

南極条約第 7 条 5 に基づく事前通告のための電子情報交換システム (EIES) (案) について

外務省地球環境課

1 背景

- (1) 南極条約第 7 条 5 は、各締約国に以下の活動についての通報を求めている。
「各締約国は、この条約がその国について効力を生じた時に、他の締約国に対し、次のことについて通報し、その後は、事前に通告を行う。
(a) 自国の船舶又は国民が参加する南極地域向けの又は同地域にあるすべての探検隊及び自国の領域内で組織され、又は同領域から出発するすべての探検隊
(b) 自国の国民が占拠する南極地域におけるすべての基地
(c) 第 1 条 2 に定める条件に従って南極地域に送り込むための軍の要員又は備品
(参考：第 1 条 2=この条約は、科学的研究のため又はその他の平和的目的のために、軍の要員又は備品の使用を妨げるものではない。)
- (2) これに基づき、南極条約協議国会議 (ATCM) は 2001 年に「決議 6」を採択し、事前に通報・通告すべき事項をとりまとめた。
- (3) その後、通報のための共通フォーマットとして「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) = 2022 年 4 月～2023 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 (2.1.2)
イ 使用基地、観測船 (しらせ)・航空機・飛翔体に関する報告 (2.2.1)
ウ 保護区域への立ち入り、動植物の採捕等に関する許可に関する報告 (2.3)
エ 環境保護関連事項に関する報告 (IEE の実施、廃棄物処理の実施) (2.4)
- (2) 常設報告 (Permanent Information) = 恒久的に設置されている設備などの報告
ア 基地、観測船、航空機、自動観測点につき報告 (3.1、3.2)
イ 環境保護関連事項に関する報告 (廃棄物管理計画、燃料漏出緊急対応計画等) (3.3)

3 その他特記事項

(1) 2022 年に南極の昭和基地の南約 20 km の地点に、中国のものと思われる小屋のような構造物及び観測装置と思われるものが設置されたものの、該当する構造物・装置に関する EIES を通じた通報はない。

当該構造物については我が国報道及び国会でも話題になっており、ATCM45 でも EIES

を通じた通報の重要性について我が方代表団が言及したところ。今後とも特異な事項については関係省庁・機関で連携して対応する必要。

(2)なお、年次報告(Annual Report)における Scientific Information の Forward Plans 及び事前報告 (Pre-season Information、2023 年～2024 年に行う活動の事前の通告) については、第 65 次観測隊の計画が確定した後、本年秋に開催される南極地域観測統合推進本部総会に提出する予定。

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2022/2023 Annual Report - Research Rocket

2.2 Operational information

2.2.1 National Expeditions

D. Research Rockets

Location Launch	Date/Period/Frequency	Direction	Max. Altitude	Impact Area	Type	Specifications	Purpose	Project Title/Number
Syowa	Twice daily, throughout the year	All directions, depending on wind	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	Radiosonde	Aerological observation	Meteorological observations
Syowa	1 to 2 times a week, throughout the year	All directions, depending on wind	30,000 m	Within a radius of 200-300 km from the site	Rubber balloon	ECC (Electrochemical Concentration Cell) Type Ozone sonde	Ozone vertical profile measurement	Meteorological observations
Syowa	4 times, throughout the year	All directions, depending on wind	25,000 m	Within a radius of 200-300 km from the site	Rubber balloon	SKYDEW (Chilled mirror Type Water vapor sonde)	Water vapor vertical profile measurement	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques
Syowa/R/V shirase	25 launches in the summer	All directions from R/V Shirase, depending on wind	25km	Within a radius of 200-300 km from R/V Shirase	Rubber balloon	Radiosonde and cloud particle sensor sonde	Meteorological profiling including aerosols and clouds	Clouds and atmospheric circulations over the Southern Ocean
Ongul Islands, Langhovde, Akarui misaki, Skarvsnes, Breivagnipa, Vesthovde, Padda, Kumihimo Iwa, Karamete misaki, Hinode misaki, Niban Iwa	Appropriately throughout the summer	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Multicopter & VTOL	Topographic mapping	Geodetic and geographic survey
Ongul Islands, Langhovde, Skarvsnes, Skallen, Rundvagshetta, Padda	A few times in the summer Once a month, throughout the winter	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Fixed wing	Topographic mapping	Integrated Geodetic monitoring observation
Ongul Islands, Langhovde, Rundvagshetta, Strandnibba, Okuhyoga Iwa, Instekleppane	A few times times in the summer	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Multicopter	Aerial photography	Reconstruction of the East Antarctic Ice Sheet variability and understanding of the abrupt ice mass loss
Dome-Fuji	10 times in the summer	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography for surveying the ice sheet surface	Third Dome Fuji Deep Coring: an Oldest Ice Core
Lutzow-Holmbukta, Totten	43 times in the summer	All directions, the vicinity of the R/V shirase	100m	The vicinity of the R/V shirase	UAV	Multicopter	Aerial photography for sea ice observations	Understanding the mechanism of the marginal, packed, and fast ice variations and its application for optimized routing of Shirase
Ice sheet	5 times in the summer	All directions, the vicinity of the site	300m	The vicinity of the site	UAV	Multicopter	Penetrator test	Development of penetrator system applying to Antarctic region and geophysical observations at Shirase glacier
Syowa	Once a month, throughout the winter	All directions, the vicinity of the site	100m	The vicinity of the site	UAV	Multicopter	Aerial photography	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques
Syowa	Once a month, throughout the summer Once a month after blizzards, through the winter	All directions, the vicinity of the site	20m	The vicinity of the site	UAV	Multicopter	Aerial photography	Multi purpose receiving antenna radome maintenance
Syowa/R/V shirase	59 times in the summer 22 times in the winter	All directions, the vicinity of the site	200m	The vicinity of the site	UAV	Multicopter	Aerial photography	Public relations

