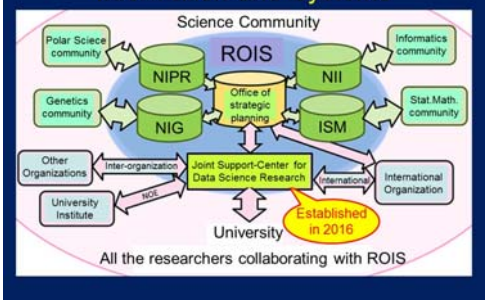
# Activities of the Polar Environment Data Science Center

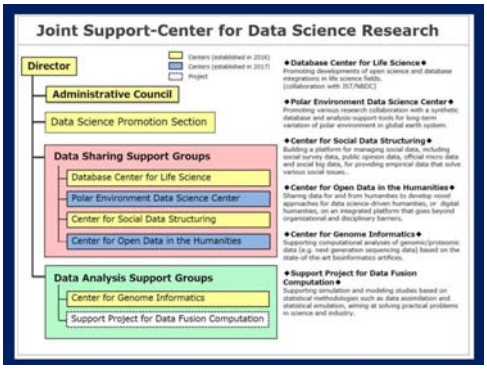

Akira Kadokura

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


## Research Organization of Information and Systems




## Joint Support-Center for Data Science Research




## Polar Environment Data Science Center

➢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

## Polar Environment Data Science Center

Staff in FY2017

■ Research staff: 5, Assistant: 2, Subcontracting staff: 1

| Name | Title | Task |
|---|---|---|
| Akira Kadokura | Prof. | Director, Upper atmosphere data |
| Masaki Kanao | Assoc. Prof. | Science Database, Seismological data |
| Hironori Yabuki | Appointed Assoc. Prof. | ADS |
| Yoshimasa Tanaka | Appointed Assoc. Prof. | IUGONET, Upper atmosphere data |
| Koji Nishimura | Appointed Assoc. Prof. | PANSY data |
| Keiko Endo | Assistant | Office work, Upper atmosphere data |
| Ayuko Ibaraki | Assistant | Office work, Seismological data |
| Norio Umemura | Subcontracting Research staff of Nagoya Univ. | IUGONET |

## Polar Environment Data Science Center


## Data treated by the Polar Environment Data Science Center

■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.

## Science Database : Database System for Polar science

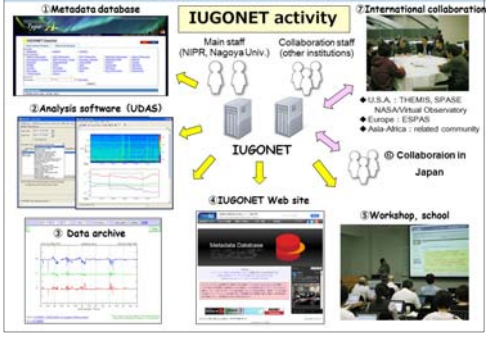
Relationship with international data activities


## Database System for Polar science

ADS (Arctic Data archive System)


➢ 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

## IUGONET : Database System for Polar science




## 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.

## Plan of the Polar Environment Data Science Center

① To construct an unified database (framework, platform) 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.

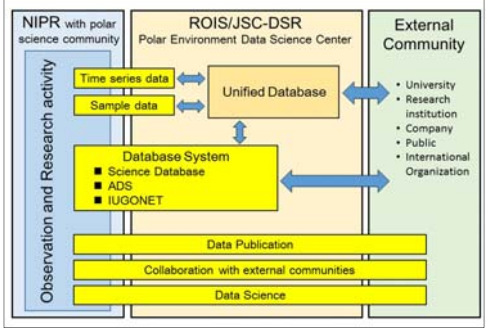
③ To promote archiving, opening, and sharing of the data in each research field.

④ To promote publication of the scientific data, using the Polar Data Journal of NIPR.

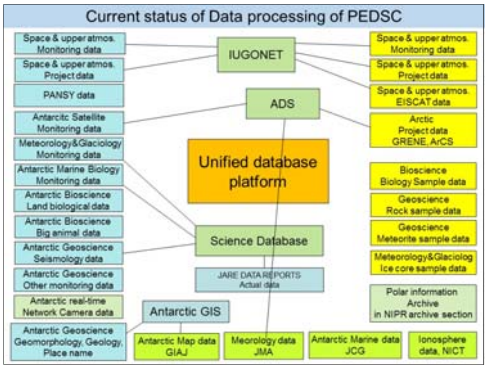
⑤ To promote collaboration with universities and other institutions in Japan and international communities.

⑥ To promote data science using the database and database system.

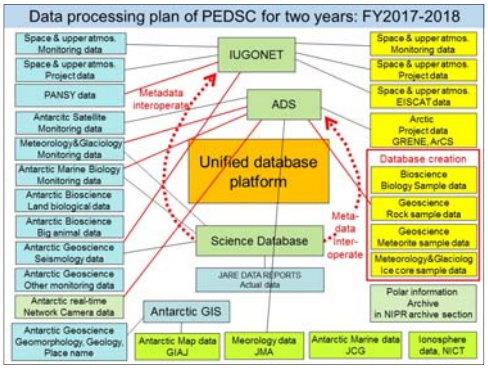
## Plan of Polar Environment Data Science Center




## Current status of Data processing of PEDSC




## Data processing plan of PEDSC for two years: FY2017-2018




## Summary


✓ Polar Environment Data Science Center (PEDSC) is one of the centers and projects in the Joint Support-Center for Data Science Research (JSC-DSR) 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.
✓ Main plans of the PEDSC in future are:
① To construct an unified database (framework, platform) 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 data in each research field.
④ To promote publication of the scientific data, using the Polar Data Journal of NIPR.
⑤ To promote collaboration with universities and other institutions in Japan and international communities.