

## 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) = 2016 年 4 月～2017 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、保護地域への立ち入りにつき報告 (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につき報告 (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=2017 年～2018 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 59 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。

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# Annual Report (2016 / 2017)

## 2.1 Scientific Information

### 2.1.1 Forward Plans

None

### 2.1.2 Science Activities in Previous Year

Please see Table

## 2.2. Operational Information

### 2.2.1 National Expeditions

#### A. Stations

-Name: Syowa

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, 2016

Port of Departure: Fremantle, Australia

Arrival Date: March 20, 2017

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 20, 2016 to February 24, 2017

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

Type: AS350BA

Period of Flights: from December 17, 2016 to February 24, 2017

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

### **D. Research Rockets**

-Location Launch:

Site Name: Syowa Station

Latitude: 69°00'22"S

Longitude: 39°35'24"E

Date: Twice in the summer (January or February, 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: OPC (optical particle counter)

Purpose: Aerosol measurement

Project Title / Number: Study on the material cycle over the Southern Ocean and sea ice area by ship-born and balloon-born aerosol observations

-Location Launch:

Site Name: Syowa Station

Latitude: 69°00'22" S

Longitude: 39°35'24" E

Date: 6 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 & radio sonde

Purpose: Water vapor & Ozone measurement

Project Title / Observations of detailed structure of Polar Stratospheric Cloud

and Polar Mesospheric Cloud at Syowa Station, Antarctica

-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 or February, 2017)

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

## **E. Military**

None

## **2.2.2. Non-governmental Expeditions**

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	7	From: 7 Dec 2016 To: 31 Jan 2018	Research	GNSS survey	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	7	From: 7 Dec 2016 To: 31 Jan 2018	Research	Maintenance of the GNSS continuous observation station	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	9	From: 7 Dec 2016 To: 31 Jan 2018	Research	Taking moss and algal specimens for ecological researches	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	5	From: 7 Dec 2016 To: 31 Jan 2018	Research	Ecological survey of birds	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	8	From: 7 Dec 2016 To: 31 Jan 2018	Research	Field survey for environmental monitoring	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	4	From: 7 Dec 2016 To: 31 Jan 2018	Research	Maintenance of equipment for climate observation system	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 7 Dec 2016 To: 15 Mar 2017	Research	Field survey for reviewing the Management Plan	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 7 Dec 2016 To: 15 Mar 2017	Research	Gathering information for research activity	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	3	From: 7 Dec 2016 To: 15 Mar 2017	Research	Gathering information for educational purposes	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	2	From: 7 Dec 2016 To: 15 Mar 2017	Research	Field survey for reporting	58 <sup>th</sup> Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 7 Dec 2016 To: 15 Mar 2017	Research	Inspection of observance of the Law Relating to Protection of the Environment in Antarctica	58 <sup>th</sup> Japanese Antarctic Research Expedition

### 2.3.2/2.3.3 Conservation of Antarctic Flora and Fauna

Species: Adelie penguin, snow petrel, south polar skua and Weddell seal

Location: Ongul islands (69°00'S, 39°35'E), Langhovde (69°14'S, 38°44'E)  
and Skarvsnes (69°28'S, 39°36'E),

Amount: 290 Adelie penguins, 50 snow petrels, 20 south polar skuas and 20

Weddell seals

Purpose: Research

Action: Catch and release

Project: 58<sup>th</sup> Japanese Antarctic Research Expedition

Species: Algae and moss

Location: West Ongul Island (69°01'S, 39°36'E), Langhovde (69°14'S, 38°44'E), Skarvsnes (69°28'S, 39°36'E), Skallen (69°40'S, 39°24'E), Breivagnipa (69°21'S, 38°48'E), Rundvagshetta (69°54'S, 38°02'E) and Mt. Riiser-Larsen (66°47'S, 50°37'E)

Amount: 700kg (wet weight, approximately 90% of the weight is water)

Purpose: Research

Action: Removal

Project: 58<sup>th</sup> Japanese Antarctic Research Expedition

Species: Algae and moss

Location: ASPA No.141 Yukidori valley, Langhovde (69°14'S, 38°44'E)

Amount: 10kg (wet weight)

Purpose: Research

Action: Removal

Project: 58<sup>th</sup> Japanese Antarctic Research Expedition

Species: Algae

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

Amount: 100g (wet weight)

Purpose: Research

Action: Removal

Project: 58<sup>th</sup> Japanese Antarctic Research Expedition

Species: Bryophytes, algae, lichens, and phanerogams

Location: Signy Island, South Orkney Islands (60°43'S, 45°36'W)

Amount: 30kg

Purpose: Research

Action: Removal

Project: 58<sup>th</sup> Japanese Antarctic Research Expedition (Joint research with the United Kingdom)

## **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 39<sup>th</sup> 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 30, 2016

### **2.4.2 Contingency Plans**

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

### **2.4.3 List of IEEs/CEEs**

Type: IEE

Activity: Construction (Constructions at Syowa station)

Year: 2016

Title: 58<sup>th</sup> 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](mailto:higuchi.kazuo@nipr.ac.jp)

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.

#### **2.4.6. Measures taken to implement the provisions of Annex V**

None

#### **2.4.7 Procedures relating to EIAs Description of appropriate National Procedures**

None

#### **2.4.8 Prevention of marine pollution**

In Japan, *the Law relating to Protection of the Environment in Antarctica (Antarctic Environment Law)* entered into force on 14th January 1998, on the same day when the Protocol itself entered into force.

Since then, Japan has worked for the implementation of the Protocol through the *Antarctic Environment Law*. According to *the Antarctic Environment Law*, in principle, no person shall engage in any activity in Antarctica other than Antarctic Activity Plan that has been certified by the Minister of the Environment, Japan.

No person shall burn, bury, discharge abandon, or otherwise dispose of waste in Antarctica, including marine areas, except by the methods stipulated in *the Antarctic Environment Law*.