Location Launch	Date/Period/Frequency	Direction	Max. Altitude	Impact Area	Type	Specifications	Purpose	Project Title/Number
Syowa	Appropriately throughout the winter	All directions, the vicinity of the site	80m	The vicinity of the site	UAV	Multicopter	Aerial photography	Inspection of facilities and accumulated snow survey
Syowa/ R/V shirase	172 times on R/V Shirase	Above R/V Shirase	1000m	The vicinity of R/V Shirase	UAV	Multicopter	Aerial photography, meteorological and aerosol profiling	Clouds and atmospheric circulations over the Southern Ocean

2. Annual Report (2022 / 2023)

2.1 Scientific Information

2.1.1 Forward Plans

2.1.2 Science Activities in Previous Year

Please see Table in Excel format.

2.2 Operational Information

2.2.1 National Expeditions

A. Stations

Name: Syowa Station

Type: Station

Seasonality: Year-Round

Location: Higashi-Ongul To, Lützow-Holmbukta

Latitude: 69°00'25" S

Longitude: 39°35'01" E

Max. Population: 130

Medical Facilities: Minimum required surgical operation facilities and dental emergency

Remarks / Description:

Elevation: 28.9 m

Established: January 29, 1957

Major Field Activities: Biological and geophysical observations in Lützow-Holmbukta area

Name: Dome Fuji Station

Type: Station

Seasonality: Seasonal

Location: On the top of Dronning Maud Land

Latitude: 77°19'01"S

Longitude: 39°42'12"E

Max. Population: 14

Medical Facilities: None

Remarks / Description:

Elevation: 3,810m

Established in January 29, 1995

There are 9 buildings below snow surface. 9 people can be accommodated.

Operating Period: from November to February
Major Field Activities: Glaciological survey

Name: Langhovde Yukidori Zawa Hut

Type: Refuge

Seasonality: Seasonal

Location:

Site Name: Yukidori Zawa

Latitude: 69°14'37"S

Longitude: 39°42'54"E

Maximum Population: 4

Date Established: 1986

Accommodation Capacity: 4

Medical Facilities: None

Remarks / Description:

Name: Skarvsnes Kizahashi Hama Hut

Type: Refuge

Seasonality: Seasonal

Location:

Site Name: Kizahashi Hama

Latitude: 69°28'26"S

Longitude: 39°36'26"E

Maximum Population: 6

Date Established: 2004

Accommodation Capacity: 6

Medical Facilities: None

Remarks / Description:

Name: Skallen Refuge

Type: Refuge

Seasonality: Seasonal

Location:

Site Name: Skallen

Latitude: 69°40'25"S

Longitude: 39°24'02"E

Maximum Population: 2

Date Established: 2004

Accommodation Capacity: 2

Medical Facilities: None

Remarks / Description:

Name: S17 Airfield Camp

Type: Camp

Seasonality: Seasonal

Location:

Site Name: S17

Latitude: 69°01'41"S

Longitude: 40°05'42"E

Maximum Population:

Date Established: 2005

Accommodation Capacity:

Medical Facilities: None

Remarks / Description:

Name: Dome Fuji II Camp

Type: Camp

Seasonality: Seasonal

Location:

Site Name: Dome Fuji II

Latitude: 77°21'40"S

Longitude: 39°38'38"E

Maximum Population:

Date Established: 2022

Accommodation Capacity:

Medical Facilities: None

Remarks / Description:

B. Vessels

Name: R/V Shirase

Country of registry: Japan

Maximum Crew: 179

Maximum Passengers: 80

Remarks: The Indian sector of the Southern Ocean (SO) and SO south of Australia will be visited.

Voyage Departure Date: 1 December, 2022

Voyage Departure Port: Fremantle, Australia

Voyage Arrival Date: 20 March, 2023

Voyage Arrival Port: Sydney, Australia

Voyage Purpose: Transportation of cargo and personnel / Support of

oceanographic and field observations

Site Name: Lützow-Holmbukta, Kronprins Olav Kyst

Latitude:

Longitude:

Area Operation Date:

C. Aircraft

Type: CH-101

Quantity: 2

Category: Local helicopter flights

Period From: December, 2022

Period To: March, 2023

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

Flight Departure Date: December, 2022

Flight Route:

Flight Purpose: Logistics

Type: AS350

Quantity: 1

Category: Local helicopter flights

Period From: December, 2022

Period To: March, 2023

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

Flight Departure Date: December, 2022

Flight Route:

Flight Purpose: Logistics

D. Research Rockets

(Please see Table 1)

E. Military

None

Operational Information

2.2.2 Non-governmental Expeditions

Vessel-Based Operations

None

Land-Based Operations

None

Aircraft Activities

None

2.3 Permit Information

2.3.1 Visits to Protected Areas

ASPA No	Number of people:	Permit Period:	Purpose:	Summary of activities:	Event or project name/number:
No.141 Yukidori Valley, Langhovde	5	From: 1 Dec 2022 To: 31 Mar 2023	Research	Vegetation survey, weather monitoring and field surveys.	64th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	2	From: 1 Dec 2022 To: 31 Mar 2023	Research	Vegetation survey, weather monitoring and field surveys.	64th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 1 Dec 2022 To: 31 Mar 2023	Research	Reporting	64th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 1 Dec 2022 To: 31 Mar 2023	Research	Reporting	64th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	1	From: 1 Dec 2022 To: 31 Mar 2023	Research	Reporting	64th Japanese Antarctic Research Expedition
No.141 Yukidori Valley, Langhovde	2	From: 1 Dec 2022 To: 31 Mar 2023	Research	Reporting	64th Japanese Antarctic Research Expedition

