly year-round by 10 Hz sampling
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Langhovde
Latitude: 69° 14′ 35″ S
Longitude: 39° 42′ 53″ E
Type: GNSS remote base station
Elevation: 10m
Parameters Recorded: GNSS
Observation Frequency: 30 Seconds
Reference Number: None
Scientific Equipment:

-Location:
Site Name: IGS Tracking Site at Syowa Station (SYOG)
Latitude: 69° 00′ 25″ S
Longitude: 39° 35′ 01″ E
Type: GNSS remote base station
Elevation: 29m
Parameters Recorded: GNSS
Observation Frequency: 1 Second
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Yukidori Zawa
Latitude: 69° 14′ 30″ S
Longitude: 39°44′ 22″ E
Type: Automatic Weather Station
Elevation: 55 m
Parameters Recorded: Air temperature, humidity, Air pressure, Wind direction, Wind speed, Solar radiation, UV radiation, Photosynthetically Active Radiation
Observation Frequency: 10 minutes
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Oyako Ike
Latitude: 69° 28′ 25″ S
Longitude: 39° 36′ 40″ E
Type: Automatic Weather Station
Elevation: 2 m
Parameters Recorded: Air temperature, humidity, Air pressure, Wind direction, Wind speed, Solar radiation, UV radiation, Photosynthetically Active Radiation
Observation Frequency: 10 minutes
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Skallen Oike
Latitude: 69° 40′ 26″ S
Longitude: 39° 24′ 15″ E
Type: Automatic Weather Station
Elevation: 10m
Parameters Recorded: Air temperature, humidity, Air pressure, Wind direction, Wind speed, Solar radiation, UV radiation, Photosynthetically Active Radiation
Observation Frequency: 10 minutes
Reference Number: None
Scientific Equipment:

Location:
Site Name: Yukidori Zawa
Latitude: 69° 08′ 36″ S
Longitude: 39° 26′ 30″ E
Type: Automatic Microclimate Station
Elevation: 70 m
Parameters Recorded: Ground surface temperature, Photosynthetically Active Radiation, UV radiation, Time-lapse photograph
Observation Frequency: 1 hour
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Oyako Ike
Latitude: 69° 28′ 36″ S
Longitude: 39° 36′ 06″ E
Type: Limnological Station
Elevation: 2 m
Parameters Recorded: Water temperature, Underwater light intensity, Chlorophyll fluorescence, Turbidity, Water level
Observation Frequency: 1 hour
Reference Number: None
Scientific Equipment:
-Location:
Site Name: Naga Ike
Latitude: 69° 29′ 12″ S
Longitude: 39° 35′ 54″ E
Type: Limnological Station
Elevation: 70 m
Parameters Recorded: Water temperature, Underwater light intensity, Chlorophyll fluorescence, Turbidity, Water level
Observation Frequency: 1 hour
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Nurume Ike
Latitude: 69° 13′ 23″ S
Longitude: 39° 39′ 33'E
Type: Limnological Station
Elevation: 2 m
Parameters Recorded: Water temperature, Underwater light intensity, Chlorophyll fluorescence, Turbidity
Observation Frequency: 1 hour
Reference Number: None
Scientific Equipment:

-Location:
Site Name: Dome Fuji
Latitude: 77° 19′ 02” S
Longitude: 39° 42′ 32″ E
Type: Low Power Magnetometer (BAS Type)
Elevation: 3,783m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 17mHz～1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Relay Point (MD364)
Latitude: 74° 00′ 37″ S
Longitude: 42° 59′ 30″ E
Type: Low Power Magnetometer (BAS Type)
Elevation: 3,353m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 17mHz～1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Mizuho
Latitude: 70° 42′ 06″ S
Longitude: 44° 16′ 47″ E
Type: Low Power Magnetometer (BAS Type)
Elevation: 2,250m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 17mHz～1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Skallen
Latitude: 69° 40′ 21″ S
Longitude: 39° 24′ 07″ E
Type: Low Power Magnetometer (NIPR Type)
Elevation: 11m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: H68
Latitude: 69° 11′ 32″ S
Longitude: 41° 03′ 01″ E
Type: Low Power Magnetometer (NIPR Type)
Elevation: 1,175m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Innhovde
Latitude: 69° 51′ 21″ S

Longitude: 37° 06′ 31″ E
Type: Low Power Magnetometer (NIPR Type)
Elevation: 57m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Amundsen Bay
Latitude: 66° 47′ 44″ S
Longitude: 50° 34′ 38″ E
Type: Low Power Magnetometer (NIPR Type)
Elevation: 37m
Parameters Recorded: magnetic 3 components (H, D, Z)
Observation Frequency: 1 Hz
Reference Number: None
Scientific Equipment: 3-axis fluxgate magnetometer

-Location:
Site Name: Amundsen Bay
Latitude: 66° 47′ 44″ S
Longitude: 50° 34′ 43″ E
Type: Unmanned Aurora Observatory
Elevation: 87m
Parameters Recorded: all-sky aurora image, magnetic 3 components (H, D, Z), GNSS TEC value
Observation Frequency: all-sky imager:1Hz, magnetometer:1 Hz, GNSS-TEC: every 30 sec
Reference Number: None
Scientific Equipment: All-sky imager, 3-axis fluxgate magnetometer, GNSS receiver