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## Scientific Activities - JARE 57W

Research Project (研究費)		Project name		Main Activities / Remarks		Site Name	Latitude, Longitude	Discipline	PI	URL
EIES用番号 AJ1	8-J1-WS 中村教授	南極域中層・超高層大気を通して探る地球環境変動	Priority Research Project: Exploring Global Warming from Antarctica (重点研究費) 南極域から探る地球環境変動 Earth's environmental change revealed by observing the Antarctic middle and upper atmosphere	Studies of various processes on the global atmospheric environmental change based on Antarctic observations with (1) PANSY (Program of the Antarctic Syowa MSTIS) radar, the largest atmospheric radar in the Antarctic, which continued the full system operation during JARE 57 and (2) various instruments such as Rayleigh/Raman lidar, millimeter wave spectrometer, MF and HF radars, OH IR airglow imager, OH spectrometers etc. operated/developed already during the VIlth term.	Syowa	69°00'25"S, 39°35'01"E	Space and upper atmospheric sciences Meteorology and glaciology	Name: Takuji Surname: Nakamura Job Title or Position: Professor, NIPR Phone: +81-42-512-0602 Email: nakamura.takuji@nipr.ac.jp		
AP7	8-P07-WS 国立環境研究所 中島主席 研究員	南極域と北極域におけるFTIR赤外分光観測によるオゾン破壊物質及び成層圏水蒸気・エアロゾルのモニタリングと衛星データ検証	Ordinary Research Project (一般研究費) Monitoring and satellite validation of ozone-depleting minor constituents and stratospheric water vapor and aerosols with FTIR infrared spectroscopy, water vapor sondes, and aerosol sondes at Syowa, Antarctica	Antarctic ozone hole still continues to appear every austral spring, despite the regulation of emission of CFCs under the Montreal protocol. This project use the ground-based Fourier-transform infrared spectrometer (FTIR) data at Syowa, and balloon-borne ozonesonde, aerosol sonde, and hygrosonde data to study the detailed chemical/physical mechanism of ozone destruction over the Antarctic stratosphere. The feature of polar stratospheric clouds (PSCs) are simultaneously studied using micro-pulse lidar (MPL) data and PANSY radar data at Syowa.	Syowa	69°00'25"S, 39°35'01"E	Meteorology and glaciology Geoscience	Name: Hideoaki Surname: Nakajima Job Title or Position: Principal Researcher, National Institute for Environmental Studies Phone: +81-29-850-2800 Email: nakajima@nies.go.jp		
AP35	8-P35-S 電気通信大学 大学院 芳原教授	南極域におけるVLF帯送信電波を用いた下部電離層擾乱に関する研究	Study on ionospheric perturbation observed by monitoring VLF transmitter signals in Syowa	Continuous time series data of magnetic amplitude and phase from several powerful VLF transmitters have been successfully obtained by using two orthogonal loops during this time period. We will carry out both event and statistical studies by identifying the D/E region changes associated with (1) energetic particle precipitation from the magnetosphere, (2) global thunderstorm activities, and (3) high energy astronomical events etc. We will make our best effort for data analysis although there are rather strong local electromagnetic interferences in the data.	Syowa	69°00'19.86" S 39°35'10.26" E	Space and upper atmospheric sciences	Name: Yasuhide Surname: Hobara Job Title or Position: Professor, Department of Communication Engineering and Informatics, Graduate School of Informatics and Engineering, The University of Electro- Communications Phone: +81-42-443-5154 Email: hobara@ee.uec.ac.jp		
AP37	8-P37-WS 門倉教授	小電力無人オゾン観測システムによる共役オーロラの経度移動特性の研究	Longitudinal displacement of conjugate auroras as observed by low-power autonomous aurora observation system	Unmanned magnetometer network along Dome Fuji traverse route, Sor Rondane Mountains, Amundsen Bay, and Lützow-Holmbukta area is maintained.	Skallen H68 Mizuhō Innhovde Amundsen Bay	69°40'21"S, 39°24'07"E, 69°11'53"S, 41°03'08"E 70°42'08"S, 44°17'04"E 69°51'21"S, 37°06'31"E 66°47'44"S, 50°34'38"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp		
AP38	8-P38-WS 高川准教授	南極域と北極域における極成層圏雲・極中間圏雲の微細構造観測	Fine structure observations of polar stratospheric and mesospheric clouds at Syowa	In order to clarify fine-scale structures of polar stratospheric clouds, intensive balloon-borne hygrometer observations were performed at Syowa in 2016 together with ozonesonde, aerosol sonde, PANSY radar, Rayleigh lidar, micro-pulse lidar, and FTIR observations.	Syowa	69°00'00"S, 39°36'00"E	Meteorology and glaciology	Name: Yoshihiro Surname: Tomikawa Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0660 Email: tomikawa@nipr.ac.jp		
AP39	8-P39-W 行松准教授	SuperDARNレーダーとオーロラ多点観測から探る磁気圏・電離圏結合過程	Study on magnetosphere-ionosphere coupling processes with SuperDARN radars and ground-based optical observations	With SENSU SuperDARN HF radars at Syowa and aurora all-sky imager network at Dome Fuji, Zhongshan and South Pole stations under FOVs of the SENSU radars, simultaneous observation will be conducted to try to reveal M-I (magnetosphere-ionosphere) coupling associated with meso-scale (10 - several 100km) aurora in cusp, polar cap and aurora regions, and cross-scale coupling associated with these aurora and ionospheric disturbances, e.g., break-up type and pulsating aurora and surrounding 2-D electric field structure, and relationship between aurora streamer and initiation of auroral brightening. / Remarks: Dome Fuji imager was not operational during the season. SENSU Syowa South radar was not operational during the season. Syowa East radar was not operational between Feb. 26th and July 4th, 2016.	Syowa Zhongshan South Pole	69°00'00"S, 39°36'00"E 69°22'00"S, 76°22'00"E 90°00'00"S, -	Space and upper atmospheric sciences	Name: Akira Sessa Surname: Yukimatu Job Title or Position: Associate Professor, NIPR Phone: Email:	http://polaris.nipr.ac.jp/~SD/	

