

## IUGONET activities for research in upper atmosphere and multidisciplinary field

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Inter-university Upper atmosphere Global Observation NETwork (IUGONET) is a Japanese inter-university project, which aims to share upper atmospheric data, including solar and planetary data, separately archived by Japanese universities and institutes and effectively analyze them. We present the IUGONET's products and activities for upper atmospheric research and new application of our system to open, share and combine data in various scientific fields.

The main tools developed by the IUGONET project are metadata database and analysis software and for the upper atmospheric data. The analysis software is based on Space Physics Environment Data Analysis Software (SPEDAS) that is a grass-roots software written by Interactive Data Language (IDL) for space physics community and supports multiple satellite and ground-based missions. We have provided a plug-in software for SPEDAS, which allows users to load, visualize, and analyze the IUGONET data with SPEDAS. IUGONET Type-A, which was a metadata database released in November, 2016, provides a one-stop web service to search data, show information of data (i.e., metadata and quick look plots), find interesting events, interactively plot data with SPEDAS, and guide users to advanced data analysis with SPEDAS. In recent few years, we have further developed a standardized framework of web application for metadata database. This framework allows users to construct the web service while saving their time and effort. We plan to develop an integrated metadata database using this framework that can deal with various types of data, such as upper atmospheric data, meteorological data, glaciological data, geological data, and biological data, archived in National Institute of Polar Research, Japan.

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