

Development of the AMIDER system: a database application for open science



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AMIDER is a database application developed to promote open science. The design concept is:

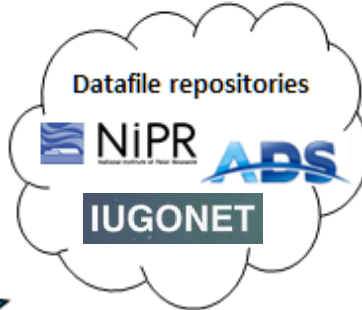
- Enhance accessibility and usability of scientific datasets, even for users who are not familiar with them.
- Provide an integrated platform to publish a dataset for the wide scientific fields (space science, geoscience, bioscience, etc.).

This application is realized by the optimized design and careful data curation. It is scheduled to start operation in 2023 focusing on the fields related to polar science, thanks to cooperation from NIPR and IUGONET.

System overview

Web application

- Site navigation
- Dataset search
- Filter/sort datasets
- Datafile D/L
- Data plot display
- Proposing related datasets



Relational database (RDB)

- Category list
- Dataset ID
- Dataset type
- Metadata
- Datafile URI
- Correlation score
- Access count

File storage

- Metadata (XML file)
- UI parameters for each dataset (YAML file)
- Pictures and data plots

Operation/Backend programs

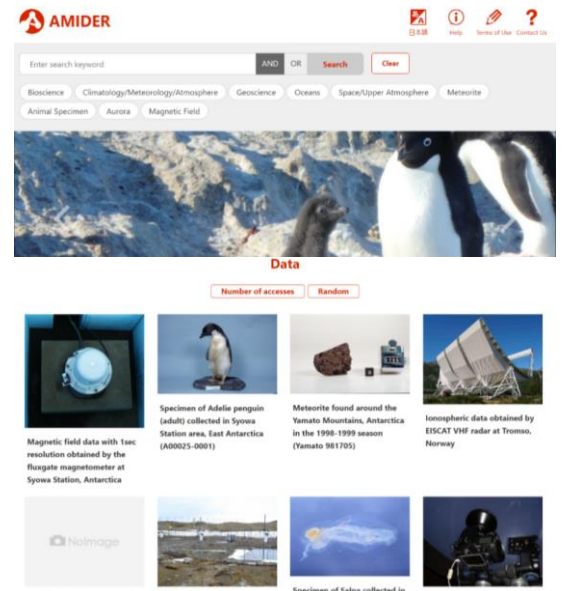
- Metadata registration
- Correlation score calc.
- Datafile format conversion

UI design

Please visit the additional document for detailed description!

Top page

- Uniform catalog view of various datasets: Geospace, Geoscience, Bioscience, etc.
- Thumbnail images and snippets allow users to imagine the contents at a glance.



Individual dataset page

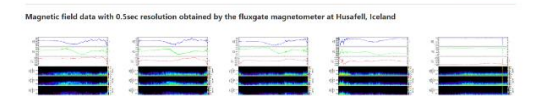
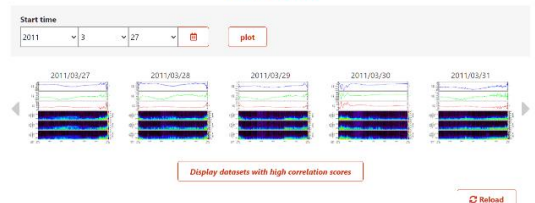
- Datafile D/L, data plots, metadata.
- Propose related datasets based on the correlation scores. *One of the unique functions of AMIDER.*

Magnetic field data with 1sec resolution obtained by the fluxgate magnetometer at Syowa Station, Antarctica

Data Download

Start time: 2019-08-01, Period: 1 day, Format: CDF, Download, Display availability times

Visualized Data



- Developed based on the IUGONET system.
- Web application
 - ✓ Displays the dataset list, and filters/sorts/searches datasets by extracting records from the RDB.
 - ✓ Datafiles of each dataset can be downloaded by connecting to repositories via internet.
 - ✓ Related datasets are proposed using correlation scores in the RDB.
- Relational database (RDB)
 - ✓ Main data (metadata, datafile URI, etc.) are registered.
 - ✓ Access count of each dataset is recorded.
 - ✓ Correlation scores are registered by the backend program.
- File storage
 - ✓ Thumbnail images, data plots, metadata files, etc.
 - ✓ UI parameters can be customized for each dataset by configuration file (YAML file).
- Operation/backend programs
 - ✓ Management of the RDB and files.