Activities of the Polar Environment Data Science Center

Akira Kadokura

Polar Environment Data Science Center, Joint Support-Center for Data Science Research, Research Organization of Information and Systems
ROIS Organizational Chart

President

Board of Directors

Conference of Directors-General

Auditors

President Nomination Committee

Management Council

Administration Office

Audit Office

Office of Strategic Planning

Promotion Office of the Research Fraud Prevention Plan

Office for Gender Equality

Crisis Management Office

Public Relations Office

ROIS CSIRT

National Institute of Polar Research

National Institute of Informatics

The Institute of Statistical Mathematics

National Institute of Genetics

Joint Support Center for Data Science Research
All the researchers collaborating with ROIS

Established in 2016
Joint Support-Center for Data Science Research

Data Sharing Support Groups
- Database Center for Life Science
- Polar Environment Data Science Center
- Center for Social Data Structuring
- Center for Open Data in the Humanities

Data Analysis Support Groups
- Center for Genome Informatics
- Support Project for Data Fusion Computation
Joint Support-Center for Data Science Research: https://ds.rois.ac.jp/en/
Polar Environment Data Science Center: https://ds.rois.ac.jp/en_center2/

Our staff

Akira Kadokura Director, Prof.
Masaki Kanao Assoc. Prof.
Hironori Yabuki Appointed Assoc. Prof.
Yoshimasa Tanaka Appointed Assoc. Prof.
Koji Nishimura Appointed Assoc. Prof.

Related data and database

- Science Database
- Arctic Data archive System (ADS)
- Inter-university Upper atmosphere Global Observation NETwork (IUGONET)
- Database of the National Institute of Polar Research

Home page of the Polar Environment Data Science Center

Polar Data Journal

PEDSC will proceed the following specific items as its activity plan.
Facilitate sharing and analysis of valuable data on changes in the polar environment and the earth system.

Latest News

- **April 25, 2018**
  PEDSC website has been released.

- **DECEMBER 5 to 7, 2018**
  "International Workshop on Sharing, Citation and Publication of Scientific Data across Disciplines" was held.
Purpose:
• To play a central role of the data activity in polar science in Japan by promoting the opening and sharing of the data obtained in polar regions, and contribute to the research on the global environmental change.

History:
• FY2015:
  Planning of the next 6-year project of ROIS
• FY2016:
  Set a preparation office of PEDSC in NIPR.
  Planning of details of PEDSC
• FY2017:
  PEDSC started
## Staff in FY2017

### Research staff: 5, Assistant: 2

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<tr>
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<td>Assistant</td>
<td>Office work, Seismological data</td>
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<td>Keiko Endo</td>
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Data treated by the Polar Environment Data Science Center

Antarctic Observation

Scientific Data obtained by research activities in polar regions

Arctic Research

Research activity

NiPR
National Institute of Polar Research
Task of PEDSC: Support Polar Science

Using the data obtained in both polar regions led by NIPR

Antarctic research

Arctic research

Satellite Data

Antarctic

Arctic

Space and Upper Atmospheric Sciences

Meteorology and Glaciology

Data Management
- Archiving
- Database creation

Collaboration
- Data sharing
- Data opening

Open Data
- Data publication

Data Science
- Visualization
- Analysis

Geoscience

Bioscience

Using the data obtained in both polar regions led by NIPR.
Various data in various research field:

- **Space and Upper Atmospheric Sciences**: Aurora, Ionosphere, Upper atmos.
- **Meteorology and Glaciology**: Greenhouse gas, Aerosole, Cloud, Ice core
- **Geoscience**: Rock, Meteorite, Seismology, Gravity, VLBI data
- **Bioscience**: Big Animals, Land-Dwelling Creature, Marine Biology, Biodiversity

**Time series digital data**:Continuous observation data sampled with a fixed interval, and recorded in digital form during a long-term or a certain period at fixed sites or platforms.

**Sample data**:Materials sampled at fixed locations.
- e.g., Air sample, Sea water, Snow, Ice core, Rock, Meteorite, Biological sample, etc.
Aurora Data since IGY (1957-1958)

Syowa-Iceland Conjugate Observation

Long-term monitoring magnetic observation

Modern Auroral Network Data in both polar regions

PRE Annex at the EISCAT Tromsø site, and examples of aurora images.

South pole station and optical hut in Arrival heights in McMurdo station.

