



## Japanese Inter-university Upper Atmosphere Global Observation Network (IUGONET) Metadata Database and Its Interoperability

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The IUGONET is a Japanese program to build a metadata database for ground-based observations of the upper atmosphere. The project began in 2009 with five Japanese institutions which archive data observed by radars, magnetometers, photometers, radio telescopes and helioscopes, and so on, at various altitudes from the Earth's surface to the Sun.

Systems have been developed to allow searching of the above described metadata. We have been updating the system and adding new and updated metadata. The IUGONET development team adopted the SPASE metadata model to describe the upper atmosphere data. This model is used as the common metadata format by the virtual observatories for solar-terrestrial physics. It includes metadata referring to each data file (called a "Granule"), which enables a search for data files as well as data sets.

In the beginning of 2014, the registration of the "Observatory" and "Instrument" metadata was almost completed, which makes it easy to get a full picture of the metadata database. The number of registered metadata as of the beginning of January, reached a value of totalled 10 million, including 860 observatories, 955 instruments and 1066 datasets.

It is important to promote interoperability and/or metadata exchange between the database development groups. A memorandum of agreement has been signed with the European Near-Earth Space Data Infrastructure for e-Science (ESPAS) project, which has similar objectives to IUGONET with regard to a framework for formal collaboration.

Furthermore, observations by satellites and the International Space Station are being integrated with the intention to extend the existing metadata. The development of effective data management systems will contribute to the progress of scientific research on solar terrestrial physics, climate and the geophysical environment. Any kind of cooperation, metadata input and feedback, especially for linkage of the databases, is welcomed.

URL: <http://www.iugonet.org/>