The AMIDER database: a cross-disciplinary platform for the polar science

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The Polar Environment Data Science Center (PEDSC) of the Joint Support-Center for Data Science Research (DS), Research Organization of Information and Systems (ROIS), aims to promote the publication and use of scientific data obtained from research activities of the polar science community. One of the key pillars of PEDSC is the development of a cross-disciplinary database, AMIDER. The AMIDER project aims to establish a new database for demonstrating and proposing a new model toward a next-generation data-science platform.

In the AMIDER project, we are promoting a zero-base review of the database system and can implement a new design or approach with minimized interference to the existing system. We developed a uniform and user-friendly interface based on popular services such as an e-commerce site. It will invite non-specialized users such as educators, students, and researchers interested in connecting to broad scientific fields. The database provides a function to propose relationships between datasets in diverse scientific fields. A walk-around experience between datasets induced by this function will support researchers in discovering an unexpected idea for cross-disciplinary research. We are also planning to collaborate with NII RDC (Research Data Cloud) as one of the future extensions of the AMIDER system.

The platform for upper atmospheric science, IUGONET, is one of the successful projects promoting cross-disciplinary data science. AMIDER project started with core members of the IUGONET. Its basic programs, data standardization (metadata schema and raw-data format), and know-how have been provided. The datasets provided by IUGONET form one of the main contents of AMIDER.

The AMIDER database is scheduled to start a test operation this fiscal year. Further optimization will be made based on the results of the test operation, and we will prepare for the public release in 2023. In this presentation, we report on the concept and design of the AMIDER database.
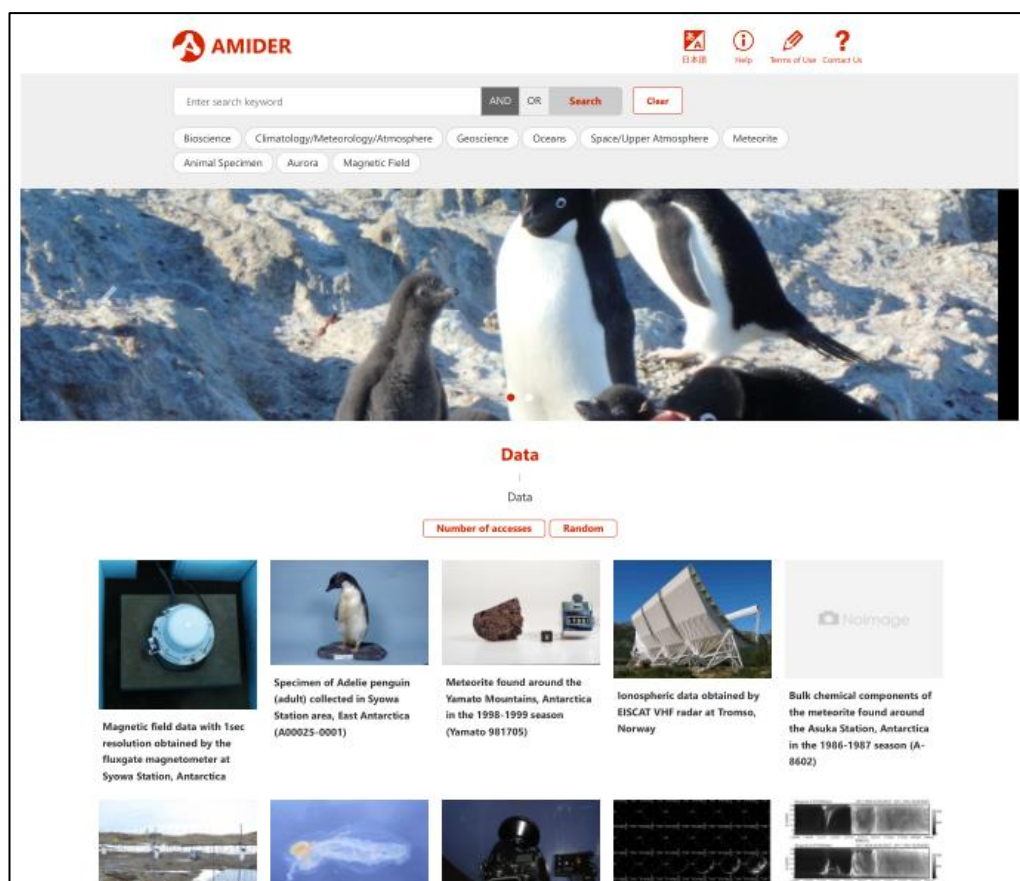

Figure 1. Screen shot of the AMIDER web site.