2.3.2 Taking and harmful interference with flora and fauna

(None)

2.3.3 Introduction of non-native species

No.	Permit period:	Species (and Amount):	Location:	Action:	Removal or Disposal:	Purpose:
1	From: 1 Dec 2022 To: 31 Mar 2024	Poultry meat (e.g. chicken, turkey, duck, foie gras, and entrails)	Showa station (69°00'S, 39°35'E)	Introduction new species:	Removal	Food
2	From: 1 Dec 2022 To: 31 Mar 2024	5 tons of variety of fresh vegetables and 10 kg of seeds for hydroponics	Showa station (69°00'S, 39°35'E)	Introduction new species:	Removal	Food
3	From: 1 Dec 2022 To: 31 Mar 2024	1 kg of yeast, 1 kg of beer yeast, 5 kg of rice-malt, and 100 kg of mushroom bed for cultivation of mushroom	Showa station (69°00'S, 39°35'E)	Introduction new species:	Removal	Food

2.4 Environmental Information

2.4.1 Compliance with the Protocol (Notification of Measures)

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

2.4.2 Contingency Plans

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

Environmental Impact Assessment (Procedures)

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

Environmental Impact Assessment (Monitoring and follow-up Activities)

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

Conservation of Fauna and Flora (Taking and harmful interference, Introduction of non-native species)

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

period.

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 biological 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 an 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: Hiroyuki

Surname: Fujino

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

Phone: +81-42-512-0779

Email: fujino.hiroyuki@nipr.ac.jp

Prevention of Marine Pollution

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

Area Protection and Management (Measures)

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

Area Protection and Management (Permit, Visit and Activities)

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

Area Protection and Management (Change or Damage to ASPA, ASMA or HSM)

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

3. Permanent Information (version 2023)

3.1 Science Facilities

3.1.1 Automatic Recording Stations / Observatories

-Location:

Site Name: Mizuho

Latitude: 70°42'00"S

Longitude: 44°17'21"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: ellipsoidal height 2,244m

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

Observation Frequency: 10 minutes

Reference Number: AWS No. 21359

Scientific Equipment:

-Location:

Site Name: Relay Point (MD364)

Latitude: 74°00'29"S

Longitude: 42°59'48"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,353m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, humidity, surface height

Observation Frequency: 10 minutes

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

Scientific Equipment:

-Location:

Site Name: Dome Fuji

Latitude: 77°19'00"S

Longitude: 39°42'11"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,810m

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

pressure

Observation Frequency: 10 minutes

Reference Number: AWS No. 8904 / WMO No. 89734

Scientific Equipment:

-Location:

Site Name: JASE2007 (DK379)

Latitude: 75°53'17"S

Longitude: 25°50'01"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,661m

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

Observation Frequency: 10 minutes

Reference Number: AWS No. 30305

Scientific Equipment:

-Location

Site Name: New Dome Fuji

Latitude: 77°47'20"S

Longitude: 39°03'09"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,763m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, relative humidity, snow height, downward/upward shortwave and longwave radiation, ice temperature

Observation Frequency: 10 minutes

Reference Number: None

Scientific Equipment:

-Location:

Site Name: H128

Latitude: 69°24'05"S

Longitude: 41°32'41"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 1,383m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, relative humidity, snow height, downward/upward shortwave and longwave radiation, ice temperature

Observation Frequency: 10 minutes

Reference Number: None

Scientific Equipment

-Location:

Site Name: New Relay Point (MD364)

Latitude: 74°01'48"S

Longitude: 43°00'00"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,353m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, relative humidity, snow height, ice temperature

Observation Frequency: 10 minutes

Reference Number: None

Scientific Equipment

-Location:

Site Name: MD78 (MD78)

Latitude: 71°26'55"S

Longitude: 44°00'32"E

Type: Automatic Weather Station (ARGOS Type)

Elevation: 3,353m

Parameters Recorded: temperature, wind speed, wind direction, atmospheric pressure, relative humidity, snow height, 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: 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: Mizuho

Latitude: 70°42'06"S

Longitude: 44°16'47"E

Type: Low Power Magnetometer (BAS Type)

Elevation: 2,250m

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

Observation Frequency: 17mHz~1 Hz

Reference Number: None

Scientific Equipment: 3-axis fluxgate magnetometer

-Location:

Site Name: Skallen

Latitude: 69°40'21"S

Longitude: 39°24'07"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 11m

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

Observation Frequency: 1 Hz

Reference Number: None

Scientific Equipment: 3-axis fluxgate magnetometer

-Location:

Site Name: H68

Latitude: 69°11'32"S

Longitude: 41°03'01"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 1,175m

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

Observation Frequency: 1 Hz

Reference Number: None

Scientific Equipment: 3-axis fluxgate magnetometer

-Location:

Site Name: Innhovde

Latitude: 69°51'21"S

Longitude: 37°06'31"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 57m

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

Observation Frequency: 1 Hz

Reference Number: None

Scientific Equipment: 3-axis fluxgate magnetometer

-Location:

Site Name: Amundsen Bay

Latitude: 66°47'44"S

Longitude: 50°34'38"E

Type: Low Power Magnetometer (NIPR Type)