# Scientific Activities - JARE 57W

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude for ELF observation:	Discipline	PI	URL
AP41	8-P41-W 北大大学院 佐藤講師	Study on Global Lightning and Global Circuit Activities and Their Relation to Climate Changes Monitored from Polar Region 極域から監視する全球雷・電流系活動と気候変動に関する研究	Syowa	69°01'05"S, 39°3'02"E for DC electric field obs.: 69°00'18"S, 39°35'08"E	Atmospheric electricity Space and upper atmosphere sciences	Name: Mitsueru Surname: Sato Job Title or Position: Lecturer, Faculty of Science, Hokkaido University Phone: +81-11-706-2763 Email: msato@ep.sci.hokudai.ac.jp	
AP43	8-P43-W 門倉教授	Study on conjugacy of auroral activities during the maximum to descending phase of solar activity cycle 太陽活動極大期から下降期におけるオーロラ活動の南北共役性の研究	Syowa	69°00'25"S, 39°35'01"E	Space and upper atmosphere sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp	
AP47	8-P47-WS 福岡大 林教授	Study on the material cycle over the Southern Ocean and Antarctic coast by ship-borne, air-borne, and ground based aerosol observations エアロゾルから見た南大洋・南極沿岸域の物質循環過程	Syowa	69°00'00"S, 39°36'00"E 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: +81-971-6631 ex.6168 Email: mhayashi@fukuoka-u.ac.jp	
B1111	8-B1111-W 渡邊教授	Medical researches on Antarctic expeditioners under extreme environment 極環境下の南極観測隊における医学生物学的研究	Syowa Aboard RV Shirase	69°00'25"S, 39°35'01"E	Bioscience	Name: Kenjiro Surname: Watanabe Job Title or Position: Professor, NIPR Phone: +81-42-512-0646 Email: kentaro@nipr.ac.jp	
<b>Antarctic Research (南極観測)</b>							
<b>Monitoring Observation (モニタリング観測)</b>							
AMB1	8-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	Ongulkaiven Mane jima Benten jima Rumpa Sigaren Yre hovdeholmen Fukuro Ura Mizukuguri Ura Nekkelholmane Torinosu Wan	69°01'20"S, 39°26'00"E 69°01'35"S, 39°29'20"E 69°02'28"S, 39°15'11"E 69°08'45"S, 39°25'30"E 69°10'30"S, 39°27'00"E 69°13'00"S, 39°26'00"E 69°12'50"S, 39°38'00"E 69°11'30"S, 39°38'00"E 69°23'30"S, 39°28'00"E 69°29'00"S, 39°33'40"E	Bioscience	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AMG4	8-MG4-W 土井准教授	Gravity measurement by a superconducting gravimeter 超伝導重力計・連続観測	Syowa	69°00'25"S, 39°35'01"E	Geoscience	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMG5	8-MG5-W 土井准教授	Ground truth observations for satellite remote sensing data validation 衛星データの地上検証観測	Misino-ura (Cove) Kitano-ura (Cove) Ongul strait Cliff of Benten-jima S18 S19 S20	69°00'22"S, 39°35'24"E 69°00'07"S, 39°35'24"E 69°01'05"S, 39°39'58"E 69°02'17"S, 39°15'43"E 69°01'16"S, 40°06'58"E 69°00'28"S, 40°08'22"E 69°00'43"S, 40°11'10"E	Geoscience	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	

## Scientific Activities - JARE 57W

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AMG7 8-MG7-S 金尾准教授	Broad-band and short-period seismic monitoring observation at Syowa, East Antarctica 昭和基地での広帯域・短周期地震計によるモニタリング観測	Structure and dynamics of the Earth, as viewed from Antarctica, together with seismicity and characteristics of wave propagation were investigated by using both broad-band seismometer (STS-1) and short-period seismometer (HES) at Syowa.	Syowa	69°00'24"S, 39°35'06"E	Geoscience	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	
AMG8 8-MG8-W 土井准教授	VLIBI experiment VLIBI実験	International VLIBI experiments were carried out at 6 times in JARE55 at Syowa.	Syowa	69°00'25"S, 39°35'01"E	Geoscience	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMG9 8-MG9-WS 青山助教	GPS measurement in bare rock areas 露岩GPS観測露岩GPS観測	Coordinates of fixed points in bare rock areas around the Litzow-Homboldt and in the Riser-Larsen Mountains areas were monitored by 24 hours GPS measurements every summer or year-round unmanned GPS measurement systems.	Tottuki Misaki (Point) Langhovde Skarvshede Skallen Runtdvagsheita Padda Ongulgalten Mukel Iwa (Rock) Riser-Larsen Mountains	68°54'40"S, 39°49'10"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 69°04'09"S, 39°36'41"E 69°01'48"S, 39°41'43"E 68°47'39"S, 50°35'08"E	Geoscience	Name: Yuichi Surname: Aoyama Job Title or Position: Assistant Professor, NIPR Phone: +81-887-57-0712 Email: aoyama@nipr.ac.jp@koch-tech.ac.jp	
AMG13 8-MG13-W 土井准教授	DORIS observation DORIS観測	Monitoring of a fixed point location in Syowa was carried out with a DORIS antenna operating all year-round.	Syowa	69°00'25"S, 39°35'01"E	Geoscience	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMP1 8-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 CO <sub>2</sub> , CH <sub>4</sub> , CO and O <sub>2</sub> 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 science	Name: Daisuke Surname: Goto Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0673 Email: goto.daisuke@nipr.ac.jp	
AMP2 8-MP2-W 塩原准教授	Surface-based remote-sensing observation of clouds and aerosol 雲エアロゾル地上リモートセンシング観測	All-sky images are recorded every 10 minutes to monitor cloud cover at Syowa all year-round. Vertical distribution of clouds and aerosols are monitored continuously with a micro-pulse lidar at Syowa. A sky radiometer is installed at Syowa to monitor solar radiation and aerosol optical properties from mid-August to early May.	Syowa	69°00'00"S, 39°36'00"E	Atmospheric science	Name: Masataka Surname: Shiobara Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0678 Email: shio@nipr.ac.jp	http://mphnet.gsfc.nasa.gov/
AMP3 8-MP3-W 塩原准教授	Observations of aerosol size distributions エアロゾルの粒径分布の観測	Size distribution of aerosols is continuously monitored by an optical particle counter and a condensation nucleus counter at Syowa all year-round.	Syowa	69°00'00"S, 39°36'00"E	Atmospheric science	Name: Masataka Surname: Shiobara Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0678 Email: shio@nipr.ac.jp	
AMP4 8-MP4-WS 本山教授	Monitoring of Antarctic ice sheet mass balance 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 S122.	Syowa to Tottuki Misaki Tottuki Misaki to S16 S16 to S122	69°00'25"S, 39°35'01"E (Syowa) 68°54'45"S, 39°49'44"E (Tottuki Misaki) 68°55'00"S, 39°49'00"E (S16) 70°01'4"S, 43°07'25"E (S122)	Glaciology	Name: Hiteaki Surname: Motoyama Job Title or Position: Professor, NIPR Phone: +81-42-512-0680 Email: motoyama@nipr.ac.jp	

