

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
(第138回南極地域観測統合推進本部総会 配布資料)

外務省地球環境課

1. 背景

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

2. 今回提出する資料

- (1) 年次報告(Annual Report)=2010年3月～2011年4月に行った活動の事後報告
 - ・使用基地、観測船(しらせ)、採取した植物等につき報告
 - ・環境保護議定書の実施促進のためにとった措置(環境保護法施行規則の改正)、環境影響評価の実施、廃棄物処理の実施につき報告
- (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
 - ・常設基地、観測ポイントにつき報告
 - ・廃棄物管理計画、燃料漏れ防止計画につき報告
 - ・関連国内法(南極環境保護法)につき報告

なお、事前報告(Pre-season Information=2012年～2013年に行う活動の事前の通告。使用予定基地、観測船、観測用航空機、観測用ロケットの発着場所等)については、第53次観測隊の行動計画が決定次第、秋の総会で報告予定。

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Annual Report (2010 / 2011)

2.1 Scientific Information

2.1.1 Forward Plans

See Table 1

2.1.2 Science Activities in Previous Year

See Table 2-1 and 2-2

2.2 Operational Information

2.2.1 National Expeditions

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

Medical Facilities: Minimum required surgical operation facilities and dental emergency facilities are equipped. Two medical doctors stay at the station.

Description / Remarks:

Location: Higasi-Ongul Tô, Lützow-Holmbukta

Elevation: 28.9m

Established: January 29, 1957

Major / Field Activities: Snow-vehicle traverse to Dome Fuji Station / Biological observations in Sôya Kaigan area / Geological survey in Sôya Kaigan and Kronprins Olav Kyst area

Name: Dome Fuji Station

Type: Seasonal

Location:

Site Name: Dome Fuji

Latitude: 77°19'00"S

Longitude: 39°42'12"E

Maximum Population: 8

Medical Facilities: None

Description / Remarks:

Location: The top of Dronning Maud Land

Elevation: 3,810m

Established: 1995

B. Vessels

Name: R/V Shirase

Country of Registry: Japan

Number of Voyages: 1

Departure date: November 30, 2010

Arrival Date: March 18, 2011

Port of Departure: Fremantle, Australia

Port of Arrival: Sydney, Australia

Areas of operation: Lützwow-Holmbukta

Purpose: The transportation of cargos and personnel / The support of oceanographic researches

Maximum Crew: 179

Maximum Passengers: 78

C. Aircraft

Type: CH101 (Japan)

Period of Flights:

Date From: December 23, 2010

Date To: February 21, 2011

General Task / Remarks: Flying area: Lützwow-Holmbukta

Type: AS350B

Period of Flights:

Date From: December 25, 2010

Date To: February 14, 2011

General Task / Remarks: Flying area: Syowa Station and its vicinity

D. Research Rockets

-Location Launch:

Site Name: Syowa

Latitude: 69°00'22"S

Longitude: 39°35'24"E

Date: 3~5times, throughout the year

Direction: Depending on wind

Max. Altitude: 30,000m

Impact Area: Within a 100-kilometer radius

Type: 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

Latitude: 69°00'22"S

Longitude: 39°35'24"E

Date: Twice daily, throughout the year

Direction: All directions

Max. Altitude: 30,000 m

Impact Area: about a radius of 200-300km from the Site

Type: Balloon

Specification: Rawinsonde

Purpose: Aerological observation

Project Title / Number: Meteorological observation

-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

Max. Altitude: 30,000 m

Impact Area: about a radius of 200-300km from the Site

Type: 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

Antarctic Marathon "The Last Desert Antarctica"

2.3 Permit Information

2.3.1 Area Protection and Management

No new measures have been adopted during the reported period.

Report of Permits, visits, and activities

ASPA No	Number of people:	Permit Period:	Purpose:	Summary of activities:	Event or project name/number:
No.141 Yukidori Valley, Langhovde	6	From:15 Dec 2010 To: 22 Feb 2011 (40 days within this period)	Research	Taking moss and algal specimens and soil from the area for ecological and physiological researches.	—
No.141 Yukidori Valley, Langhovde	6	From:15 Dec 2010 To: 22 Feb 2011 (11 days within this period)	Long-term monitoring	Taking image records for monitoring flora in fixed quadrates and their maintenance.	—
No.141 Yukidori Valley, Langhovde	1	From: early in Dec 2010 To: late in Feb 2011 (4 days within this period)	Field survey	Collecting inland water.	—

Change or Damages to ASMA, ASPA or HSM

None

Measures taken to implement the provisions of Annex V

None

2.3.2/2.3.3 Conservation of Antarctic Flora and Fauna

Species: Penguin

Location: Langhovde (69°12.5'S, 39°37.8'E)

Amundsen bay(66°47'S, 50°35'E)

Syowa Station (69°00'S, 39°35'E)

Amount: 30 adults of temporary capture (around the location except Syowa Station)

5 dead adults (around Syowa Station)

Purpose: Research

Action: taken

Project: 52th Japanese Antarctic Research Expeditions

Species: Lichen, Algae

Location: Lützow-holm bay (Skallen, Skarvsnes, Langhovde)

(69°28'S, 39°36'E 69°40'S, 39°24'E 69°14'S, 38°44'E)

Amundsen bay, Mt.Riiser-Larsen (66°47'S, 50°35'E)

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

Amount: About 650kg (including weight of water attached to sample)(Locations except Syowa Station)

About 15kg (including weight of water attached to sample)(Syowa Station)

Purpose: Research

Action: taken

Project: 52th Japanese Antarctic Research Expeditions

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 33rd 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 19, 2010

Contingency Plans

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

2.4.2 Environment Impact Assessment –List of IEEs and CEEs

Type: IEE

Activity: Construction

Year: 2010

Title: 52nd Japanese Antarctic Research Expeditions

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)

2.4.3 Environment Impact Assessment –Monitoring Activities

None

2.4.4 Waste Disposal and Waste Management-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 winter accommodation are treated by contact aeration 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: Kenji

Surname: Ishizawa

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

Phone: +81-42-512-0779

Email: ishizawa@nipr.ac.jp

Inventory of Past Activities

Activity Type: Scientific observation, Logistics

Location:

Site name: Mizuho

Latitude: 70°41'58"S

Longitude: 44°16'52"E

Description of Activity: It was established on July 21, 1970 and had been occupied until 1986. It is closed.

Period of Activity:

Date Begin:-

Date End:-

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: It was established on March 26, 1985 and had been occupied to 1991. It is closed.

Period of Activity:

Date Begin:-

Date End:-

Remaining Equipment or Facilities: Five huts including diesel generators, communication antennas and a small wind turbine.

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 full 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*.