Elevation: 37m

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

Observation Frequency: 1 Hz

Reference Number: None

Scientific Equipment: 3-axis fluxgate magnetometer

-Location:

Site Name: Amundsen Bay

Latitude: 66°47'44"S

Longitude: 50°34'43"E

Type: Unmanned Aurora Observatory

Elevation: 87m

Parameters Recorded: all-sky aurora image, magnetic 3 components (H, D, Z),
GNSS TEC value

Observation Frequency: all-sky imager:1Hz, magnetometer:1 Hz, GNSS-TEC:
every 30 sec

Reference Number: None

Scientific Equipment: All-sky imager, 3-axis fluxgate magnetometer, GNSS
receiver

3.2 Operational Information

A. Stations

-Name: Syowa Station

Type: Station

Status: Open

Seasonality: 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: Station

Status: Open

Seasonality: 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: Station

Status: Temporary Closed

Seasonality: Seasonal

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: Station
Status: Temporary Closed
Seasonality: Seasonal
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:

-Name: Langhovde Fukuro Ura Refuge
Type: Refuge
Status: Open
Seasonality: Seasonal
Location:

Site Name: Fukuro Ura
Latitude: 69°12'54"S
Longitude: 39°37'37"E

Maximum Population: 6
Date Established: 1995
Accommodation Capacity: 6
Medical Facilities: None

Remarks / Description:

-Name: Langhovde Yukidori Zawa Hut

Type: Refuge

Status: Open

Seasonality: Seasonal

Location:

Site Name: Yukidori Zawa

Latitude: 69°14'37"S

Longitude: 39°42'54"E

Maximum Population: 4

Date Established: 1986

Accommodation Capacity: 4

Medical Facilities: None

Remarks / Description:

-Name: Skarvsnes Kizahashi Hama Hut

Type: Refuge

Status: Open

Seasonality: Seasonal

Location:

Site Name: Kizahashi Hama

Latitude: 69°28'26"S

Longitude: 39°36'26"E

Maximum Population: 6

Date Established: 2004

Accommodation Capacity: 6

Medical Facilities: None

Remarks / Description:

-Name: Skallen Refuge

Type: Refuge

Status: Open

Seasonality: Seasonal

Location:

Site Name: Skallen

Latitude: 69°40'25"S

Longitude: 39°24'02"E

Maximum Population: 2

Date Established: 2004

Accommodation Capacity: 2

Medical Facilities: None

Remarks / Description:

-Name: S17 Airfield Camp

Type: Camp

Status: Open

Seasonality: Seasonal

Location:

Site Name: S17

Latitude: 69°01'41"S

Longitude: 40°05'42"E

Maximum Population:

Date Established: 2005

Accommodation Capacity:

Medical Facilities: None

Remarks / Description:

-Name: Dome Fuji II Camp

Type: Camp

Status: Open

Seasonality: Seasonal

Location:

Site Name: Dome Fuji II

Latitude: 77°21'40"S

Longitude: 39°38'38"E

Maximum Population:

Date Established: 2022

Accommodation Capacity:

Medical Facilities: None

Remarks / Description:

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: AS350 (chartered by an Australia Company)

Quantity: 1

Remarks: support scientific field operations

Search and Rescue Information:

3.3 Environmental Information

3.3.1 Waste Management Plans

Title: Waste Management Guide

Fixed site/Field Camp/Ship: Station and field

Objective: Management of field Wastes, Station Wastes

Implementation Report: Disposal of wastes in the stations and fields is implemented in accordance with Annex III of the Protocol on Environmental Protection to the Antarctic Treaty and the relevant national legislation. Sewage and gray water from summer accommodation are treated by biological 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 an incinerator. The ash is taken back to Japan. Wet food waste is treated by a carbonization 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: Hiroyuki

Surname: Fujino

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

Phone: +81-42-512-0779

Email: fujino.hiroyuki@nipr.ac.jp

3.3.2 Contingency Plans

Title: Syowa Station Oil Spill Contingency Plan

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

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

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

Contact Point:

Name: Hiroyuki

Surname: Fujino

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

Phone: +81-42-512-0779

Email: fujino.hiroyuki@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.