EISCAT database in NIPR

EISCAT (European Incoherent Scatter) radar
Big international Project

Data treated by the Polar Environment Data Science Center

Space and Upper Atmospheric Sciences Group

Sun-Earth environment data

Optical observations in Arctic and Antarctic stations

EISCAT Svalbard radar (The photo was taken in August 2001)
Data treated by the Polar Environment Data Science Center

Meteorology and Glaciology Group

Climate change data

Greenhouse effect gas

Cloud and weather

Aerosole

Meteorological Satellite data

Ice Core Data

Climate change from Dome Fuji Ice core
Data treated by the Polar Environment Data Science Center

Geoscience Group

Rock Sample

Meteorite

17,000 Meteorites in NIPR

Seismology

March 11, 2011

VLBI data

Distance between Syowa and Hobart

Gravity

History of solar and earth evolution
Bioscience Group

Long-term monitoring of number of Penguin

Database of Polar Biodiversity

Land-Dwelling Creature

Biological Specimen

Marine Biology

Change of ecosystem

Data treated by the Polar Environment Data Science Center

Big Animals
Facilities in NIPR for Higher order analysis of various samples

Analysis of Biological sample

Analysis of Meteorite

Mass analysis of secondary Ion

Analysis of Ice core sample
Database System for Polar science

① Science Database:  https://scidbase.nipr.ac.jp/
- Metadata Database for all the data in all the field, Data catalog
- Relationship with International data activities: SCAR/SCADM, NASA/GCMD etc.

② ADS (Arctic Data archive System):  https://ads.nipr.ac.jp/
- Data system created mainly for Arctic project (GRENE, ArCS)
- Metadata system
- Online visualization and analysis system for Actual data
- Collaboration with international Arctic research community
- Can be extended to the data in both polar regions

③ IUGONET data system (Inter-university Upper atmosphere Global Observation NETwork):  http://www.iugonet.org/
- Metadata system
- Created in the Inter-university project among NIPR and 4 Universities
- Search the data stored in each institution in a cross-sectional way
- Display and Analysis software (UDAS: iUgonet Data Analysis Software) for Actual data
- Collaboration with international data activity
Database System for Polar science
Science Database

Metadata Database for all the data in all the field, Data catalog
Relationship with International data activities

https://scidbase.nipr.ac.jp/
Science Database: Database System for Polar science

Relationship with international data activities

Science Metadata Base (English & Japanese)
http://scidbase.nipr.ac.jp/

Standing Committee on Antarctic Data Management / SCAR

International Polar Year
Data and Information Service
IPY Data and Information Service (IPY-DIS)

Polar Information Commons / CODATA

World Data System
CODATA / ICSU

International Data Management Organization / Committee

Exchange of Data & Information

Science Database in Polar Data Center / NIPR

Exchange of Data & Information

NASA / GCMD / Antarctic Master Directory

Antarctic Master Directory / GCMD

Japanese Antarctic Portal (AMD_JP)

Japanese Arctic Portal (Arctic_JP)

IPY Portal in GCMD
ADS (Arctic Data archive System)
https://ads.nipr.ac.jp/

- Data system created mainly for Arctic project (GRENE, ArCS)
- Metadata system
- Online visualization and analysis system for Actual data
- Collaboration with international Arctic research community
ADS (Arctic Data archive System)
Application for Visualization of Actual data

- Can be extended to the data in both polar regions
ADS: Quasi-real-time monitor system: VISHOP
IUGONET data system
Inter-university Upper atmosphere Global Observation NETwork

http://www.iugonet.org/

- Metadata system
- Created in the Inter-university project among NIPR and 4 Universities
- Display and Analysis software (UDAS: iUgonet Data Analysis Software) for Actual data
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Database System for Polar science

IUGONET data system
Inter-university Upper atmosphere Global Observation NETwork

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- Display and Analysis software (UDAS: iUgonet Data Analysis Software) for Actual data
- Collaboration with international data activity
IUGONET: Metadata & Data Quick Look system

IUGONET Web Service
Upper Atmosphere x IDL x Web Technology
Type-A

IUGONET Data Set

Information
Quick Look Images about Geomagnetic Data (WDS Kyoto), 26 Nov. 2018.

Geomagnetic Data
Quick-Look images about 437 Geomagnetic Observatories since 1883 year are now available, using IUGONET Data Analysis Software UDAS.

WDC Kyoto
- World Data Center for Geomagnetism -

ERG (Arase) and Ground-Based Campaign in March - April 2017

1. Husafell (Iceland), PWING/PSA
2. Athabasca (Canada), PWING/PSA
3. Tromso (Norway), EISCAT
4. Tromso (Norway), EISCAT
5. Gakona (Alaska), PWING/PSA
6. Tromso (Norway), EISCAT
7. Gakona (Alaska), PWING/PSA
8. Tromso (Norway), EISCAT

IUGONET x PWING
PWING Data Come
Data information and Quick-Look images are now available

Athabasca, Canada
Kapusaking, Canada
Nain, Canada
Gakona, US (Alaska)
Husafell, Iceland
Zhigansk, Russia
Istok (near Norilsk), Russia
Nyrölä (Nyrola), Finland

All-sky airglow/aurora camera
Loop antenna
Induction Magnetometer
Riometer
EMCCD camera
IUGONET: UDAS: Data analysis software for SPEDAS