2.5 Relevant National Legislation

None

2.6 Other Information

2.6.1 Inspection Reports

None

2.6.2 Activities Undertaken in Case of Emergencies

None

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
Research Project				
Prioritized Research Project: Exploring Global Warming from Antarctica				
AJ1	Earth's environmental change revealed by observing the Antarctic middle and upper atmosphere	Studies of various processes on the global atmospheric environmental change using Antarctic observations with (1) PANSY (Plan of ANtarctic SYowa MST/IS) radar, a large atmospheric radar and (2) a resonance lidar, which are to be developed in this research period, as well as (3) various instruments such as MF and HF radars, OH spectrometers, Rayleigh lidar, millimeter wave spectrometer etc. operated/developed already during the VIIIth term.	Name: Takuji Surname: Nakamura Job Title or Position: Professor, NIPR Phone: +81-42-512-0656 Email: nakamura.takuji@nipr.ac.jp	
AJ2	Responses of Antarctic marine ecosystems to global environmental changes with carbonate systems	(1) Temporal and spatial variability in carbonate systems in the Southern Ocean. (2) Ecological and biogeochemical studies of shelled pteropods. (3) Impact on aragonite pteropods due to ocean acidification.	Name: Hiroshi Surname: Sasaki Job Title or Position: Professor, Ishinomaki Senshu University Phone: +81-225-22-7713 ex.3111 Email: sasaki@isenshu-u.ac.jp	
AJ3	Present evaluation and future prediction of the global environment in the framework of glacial-interglacial cycle	'Antarctic cooling area' in the global climate system is composed of Antarctic Continent and Southern Ocean. A goal of this project is that the knowledge of the history of environmental change and the mechanism of its fluctuation during glacial - interglacial cycles should be advanced. And the accurate perspective to a future global environment change and necessary countermeasure based on the knowledge could be made.	Name: Hideaki Surname: Motoyama Job Title or Position: Professor, NIPR Phone: +81-42-512-0680 Email: motoyama@nipr.ac.jp	
Ordinary Research Project				
AP3	Study on the solar wind energy entry into the magnetosphere and the conjugacy of its response in the both polar regions	Study on the solar wind energy entry into the magnetosphere and the conjugacy of its response in the both polar regions using ground-based optical instruments, SuperDARN HF radars and magnetometer network installed around Syowa Station-Iceland gemagnetic conjugate pair stations.	Name: Hisao Surname: Yamagishi Job Title or Position: Professor, NIPR Phone: +81-42-512-0657 Email: yamagisi@nipr.ac.jp	
AP1	Development of infrared and terahertz astronomy at Antarctica	Astronomical observations of infrared-to-submillimeter wavelengths are developed at the Dome Fuji Station, using various telescopes.	Name: Naomasa Surname: Nakai Job Title or Position: Professor, Physics, Graduate School of Pure and Applied Sciences, University of Tsukuba Phone: +81-29-853-4281 Email: nakai@physics.px.tsukuba.ac.jp	

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
AP5	Direct observations of unknown Antarctic Bottom Water and sea ice production/thickness by mooring system	Mooring observations with Ice Profiling Sonar, ADCP, and MicroCat (CT-meter).	Name: Keiichiro Surname: Oshima Job Title or Position: Professor, Institute of Low Temperature Science, Hokkaido University Phone: +81-11-706-5481 Email: ohshima@lowtem.hokudai.ac.jp	http://www.od.lowtem.hokudai.ac.jp/kaiyodotai-e.html
AP6	Monitoring of sea ice condition and hydrographical characteristics in the Indian sector of the Southern Ocean	Measurement of sea ice thickness, ice concentration, water temperature/salinity profile, water current profile. Monitoring of vessel movement during ice navigation.	Name: Shuki Surname: Ushio Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp	
AP11	Study on the material cycle over the Southern Ocean and sea ice area by ship-borne and balloon-borne aerosol observations	1) Observation of optical property and aerosol concentration along the track of R/V Shirase by ship borne instruments, skyradiometer, condensation particle counter, optical particle counter, nephelometer, aethalometer, ceilometer 2) Observation of aerosol size distribution up to 30 km in altitude over Syowa Station by balloon borne optical particle counter.	Name: Masahiko Surname: Hayashi Job Title or Position: Professor, Faculty of Science, Fukuoka University Phone: +81-92-871-6631 ex.6168 Email: mhayashi@fukuoka-u.ac.jp	
AP10	Hot water drilling on ice shelves for studying subshelf environment	To investigate environment under ice, we drill the ice sheet to the bed with a hot water drilling system. Boreholes are used to measure ice temperature, englacial and basal ice motion, and temperature and salinity of subshelf ocean water. Subglacial water and sediments are sampled for chemical, physical and biological analyses.	Name: Shin Surname: Sugiyama Job Title or Position: Lecturer, Institute of Low Temperature Science, Hokkaido University Phone: +81-11-706-7441 Email: sugishin@lowtem.hokudai.ac.jp	
AP12	Ecological responses of Adélie penguins to environmental variability	Foraging location, diving behaviour, feeding rate, under-ice prey field, diet composition, and reproductive success of Adélie penguins in Lützow-Holmbukta.	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AP13	Biodiversity and material cycle of Antarctic terrestrial ecosystem in the changing environment	Biodiversity of bacteria, protozoa, algae, mosses, lichens. Material cycle of Carbon, Nitrogen, etc., and energy cycle by using stable isotope and field experiments in terrestrial ecosystem.	Name: Satoshi Surname: Imura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0737 Email: imura@nipr.ac.jp	