Scientific Activities - JARE 63W 64S

ID	Project name	Main Activities / Remarks (JARE 63W 64S)	Site Name	Latitude /Longitude	Season		Discipline	PI	URL
					Summer	Winter			
Fundamental Observation									
Routine Observation									
TN01	Ionospheric observations	Ionospheric vertical sounding, GNSS scintillation monitoring/ Ionosphere data were reported as Ionospheric Data at Syowa Station (Antarctica). In addition, it was released in semi-real time on the website.	Syowa	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Takuya Surname: Tsugawa Job Title or Position: Director, Space Environment Laboratory, Radio Propagation Research Center, Radio Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-5239 Email: tsugawa@nict.go.jp	https://wdc.nict.go.jp/IO/NO/wdc/index.html https://iono-syowa.nict.go.jp/
TN02	Data acquisition for monitoring space weather conditions	Data acquisition of ionospheric vertical sounding, GNSS scintillation monitoring, and magnetic field variations Data was referenced for Space Weather Forecast. In addition, it was released in semi-real time on the website.	Syowa	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Takuya Surname: Tsugawa Job Title or Position: Director, Space Environment Laboratory, Radio Propagation Research Center, Radio Research Institute, National Institute of Information and Communications Technology (NICT) Phone: +81-42-327-5239 Email: tsugawa@nict.go.jp	https://iono-syowa.nict.go.jp/ https://swc.nict.go.jp/en/
TJM01	Surface synoptic observation	Air Pressure Air Temperature Humidity Wind speed Wind direction Sunshine duration Global solar radiation Snow depth	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TJM02	Upper-air observation	Radiosonde/ Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TJM03	Ozone observations	Total ozone Umkehr Surface ozone Ozonesonde/ Ozone amount, Atmospheric pressure, Air temperature, Humidity, Wind speed, Wind direction	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TJM04	Radiation observation	Global solar radiation, Direct solar radiation, Diffuse solar radiation, Downward longwave radiation, UV-B radiation, Reflected solar radiation Upward longwave radiation, Atmospheric turbidity Spectral ultraviolet radiation	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TJM05	Weather analysis	Weather Conditions	Syowa	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TJM06	Another observation	Automatic Weather Station observation	Syowa, S17site	69°00'25"S, 39°35'01"E	○	○	Meteorology	Name: Yutaka Surname: Ogawa Job Title or Position: Head, Office of Antarctic Observation, Atmosphere and Ocean Department, Japan Meteorological Agency (JMA) Phone: +81-3-6758-3900 Email: antarctic@met.kishou.go.jp	https://www.jma.go.jp/jma/indexe.html
TC01	Bathymetric survey and Tidal observation	Bathymetric survey Tidal observation	Lützow-Holmbukta Syowa	69°00'25"S, 39°35'01"E	○	○	Oceanography	Name: Tsuyoshi Surname: Yoshida Job Title or Position: Director, Coastal Surveys Division Hydrographic and Oceanographic Department, Japan Coast Guard Phone: +81-3-3595-3606 Email: nankyoku@jodc.go.jp	
TG01	Geodetic observations	Precise Geodetic Observation (GNSS Observation) Precise Geodetic Observation (Relative Gravity Survey) Leveling Photocontrol points surveying Aerial photography	Syowa Station Ongul Islands Coastal area of Lützow-Holmbukta Kronprins Olav Kyst Prins Harald Kyst P50,S16 and S17 site	69°00'25"S, 39°35'01"E	○	○	Geophysics, seismology and Geomorphology	Name: Shuto Surname: Sugai Job Title or Position: Deputy Director of International Affairs Div. Planning Dept., Geospatial Information Authority of Japan Phone: +81-29-864-6264 Email: gsi-antarctic-1@gxb.mlit.go.jp	https://www.gsi.go.jp/antarctic/indexe.html

ID	Project name	Main Activities / Remarks (JARE 63W 64S)	Site Name	Latitude /Longitude	Season		Discipline	PI	URL
					Summer	Winter			
Monitoring Observation									
AMU1001	Electromagnetic environment ground-based monitoring observation	Optical Observation: Auroras were monitored with all-sky electron and proton auroral imagers (EAI and PAI) , an all-sky color digital camera (CDC), all-sky black and white TV cameras (ATV), and Scanning photometer (SPM) from late February to early October at Syowa. Geomagnetic Observation: Absolute geomagnetic observation was carried out every month and geomagnetic variation observation with a 3-axis fluxgate magnetometer is carried out continuously all through the year at Syowa. Plasma Wave Observation: Cosmic Noise Absorption (CNA) was observed with two set of riometers and natural VLF and ULF waves were observed with two set of loop antennas and two set of induction magnetometers at West Ongul Island continuously all through the year.	Syowa West Ongul Island	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Masaki Surname: Okada Job Title or Position: Professor, National Institute of Polar Research Phone: +81-42-512-0665 Email: okada.masaki@nipr.ac.jp	
AMU1002	Space weather and space climate monitoring observation	With SENSU SuperDARN HF radars at Syowa station, continuous observation according to the international SuperDARN schedule including special campaigns with satellites such as ERG/Arase (except periods for hardware maintenance) has been conducted to try to reveal the influence of low solar activity period on upper atmosphere and the dynamics of inner magnetosphere as well as to contribute to space weather research as a general research observation project (AP0928) during JARE phase IX program until January 2023 (by JARE63W). In the phase X JARE 6-year program (JARE64-69) since February 2023 (JARE64S), this observation has become categorized as a monitoring observation project to obtain fundamental physical parameters in upper atmosphere, which will be combined with all other SuperDARN radars data to create large-scale space weather map, for monitoring space weather and space climate phenomena in a variety of temporal and spatial scale in order to contribute widely to space weather and space climate research and applications. During the 2022-2023 austral summer season, antenna cables for Syowa East radar were replaced for longer-term stable observation during the Xth phase of JARE and even after the period. The method of the observation itself has no change between the IX and Xth phase 6-year JARE program. Again, long-term continuous observation according to the international SuperDARN schedule including special campaigns has been and will be conducted.	Syowa	69°00'25"S, 39°35'01"E	○	○	Earth and atmospheric sciences - other	Name: Akira Sessai Surname: Yukimatu Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0659 Email: sdsensuats@uap.nipr.ac.jp	URL: http://polari.s.nipr.ac.jp/~SD/
AMU1003	Monitoring of middle and upper atmosphere	Monitoring of gravity waves in the mesosphere and lower thermosphere region using an all-sky airglow imager. This observation gets involved in the Antarctic Gravity Wave Instrument Network (ANGWIN) that is operated by different nations working together in a spirit of close scientific collaboration, in order to elucidate contribution of gravity wave activity over Antarctica to global circulation.	Syowa	69°00'25"S, 39°35'01"E		○	Earth and atmospheric sciences - other	Name: Mitsumu K. Surname: Ejiri Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0661 Email: ejiri.mitsumu@nipr.ac.jp	
AMP1001	Atmospheric trace gas observation	Monitoring of atmospheric CO ₂ , CH ₄ , CO, N ₂ O and O ₂ concentrations was carried out all year-round at Syowa Station. Whole air samples were collected periodically for subsequent analyses in Japan.	Syowa	69°00'25"S, 39°35'01"E	○	○	Atmospheric sciences	Name: Daisuke Surname: Goto Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0673 Email: goto.daisuke@nipr.ac.jp	
AMP1002	Monitoring of surface mass balance on Antarctic ice sheet	Sea ice thickness and snow depth measurements from Syowa Station to Tottuki Misaki and from Syowa Station to Mukaiwa, and snow accumulation measurements by snow stake method and surface snow samplings from Mukaiwa to S16 site were carried out. Snow accumulation measurements and maintenances of automatic weather stations were conducted during the inland traverses from S16 to Dome Fuji area.	From Syowa Station to S16 site via Mukaiwa Inland sites from S16 site to Dome Fuji Station	69°04'48"S, 40°46'22"E 69°23'34"S, 41°33'34"E	○	○	Glaciology	Name: Fumio Surname: Nakazawa Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0713 Email: nakazawa@nipr.ac.jp	
AMP1003	Satellite-based climate monitoring	Data acquisition of NOAA, AQUA and TERRA satellites with L/S/X-band receiving system at Syowa Station.	Syowa	69°00'25"S, 39°35'01"E	○	○	Other	Name: Masaki Surname: Okada Job Title or Position: Professor, National Institute of Polar Research Phone: +81-42-512-0665 Email: okada.masaki@nipr.ac.jp	
AMG1001	Integrated geodetic monitoring observation	Monitoring of a fixed point location in Syowa was carried out with the DORIS antenna operating until Dec. 2022 when Earth Science Laboratory was demolished. New DORIS antenna site was constructed. Ground temperature was monitored all year-round at sites near the Zakuro Ike in Langhovde and near the Ô-ike, in Nishi-Ongul To (Island). VLBI experiments were carried out 11 times a year using a multi-purpose 11 meter diameter dish and gravity variations were monitored with a superconductivity gravimeter at Syowa. Crustal deformations were monitored by GNSS measurements on several outcrop rocks around Syowa. Ground validation observations for the satellite observations were started at S19 (site on the Antarctic ice sheet) and Shirase Glacier.	Syowa Nishi-Ongul Is. (ground temperature) Langhovde (ground temperature) Tottuki-misaki Langhovde Skarvnes Skallen Rundvagshetta Padda Is. S19 Shirase Glacier	69°00'25"S, 39°35'1"E 69°01'20"S, 39°33'31"E 69°10'41"S, 39°38'49"E 68°29'58" S 41°24'23" E 68°54'40"S, 39°49'10"E 69°01'48"S, 39°41'43"E 69°14'34"S, 39°42'51"E 69°28'26"S, 39°36'25"E 69°40'16"S, 39°23'56"E 69°54'27"S, 39°02'24"E 69°37'06"S, 38°16'34"E	○	○	Geophysics and seismology	Name: Yuichi Surname: Aoyama Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0712 Email: aoyama@nipr.ac.jp	