Data Analysis Software: SPEDAS

SPEDAS (Space Physics Environment Data Analysis Software) is a set of IDL (Interactive Data Language) libraries that provides an integrated analysis platform for Solar-Terrestrial Physics.
IUGONET: Database System for Polar Science

1. Metadata database
2. Analysis software (UDAS)
3. Data archive
4. IUGONET Web site
5. Workshop, school
6. Collaboration in Japan
7. International collaboration

IUGONET activity:
- Main staff (NIPR, Nagoya Univ.)
- Collaboration staff (other institutions)

- U.S.A.: THEMIS, SPASE
  NASA/Virtual Observatory
- Europe: ESPAS
- Asia-Africa: related community
Polar science data: Current problem

Data in each research field:
- There are no unified database to overlook all the data in all the research fields of polar science.
- Status of archiving and opening of the data in each field is various and depends on the status of human, hardware, and software resources in each group.

Database System:
- There are no unified database system to search, visualize, and analyze all the data in all the research fields.
<table>
<thead>
<tr>
<th></th>
<th>Task of PEDSC</th>
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<tbody>
<tr>
<td>1</td>
<td>To construct a <strong>Synthetic database</strong> system to cover all the data in all the research fields of polar science.</td>
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<tr>
<td>2</td>
<td>To make the <strong>existing database systems</strong> (Science Database, ADS, IUGONET) upgraded and interoperable with each other.</td>
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<tr>
<td>3</td>
<td>To promote archiving, opening, and sharing of the <strong>time series digital data</strong> in each research field.</td>
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<tr>
<td>4</td>
<td>To promote archiving, opening, and sharing of the <strong>sample data</strong> in each research field.</td>
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<tr>
<td>5</td>
<td>To promote publication of the scientific data, using the <strong>Polar Data Journal</strong> of NIPR.</td>
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<tr>
<td>6</td>
<td>To promote <strong>collaboration</strong> with external communities (universities, other institutions, international communities).</td>
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<tr>
<td>7</td>
<td>To promote <strong>data science</strong> using the database and database system.</td>
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Task of PEDSC

NIPR

② Time series data
③ Sample data

Observation and Research activity

ROIS-DS-PEDSC

④ Database System
- Science Database
- ADS
- IUGONET

① Synthetic Database

⑤ Data Publication

⑥ Collaboration with external communities

⑦ Data Science

External Community

• University
• Research institution
• Company
• Public
• International Organization
## Polar Environment Data Science Center: Yearly plan

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<tr>
<td>1 Unified Database</td>
<td>Development</td>
<td>Operation</td>
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<td>2 Database system upgrade and interoperate</td>
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<td>2.1 ADS</td>
<td>Continuous operation</td>
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<td>Upgrade to AADS (Arctic &amp; Antarctic Data archive System)</td>
<td>Development</td>
<td>Operation</td>
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<td>2.2 IUGONET</td>
<td>Continuous operation</td>
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<tr>
<td>System upgrade</td>
<td>Occasionally</td>
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<tr>
<td>Apply to other research fields</td>
<td>Occasionally</td>
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<td>3 Database creation of time series data in each research field</td>
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<tr>
<td>PANSY</td>
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<td>Space and Upper Atmospheric Sciences data</td>
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<td>Geoscience data</td>
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<td>Meteorology and Glaciology data</td>
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<td>Rock sample</td>
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<td>Development</td>
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Current status of Data processing of PEDSC

Unified database platform

Science Database

ADS

IUGONET

Space & upper atmos. Monitoring data
Space & upper atmos. Project data
PANSY data
Antarctic Satellite Monitoring data
Meteorology&Glaciology Monitoring data
Antarctic Marine Biology Monitoring data
Antarctic Bioscience Land biological data
Antarctic Bioscience Big animal data
Antarctic Geoscience Seismology data
Antarctic Geoscience Other monitoring data
Antarctic real-time Network Camera data
Antarctic Geoscience Geomorphology, Geology, Place name

Antarctic GIS

Antarctic Map data GIAJ
Meteorology data JMA
Antarctic Marine data JCG
Ionosphere data, NICT

Bioscience Biology Sample data
Geoscience Rock sample data
Geoscience Meteorite sample data
Meteorology&Glaciology Ice core sample data
Polar information Archive in NIPR archive section

Arctic Project data GRENE, ArCS

EISCAT data

JARE DATA REPORTS Actual data
Data processing plan of PEDSC for two years: FY2017-2018