3.2 Operational Information

A. Stations

-Name: Syowa Station

Type: Year-round
Location:
Site Name: Syowa
Latitude: 69° 00′ 25″ S
Longitude: 39° 35′ 01″ E
Maximum Population: 130
Date Established: January 29, 1957
Accommodation Facilities: There are 2 buildings for over-wintering expeditioners and each building has 21 beds. For summer expeditioners, there are 2 buildings. One has 48 beds and cafeteria for 60 people and the other has 40 beds.
Medical Facilities: Minimum required surgical operation facilities and dental emergency facilities are equipped. Two medical doctors stay at the station.
Remarks / Description: Located on Higashi-Ongul To, Lützow-Holmbukta, 28.9m elevation, established in January 29, 1957
Search and Rescue Information:

-Name: Dome Fuji Station
Type: Seasonal
Location:
Site Name: Dome Fuji
Latitude: 77° 19′ 00″ S
Longitude: 39° 42′ 12″ E
Maximum Population: 14
Accommodation Facilities: There are 9 buildings below snow surface. 8 people can be accommodated for wintering.
Medical Facilities: None
Operating Period: from November to February
Remarks / Description: Located on the top of Dronning Maud Land, 3,810m elevation, established in January 29, 1995
Search and Rescue Information:

-Name: Mizuho Station
Type: Closed
Location:
Site Name: Mizuho
Latitude: 70° 41′ 58″ S

Longitude: 44° 16′ 52″ E
Maximum Population: 8
Accommodation Facilities: N/A
Medical Facilities: None
Operating Period: None
Remarks / Description: Located in Dronning Maud Land, 2,244m elevation, established in July 21, 1970
Search and Rescue Information:

-Name: Asuka Station
Type: Closed
Location:
Site Name: Asuka
Latitude: 71° 31′ 29″ S
Longitude: 24° 07′ 50″ E
Maximum Population: 8
Accommodation Facilities: N/A
Medical Facilities: None
Operating Period: None
Remarks / Description: Located in Sør-Rondane Mountains region, 980.3m elevation, established in March 26, 1985
Search and Rescue Information:

B. Vessels
Name: R/V Shirase
Flag State: Japan
Ice Strength: (Icebreaking capacity: Continuous 1.5 m ice thickness)
Length: 138m
Beam: 28m
Gross Tonnage: (Standard displacement: 12,650 tons)
Type: Supply and Research
Maximum Crew: 179
Maximum Passengers: 80
Description / Remarks:
Search and Rescue Information:

C. Aircraft

Type: CH-101 (on board Shirase)
Quantity: 2
Remarks: transport cargos and personnel / support scientific field operations
Search and Rescue Information:

Type: AS350BA (chartered by an Australia Company)
Quantity: 1
Remarks: support scientific field operations
Search and Rescue Information:

3.3 Environmental Information

3.3.1 Waste Management Plans

Title: Waste Management Guide
Fixed site/Field Camp/Ship: Station and field
Objective: Management of field Wastes, Station Wastes
Implementation Report: Disposal of wastes in the stations and fields is implemented in accordance with Annex III of the Protocol on Environmental Protection to the Antarctic Treaty and the relevant national legislation. Sewage and gray water from summer accommodation are treated by non-biological method (Coagulation-Sedimentation Method), and Sewage and gray water from winter accommodation are treated by membrane separation activated sludge process and the treated water is discharged into the sea. All the wastes are sorted and treated properly. Combustible wastes are disposed of by a two-stage incinerator. The ash is taken back to Japan. Wet food waste is treated by a dehydrating instrument. The residue is directly taken back to Japan or incinerated, and its ash is also taken back to Japan. The other waste is taken back to Japan.
Contact Point:
Name: Kazuo
Surname: Higuchi
Job Title or Position: Head of Logistics Section, National Institute of Polar Research
Phone: +81-42-512-0779
Email: higuchi.kazuo@nipr.ac.jp

3.3.2 Contingency Plans

Title: Syowa Station Oil Spill Contingency Plan

Scope / Coverage of the plan: The expedition contingency plans are made and published for respective operations before departure from Japan and the expedition members act as keeping the plans.

An oil spill contingency plan for Syowa Station was first compiled in 1987 and the plan was revised in 2008.

Objective: Contingency plan to respond safely and promptly to oil spill at Syowa Station and to minimize human, environmental and physical loss or damage.

Contact Point:

Name: Kazuo

Surname: Higuchi

Job Title or Position: Head of Logistics Section, National Institute of Polar Research

Phone: +81-42-512-0779

Email: higuchi.kazuo@nipr.ac.jp

3.3.3 Inventory of Past Activities

Activity Type: Scientific observation, including ice core drilling

Location:

Site name: Mizuho

Latitude: 70° 41′ 58″ S

Longitude: 44° 16′ 52″ E

Description of Activity: Meteorological, glaciological observations and used for a relay station for inland traverses.

Period of Activity:

Date Begin: July 21, 1970

Date End: 1986

Remaining Equipment or Facilities: Five huts including diesel generators, communication antennas and an observation tower.

Activity Type: Scientific observation

Location:

Site name: Asuka

Latitude: 71° 31′ 29″ S

Longitude: 24° 07′ 50″ E

Description of Activity: Meteorological observations and used for a base station for glaciological observations in the Sør Rondane Mountains
Period of Activity:
Date Begin: March 26, 1985
Date End: December, 1991
Remaining Equipment or Facilities: Five huts including diesel generators, communication antennas and a small wind turbine.

3.3.4 Compliance with the Protocol (None)

3.3.5 Procedures relating to EIAs (None)

3.3.6 Prevention of marine pollution (None)

3.3.7 Measures taken to implement the provisions of Annex V (None)

3.4 Other Information

3.4.1 Relevant National Legislation (None)

(End)