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
AP14	Medical researches on Antarctic expeditioners under extreme environment	Psychological studies of JARE over-wintering personnel with tests / Survey for Legionella in the Syowa Station area / Study on health and diet of expedition personnel.	Name: Kentaro Surname: Watanabe Job Title or Position: Professor, NIPR Phone: +81-42-512-0646 Email: kentaro@nipr.ac.jp	
AP17	'Seismology for Blue Earth & White Continent' - Characteristic seismic phenomena, heterogeneous structure, and geodynamics in the Antarctic -	Deployment for significant number of broadband seismic stations both around the Lützow-Holmbukta region (JARE) and the Gamburtsev Province, East Antarctica (AGAP; IPY # 147).	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	http://polaris.nipr.ac.jp/~pseis/ http://polaris.nipr.ac.jp/~pseis/garnet/ http://epsc.wustl.edu/seismology/GAMSEIS/index.html http://www.ideo.columbia.edu/~mstuding/AGAP/
AP18	Estimation of displacement rate due to Post Glacial Rebound by means of repeat Absolute Gravimetry and GPS measurement	Absolute gravity measurements and GPS measurements will be conducted on outcrop areas along Sōya Kaigan and Kronprins Olav Kyst to estimate vertical crustal movement rates associated with the Glacial Isostatic Adjustment (GIA).	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
Exploratory Research Project				
AH4	Experiments for remote data retrieval with wireless communication and long term continuous measurement to apply field GPS measurements	Experiments will be conducted to acquire field GPS data by means of wireless LAN, and to establish long-term automatic GPS observation system (especially power modules).	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AH3	Influence of Antarctic extreme environment on human physiological functions	The purpose of the present study is to investigate the influence of activity under Antarctic extreme environment or the low temperature stimulation on the neuromuscular activity and the energy metabolism in human.	Name: Junichiro Surname: Yamauchi Job Title or Position: Associate Professor, Graduate School of Human Health Sciences, Tokyo Metropolitan University Phone: +81-42-677-2969 Email: yamauchi@tmu.ac.jp	
Monitoring Observation				
AMB1	Population census of Adélie penguins	Census of Adélie penguins at rookeries in the Sōya Kaigan area is carried out in mid-November and early December. Number of the penguins and the pairs are counted.	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
AMB 2-5	Marine ecosystem monitoring	Oceanographic observations in the Southern Ocean along the cruise track of R/V Shirase are carried out between Fremantle and Sydney. Surface water is pumped up to measure physical, chemical and biological parameters, including Chlorophyll <i>a</i> and pCO ₂ concentrations. Water collections at some depths and plankton collections are carried out at stations, including those in ice covered areas.	Name: Mitsuo Surname: Fukuchi Job Title or Position: Professor, NIPR Phone: +81-42-512-0740 Email: fukuchi@nipr.ac.jp	
AMB6	Monitoring study on Antarctic terrestrial ecosystem	Environmental parameters of lakes in the Skarvsnes area are monitored. Flora and environmental parameters are monitored at fixed points along the Yukidori Zawa in Langhovde. Soil samples for analyzing micro-organisms including algae are collected in fixed points near Syowa Station.	Name: Satoshi Surname: Imura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0737 Email: imura@nipr.ac.jp	
AMG1	Monitoring study on change in geosphere in Antarctica (winter)	Monitoring of a fixed point location in Syowa Station is carried out with a DORIS antenna operating all year-round. Seismometers are installed to monitor earthquakes at Syowa Station and four sites on the Sōya Kaigan all year-round. Ground temperature is monitored all year-round at sites near the Zakuro Ike in Langhovde and near the Ō-ike, in Nisi-Ongul Tō. VLBI experiments are carried out 6-8 times a year using a multi-purpose 11 meter diameter dish and gravity is monitored with a super-conductivity gravimeter at Syowa Station. Tide is monitored near Syowa Station with a GPS buoy all year-round.	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
AMG2	Monitoring study on change in geosphere in Antarctica (summer)	Monitoring observations of fixed point coordinates in bare rock areas in the Lützow-Holmbukta and the Riiser-Larsen Mountains areas are carried out with GPS receivers for about 24 hours each every summer. Ocean gravity and geomagnetism are measured on board the R/V Shirase from Fremantle to Sydney. Sea bottom pressure is monitored with a pressure gauge installed and recovered every summer on the sea bottom about 4000 meter deep in the Southern Ocean.	Name: Yoshifumi Surname: Nogi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0711 Email: nogi@nipr.ac.jp	
AMP1	Monitoring of atmospheric greenhouse gases and related constituents	Monitoring of atmospheric CO ₂ , CH ₄ and CO is carried out all year-round at Syowa Station. Atmospheric O ₂ is also monitored. Atmosphere is collected periodically and brought back to Japan for further analyses.	Name: Shinji Surname: Morimoto Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0673 Email: mon@nipr.ac.jp	

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
AMP2	Surface-based remote-sensing observation of clouds and aerosol	All-sky images are recorded every 10 minutes to monitor cloud cover at Syowa Station all year-round. Vertical distribution of cloud aerosols are monitored continuously with a micro-pulse lidar at Syowa Station. A sky radiometer is installed at Syowa Station to monitor solar radiation from mid-August to early May.	Name: Masataka Surname: Shiobara Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0678 Email: shio@nipr.ac.jp	
AMP3	Observations of aerosol size distributions	Size distribution of aerosol is monitored continuously at Syowa Station all year-round.	Name: Masataka Surname: Shiobara Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0678 Email: shio@nipr.ac.jp	
AMP4	Monitoring of Antarctic ice sheet mass balance	Monitoring sea ice thickness and depth of snow along a route from Syowa Station to S16 site via Tottuki Misaki is carried out as much as possible all year-round. Snow gauges at S16 site and route waypoints are measured during inland traverse, when implemented.	Name: Hideaki Surname: Motoyama Job Title or Position: Professor, NIPR Phone: +81-42-512-0680 Email: motoyama@nipr.ac.jp	
AMS1	Data Acquisition of Earth Observation Satellites in the Antarctic	Data acquisition of NOAA, DMSP, AQUA and TERRA satellites with L/S/X-band receiving system	Name: Hiroshi Surname: Miyaoka Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0662 Email: miyaoka@nipr.ac.jp	
AMU1	Optical observation of auroras	Auroras are monitored with all-sky electric imagers (EAI and PAI) and a CCD camera from late February to early October at Syowa Station.	Name: Akira Surname: Kadokura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0663 Email: kadokura@nipr.ac.jp	
AMU2	Riometer Observation	A riometer observation is conducted with two sets of antenna arrays all year-round at Syowa Station and on Nisi-Ongul Tō.	Name: Hisao Surname: Yamagishi Job Title or Position: Professor, NIPR Phone: +81-42-512-0657 Email: yamagisi@nipr.ac.jp	
AMU3	Observation of natural electromagnetic waves	Natural electromagnetic waves are monitored all year-round on Nisi-Ongul Tō, where artificial noise level is low.	Name: Hisao Surname: Yamagishi Job Title or Position: Professor, NIPR Phone: +81-42-512-0657 Email: yamagisi@nipr.ac.jp	

Table 1. Forward Plans (JARE53)

	Project name	Details / Description	Contact	URL
AMU4	Geomagnetism observation	Absolute geomagnetism is observed every month and relative observation is conducted continuously at Syowa Station.	Name: Akira Surname: Kadokura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0663 Email: kadokura@nipr.ac.jp	

Table 1. Forward Plans (JARE53)

Project name	Details / Description	Contact	URL
Routine Observation			
Ionospheric observations	Ionospheric vertical sounding	Name: Tsutomu Surname: Nagatsuma Job Title or Position: Research Manager, Applied Electromagnetic Research Center, National Institute of Information and Communications Technology Phone: +81-42-327-6095 Email: tnagatsu@nict.go.jp	http://wdc.nict.go.jp/ionog/10c_viewer/fo_index.html
	Aurora radar observation		
	Riometer absorption measurement		
Weather observations	Surface synoptic observation	Name: Kouji Surname: Kawashima Job Title or Position: Head, Office of Antarctic Observations, Observations Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	http://www.jma.go.jp/jma/indexe.html
	Upper-air observation		
	Ozonesonde observation (Total ozone, Umkehr, Ozonesonde, Surface Ozone)		
	Radiation observation		
	Weather analysis		
Geodetic observations	Precise Geodetic Survey	Name: Hiroshi Surname: Mashiko Job Title or Position: Deputy Director of International Affairs Div. Planning Dept. Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: antarctic@gsi.go.jp	
	Topographic mapping for using satellite image		
Bathymetric survey	Bathymetric survey	Name: Yukihiro Surname: Kato Job Title or Position: Director, Hydrographic Surveys Division, Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3541-3815 Email: -	
Tidal observation	Tidal observation	Name: Arata Surname: Sengoku Job Title or Position: Director, Environmental and Oceanographic Research Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3541-3814 Email: -	