# Scientific Activities - JARE 57W

	Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AMS1 8-MS1-W 宮岡教授	Data Acquisition of Earth Observation Satellites in the Antarctic 地球観測衛星データ受信による環境変動のモニタリング	Data acquisition of NOAA, METOP-1, DMSP, AQUA, TERRA, and NPP polar orbiting Earth observation satellites with USX-band receiving facility at Syowa.	Syowa	69°00'25"S, 39°35'01"E	Multi-disciplinary	Name: Hiroshi Surname: Miyaoaka Job Title or Position: Professor, NIPR Phone: +81-42-512-0662 Email: miyaoaka@nipr.ac.jp	
AMU1 8-MU1-W 門倉教授	Optical observation of auroras オーロラ光学観測	Auroras are monitored with all-sky electron and proton aurora imagers (EA and PA) and a color digital camera 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, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp	
AMU2 8-MU2-WS 門倉教授	Monitoring of Cosmic Noise Absorption (CNA) リオメータ観測	A riometer observation is conducted with two sets of antenna arrays all year-round at Syowa and on Nishi-Ongul To (Island).	Syowa and Nishi-Ongul To	69°00'25"S, 39°35'01"E 69°01'04"S, 39°30'30"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp	
AMU3 8-MU3-W 門倉教授	Monitoring of natural ULF/ELF/VLF emissions 自然電波観測	Natural electromagnetic waves are monitored all year-round on Nishi-Ongul To (Island), where artificial noise level is low, with induction magnetometers and VLF receivers.	Nishi-Ongul To	69°01'04"S, 39°30'30"E	Space and upper atmospheric sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp	
AMU4 8-MU4-W 門倉教授	Geomagnetism observation 地磁気観測	Absolute geomagnetism is observed every month and relative observation is conducted continuously 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, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp	
<b>Regular Observation (定常観測)</b>							
定常 8-TC2-WS 海保	Tidal observation 潮汐観測	Tidal observation	Syowa	69°00'22"S, 39°35'24"E	Oceanography	Name: Katsuhiko Surname: Kusunoki Job Title or Position: Director, Environmental and Oceanographic Research Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3601 Email: -	
定常 8-TG1-WS 国土地理院	Geodetic observations 測地観測	Precise Geodetic Observations (GNSS Observation)	SYOG (IGS) Langhovde No.5701 No.5702 No.238 No.231 No.5703 No.5704 No.5705 No.2401 No.2403 No.2402 No.5706 No.5707	69°00'25"S, 39°35'01"E 69°14'35"S, 39°42'53"E 69°40'12"S, 39°27'47"E 69°58'37"S, 38°52'16"E 69°58'44"S, 38°48'22"E 69°58'37"S, 38°49'08"E 69°01'19"S, 39°33'22"E 69°00'43"S, 39°29'31"E 69°38'53"S, 38°49'19"E 69°38'46"S, 38°49'23"E 69°38'42"S, 38°49'48"E 69°38'53"S, 38°49'37"E 69°29'17"S, 39°34'30"E 66°47'38"S, 50°34'26"E	Geodesy	Name: Osamu Surname: Akutsu Job Title or Position: Deputy Director of International Affairs Div., Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: gis-antarctic@mimilit.go.jp	

# Scientific Activities - JARE 57W

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
定常 8-TJM1-W 気象庁	Precise Geodetic Observations (Relative Gravity Survey)	No.4619	69°00'27"S, 39°01'15"E			
		No.221	69°55'01"S, 39°01'37"E			
		No.5701	69°40'12"S, 39°27'47"E			
		No.5702	69°58'37"S, 38°52'16"E			
		No.231	69°58'37"S, 38°49'08"E			
		No.238	69°58'44"S, 38°48'22"E			
		No.4619	69°00'27"S, 39°01'15"E			
		No.4619	69°00'27"S, 39°01'15"E			
		No.2403	69°38'42"S, 38°49'48"E			
		No.2402	69°38'53"S, 38°49'37"E			
		No.2401	69°38'46"S, 38°49'23"E			
		No.5705	69°38'53"S, 38°49'19"E			
		No.5706	69°29'17"S, 39°34'30"E			
		No.4619	69°00'27"S, 39°01'15"E			
IAGBN	69°00'24"S, 39°35'08"E					
No.4619	69°00'27"S, 39°01'15"E					
定常 8-TJM2-W 気象庁	Precise Geodetic Observations (Geoid Survey)	No.5601	69°14'36"S, 39°42'55"E			
		East & West Orignal Syowa—S17	68°59'55"S, 39°37'20"E 69°01'23"S, 39°41'42"E			
定常 8-TJM3-W 気象庁	Aerial photography	Syowa	69°00'19"S, 39°34'52"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/ind.exe.html
		Syowa	69°00'19"S, 39°34'52"E			
定常 8-TJM4-W 気象庁	Radiosonde/ Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'19"S, 39°34'52"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/ind.exe.html
		Syowa	69°00'19"S, 39°34'52"E			
定常 8-TJM4-W 気象庁	Total ozone Umkehr Surface ozone Ozone amount, Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'19"S, 39°34'52"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/ind.exe.html
		Syowa	69°00'19"S, 39°34'52"E			
定常 8-TJM4-W 気象庁	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°00'19"S, 39°34'52"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/ind.exe.html
		Syowa	69°00'19"S, 39°34'52"E			