ID	Project name	Main Activities / Remarks (JARE 63W 64S)	Site Name	Latitude /Longitude	Season		Discipline	PI	URL
					Summer	Winter			
AMG1002	Seismic Monitoring Observation	Seismometers are installed to monitor earthquakes at Syowa Station and one site on the Sôya Kaigan all year-round.	Syowa Station and one site on the Sôya Kaigan	69°00'25"S, 39°35'01"E	○	○	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-9026 Email: kanao@nipr.ac.jp	
AMG1003	Marine geophysical observations	Sea-surface gravity and marine geomagnetic observations were carried out onboard the R/V Shirase along the cruise tracks. Seafloor bottom pressure is monitored with a pressure gauge about 4000 meters deep in the Southern Ocean.	Along cruise track of R/V Shirase	-	○		Geophysics and seismology	Name: Masakazu Surname: Fujii Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0925 Email: fujii.masakazu@nipr.ac.jp	
AMG1004	Infrasound observation	Arrayed observation of infrasound has been carried out at Syowa Station and one site on the Sôya Kaigan all year-round.	Syowa Station and one site on the Sôya Kaigan	69°00'25"S, 39°35'01"E	○	○	Geophysics and seismology	Name: Masaki Surname: Kanao Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0713 Email: kanao@nipr.ac.jp	
AMB1001	Population census of Adélie penguins	Census of Adélie penguins at rookeries in the Sôya Kaigan area was carried out in mid-November and early December. Number of the penguins and the pairs were counted.	Sôya Kaigan area	-		○	Biological sciences – other	Name: Akinori Surname: Takahashi Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0741 Email: atak@nipr.ac.jp	
AMB1002	Marine ecosystem monitoring	Oceanographic observations in the Southern Ocean along the cruise track of R/V Shirase and T/V Umitaka-maru were carried out south of latitude 40 degrees south. Surface water was pumped up to measure physical, chemical and biological parameters, including Chlorophyll a and pCO2 concentrations. Water collections at some depths and plankton collections were carried out at stations along 110°E, and off syowa including those in ice covered areas.	Along cruise track of R/V Shirase and T/V Umitaka-maru	-		○	Biological sciences – other	Name: Kunio Surname: Takahashi Job Title or Position: Associate Professor, NIPR Phone: +81-42-512-0743 Email: takahashi.kunio@nipr.ac.jp	
AMB1003	Monitoring of terrestrial ecosystems	(1) Soil samples for analyzing micro-organisms are not collected at fixed points around Syowa station (sampling will be done in next season). (2) Meteorological data recorded by AWS were downloaded from Langhovde (Yukidori Zawa), Skarvsnes (Kizahashi Hama), and Skallen (Skallen Ôike) on Soya Coast.(3) Photographs of quadrats along Yukidori Zawa valley (ASPA No. 147) were taken.	Syowa	69°00'25"S, 39°35'01"E		○	Biological sciences – other	Name: Sakae Surname: Kudoh Job Title or Position: Professor, NIPR Phone: +81-42-512-0739 Email: skudoh@nipr.ac.jp	
Research Project									
Prioritized Research Project: Investigation of changes in the Earth system from Antarctica									
AJ1001	Third Dome Fuji Deep Coring: an Oldest Ice Core	Inland traverse from S16 to Dome Fuji: Snow observations and sampling along the route and in the vicinity of Dome Fuji station were conducted. Around Dome Fuji: glaciological/meteorological observations and preparation for deep drilling were conducted.	Syowa station, Dome Fuji, Droning Maud Land	69°00'25"S, 39°35'01"E		○	Environmental sciences	Name: Kenji Surname: Kawamura Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0684 Email: kawamura@nipr.ac.jp	
AJ1002	Reconstruction of the East Antarctic Ice Sheet variability and understanding of the abrupt ice mass loss	Deep-sea, shallow-sea, lake/lake/land sediment drilling, glacial landform geological surveys, and UAV surveys were carried out to reconstruct the large scale East Antarctic ice sheet change since the last interglacial period and to understand it's mechanisms.	Ongul Islands Langhovde Rundvågshetta Strandnibba Okuhyogaiwa Shirase Glacier	69°00' - 70°00'S, 39°00' - 39°45'E		○	Geology	Name: Yusuke Surname: Suganuma Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0702 Email: suganuma.yusuke@nipr.ac.jp	
AJ1003	The Heart of the East Antarctic Cryosphere-Ocean Synergy System (HEAT-CROSS)	In situ hydrographical measurement by CTD/RMS and in-situ measurements for sea ice properties were conducted in Lützow-Holmbukta. Oceanographic observations using mooring observation systems and CTD/RMS were conducted off Totten Glacier region. In Lützow-Holmbukta, off Cape Darnley and Totten Glacier regions, seafloor topographic observations were made using multi-beam SONAR.	Lützow-Holmbukta Shirase Glacier Off Totten Ice Shelf	-		○	Climate studies	Name: Kohei Surname: Mizobata Job Title or Position: Associate Professor, Tokyo University of Marine Science and Technology Phone: +81-3-5463-0717 Email: mizobata@kaiyodai.ac.jp	
AJ1004	Glacier, grounding line and ice shelf dynamics: the driver of the rapid mass loss of the Antarctic ice sheet	Instruments installed at Langhovde Glacier were visited for data retrieval and maintenance. Year-around measurement data were downloaded from GPS receivers, seismic sensors, water pressure sensors and ice radar. Some instruments were recovered and others were maintained for further operation.	Langhovde Glacier	-		○	Glaciology	Name: Shin Surname: Sugiyama Job Title or Position: Professor, Hokkaido University • Institute of Low Temperature Science Phone: +81-11-706-7441 Email: sugishin@lowtem.hokudai.ac.jp	