Table 2-1. Scientific Information - Scientific Activities in Previous Year (JARE51 Winter)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Research Project						
Prioritized Research Project						
Study on coupling processes of polar upper atmosphere, lower atmosphere and ocean to understand global environment system						
Study on coupling processes between polar upper atmosphere and lower atmosphere	Meso-pause temperature measurement by OH airglow	Syowa	69°00' 00"S 39°36' 00"E	Space and upper atmospheric sciences	Name: Natsuo Surname: Sato Job Title or Position: Deputy Director, NIPR Phone: +81-42-512-0602 Email: nsato@nipr.ac.jp	
	MF radar observation of lower-thermosphere and mesosphere wind	Syowa	69°00' 00"S 39°36' 00"E			
	Atmospheric electric field observation by field-mill instrument	Syowa	69°00' 00"S 39°36' 00"E			
	All-sky TV camera observation of rapid auroral motion	Syowa	69°00' 00"S 39°36' 00"E			
	All-sky imaging of proton auroras	Syowa	69°00' 00"S 39°36' 00"E			
	Meteor radar observation of lower-thermosphere wind and temperature	Syowa	69°00' 00"S 39°36' 00"E			
	Super DARN HF radar observation	Syowa	69°00' 00"S 39°36' 00"E			
	Unmanned magnetometer observation with near real-time data transfer	Skallen	69°40' 21"S 39°24'07"E			
		H68	69°11'53"E 41°03'08"S			
		Mt. Riiser-Larsen	66°47'44"S 50°34'38"E			
		Utsteinen	71°55'51"S 23°19'31"E			
		Innhovde	69°51'35"S 37°06'54"E			
	Unmanned magnetometer observation with annual data collection	Mizuho	70°42'08"S 44°17'04"E			
		MD364	74°00'37"S 42°59'30"E			
		Dome Fuji	77°19'02"S 39°42'32"E			
	ELF atmospheric observation	Syowa	69°00' 00"S 39°36' 00"E			
	Telemetry data reception of "Reimei" satellite	Syowa	69°00' 00"S 39°36' 00"E			
	Aerosol observation	Syowa	69°00' 00"S 39°36' 00"E	Meteorology and glaciology		
Study on coupling processes between polar lower atmosphere and ocean	Continuous measurement of atmospheric oxygen/nitrogen ratio	Syowa	69°00' 00"S 39°36' 00"E	Meteorology and glaciology Bioscience	Name: Makoto Surname: Wada Job Title or Position: Professor, NIPR Phone: +81-42-512-0682 Email: wada@nipr.ac.jp	
Ordinary Research Project						
Studies on climate processes and ecosystem dynamics in polar regions	Ecological studies on Antarctic terrestrial & lake environments	Syowa, Langhovde, Skarvsnes, Amundsen Bay	69°00' 00"-69°30' 00"S 39°36' 00"-39°48' 00"E 66°42' 00"S, 51.00' 00"E	Bioscience	Name: Tsuneo Surname: Odate Job Title or Position: Professor, NIPR Phone: +81-42-512-0738 Email: odate@nipr.ac.jp	
Evolution and dispersion of supercontinents and mantle processes	Broadband seismometer deployment on Antarctic continent at IPY - Antarctic Arrays	Syowa, Langhovde, Skarvsnes and Skallen areas		Geoscience	Name: Yoichi Surname: Motoyoshi Job Title or Position: Professor, NIPR Phone: +81-42-512-0641 Email: motoyosi@nipr.ac.jp	

Table 2-1. Scientific Information - Scientific Activities in Previous Year (JARE51 Winter)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Human Biology and Medicine under the Polar Environments	Psychological studies of JARE over-wintering personnel with tests	Syowa	69°00' 00"S 39°36' 00"E	Bioscience	Name: Kentaro Surname: Watanabe Job Title or Position: Professor, NIPR Phone: +81-42-512-0646 Email: kentaro@nipr.ac.jp	
	Survey for Legionella in Syowa Station area	Syowa	69°00' 00"S 39°36' 00"E			
	Study on health and diet for expedition personnel	Syowa	69°00' 00"S 39°36' 00"E			
	Collaborative study with space medicine in Antarctica	Syowa Station en Route to/from Dome Fuji Station Sør-Rondane Mts.	69°00' 00"S, 39°36' 00"E (77°18' 00"S, 39°42' 00"E)			
Exploratory Research Project						
Program of the Antarctic Syowa MST/IS Radar	Feasibility study of the MST/IS radar such as field survey and proto-type antenna test	Syowa	69°00'22"S 39°35'24"E	Space and upper atmospheric sciences Meteorology and glaciology	Name: Masaki Surname: Tsutsumi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0658 Email: tutumi@nipr.ac.jp	http://pansy.nipr.ac.jp/index-e.html
Biodiversity under extreme environment and genetic characteristics	Diversity and genetic analysis for microorganisms in snow and ice of inland area	Syowa, Langhovde, Skarvsnes	69°00' 00"-69°30' 00"S 39°36' 00"-39°48' 00"E	Bioscience	Name: Hiroshi Surname: Kanda Job Title or Position: Professor, NIPR Phone: +81-42-512-0644 Email: kanda@nipr.ac.jp	
	Diversity and genetic analysis for plants and animals in the ice-free area					
	Sampling of ice-cores near the ice-free area					
	Sampling of lake water, benthic plants and sediments on the lake bottom					
Monitoring Observation						
Long-term monitoring of the upper atmosphere phenomena	All-sky monochromatic imaging of auroras	Syowa	69°00' 00"S 39°36' 00"E	Space and upper atmospheric sciences	Name: Hisao Surname: Yamagishi Job Title or Position: Professor, NIPR Phone: +81-42-512-0657 Email: yamagisi@nipr.ac.jp	
	Meridian-scan photometer observation of auroral luminosity	Syowa	69°00' 00"S 39°36' 00"E			
	Absolute value measurement of geomagnetic field	Syowa	69°00' 00"S 39°36' 00"E			
	Three-component magnetic field variation measurement	Syowa	69°00' 00"S 39°36' 00"E			
	Magnetic pulsation measurement	Syowa	69°00' 00"S 39°36' 00"E			
	ELF-VLF emission measurement	Syowa	69°00' 00"S 39°36' 00"E			
	Broad-beam riometer observation	Syowa	69°00' 00"S 39°36' 00"E			
	Imaging riometer observation	Syowa	69°00' 00"S 39°36' 00"E			
Monitoring of climate change in the Antarctic -Observation of the atmosphere, ice sheet and ocean-	Monitoring of sea ice and ocean variations in the Indian Sector of the Southern Ocean	Along cruise track of R/V Shirase		Meteorology and glaciology	Name: Makoto Surname: Wada Job Title or Position: Professor, NIPR Phone: +81-42-512-0682 Email: wada@nipr.ac.jp	
	Monitoring of aerosol and clouds	Syowa	69°00' 00"S 39°36' 00"E			
	Monitoring of atmospheric minor constituents (Greenhouse gases)	Syowa	69°00' 00"S 39°36' 00"E			
	Monitoring of ice sheet change	S16 to Dome Fuji Station	69°01' 00"S, 40°03' 00"E 77°22' 00"S, 39°42' 00"E			
Monitoring of change in geosphere	on-ice GPS measurement to validate height change	Syowa	69°00'25"S 39°35'01"E	Geoscience	Name: Kazuo Surname: Shibuya Job Title or Position: Professor, NIPR Phone: +81-42-512-0705 Email: shibuya@nipr.ac.jp	
		S16	69°01'46"S 40°03'04"E			
	Broadband and short-period seismometer observations in the FDSN network	Syowa	69°00'25"S 39°35'01"E			
		Skallen	69°40'01"S 39°25'01"E			
		Tottuki Misaki	68°55'01"S 39°49'59"E			