## Scientific Activities - JARE 57W

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
定常 8-TJM5-W 気象庁 天気解析	Weather Conditions	Syowa	69°00'19"S, 39°34'52"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	<a href="http://www.jma.go.jp/jma/ind.exe.html">http://www.jma.go.jp/jma/ind.exe.html</a>
定常 8-TJM6-W 気象庁 気象・その他の観測	Weather robot observation	S17	69°01'45"S, 40°06'30"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	<a href="http://www.jma.go.jp/jma/ind.exe.html">http://www.jma.go.jp/jma/ind.exe.html</a>
定常 8-TN1-WS NICT Ionospheric observations 電離層の観測	Ionospheric vertical sounding GPS scintillation monitoring	Syowa SYO1 SYO2 SYO3	69°00'22"S, 39°35'24"E 69°00'29"S, 39°34'41"E 69°00'15"S, 39°34'56"E 69°00'24"S, 39°35'07"E	Ionospheric Research	Name: Hideo Surname: Maeno Job Title or Position: Senior Researcher, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology Phone: +81-42-327-6096 Email: maeno@nict.go.jp	<a href="http://iono-syowa.nict.go.jp/">http://iono-syowa.nict.go.jp/</a>
定常 8-TN2-WS NICT Data acquisition for monitoring space weather conditions 宇宙天気予報に必要な電子データ収集	Data acquisition of ionospheric vertical sounding, GPS scintillation monitoring, magnetic field variations, and cosmic noise absorption	Syowa	69°00'22"S, 39°35'24"E	Space Weather	Name: Hideo Surname: Maeno Job Title or Position: Senior Researcher, Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology Phone: +81-42-327-6096 Email: maeno@nict.go.jp	<a href="http://iono-syowa.nict.go.jp/">http://iono-syowa.nict.go.jp/</a>

# Scientific Activities - JARE 58S

Project name		Main Activities/Remarks		Site Name		Latitude, Longitude		Discipline		PI		URL	
<p><b>Research Project (研究プロジェクト)</b></p> <p><b>Prioritized Research Project: Investigation of changes in the Earth system from Antarctica (重点研究観測: 南極から見る地球システム変動)</b></p> <p>A study on the global atmosphere system based on high-resolution observations of the Antarctic atmosphere</p> <p>南極大気精密観測から見る地球大気システム</p>													
<p>EIES用番号 9-J1-SW AU0901</p> <p>東京大学 佐藤高教授 堤産教授</p>	<p>Research of Oceanice Boundary Interaction and Change around Antarctica</p> <p>氷床-海氷縁辺域の統合観測から見る大気-氷床-海氷の相互作用</p>	<p>Studies of various processes on the global atmospheric environmental change using Antarctic observations with (1) PANSY (Program of Antarctic Syowa MST/S: <a href="http://pansy.eps.s.u-tokyo.ac.jp/en/">http://pansy.eps.s.u-tokyo.ac.jp/en/</a>) radar, a large atmospheric radar, and (2) a newly installed resonance lidar as well as (3) various instruments such as MF radar, OH spectrometers, Rayleigh lidar, milliwatt-wave spectrometer etc.</p>	<p>Syowa</p>	<p>69°00'25"S, 39°35'01"E</p>	<p>Space and upper atmospheric sciences and Meteorology</p>	<p>Name: Kaoru Surname: Salo Job Title or Position: Professor, Graduate School of Science, The University of Tokyo Phone: Email: kaoru@eps.s.u-tokyo.ac.jp</p>							
<p>9-J2-S AU0902</p> <p>北海道大学 青木進教授 田村雄教授</p>	<p>Research of Oceanice Boundary Interaction and Change around Antarctica</p> <p>氷床-海氷縁辺域の統合観測から見る大気-氷床-海氷の相互作用</p>	<p>Unmanned observations such as underice oceanographic, seabed and cryospheric observations using ROV/ALVs, geoelectric network observations of ice/ocean motion and deformation using GPS/GNSS, and oceanographic observations using tethered and moored profiling observation systems. These remote observation techniques will be applied to the new horizons such as Lützow-Holm Bay and Cape Darnley regions for the understandings of the mechanisms of different ice-ocean interaction regimes.</p>	<p>Lützow-Holmbukta Shirase Glacier Cape Darnley</p>	<p>67°30'00"S, 39°00'00"E 70°00'00"S, 68°30'00"E 69°30'00"S, 68°30'00"E</p>	<p>Oceanography Glaciology Oceanography</p>	<p>Name: Shigeru Surname: Aoki Job Title or Position: Associate Professor, ILTS, Hokkaido University Phone: Email: shigeru@outrem.hokudai.ac.jp</p>							
<p><b>Ordinary Research Project (一般研究観測)</b></p> <p>Large area network observation of auroral phenomena using unmanned system</p> <p>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</p>													
<p>9-P02-SW AP0902</p> <p>門倉教授</p>	<p>Low-power autonomous aurora observation system had been moved from Syowa to Amundsen Bay, and started observations.</p> <p>Unmanned magnetometer network around Amundsen Bay and Lützow-Holmbukta area is maintained.</p>	<p>Low-power autonomous aurora observation system had been moved from Syowa to Amundsen Bay, and started observations.</p> <p>Unmanned magnetometer network around Amundsen Bay and Lützow-Holmbukta area is maintained.</p>	<p>Amundsen Bay (aurora) Amundsen Bay (magne) Skallen H68 Innhovde</p>	<p>66°47'44"S, 50°34'43"E 66°47'44"S, 50°34'38"E 69°40'21"S, 39°24'07"E 69°11'32"S, 41°03'01"E 69°51'21"S, 37°06'31"E</p>	<p>Space and upper atmospheric sciences</p>	<p>Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kadokura@nipr.ac.jp</p>							
<p>9-P07-S AP0907</p> <p>東京海洋大学 北山教授</p>	<p>Elucidation on transfiguration of the deep global circulation in the warming and freshening age of Antarctic Bottom Water</p> <p>南極底層水水温・塩化時期における深層循環の変容解明</p>	<p>Deployment of mooring systems with CT-meters (MicroCat) and current meters, and hydrographic survey in Antarctic divergence region and the bottom water production area.</p>	<p>110°E line, off Vincennes Bay</p>	<p>29 stations between Fremantle and off Vincennes Bay</p>	<p>Physical Oceanography</p>	<p>Name: Yujiro Surname: Kitade Job Title or Position: Professor, Tokyo University of Marine Science and Technology Email: ykitade@kaiyodai.ac.jp</p>							
<p>9-P09-S AP0909</p> <p>福岡大学 林教授</p>	<p>Unmanned airborne observation of aerosol over Antarctic coast</p> <p>無人飛行体観測による南極沿岸域のエアロソルの空間分布観測</p>	<p>Observation of aerosol size distribution and CN concentration around S17 using UAVs.</p>	<p>S17</p>	<p>69°01'45"S, 40°05'30"E</p>	<p>Atmospheric sciences</p>	<p>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</p>							
<p>9-P10-S AP0910</p> <p>福岡大学 林教授</p>	<p>Changing of East Antarctic aerosols in global biogeochemical environment</p> <p>全球生物地球化学的環境における東南極域エアロソルの変動</p>	<p>1) Observation of optical property and aerosol concentration along cruise track of RV Shirase by ship borne instruments: skyradiometer, condensation particle counter, optical particle counter, nephelometer, aethalometer, cellometer 2) Observation of aerosol size distribution up to 30 km in altitude over Syowa by balloon borne optical particle counter.</p>	<p>Along cruise track of RV Shirase</p> <p>Syowa</p>	<p>35°35'18"N, 139°46'29"E to 69°00'00"S, 39°36'00"E 69°00'00"S, 39°36'00"E</p>	<p>Atmospheric sciences</p>	<p>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</p>							
<p>9-P11-S AP0911</p> <p>平次助教</p>	<p>Mechanism of variation in surface condition of the ice sheet and heat and moisture budget in east Antarctica</p> <p>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</p>	<p>The project aims to monitor and understand the mechanism of long-term variation in surface moisture budget of the Antarctic ice-sheet, surface properties, e.g., melting, snow grain size, impurity, etc., and synoptic-scale atmospheric circulation. To achieve the purpose, the following observation were carried out during 2016/17 summer season: (1) Radiosonde launched at S17 on the ice-sheet and at RV Shirase, (2) surface moisture budget as S17, i.e., snowfall, sublimation, vertical transportation of water vapor, (3) passive microwave radiation from the surface and snow pit observation at S17, (4) maintenance of AWS (automatic weather station) at H128 on the ice-sheet, and (5) detection of stable isotopes and radiobiosopes as atmospheric markers (isotopes in water vapor at Shirase, radon at S17, and Be<sup>7</sup> at S17 and at Shirase).</p>	<p>S17 H128 Shirase</p> <p>Along cruise track of RV Shirase</p>	<p>69°01'45"S, 40°05'30"E; 69°24'06"S, 41°32'49"S; Along cruise track of RV Shirase</p>	<p>Meteorology and glaciology</p>	<p>Name: Naohiko Surname: Hirasawa Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0685 Email: hira.n@nipr.ac.jp</p>							