ID	Project name	Main Activities / Remarks (JARE 63W 64S)	Site Name	Latitude /Longitude	Season		Discipline	PI	URL	
					Summer	Winter				
AJ1005	Clouds and atmospheric circulations over the Southern Ocean	A microwave radiometer, lidar ceilometer, radiosondes, cloud particle sensor sondes, and drones on the RV Shirase observed vertical structures of the atmosphere, clouds, and aerosols during the cruise. Shipboard meteorological instruments continuously observed sea-surface meteorological parameters, including radiations, turbulent fluxes, and aerosol number concentration. Filter samplings of particles in the atmosphere and seawater were made. Drifting buoys were deployed off the coast of Totten Glacier.	Along cruise track of R/V Shirase	-		○	Climate studies	Name: Jun Surname: Inoue Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0681 Email: inoue.jun@nipr.ac.jp		
AJ1006	A study of global atmospheric circulation variability explored through comprehensive observations with the large atmospheric radar and complementary techniques	(AJ0901) Observations of the Antarctic atmosphere were performed during JARE63 in order to examine various processes and their role in the global atmospheric system by utilizing (1) the PANSY (Program of the Antarctic Syowa MST/IS) radar, which is the largest atmospheric radar in the Antarctic, and (2) related instruments such as up-graded millimeter wave spectrometer, MF radar, OH IR airglow imager, high-speed auroral imager, and proton auroral spectrograph. The seventh campaigns of Interhemispheric Coupling Study by Observations and Modeling (ICSOM) was also successfully conducted. (AJ1006) As the succeeding project of AJ0901, AJ1006 (JARE64-69) has started another 6-year long program of comprehensive atmospheric observations from the troposphere to the thermosphere using the large aperture atmospheric radar (PANSY radar) together with complementary radio and optical instruments.	Syowa	69°00'25"S, 39°35'01"E		○	○	Atmospheric sciences	Name: Masaki Surname: Tsutsumi Job Title or Position: Professor, National Institute of Polar Research Phone: +81-42-512-0658 Email: tutumi@nipr.ac.jp	
AJ1007	Space environmental changes and atmospheric response explored from the polar cap	Ground-based observation of space weather such as auroras and cosmic rays, using high-speed cameras, millimeter wave spectrometer, riometer, neutron monitor, muon detector, and unmanned observation systems: During JARE 63W and 64S, new all-sky imagers were installed at Syowa Station. The other instruments have been working well.	Syowa station Amundsen Bay Skallen, Innhovde, H68 Mizuho, MD364, Dome Fuji Princess Elisabeth station Maitri station South Pole Station McMurdo Station	69°00'25"S, 39°35'01"E		○	○	Atmospheric sciences	Name: Ryuho Surname: Kataoka Job Title or Position: Associate Professor, National Institute of Polar Research Phone: +81-42-512-0631 Email: kataoka.ryuho@nipr.ac.jp	
Ordinary Research Project										
AP1001	Understanding the mechanism of the marginal, packed, and fast ice variations and its application for optimized routing of Shirase	The aim of the research is to obtain observational records of waves propagating into the MIZ, drifting packed ice, and land-fast ice. Numerous remote sensing was conducted using a stereo imaging system, optical cameras (polarized and no-polarized), and an Electromagnetic Induction Instrument (EM) to measure waves and sea ice. Total of 33 wave buoys were deployed on ice (23) as well as in open waters (10). Sensors attached to the ship were used to record ship motion, hull deformation, and ship performance, concurrently with the sea spray data.	Onboard observations from Shirase between Fremantle to Syowa station; Lutzow Holm bay	-		○		Oceanography	Name: Takuji Surname: Waseda Job Title or Position: Professor, University of Tokyo Phone: +81-4-7136-4885, +81-70-1255-0681 Email: waseda@k.u-tokyo.ac.jp	
AP1002	Quantitative evaluation of solar energetic storms detected in cosmogenic nuclides of ice core	Shallow ice core samples (depth 25-35 m long) for measuring cosmogenic isotopes (10Be and HTO) were drilled at both H15 and H128 site in the austral summer field season. At near the drilling site, snow-pit observations were also conducted and snow-pit samples were obtained every 3cm using a stainless-steel scoop.	H15 H128	-		○		Atmospheric sciences	Name: Naoyuki Surname: Kurita Job Title or Position: Associate Professor, Nagoya University Phone: +81-52-789-3465 Email: nkurita@nagoya-u.jp	
AP1003	Elucidation of the behavior and ecology of the fish under the sea ice	Total of 200 fish samples were collected. Stomach contents, age, sex, and body size will be analyzed. Three <i>T. bernachii</i> and three <i>Pagothenia borchgrevinki</i> were tagged with acoustic pingers with depth and temperature sensors. Methods for capturing, tagging and tracking nototheniid fish under permanent sea ice has been established. Total of 200+ water samples were collected. Fish species and distribution will be analyzed from these samples.	Syowa	69°00'25"S, 39°35'01"E		○		Biological sciences – other	Name: Yoshinori Surname: Miyamoto Job Title or Position: Professor, Tokyo University of Marine Science and Technology Phone: +81-3-5463-0488 Email: miyamoto@kaiyodai.ac.jp	