Table 2-1. Scientific Information - Scientific Activities in Previous Year (JARE51 Winter)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL	
		Langhovde	69°15'00"S 39°43'01"E				
		Skarvsnes	69°28'12"S 39°36'36"E				
	Installation of corner reflector for ALOS/PALSAR	Syowa	69°00'25"S 39°35'01"E				
		Skallen	69°40'01"S 39°25'01"E				
	Monitoring of ground temperature	Zakuro Ike	69°10'41"S 39°38'49"E				
		O-ike	69°01'19"S 39°38'49"E				
	Maintenance of IGS-GPS and IDS-DORIS at Syowa Station	Syowa	69°00'25"S 39°35'01"E				
		Skarvsnes	69°28'12"S 39°36'36"E				
		Skallen	69°40'21"S 39°24'00"E				
		Langhovde	69°15'00"S 39°43'01"E				
		Tottuki Misaki	68°55'01"S 39°49'59"E				
		Rundvågshetta	69°54'28"S 39°02'24"E				
	VLBI observations in the IVS network	Syowa	69°00'25"S 39°35'01"E				
	Observation of sea level change and ocean bottom pressure gauge	R/V Shirase	66°50'00"S 37°50'00"E				
		Syowa	69°00'25"S 39°35'01"E				
Superconducting gravimeter observations in the GGP network	Syowa	69°00'25"S 39°35'01"E					
Long-term ecosystem monitoring program	Observation of plankton and sea environmental parameters	R/V Shirase	-	Bioscience	Name: Hiroshi Surname: Kanda Job Title or Position: Professor, NIPR Phone: +81-42-512-0644 Email: kanda@nipr.ac.jp		
	Monitoring of the marine top predators	Ongulkalven	69°01'20"S 39°26'00"E				
		Mame-zima	69°01'35"S 39°29'20"E				
		Benten Zima	69°02'28"S 39°15'11"E				
		Rumpa	69°08'45"S 39°25'30"E				
		Sigaren	69°10'30"S 39°27'00"E				
		Ytre hovdeholmen	69°13'00"S 39°26'00"E				
		Fukuro Ura	69°12'50"S 39°38'00"E				
		Mizukuguri Ura	69°11'30"S 39°38'00"E				
		Nekkelholmane	69°23'30"S 39°28'00"E				
		Torinosu Wan	69°29'00"S 39°33'40"E				
		Observation of terrestrial and lake ecosystem	Syowa, Langhovde, Skarvsnes				69°00'00"S-69°30'00"S, 39°36'00"E-39°48'00"E

Table 2-1. Scientific Information - Scientific Activities in Previous Year (JARE51 Winter)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Monitoring of environmental changes in polar region by remote sensing satellites	Data acquisition of NOAA, DMSP, AQUA and TERRA satellites	Syowa	69°00'25"S 39°35'01"E	Inter-Disciplinary	Name: Hiroshi Surname: Miyaoka Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0662 Email: miyaoka@nipr.ac.jp	http://polaris.nipr.ac.jp/~dmsp/ http://www.nipr.ac.jp/center/SATELLITE/noaa_data_j.html
Radio Observations						
Ionospheric observations	Ionospheric vertical sounding	Syowa	69°00'22"S 39°35'24"E	Ionospheric Research	Name: Tsutomu Surname: Nagatsuma Job Title or Position: Research Manager, Applied Electromagnetic Research Center, National Institute of Information and Communications Technology Phone: +81-42-327-6095 Email: tnagatsu@nict.go.jp	http://wdc.nict.go.jp/ionog/10c_vj_ewer/o_index.html
	Aurora radar observation					
	Riometer absorption measurement					
Weather observations	Ozone Layer observation	Syowa	69°00'19"S 39°34'52"E	Meteorology	Name: Kouji Surname: Kawashima Job Title or Position: Head, Office of Antarctic Observations, Observations Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	
	Upper-air observation					
	Surface synoptic observation					
	Weather analysis					
	Ozonesonde observation					
	Surface ozone concentration observation					
	Solar Radiation observation					

Table 2-2. Scientific Information - Scientific Activities in Previous Year (JARE52 Summer)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Research Project						
Prioritized Research Project: Exploring Global Warming from Antarctica						
Earth's environmental change revealed by observing the Antarctic middle and upper atmosphere	PANSY(Program of Antarctic Syowa MST/IS) radar observation	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: +81-42-512-0656 Email: nakamura.takuji@nipr.ac.jp	
	Rayleigh lidar observation of temperature, density and clouds up to the mesosphere	Syowa				
	Millimeter spectrometer observation of minor constituents in the stratosphere and the mesosphere	Syowa				
	All-sky airglow observations of the mesosphere and the thermosphere	Syowa				
	Mesopause temperature measurement by OH airglow	Syowa				
Responses of Antarctic marine ecosystems to global environmental changes with carbonate systems	Mooring observation Oceanographic observations Composition of phytoplankton Drifting buoy observation Distribution of shelled pteropods Temporal change in total inorganic carbon Spatial change in total inorganic carbon	R/Vshirase	Indian sector of the Southern Ocean along 110° and 140°E	Marine biogeochemistry	Name: Hiroshi Surname: Sasaki Job Title or Position: Professor, Ishinomaki Senshu University Phone: +81-225-22-7716 Email: sasaki@isenshu-u.ac.jp	
Present evaluation and future prediction of the global environment in the framework of glacial-interglacial cycle	Oversnow traverse from S16 to Dome Fuji Station Shallow ice coring and firn air sampling at shallow drilling site Deep borehole measurement at Dome Fuji Station Surface snow sampling and meteorological measurement during oversnow traverse	S16 Dome Fuji Shallow ice core drilling site	69°01'00"S, 40°03'00"E 77°19'00"S, 39°42'00"E 77°22'00"S, 39°39'00"E	Meteorology and glaciology	Name: Hideaki Surname: Motoyama Job Title or Position: Professor, NIPR Phone: +81-42-512-0680 Email: motoyama@nipr.ac.jp	
	Submarine glacial landform surveys using a multibeam echo-sounder with vessel	Lützow-Holmbukta Cape Darley offing	68°22'00"S-69°20'00"S 38°30'00"E-39°45'00"E 66°40'00"S-67°40'00"S 67°30'00"E-70°30'00"E	Geoscience		
Ordinary Research Project						
Development of infrared and terahertz astronomy at Antarctica	Installation of year-round site evaluation instruments and a telescope Study on the seeing and infrared sky condition	Dome Fuji	77°17'00" S, 39°42'12" E	Astronomy	Name: Naomasa Surname: Nakai Job Title or Position: Professor, Physics, Graduate School of Pure and Applied Sciences, University of Tsukuba Phone: +81-29-853-4281 Email: nakai@physics.px.tsukuba.ac.jp	http://mcba11.phys.unsw.edu.au/~plato-f/index.html
	Measurements of precipitable water vapor	along the path from S16 to Dome Fuji Station				
All-sky imaging of electron and proton auroras at South Pole Station	In collaboration with Siena University and National Science Foundation, all-sky imaging of aurora had been conducted at the South Pole Station during the austral winter season between April to August 2010. Two all-sky imagers are located in the elevated station, and are remotely controlled. The data was transferred to U.S. and Japan via a satellite link, and was collected on site. The data is open for public at the web.	South Pole	89°59'51"S 139°16'22"E		Name: Yusuke Surname: Ebihara Job Title or Position: Associate Professor, Research Institute for Sustainable Humanosphere, Kyoto University Phone: +81-774-38-3844 Email: ebihara@rish.kyoto-u.ac.jp	
Study on the solar wind energy entry into the magnetosphere and the conjugacy of its response in the both polar regions	All-sky aurora imager observation scanning photometer observation On-line color digital camera observation SuperDARN HF radar observation Automated magnetometer network observation Atmospheric ELF wave observation Atmospheric electric field observation	Syowa	69°00'25"S 39°35'01"E	Space and upper atmosphere sciences	Name: Hisao Surname: Yamagishi Job Title or Position: Professor, NIPR Phone: +81-42-512-0657 Email: yamagishi@nipr.ac.jp	
Direct observations of unknown Antarctic Bottom Water and sea ice production/thickness by mooring system	Deployment of moorings with acoustic Doppler profiler, current meter, conductivity-temperature recorder and thermistor	N5 N4 N3 N2 N1	66°19'48"S, 67°19'04"E 66°49'36"S, 67°38'38"E 67°00'30"S, 67°45'25"E 67°05'57"S, 67°47'22"E 67°09'14"S, 67°48'09"E	Oceanography	Name: Keiichiro Surname: Oshima Job Title or Position: Professor, Institute of Low Temperature Science, Hokkaido University Phone: +81-11-706-5481 Email: oshima@lowtem.hokudai.ac.jp	http://wwwod.lowtem.hokudai.ac.jp/kaiyodotai-e.html