## Scientific Activities - JARE 58S

	Project name	Main Activities/Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AP0912	9-P12-S 平次助教 夏冬の海洋・海水と大気・氷上における、降水、水蒸気、エアロゾル粒子の空間分布と水循環	Moisture exchange processes between the Antarctic coastal ice sheet and atmosphere and the transportation processes of coastal-marine-origin aerosols are investigated. This study carried out three major observations as follows, (1) Radiosondes launched at RV Shirase, at Syowa and at S17 station on the ice sheet, (2) tethered balloon suspending meteorological sensors at Syowa and S17 stations, and (3) unmanned aerial vehicle (UAV) mounting meteorological sensors lunched at Syowa.	S17 Shirase	69°01'45"S, 40°05'30"E Along cruise track of RV Shirase	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	
AP0913	9-P13-S 金尾雄教授 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 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 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 Skansnes Skallen Rundvågshella	69°00'24"S, 39°35'06"E 69°14'34"S, 39°42'51"E 69°20'26"S, 39°36'25"E 69°40'16"S, 39°23'56"E 69°54'27"S, 39°02'24"E	Geoscience	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanae@nipr.ac.jp	
AP0915	9-P15-S 外田雄教授 Archaean-Proterozoic crustal formation and continental evolution 太古代・原生代の地殻形成と大陸進化の研究	Geological field survey at Prince Olav Coast and Enderby Land will be conducted in order to understand the evolution of continental crust in East Antarctica with special reference to geotectonic activity along with petrology, geochemistry, geochronology and structural geology.	Botnuten Rundvågshella Skalkvikshalsen Telen Kulka Langhovde West Ongul Cape Omega Akerud Point Temondal Rock Cape Hirode Akebono Rock Simnan Rocks Point Widows SE of Forefinger Point W of Mt. Yuzhovaya S of Geoffrey Hills Fye Hills Mt. Reed Haney Nunataks Mt. McMaster	70°23'44"S, 37°56'53"E 69°54'44"S, 39°02'67"E 69°41'42"S, 39°19'02"E 69°38'96"S, 39°41'95"E 69°35'60"S, 39°43'92"E 69°14'62"S, 39°42'09"E 69°01'24"S, 39°30'06"E 68°35'43"S, 41°00'81"E 68°29'84"S, 41°24'43"E 68°26'95"S, 41°42'18"E 68°08'41"S, 42°40'10"E 68°05'99"S, 42°58'75"E 67°55'57"S, 44°31'79"E 67°42'00"S, 45°26'83"E 67°39'43"S, 48°09'04"E 67°45'59"S, 48°44'03"E 67°33'42"S, 48°36'35"E 67°20'91"S, 49°11'35"E 67°01'91"S, 51°36'56"E 66°59'31"S, 51°57'56"E 66°37'37"S, 51°11'93"E	Geoscience	Name: Tomokazu Surname: Hokada Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0714 Email: hokada@nipr.ac.jp	
AP0921	9-P21-SW 工藤雄教授 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, and year-around environmental observations using automated equipments in Syowa Keigun.	S-Syowa Coast	69°-70°S	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 高橋雄教授 Responses of marine predators to environmental change: year-round tracking approach 一年を通じ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 Adelle perenguins were examined at a breeding colony in Langhovde area in Lütjow-Holmbukta.	Langhovde	69°12'50"S 39°38'00"E	Bioscience	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	