Unified database platform

IUGONET

AADS

Arctic & Antarctic Data archive System

Science Database

JARE DATA REPORTS
Actual data

Metadatal Interoperate

Metadata interoperate

Antarctic GIS

Antarctic Map data GIAJ

Meteorology data JMA

Antarctic Marine data JCG

Ionosphere data, NICT

Antarctic GIS

Antarctic Geoscience Geomorphology, Geology, Place name

Antarctic real-time Network Camera data

Antarctic Geoscience Other monitoring data

Antarctic Geoscience Seismology data

Antarctic Biodiversity Big animal data

Antarctic Biodiversity Land biological data

Antarctic Marine Biology Monitoring data

Meteorology&Glaciology Monitoring data

PANSY data

Antarctic Satellite Monitoring data

Space & upper atmos. Project data

Space & upper atmos. Monitoring data

EISCAT data

Arctic Project data GREN, ArCS

Geoscience Rock sample data

Geoscience Meteorite sample data

Bioscience Biology Sample data

Polar information Archive in NIPR archive section

Database creation

Space & upper atmos.
Monitoring data

Space & upper atmos.
Project data

Space & upper atmos.
EISCAT data

Antarctic Marine data

JCG

Antarctic Geoscience

Other monitoring data

Antarctic real-time
Network Camera data

Antarctic Geoscience
Geomorphology, Geology,
Place name

Antarctic GIS
PEDSC: Activities in FY2017

- Move to the new Data Science building in July.
PEDSC: Activities in FY2017

- **Unified database:**
  - System design
  - Creating the Web page of PEDSC for an entrance to the Unified Database.

- **ADS:**
  - Database for the Satellite monitoring data received at Syowa Station: Consideration of data processing schedule; Start of construction of the data publishing platform.
  - Database for the Rock sampled in Antarctica: Start of construction, System design of the database.
  - Data viewing system for the Outdoor Web camera data at Syowa Station: System construction.
  - Satellite data processing for supporting the activity of the JARE-59: Processing the sea ice distribution data around Syowa Station.
  - Development of the AADS (Antarctic & Arctic Data archive System) system: Start of the system design.

- **IUGONET:**
  - System upgrade: Quick Look function; Web–base interactive plotting function.
  - Data processing: Data from related projects (ERG (Arase) satellite, PWING, PsA, PSTEP, etc.); Creation of metadata and CDF data.
  - Related project of ROIS: Development of a common framework for the metadata database in various research fields other than ones related with IUGONET. Development has been finished.

- **Science Database:**
  - Registration of new data: JARE data (Zooplankton data, CO₂ data at Syowa Station)
  - Interoperability with IUGONET and ADS: Consideration on the metadata format.
PEDSC: Activities in FY2017

- **PANSY data:**
  - Data processing: Analysis of new physical value (turbulence energy dissipation rate) for the 5 year data since 2012 with a new algorithm.
  - Real time data processing system: System upgrade for the ionospheric echo autocorrelation analysis process.
  - Data management and publishing system: System design for the new database system.
  - Data publishing: Consideration of the DOI assignment and metadata creation for the IUGONET for the already published data.

- **Other data:**
  - Seismological data: Processing of the JARE data, Providing the data to the International Seismological Centre (ISC), Construction of a real time monitor system and start its display in the Polar Science Museum of NIPR.
  - Auroral data: Processing the data from Antarctic stations (Syowa, South Pole, McMurdo) and arctic observatories (Iceland, Tromso, Longyearbyen) obtained in FY2017, Processing the old auroral movie data at Syowa Station.
  - EISCAT data: Database creation of the special experiment data obtained in FY2017.

- **ROIS-DS collaborating program:** Three research subjects relating with PEDSC were accepted:
  1. 「Building “digital archive” system for utilizing historical pictures about Antarctic and Arctic regions」
  2. 「Development of image data publishing system for the airglow data obtained in multi-point observation」
  3. 「Application to data science by making the Antarctic rock sample repository」

- **Data publication:**
  - Polar Data Journal: publish 1, under review 4, reject 1
  - DOI assignment by ADS: 2

- **Collaboration wit NIPR on data management:**
  - Participate in the “Committee on data management” in NIPR
Unified Database:
- System design finished, and system construction finished.

ADS:
- Satellite monitoring data received at Syowa Station: Construction of the data publishing platform.
- Rock samples in Antarctica: Construction of the database, data publishing start..
- Ice core data: Registration of published data (14 data), making of the data visualization site for the CFA (Continuous Flow Analysis) data
- Satellite data processing for supporting the activity of the JARE: Processing the sea ice distribution data around Syowa Station.
- Historical data archive: Construction of the database
- Development of the AADS (Antarctic & Arctic Data archive System) system: continued

IUGONET:
- Operation: continued
- Data processing: continued

Science Database:
- Registration of data: JARE oceanography database, Teleseismic traveltime and hypocentral records, Zooplankton samples (UM10–04 cruise), CO₂ concentration
- DOI assignment service start..
PEDSC: Activities in FY2018

PANSY data:
• Real time data processing system: Improvement.
• Data management and publishing system: Improvement

Other data:
• Seismological data: continued: Processing of the JARE data, Providing the data to the International Seismological Centre (ISC), Real time monitor
• Auroral data: continued: Processing the data from Antarctic stations (Syowa, South Pole, McMurdo) and arctic observatories (Iceland, Tromso, Longyearbyen) obtained in FY2018
• SuperDARN data: Database & WEB page maintenance and operation
• JARE data: Create Data treatment policy & Meta data sheet in collaboration with Center for Antarctic Programs in NIPR. PEDSC is assigned as the center to handle the data obtained in the NIPR–related JARE activity from JARE–60.