Table 2-2. Scientific Information - Scientific Activities in Previous Year (JARE52 Summer)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Monitoring of sea ice condition and hydrographical characteristics in the Indian sector of the Southern Ocean	Measurement of sea ice thickness, ice concentration, water temperature/salinity profile, water current profile Monitoring of vessel movement during ice navigation Measurement of landfast-ice thickness near Syowa Station	Along cruise track of R/V Shirase near Syowa Station	 69°00'00"S, 39°36'00"E	Physical oceanography Sea ice physics Sea ice physics	Name: Shuki Surname: Ushio Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp	
Study on the material cycle over the Southern Ocean and sea ice area by ship-borne and balloon-borne aerosol observations	1) Observation of optical property and aerosol concentration along the track of Shirase by ship borne instruments skyradiometer, condensation particle counter, optical particle counter, nephelometer, aethalometer, ceilometer 2) Observation of aerosol size distribution up to 30 km in altitude over Syowa Station by balloon borne optical particle counter	1) Along cruise track of R/V Shirase 2) Syowa	1) to 69°00'00"S, 39°36'00"E 2) 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	
Ecological responses of Adélie penguins to environmental variability	Foraging location, diving behaviour, feeding rate, under-ice prey field, diet composition, and reproductive success of Adélie penguins were examined at a breeding colony in Langhovde area in Lutzow-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	
Biodiversity and material cycle of Antarctic terrestrial ecosystem in the changing environment	Sampling of bryophyte, lichen, algae, fungi and bacteria	Syowa, Langhovde, Skarvsnes and Skallen areas	69°00'00"-69°30'00"S 39°12'00"-39°48'00"E	Bioscience	Name: Satoshi Surname: Imura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0737 Email: imura@nipr.ac.jp	
Medical researches on Antarctic expeditioners under extreme environment	Validation of fatigue relieving medication for expedition personnel during summer season	Syowa	69°00'25"S 39°35'01"E	Bioscience	Name: Kentaro Surname: Watanabe Job Title or Position: Professor, NIPR Phone: +81-42-512-0646 Email: kentaro@nipr.ac.jp	
'Seismology for Blue Earth & White Continent' - Characteristic seismic phenomena, heterogeneous structure, and geodynamics in the Antarctic -	Deployment for significant number of broadband seismic stations both around the Lützow-Holm Bay region (JARE/GARNET) and the Gamburtsev Province, East Antarctica (AGAP/GAMSEIS: IPY # 147).	TOT / JARE - GARNET S16 / JARE - GARNET LNG / JARE - GARNET SKV / JARE - GARNET SKL / JARE - GARNET RND / JARE - GARNET BTN / JARE - GARNET GM06 / AGAP - GAMSEIS GM07 (Dome-F) / AGAP - GAMSEIS	68°55'00"S, 39°49'00"E 69°01'00"S, 40°01'00"E 69°15'00"S, 39°43'00"E 69°28'00"E, 39°36'00"E 69°40'00"S, 39°24'00"E 69°33'00"S, 39°01'00"E 70°23'00"S, 37°56'00"E 79°20'00"E, 44°18'00"E 77°19'00"E, 39°42'00"E	Geoscience / Seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	http://polaris.nipr.ac.jp/~psels/ http://polaris.nipr.ac.jp/~psels/gamet/ http://eps.wustl.edu/seismology/GAMSEIS/index.html http://www.ideo.columbia.edu/~mstuding/AGAP/
Estimation of displacement rate due to Post Glacial Rebound by means of repeat Absolute Gravimetry and GPS measurement	Preliminary survey of candidate sites for absolute gravity and GPS measurement	Syowa Skarvsnes Skallen Langhovde Rundvågshetta Padda Akarui Misaki Nisi-Ongul Tô Karamete Misaki S16	69°00'25"S, 39°35'01"E 69°28'12"S, 39°36'36"E 69°40'12"S, 39°24'00"E 69°14'24"S, 39°42'36"E 69°54'28"S, 39°02'24"E 69°37'06"S, 38°16'34"E 68°29'58"S, 41°24'26"E 69°01'17"S, 39°33'38"E 69°12'25"S, 35°25'25"E 69°01'46"S, 40°03'04"E	Geoscience	Name: Koichiro Surname: Doi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0701 Email: doi@nipr.ac.jp	
Detailed geologic and petrologic analyses of the metamorphic evolution of the East Antarctic crust	Field geological survey, sample collections, and structural measurements on high-grade metamorphic rocks in the Lutzow-Holmbukta Complex	Lützow-Holmbukta, Kronprins Olav Kyst		Geology	Name: Toshiaki Surname: Tsunogae Job Title or Position: Associate Professor, Graduate School of Life and Environmental Sciences, the University of Tsukuba Phone: +81-29-853-5239 Email: tsunogae@geol.tsukuba.ac.jp	
Monitoring Observation						