## Scientific Activities - JARE 58S

Project name	Main Activities/Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
<p>AP0923</p> <p>9-P23-S</p> <p>東京海洋大学 茂木准教授 小澤教授</p>	<p>Marine Ecosystem of the Indian Ocean Sector of the Southern Ocean</p> <p>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</p>	<p>62°30'00"S, 110°00'00"E</p>	<p>62°30'00"S, 110°00'00"E</p>	<p>Bioscience</p>	<p>Name: Masato Surname: Moleki Job Title or Position: Associate Professor, Tokyo University of Marine Science and Technology Email: masato@kaiyodai.ac.jp</p>	
<p>AH0904</p> <p>9-H4-S</p> <p>外田准教授</p>	<p>Exploratory Research Project (海洋研究機構) Proposal for AFOPS Science Team (Geological Research) AFOPSサイエンスチームの南極派遣(地質調査)</p>	<p>Rundvaghshella Skallevikshalsen Langhovde West Ongul Akerul Point Tenmondal Rock Akebono Rock Mt. Riser-Larsen</p>	<p>69°54'44"S, 39°32'67"E 69°41'42"S, 39°19'02"E 69°14'62"S, 39°42'09"E 69°01'24"S, 39°30'06"E 68°29'54"S, 41°24'43"E 68°26'55"S, 41°42'18"E 68°05'59"S, 42°58'75"E 66°47'67"S, 50°34'83"E</p>	<p>Geoscience</p>	<p>Name: Tomokazu Surname: Hokada Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0714 Email: hokada@nipr.ac.jp</p>	
<p><b>海洋生態系モニタリング (モニタリング観測)</b></p>						
<p>AMB0902</p> <p>9-MB2-S</p> <p>小澤教授</p>	<p>Marine ecosystem monitoring 海洋生態系モニタリング</p>	<p>Along cruise track of RV Shirase</p>	<p>between Fremantle and Syowa between Syowa and Sydney</p>	<p>Bioscience</p>	<p>Name: Tsuneo Surname: Odate Job Title or Position: Professor, NIPR Phone: +81-42-512-0738 Email: odate@nipr.ac.jp</p>	
<p>AMB0903</p> <p>9-MB3-S</p> <p>伊料教授</p>	<p>Monitoring of Antarctic terrestrial ecosystems 陸域生態系変動のモニタリング</p>	<p>Syowa Langhovde</p>	<p>69°00'25"S, 39°35'01"E 69°15'00"S, 39°43'01"E</p>	<p>Bioscience</p>	<p>Name: Saboshi Surname: Imura Job Title or Position: Professor, NIPR Phone: +81-42-512-0737 Email: imura@nipr.ac.jp</p>	
<p>AMG0901</p> <p>9-MG1-SW</p> <p>土井准教授</p>	<p>Integrated Geodetic monitoring observation 統合測地モニタリング観測</p>	<p>Syowa Totsuki Misaki (Point) Langhovde Skansnes Skallen Rundvaghshella Padde Orgulgatten Mukal Iwa (Rock) Riser-Larsen Mountains Zakuro Ite NishiOrgul O-ke</p>	<p>69°00'25"S, 39°35'01"E 68°54'40"S, 39°49'10"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 69°01'48"S, 39°41'43"E 66°47'39"S, 50°35'08"E 69°10'40"S, 39°37'28"E 69°01'16"S, 39°33'25"E</p>	<p>Geoscience</p>	<p>Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp</p>	
<p>AMG0903</p> <p>9-MG3-S</p> <p>野本教授</p>	<p>Marine geophysical observations 船上地震地球物理観測</p>	<p>Along cruise track of RV Shirase</p>	<p>between Fremantle and Syowa between Syowa and Sydney</p>	<p>Geoscience</p>	<p>Name: Yoshitami Surname: Nogi Job Title or Position: Professor, NIPR Phone: +81-42-512-0711 Email: nogi@nipr.ac.jp</p>	
<p>AMP0904</p> <p>9-MP4-S</p> <p>牛尾准教授</p>	<p>Sea ice and hydrographic observations onboard icebreaker Shirase and in Litizov-Holm Bay しらせ航路上及びリッツォフ・ホルム湾の海水・海洋物理観測</p>	<p>Along cruise track of RV Shirase, Near Syowa</p>	<p>69°00'00"S, 39°36'00"E</p>	<p>Physical Oceanography, Sea ice physics</p>	<p>Name: Shuki Surname: Ushio Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp</p>	

# Scientific Activities - JARE 58S

Project name	Main Activities/ Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
AMU0902 9-MU2-SW Geomagnetism observation 地磁観測 門倉教授	Absolute geomagnetism observation system was maintained.	Syowa	69°00'25" S, 39°35'01" E	Space and upper atmosphere sciences	Name: Akira Surname: Kadokura Job Title or Position: Professor, NIPR Phone: +81-42-512-0631 Email: kaddockura@nipr.ac.jp	
定常 9-TC1-S 海底地形測量 海上保安庁	Bathymetric survey	Lützow-Holmbukta	69°00'00" S, 39°00'00" E	Oceanography	Name: Yoshiharu Surname: Nagaya Job Title or Position: Director, Hydrographic Surveys Division, Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3606 Email: nankiyoki@jotc.go.jp	
定常 9-TC2-SW 潮汐観測 海上保安庁	Tidal observation	Syowa	69°00'22" S, 39°35'24" E	Oceanography	Name: Katsuhro Surname: Kusunoki Job Title or Position: Director, Environmental and Oceanographic Research Division, Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3606 Email: nankiyoki@jotc.go.jp	
定常 8-TG1-SW 測地観測 国土地理院	Precise Geodetic Observations (GNSS Observation)	SYOC (IGS) Langhovde No.5801 No.5802 No.5803 No.5804 No.5805 No.5806	69°00'25" S, 39°35'01" E 69°14'35" S, 39°42'53" E 69°39'43" S, 39°26'35" E, 68°29'56" S, 41°25'52" E, 69°54'11" S, 39°37" E, 69°14'6" S, 39°43'8" E, 69°15'7" S, 39°42'47" E, 66°46'35" S, 50°33'45" E,	Geodesy	Name: Minoru Surname: Fuji Job Title or Position: Deputy Director of International Affairs Div., Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: gsi-antartic@mi.mlit.go.jp	
	Precise Geodetic Observations (Relative Gravity Survey)	IAGBN No.4619 No.4619 No.5802 No.1304 No.1306 No.4619 No.4619 No.5803 No.4619 No.4619 No.5804 No.5805 No.4619 No.4619 IAGBN	69°024" S, 39°35'8" E, 69°027" S, 39°11'5" E, 69°027" S, 39°11'5" E, 68°29'56" S, 41°25'52" E, 68°8'46" S, 42°39'47" E, 68°9'22" S, 42°40'48" E, 69°027" S, 39°11'5" E, 69°027" S, 39°11'5" E, 69°54'11" S, 39°37" E, 69°027" S, 39°11'5" E, 69°027" S, 39°11'5" E, 69°14'6" S, 39°43'8" E, 69°15'7" S, 39°42'47" E, 69°027" S, 39°11'5" E, 69°027" S, 39°11'5" E, 69°024" S, 39°35'8" E,			