ROIS-DS collaborating program: Eight research subjects relating with PEDSC were accepted.

Data publication:
• Polar Data Journal: publish 6, editor decision 1, under review 3, reject 1; IPY Special Issue calling
• DOI assignment by ADS: 3

Public outreach activity:
• Prepare a Web site for public for the Open campus day of NIPR on 4 Aug., 2018.
## ROIS-DS-JOINT: Collaboration Program of ROIS-DS

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Name</th>
<th>Affiliation</th>
<th>Title</th>
<th>PEDSC contact</th>
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<tbody>
<tr>
<td>1</td>
<td>research</td>
<td>Yasuyuki Minamiyama</td>
<td>NIPR</td>
<td>Building “digital archive” system for utilizing historical pictures about Antarctic and Arctic regions</td>
<td>Yabuki</td>
<td>new</td>
<td>900</td>
</tr>
<tr>
<td>2</td>
<td>research</td>
<td>Shin Suzuki</td>
<td>Aichi Univ.</td>
<td>Data publishing framework for multi-station airglow imaging with IUGONET system</td>
<td>Tanaka</td>
<td>new</td>
<td>308</td>
</tr>
<tr>
<td>3</td>
<td>research</td>
<td>Tomokazu Hokada</td>
<td>NIPR</td>
<td>Development of Antarctic rock samples repository</td>
<td>Kanao</td>
<td>new</td>
<td>564</td>
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</table>
# PEDSC: Activities in FY2018

## ROIS-DS-JOINT: Collaboration Program of ROIS-DS

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Name</th>
<th>Affiliation</th>
<th>Title</th>
<th>PEDSC contact</th>
<th>New/continuous</th>
<th>Budget 1000yen</th>
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<tbody>
<tr>
<td>1</td>
<td>research</td>
<td>Keisuke Hosokawa</td>
<td>Univ. of Electro-Comm.</td>
<td>Database of optical flow using data from Longyearbyen and Iceland</td>
<td>Tanaka</td>
<td>New</td>
<td>742</td>
</tr>
<tr>
<td>2</td>
<td>research</td>
<td>Sotaro Baba</td>
<td>Univ. of The Ryukyu</td>
<td>Development of Antarctic rock samples repository</td>
<td>Yabuki</td>
<td>Cont.</td>
<td>960</td>
</tr>
<tr>
<td>3</td>
<td>research</td>
<td>Masashi Kamogawa</td>
<td>Tokyo Gakugei Univ.</td>
<td>Development of database and data analysis system of ground-based atmospheric electric field observation data for global electrical circuit study</td>
<td>Kadokura</td>
<td>New</td>
<td>920</td>
</tr>
<tr>
<td>4</td>
<td>research</td>
<td>Chihiro Kato</td>
<td>Shinshu Univ.</td>
<td>Development of a real time database system for Cosmic Ray data observed at Syowa Station</td>
<td>Kadokura</td>
<td>New</td>
<td>920</td>
</tr>
<tr>
<td>5</td>
<td>research</td>
<td>Masa-yuki Yamamoto</td>
<td>Kochi Univ. of Technology</td>
<td>Construction of archiving/information disclosure system for infrasound observation in Antarctica</td>
<td>Kanao</td>
<td>New</td>
<td>928</td>
</tr>
<tr>
<td>6</td>
<td>research</td>
<td>Yusuke Ebihara</td>
<td>Kyoto Univ.</td>
<td>Development of integrated database using various kinds of optical data obtained in South pole and McMurdo stations</td>
<td>Kadokura</td>
<td>New</td>
<td>860</td>
</tr>
<tr>
<td>7</td>
<td>meeting</td>
<td>Yasuhiro Murayama</td>
<td>NICT</td>
<td>“Science and Data” --- In search of future directions of Open Science and Data-driven Science</td>
<td>Tanaka</td>
<td>New</td>
<td>200</td>
</tr>
<tr>
<td>8</td>
<td>research</td>
<td>Taguchi Satoshi</td>
<td>Kyoto Univ.</td>
<td>Redundant data server system for the service of the real-time information of geomagnetic field data and indices</td>
<td>Tanaka</td>
<td>New</td>
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</table>
# PEDSC: Activities in FY2017