Table 2-2. Scientific Information - Scientific Activities in Previous Year (JARE52 Summer)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Monitoring study on change in geosphere in Antarctica (summer)	Maintenance of IGS-GPS and IDS-DORIS at Syowa Station Ocean gravity and geomagnetic components measurement Observation of sea level change with an ocean bottom pressure gauge	Langhovde Padda Rundvågshetta Skallen Skarvsnes R/V Shirase	69°15'00"S, 39°43'01"E 69°37'06"S, 38°16'34"E 69°54'28"S, 39°02'24"E 69°40'21"S, 39°24'00"E 69°28'12"S, 39°36'36"E between Fremantle and Sydney 66°50'00"S, 37°50'00"E	Geoscience	Name: Yoshifumi Surname: Nogi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0711 Email: nogi@nipr.ac.jp	
Marine ecosystem monitoring	Observation of plankton and marine environmental parameters	R/V Shirase	between Fremantle and Sydney	Bioscience	Name: Mitsuo Surname: Fukuchi Job Title or Position: Professor, NIPR Phone: +81-42-512-0740 Email: fukuchi@nipr.ac.jp	
Monitoring study on Antarctic terrestrial ecosystem	Collections of soil around Syowa Station for monitoring human activities Observations of flora and environmental parameters along Yukidori Zawa Observations of environmental parameters in lakes in ice-free areas	Syowa Langhovde Skarvsnes		Bioscience	Name: Satoshi Surname: Imura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0737 Email: imura@nipr.ac.jp	
Space Observation						
Ionospheric observations	Ionospheric vertical sounding	Syowa	69°00'22"S 39°35'24"E	Ionospheric Research	Name: Tsutomu Surname: Nagatsuma Job Title or Position: Research Manager, Applied Electromagnetic Research Center, National Institute of Information and Communications Technology Phone: +81-42-327-6095 Email: tnagatsu@nict.go.jp	http://wdc.nict.go.jp/ionog/10c_vl_ewer/o_index.html
	Aurora radar observation					
	Riometer absorption measurement					
Weather observations	Surface synoptic observation	Syowa	69°00'19"S 39°34'52"E	Meteorology	Name: Kouji Surname: Kawashima Job Title or Position: Head, Office of Antarctic Observations, Observations Department, Japan Meteorological Agency (JMA) Phone: +81-3-3211-8409 Email: antarctic@met.kishou.go.jp	http://www.jma.go.jp/jma/indexe.html
	Upper-air observation					
	Ozone observations (Total ozone, Umkehr, Ozonesonde, Surface ozone)					
	Radiation observation					
	Weather analysis					
Geodetic observations	Precise Geodetic Survey	Astronomical point (Syowa) SYOG (IGS) No.197 No.52-01 No.52-02 Langhovde Bolt point	69°00'19"S, 39°34'52"E 69°00'25"S, 39°35'01"E 68°29'54"S, 41°24'54"E 69°20'30"S, 37°35'00"E 69°12'24"S, 35°25'24"E 69°14'35"S, 39°42'33"E	Geodesy	Name: Hiroshi Surname: Mashiko Job Title or Position: Deputy DirectorHead of International Affairs Div. Planning Dept. Geospatial Information Authority of Japan Phone: +81-29-864-6159 Email: antarctic@gsi.go.jp	
	Topographic mapping for using satellite image	Kronprins Olav Kyst area Lützow-Holmbukta area				
Bathymetric survey	Bathymetric survey	Lützow-Holmbukta	69°09'00"S 39°38'00"E	Oceanography	Name: Yukihiro Surname: Kato Job Title or Position: Director, Hydrographic Surveys Division, Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3541-3815 Email: -	

Table 2-2. Scientific Information - Scientific Activities in Previous Year (JARE52 Summer)

Project name	Main Activities / Remarks	Site Name	Latitude, Longitude	Discipline	PI	URL
Tidal observation	Tidal observation	Syowa	69°00'22"S 39°35'24"E	Oceanography	Name: Arata Surname: Sengoku Job Title or Position: Director, Environmental and Oceanographic Research Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3541-3814 Email: -	
Research Project						
Visiting Scientists						
Aeromagnetic surveys by unmanned aerial vehicles (UAV) and study on the opening mechanism of Bransfield Basin	Aeromagnetic survey around Professor Julio Escudero Base by UAV Magnetic survey around King Sejong Station Rock sampling for rock magnetism, geology and geochronology	Professor Julio Escudero Base King Sejong Station	62°12'04"S 58°57'45"E 62°13'31"S 58°47'07"E	Rock magnetism Magnetic survey Geology Geochronology	Name: Minoru Surname: Funaki Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0704 Email: funaki@nipr.ac.jp	
Joint search for Antarctic meteorites with the Belgian Antarctic Research Expedition in the Sor Rondane Mountains	Meteorite search in the Nansen Icefield (Nansenisen) to the south of the Sor-Rondane Mountains with the Belgian Antarctic Research Expedition	Nansenisen base camp	72°43'31"S 24°09'11"E	Meteoritics	Name: Hiroshi Surname: Kaiden Job Title or Position: Assistant Professor, NIPR Phone: +81-42-512-0710 Email: kaiden@nipr.ac.jp	
Others						
Advanced measurements of sea ice in the huge Antarctic coastal polynya by mooring system	Recovery of two moorings (CD1 and CD2) deployed during JARE-51.	Cape Darnley Polynya CD1 CD2	67°37'50"S, 68°50'33"E 67°12'27"S, 68°43'04"E	Oceanography, Sea ice	Name: Keiichiro Surname: Oshima Job Title or Position: Professor, Institute of Low Temperature Science, Hokkaido University Phone: +81-11-706-5481 Email: oshima@lowtem.hokudai.ac.jp	
	Microwave sea-ice measurement	Sea-ice zone near Syowa Station Inbound Outbound	59°19' 48"S, 45°22'12"E -> 69°00' 36"S, 39°37'12"E 69°00' 00"S, 39°37'12"E -> 66°34' 24"S, 39°14'24"E	Sea ice		
Study of ocean variability by Argo float	Ocean monitoring.	L8 L9	56°02'14"S, 150°03'39"E 50°57'57"S, 150°11'71"E	Oceanography	Name: Toshio Surname: Suga Job Title or Position: Doctor of Science, JAPAN Agency for Marine-Earth Science and Technology Phone: +81-46-867-9845 Email: hiranom@jamstec.go.jp	http://www.jamstec.go.jp/ARGO/argo_web/argo/index_e.html
Observation of the Southern Ocean with surface drifters	Deployment of seven surface drifters for measurement of ocean circulation	Along cruise track of R/V Shirase	45°11'12"S, 110°00'15"E 50°36'31"S, 110°01'56"E 54°53'29"S, 110°00'44"E 60°03'52"S, 110°01'21"E 60°23'30"S, 100°01'39"E 59°03'03"S, 89°42'22"E 59°03'21"S, 80°21'11"E	Physical oceanography	Name: Shuki Surname: Ushio Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0676 Email: ushio@nipr.ac.jp	
Measurements of CO2 concentration and temperature profile during firm air sampling	Firm air sampling and temperature profile from shallow borehole (~112m).	Near Dome Fuji Station	77°22'00"S 39°39'00"E	Paleoclimate, ice physics	Name: Kenji Surname: Kawamura Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0684 Email: kawamura@nipr.ac.jp	
Acquisition of video images for repeat photography along the coast of Lützow-Holmbukta	Acquisition of still and video images from small helicopter to compare 10-years and 20-years ago along the coast of Lützow-Holmbukta	Langhovde area	Around 69°00'00"S 40°00'00"E	Glaciology	Name: Takashi Surname: Saito Job Title or Position: DPRI, Kyoto University Phone: +81- Email: saito@slope.dpri.kyoto-u.ac.jp	