# Scientific Activities - JARE 58S

Project name	Main Activities/ Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
8-TG2-S 国土地理院	Precise Geodetic Observations (Geoid Survey)	No.5402 No.5603	69°28'23"S, 39°36'47"E, 69°40'26"S, 39°24'0"E,			
定常	Signal for aerial photography Aerial photography	No.5601 No.5602 No.5603 No.5604 No.5605	69°39'43"S, 39°26'35"E, 68°29'56"S, 41°25'52"E, 69°54'11"S, 39°37"E, 69°14'6"S, 39°43'8"E, 69°15'7"S, 39°42'47"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@nt.mlit.go.jp	
9-TN1-SW NICT	Ionospheric observations 電離層の観測	East & West Ongul	69°0'4"S, 39°3'32"E,			<a href="http://wdc.nict.go.jp/longy/10c_viewer/0_index.html">http://wdc.nict.go.jp/longy/10c_viewer/0_index.html</a>
定常	Ionospheric vertical sounding GPS scintillation monitoring				Name: Hideo Surname: Maeno Job Title or Position: Senior Research, 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	
9-TN2-SW NICT	Data acquisition for monitoring space weather conditions 宇宙天気予報に必要なデータ収集				Name: Hideo Surname: Maeno Job Title or Position: Senior Research, 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/longy/10c_viewer/0_index.html">http://wdc.nict.go.jp/longy/10c_viewer/0_index.html</a>
公開利用 研究 対応教員: 牛尾雄教授	Observation of the Southern Ocean using surface drifters -deployments of drifters from Shirase	Along cruise track of R/V Shirase	45°03'02"S, 110°02'07"E 50°04'07"S, 110°00'55"E 55°06'58"S, 110°00'19"E 60°02'07"S, 110°00'00"E 62°17'00"S, 105°02'22"E 61°19'19"S, 100°01'15"E 61°19'02"S, 95°02'08"E 61°20'42"S, 90°01'12"E 61°23'46"S, 65°01'49"E 61°31'12"S, 80°02'06"E	Physical oceanography and meteorology	Name: Joel Surname: Cabré Job Title or Position: Team Leader, Marine Networks, Bureau of Meteorology, Australia Phone: +61 3 9669 4651 Email: joel.cabre@bom.gov.au	
定期	Surface drifting buoys have been deployed from R/V Shirase in response to the request of the Australian Bureau of Meteorology. Location and sea surface data at each buoy have been transmitted to the satellite.					
定期	海面上流ブイによる南大洋の観測(オーストラリア気象局のブイ投入)					

## Scientific Activities - JARE 58S

Project name	Main Activities/Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
<b>公開利用</b> 9-G02-S 対応教員: 塩原雄教授	Cloud fraction observation 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	Along cruise track of R/V Shirase	63°40'33"S, 148°35'39"E 59°14'20"S, 150°08'51"E 59°14'22"S, 150°08'46"E 53°49'17"S, 151°01'39"E	Atmospheric science	Name: Makoto Surname: Kuji Job Title or Position: Professor, Nara Women's University Phone: +81-742-20-3044 Email: makato@cs.nara-wu.ac.jp	
<b>公開利用</b> 9-G03-S 対応教員: 本吉教授	Antarctic Treaty System on the Ground: A Preliminary Study into the Interface between Science and Law 現場主義の南極条約体制研究: 科学と国際法のインターフェース	Syowa Soya Coast Mt. Riiser-Larsen	69°00'25"S, 39°35'01"E 69° 70 'S, 39 °40 'E 66°47'24"S, 50°35'33"E	Social Science (International law)	Name: Akho Surname: Shibata Job Title or Position: Professor, Kobe University Phone: +81-79-803-7152 Email: akhos@kobe-u.ac.jp	
<b>外国基地</b> 派遣 9-G01-S 対応教員: 高橋雄毅	Collaborative project with French researchers on Adélie penguins' behaviors アデリーペンギンの行動生態に関するフランスとの共同研究 (フランス: テュモン・デュルビル基地)	Dumont d'Urville Station	66°39'46"S 140°00'07"E	Bioscience	Name: Kozue Surname: Shioimi Job Title or Position: Assistant Professor, NPR Phone: +81-42-512-0742 Email: shioimi.kozue@npr.ac.jp	
<b>外国基地</b> 派遣 9-G02-S 対応教員: 伊科教授	Collaborative project with UK on the Signy Island terrestrial ecosystem シグニー島における陸上生態系に関する英国との共同研究 (イギリス: シグニー島)	Signy Island	60°70'S, 45°62'W	Bioscience	Name: Megumu Surname: Tsujimoto Job Title or Position: Research Fellow, NPR Phone: +81-42-512-0763 Email: tsujimoto@npr.ac.jp	

## **Permanent Information (version 2017)**

### **3.1. Scientific Information**

#### **3.1.1 Automatic Recording Stations / Observatories**

-Location:

Site Name: Dome Fuji

Latitude: 77°19'00"S

Longitude: 39°42'11"E

Type: Automatic Weather Station (C-MOS Data Logger Type)

Elevation: ellipsoidal height 3,810m

Parameters Recorded: temperature, wind speed, wind direction

Observation Frequency: 1hour

Reference Number: None

Scientific Equipment:

-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 (C-MOS Data Logger Type)

Elevation: ellipsoidal height 3763m

Parameters Recorded: temperature, wind speed, wind direction Observation

Observation Frequency: 1hour

Reference Number: None

Scientific Equipment:

-Location:

Site Name: H128

Latitude: 69°24'05"S

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°11'53"S

Longitude: 41°03'03"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: 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: Sør-Rondane Mountains

Latitude: 71°55'51"S

Longitude: 23°19'31"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 1,314m

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 Disposal and Waste Management (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](mailto: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 plans 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](mailto: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**

In Japan, *the Law relating to Protection of the Environment in Antarctica (Antarctic Environment Law)* entered into force on 14th January 1998, on the same day when the Protocol itself entered into force.

Since then, Japan has worked for the implementation of the Protocol through the *Antarctic Environment Law*. According to *the Antarctic Environment Law*, in principle, no person shall engage in any activity in Antarctica other than Antarctic Activity Plan that has been certified by the Minister of the Environment, Japan.

No person shall burn, bury, discharge abandon, or otherwise dispose of waste in Antarctica, including marine areas, except by the methods stipulated in *the Antarctic Environment Law*.

**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)