## Presentation at Science meeting, Symposium:

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Meeting</th>
<th>Venue</th>
<th>PEDSC member</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>May 3-5</td>
<td>IconSpace2017</td>
<td>Malaysia</td>
<td>Tanaka</td>
</tr>
<tr>
<td></td>
<td>May 23</td>
<td>JpGU-AGU Joing meeting 2017 「a side meeting for informal Open Science discussions」</td>
<td>Makuhari, Chiba</td>
<td>Kadokura, Kanao, Yabuki, Tanaka</td>
</tr>
<tr>
<td></td>
<td>June 26</td>
<td>RDUF symposium: international movement on Open science</td>
<td>JST Tokyo</td>
<td>Yabuki</td>
</tr>
<tr>
<td></td>
<td>July 10-14</td>
<td>VarSITI-2017</td>
<td>Russia</td>
<td>Tanaka</td>
</tr>
<tr>
<td></td>
<td>Sep. 13-15</td>
<td>IUGONET research meeting</td>
<td>NICT</td>
<td>Tanaka, Kanao</td>
</tr>
<tr>
<td></td>
<td>Sep. 16-18</td>
<td>SCADM: Standing Committee on Antarctic Data Management</td>
<td>Montreal</td>
<td>Kanao</td>
</tr>
<tr>
<td></td>
<td>Sep. 27-29</td>
<td>WDS Asia – Oceania Conference</td>
<td>Kyoto Univ.</td>
<td>Kadokura, Kanao, Tanaka</td>
</tr>
<tr>
<td></td>
<td>Dec. 5-7</td>
<td>ROIS-DS International Workshop on Sharing, Citation and Publication of Scientific Data across Disciplines</td>
<td>NIPR・NINJAL</td>
<td>All PEDSC member</td>
</tr>
<tr>
<td></td>
<td>Dec. 8</td>
<td>The Eighth Symposium on Polar Science 「Polar data science」 (PEDSC proposed session)</td>
<td>NIPR</td>
<td>All PEDSC member</td>
</tr>
<tr>
<td>2018</td>
<td>Jan. 16</td>
<td>Fifth International Symposium on Arctic Research (ISAR-5) 「Understanding the Changing Arctic through Data: Stewardship, Publication, and Science」 session</td>
<td>Hitotsubashi Hall</td>
<td>Kadokura, Kanao, Yabuki, Tanaka</td>
</tr>
<tr>
<td></td>
<td>March 1-2</td>
<td>Workshop for Promoting Open Science Data</td>
<td>Kyoto Univ.</td>
<td>Tanaka</td>
</tr>
<tr>
<td></td>
<td>March 8</td>
<td>Science data meeting・WDS domestic symposium in Japan</td>
<td>JST Tokyo</td>
<td>Kadokura, Kanao</td>
</tr>
<tr>
<td></td>
<td>March 14-15</td>
<td>Science meeting on observation and education of Space Weather research in local network</td>
<td>Kyushu Univ.</td>
<td>Tanaka</td>
</tr>
</tbody>
</table>
# PEDSC: Activities in FY2018

## Presentation at Science meeting, Symposium:

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Meeting</th>
<th>Venue</th>
<th>PEDSC member</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jun. 15-26</td>
<td>POLAR2018:SCAR &amp; IASC Conference SCADM (June 15-17)</td>
<td>Davos, Switzerland</td>
<td>Kanao</td>
</tr>
<tr>
<td></td>
<td>Jun. 18-19</td>
<td>Japan Open Science Summit 2018 (JOSS2018)</td>
<td>National Center of Sciences</td>
<td>Tanaka, Kadokura</td>
</tr>
<tr>
<td></td>
<td>Aug. 7</td>
<td>ICeSSAT 2018</td>
<td>Malaysia</td>
<td>IUGONET other member</td>
</tr>
<tr>
<td></td>
<td>Sep. 12-14</td>
<td>IUGONET research meeting &amp; lecture Joingly with ROIS-DS research meeting (Sep. 14)</td>
<td>NICT PEDSC sponsored</td>
<td>Tanaka, Kanao, Kadokura</td>
</tr>
<tr>
<td></td>
<td>Oct. 5</td>
<td>NIPR research meeting 「Open data and Open science for Polar science」</td>
<td>NIPR PEDSC sponsored</td>
<td>All PEDSC member</td>
</tr>
<tr>
<td></td>
<td>Oct. 11-12</td>
<td>Asian Forum for Polar Science (AFoPS) Annual General Meeting 2018, Data Management Session 「Data and Metadata Sharing Among AFoPS Countries」</td>
<td>Xiamen, China</td>
<td>Kanao, Tanaka</td>
</tr>
<tr>
<td></td>
<td>Nov. 12-15</td>
<td>ROIS-DS International Workshop on Data Science - Present &amp; Future of Open Data &amp; Open Science –</td>
<td>Mishima DS-PEDSC sponsored</td>
<td>All PEDSC member</td>
</tr>
<tr>
<td></td>
<td>Nov. 19</td>
<td>Open symposium of Science Council of Japan “Science data management, utilization, and international collaboration”</td>
<td>Science Council of Japan</td>
<td>Kadokura, Kanao</td>
</tr>
<tr>
<td>2019</td>
<td>Jan. 31</td>
<td>IUGONET lecture at Polar Research Institute of China</td>
<td>Shanghai, China</td>
<td>Tanaka, Kadokura</td>
</tr>
<tr>
<td></td>
<td>Mar. 18-22</td>
<td>IUGONET lecture at International School on Equatorial Atmosphere</td>
<td>LAPAN, Indonesia</td>
<td>IUGONET member</td>
</tr>
</tbody>
</table>
International Workshop on Sharing, Citation and Publication of Scientific Data across Disciplines