Permanent Information (version 2011)

3.1 Science Facilities

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)

Height: ellipsoidal height 3,810m

Parameters Recorded: temperature, wind speed, wind direction

Observation Frequency: 1hour

Reference Number: None

-Location:

Site Name: Dome Fuji Summit (DK0)

Latitude: 77°14'56"S

Longitude: 39°14'10"E

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

Elevation: 3,811m

Parameters Recorded: temperature

Observation Frequency: 1hour

Reference Number: None

-Location:

Site Name: Middle Point (DK190)

Latitude: 76°47'37"S

Longitude: 31°54'00"E

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

Elevation: 3,750m

Parameters Recorded: temperature, wind speed, wind direction

Observation Frequency: 1hour

Reference Number: None

-Location:

Site Name: Mizuho

Latitude: 70°42'00"S

Longitude: 44°17'21"E

Type: Automatic Weather Station (ARGOS Type)

Height: ellipsoidal height 2,244.4m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure

Observation Frequency: 10 minutes

Reference Number: AWS No. 21359

-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

Observation Frequency: 10 minutes

Reference Number: AWS No. 8918 / WMO No. 89744

-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

-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

-Location:

Site Name: Tottuki Misaki

Latitude: 68°55'S

Longitude: 39°50'E

Type: Seismic observation by Guralp seismometer

Elevation: 15m

Parameters Recorded: 3 components (NS, EW, Z)

Observation Frequency: nearly year-round by 10 Hz sampling

Reference Number: None

-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

-Location:

Site Name: Skarvsnes

Latitude: 69°28'S

Longitude: 39°36'E

Type: Seismic observation by Guralp seismometer

Elevation: 10m

Parameters Recorded: 3 components (NS, EW, Z)

Observation Frequency: nearly year-round by 10 Hz sampling

Reference Number: None

-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

-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

-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

-Location:

Site Name: Langhovde

Latitude: 69°14'35"S

Longitude: 39°42'33"E

Type: GPS remote base station

Elevation: 28m

Parameters Recorded: GPS

Observation Frequency: 60 Seconds

Reference Number: None

-Location:

Site Name: Yukidori Zawa

Latitude: 69°08'36"S

Longitude: 39°26'30"E

Type: Microclimate Stations

Elevation: 70m

Parameters Recorded: Air temperature, Air moisture, Wind direction, Wind speed, Light intensity

Observation Frequency: 1 hour

Reference Number: None

-Location:

Site Name: Oyako Ike

Latitude: 69°17'06"S

Longitude: 39°21'54"E

Type: Microclimate Stations

Elevation: 5m

Parameters Recorded: Air temperature, Air moisture, Wind direction, Wind speed, Light intensity

Observation Frequency: 1 hour

Reference Number: None

-Location:

Site Name: Oyako Ike

Latitude: 69°28'36"S

Longitude: 39°36'06"E

Type: Limnological Station

Elevation: 5m

Parameters Recorded: Water temperature, Underwater light intensity, Chlorophyll fluorescence, Turbidity, water level

Observation Frequency: 1 hour

Reference Number: None

-Location:

Site Name: Naga Ike

Latitude: 69°29'12"S
Longitude: 39°35'54'E
Type: Limnological Stations
Elevation: 70m
Parameters Recorded: Water temperature, Underwater light intensity, Chlorophyll fluorescence, Turbidity, water level
Observation Frequency: 1 hour
Reference Number: None

-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

-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

-Location:

Site Name: Mizuho
Latitude: 70°42'08"S
Longitude: 44°17'04"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

-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

-Location:

Site Name: H68

Latitude: 69°11'53"S

Longitude: 41°03'08"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

-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

-Location:

Site Name: Sør-Rondane Mountains

Latitude: 71°55'85"S

Longitude: 23°19'52"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 1,317m

Parameters Recorded: magnetic 3 components (H, D, Z)

Observation Frequency: 1 Hz

Reference Number: None

-Location:

Site Name: Innhovde

Latitude: 69°51'35"S

Longitude: 37°06'54"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 57m

Parameters Recorded: magnetic 3 components (H, D, Z)

Observation Frequency: 1 Hz

Reference Number: None

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: 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.

Description / Remarks: Region: Higasi-Ongul Tô, Lützow-Holmbukta / Elevation: 28.9m

-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

Description / Remarks: Region: The top of Dronning Maud Land / Date Established: 1995 / Elevation: 3,810m

-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: from November to February

Description / Remarks: Region: Dronning Maud Land / Date Established: 1970 / Elevation: 2,244.4m

-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: from November to February

Description / Remarks: Region: Sør-Rondane Mountains region / Date Established: 1985 / Elevation: 980.3m

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

C. Aircraft

Type: CH-101 (on board Shirase)

Number: 2

General Task / Remarks: transport cargos and personnel / support scientific field operations

Type: AS350B (chartered by an Australian Company)

Number: 1

General Task / Remarks: support scientific field operations

3.3 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 contact aeration 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: Kenji

Surname: Ishizawa

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

Phone: +81-42-512-0779

Email: ishizawa@nipr.ac.jp

3.4 Contingency Plans

Title: Syowa Station Oil Spill Contingency Plan

Implementation Report: The expedition contingency plans are made and published for respective operations by 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 response safely and promptly to oil spill on a station and to minimize human, environmental and physical loss or damage.

Contact Point:

Name: Kenji

Surname: Ishizawa

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

Phone: +81-42-512-0779

Email: ishizawa@nipr.ac.jp

3.5 Inventory of Past Activities

Activity Type: Scientific observation, Logistics

Location:

Site name: Mizuho

Latitude: 70°41'58"S

Longitude: 44°16'52"E

Description of Activity: It was established on July 21, 1970 and had been occupied until

1986. It is now temporarily closed.

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: It was established on March 26, 1985 and had been occupied to 1991. It is now temporarily closed.

Remaining Equipment or Facilities: Five huts including diesel generators, communication antennas and a small wind turbine.

3.6 Relevant National Legislation

Title: *The Law relating to Protection of the Environment in Antarctica*

(*Antarctic Environment Law*)

Description:

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 full 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.

The Government of Japan issues and distributes pamphlets, and set up website to provide Japanese citizens of information on natural features, legal procedures required to visit Antarctica, the history of Japanese Antarctic Research and alike.

Date of Effect: January 14, 1998

Link: http://www.env.go.jp/earth/nankyoku/kankyohogo_en/index.html

Contact Point:

Name: Shuichi HASEGAWA (Mr.)

Job Title: Technical Official for Ministry of the Environment, Japan

Phone: +81-3-5521-8272

E-mail: ANTARCTIC@env.go.jp