ID	Project name	Main Activities / Remarks (JARE 63W 64S)	Site Name	Latitude /Longitude	Season		Discipline	PI	URL
					Summer	Winter			
Exploratory Research Project									
AH1001	Estimation of mineral dust burden in the Southern Ocean using a combination of shipboard observations and remote sensing	Measurements of direct solar and diffuse sky radiation at selected wavelengths and at several scattering angles were conducted with an Shipborne-aureolemeter on the R/V Shirase's route. Atmospheric aerosol particle concentrations by size and depolarization ratio were also measured with a polarization optical particle counter.	Along cruise track of R/V Shirase	-		○	Atmospheric sciences	Name: Hiroshi Surname: Kobayashi Job Title or Position: Associate Professor, University of Yamanashi Phone: +81-55-220-8341 Email: kobachu@yamanashi.ac.jp	
AH1002	Development of penetrator system applying to Antarctic region and geophysical observations at Shirase glacier	The penetration observation device, called a "penetrator," was deployed using a helicopter for drop tests to investigate its penetration characteristics on the Antarctic ice sheet. Furthermore, drop tests using a drone were planned; however, the plan was canceled due to a malfunction in the drone during a test flight. Basic data was obtained by conducting communication tests, seismic measurements, and infrastructure sound observations using the equipment intended to be installed on the observation device. All equipment used in the experiment was successfully recovered.	S17 H128	S69°01'45.8216 40°03'02.0716E S69°23'3 41°33'05E		○	Other	Name: Satoshi Surname: Tanaka Job Title or Position: Professor, Department of Solar System Sciences Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA) Phone: +81-70-1170-2768 Email: tanaka@planeta.sci.isas.jaxa.jp	
AH1003	Unveiling seafloor spreading mode and geodynamics in the Southeast Indian Ridge	Marine geophysical observations were carried onboard the Shirase along the ship tracks in the Southeast Indian Ridge.	Along ship track in the Southeast Indian Ridge	-		○	Geophysics and seismology	Name: Masakazu Surname: Fujii Job Title or Position: Assistant Professor, National Institute of Polar Research Phone: +81-42-512-0925 Email: fujii.masakazu@nipr.ac.jp	
Others									
AAK6401	Deployment of drifting buoys requested from Australian Bureau of Meteorology	Ten surface drifting buoys have been deployed from the icebreaker Shirase in response to the request of the Australian Bureau of Meteorology. Location and sea surface data for each buoy have been transmitting via satellite system.	Along cruise track of R/V Shirase	-		○	Meteorology	Name: Joel Surname: Cabrie Job Title or Position: Manager, Marine Networks, Bureau of Meteorology, Australia Phone: +61 3 9669 4651 Email: joel.cabrie@bom.gov.au	