Joint Support-Center for Data Science Research (DS), Tachikawa, Tokyo

5–7 December 2017


- Presentation: oral: 33, poster: 10
PEDSC: Activities in FY2018
International WS sponsored by ROIS–DS–PEDSC

International Workshop on Data Science
Present & Future of Open Data & Open Science –
12 - 15 November 2018
Mishima Citizens Cultural Hall, Mishima, Shizuoka, Japan

Scope of the Workshop: IWD2018 focuses on recent topics of interest in the field of scientific data, which are attributed to play a crucial role in global trends in accelerating “Open Science” and “Open Data”. Contributions from all scientific disciplines are welcome, including life and bio sciences, social and human sciences, as well as polar science. Inter-disciplinary-oriented topics on data management are especially encouraged.

Session Themes:
- International data activity
- National data activity
- Current status of data science
- Current status of data science in inter-disciplinary science
- Industry-academia collaboration: education and capability building
- Legacy data, historical data, future on data science

Event Schedule:
Public Lecture: Monday 12 November
Workshop: Tuesday 13 - Thursday 15 November
Poster Session: Tuesday 13 November
Visit to R&D: Wednesday 14 November

Important Dates:
Registration & Abstract submission open: 01 July 2018
Closing session & program: 31 August 2018
Abstract submission deadline: 15 September 2018

Advisory Committe (AC):

Local Organizing Committee (LOC):

Contact Address: data.ws.krc2018@nrlcp.ac.jp

https://ds.rois.ac.jp/article/dsws_2018/
PEDSC: Activities in FY2018
International WS sponsored by ROIS-DS-PEDSC

International Workshop on Data Science
- Present & Future of Open Data & Open Science –
12 – 15 November 2018
Mishima Citizens Cultural Hall Mishima, Shizuoka, Japan
Data publication with the Polar Data Journal

New data journal launched on 19 January, 2017 by NIPR

https://pdr.repo.nii.ac.jp/

Call For Paper

We are pleased to announce that the new data journal "Polar Data Journal" is now open for submissions. Polar Data Journal is a free-access, peer-reviewed and online journal. It is dedicated for publishing original research data/dataset, furthering the reuse of high-quality data and the benefit to polar sciences.

"Polar Data Journal" aims to cover all aspects of polar sciences. The Journal primarily focuses on the following topics: (1) Quality of data, (2) Data standards, (3) Data citation, (4) Data management, (5) Observations, (6) Data and metadata, (7) Data and life sciences. The Journal provides high-quality data and metadata in a structured and accessible format.

Editorial Board welcomes your contributions. Please read submission guidelines and submit your paper online.

Sincerely yours,

Editor in Chief, (Akira Kadokura)
Executive Editor, (Masaki Kaneda)

New Special Issue

Now calling for papers

Title of the volume:
"Data Rescue" of the International Polar Year (IPY2007-2008)
- Decadal Anniversary of the Intensive Campaign -

*Submission Deadline : 1 May 2019
Polar Data Journal: Review Process

1. Submit Manuscript
2. Receive Information
3. Confirm Original Data
4. Copy Original Data at Submitted
5. Receive Manuscript
6. Confirm Original Data
7. Request to Publish Data DOI
8. Copy Original Data at Accepted
9. Review Original Data
10. Receive Feedback

- Author needed to upload original data to appropriate repository with meta-data.
- Manuscript is including text, URL and visualized data, e.g. picture, graph, and tables.
- Editor judge manuscript accepted or not. After accepted manuscript, process move to red line.
- Black line is under review process.
- Red line is after accepted process.
- Report is including all information of review process (Referee's name, Comment, Objection, and Feedback).
- Calculate checksum of copied data, and compare the checksum between 4 and 14 to validate authenticity.
<table>
<thead>
<tr>
<th>No</th>
<th>Title</th>
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<tr>
<td>1-1</td>
<td>Surface elevations on Qaanaaq and Bowdoin Glaciers in northwestern Greenland as measured by a kinematic GPS survey from 2012–2016</td>
<td>2017/6/13</td>
<td>2017/10/24</td>
</tr>
<tr>
<td>2-1</td>
<td>Near real–time simulation data of atmospheric components and meteorology in the Arctic region using the WRF–Chem model from</td>
<td>2018/4/4</td>
<td>2018/9/2</td>
</tr>
<tr>
<td>2-2</td>
<td>Spectral reflectance and associated photograph of boreal forest understory formation in interior Alaska.</td>
<td>2018/2/7</td>
<td>2018/11/20</td>
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<tr>
<td>3-3</td>
<td>Geothermal heat flux distribution for the Greenland ice sheet, derived by combining a global representation and information from deep ice</td>
<td>2018/7/19</td>
<td>2019/2/22</td>
</tr>
<tr>
<td>3-4</td>
<td>Meteorological data from ice–free areas in Yukidori Zawa, Langhovde and Kizahashi Hama, Skarvsnes on Sôya Coast, East Antarctica during December 2014–December 2016.</td>
<td>2018/2/12</td>
<td>2019/6/30</td>
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</table>
Extending from ADS to AADS for the data from both polar regions
PEDSC: Activities in FY2017-2018: Archive system for Satellite data received at Syowa Station

https://ads.nipr.ac.jp/satelliteGallery/##/
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<tr>
<th>Sample Name</th>
<th>IGSN</th>
<th>Classification</th>
<th>Field name (informal classification)</th>
<th>Locality</th>
<th>Country</th>
<th>Field program/Cruise</th>
<th>Collector/Chief Scientist</th>
<th>Collection date</th>
<th>Current Archive</th>
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<tr>
<td>TH161218 T01</td>
<td></td>
<td>Metamorphic&gt;Gneiss</td>
<td>Grt-Bt gneiss (honey-comb weathering)</td>
<td>Point Widdows</td>
<td>Antarctica</td>
<td>JARE58</td>
<td>Tomokazu Hokada</td>
<td>2016-12-18</td>
<td>NIPR Repository, Tachikav Japan</td>
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<td>TH16121801A</td>
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<td>Metamorphic&gt;Gneiss</td>
<td>chernockitic gneiss</td>
<td>Point Widdows</td>
<td>Antarctica</td>
<td>JARE58</td>
<td>Tomokazu Hokada</td>
<td>2016-12-18</td>
<td>NIPR Repository, Tachikav Japan</td>
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<tr>
<td>TH16121801B</td>
<td></td>
<td>Metamorphic&gt;Calc-Silicate</td>
<td>calc-silicate lens in chernockitic gneiss</td>
<td>Point Widdows</td>
<td>Antarctica</td>
<td>JARE58</td>
<td>Tomokazu Hokada</td>
<td>2016-12-18</td>
<td>NIPR Repository, Tachikav Japan</td>
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<td>Metamorphic&gt;Calc-Silicate</td>
<td>calc-silicate lens</td>
<td>Point Widdows</td>
<td>Antarctica</td>
<td>JARE58</td>
<td>Tomokazu Hokada</td>
<td>2016-12-18</td>
<td>NIPR Repository, Tachikav Japan</td>
</tr>
</tbody>
</table>
PEDSC: Activities in FY2017-2018: Data processing Antarctic Satellite Monitoring data

Image Gallery

FILTER: ALL ALOS2(25m) ALOS2(100m) Landsat MODIS Sentinel-1(SAR) PNG JPG
TIME RANGE: OFF 2014/11/27 to 2018/11/09
SORT: DATE DESCENDING DATE ASCENDING SIZE DESCENDING SIZE ASCENDING RANDOM

About Syowa Station Satellite Gallery

KML Gallery
PEDSC: Activities in FY2017-2018: Data processing Antarctic real-time Network Camera data
Metadata Sheet

Download

Metadata Input Sheet Download

The template file of the registration form, please download and use from here.

Excel Template: Download

GCMD science keywords (reference): Download

(List table of GCMD science keywords. Please use it when finding keyword.)

JARE metadata input manual: Download

JARE observation data guideline: Download

Web seminar document: Link

Data policy for JARE

<table>
<thead>
<tr>
<th>Item</th>
<th>Deadline</th>
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</thead>
<tbody>
<tr>
<td>Metadata submit</td>
<td>1 month</td>
</tr>
<tr>
<td>Metadata open</td>
<td>2 month</td>
</tr>
<tr>
<td>Actual data submit</td>
<td>1 year</td>
</tr>
<tr>
<td>Actual data open</td>
<td>2 year</td>
</tr>
</tbody>
</table>
Summary

- Polar Environment Data Science Center (PEDSC) is one of the centers and projects in the Joint Support-Center for Data Science Research (DS) of the Research Organization of Information and Systems (ROIS).
- Purpose of the PEDSC is to promote the opening and sharing of the data obtained in polar regions.
- Activities of the PEDSC have been carried out along the following categories since FY2017:
  ① To construct an unified database system to cover all the data in all the research fields of polar science.
  ② To make the existing database systems (Science Database, ADS, IUGONET) upgraded and interoperable with each other.
  ③ To promote archiving, opening, and sharing of the time series digital data in each research field.
  ④ To promote archiving, opening, and sharing of the sample data in each research field.
  ⑤ To promote publication of the scientific data, using the Polar Data Journal of NIPR.
  ⑥ To promote collaboration with universities and other institutions in Japan and international communities.
  ⑦ To promote data science using the database and database system.