IUGONET activities for data sharing and interdisciplinary study

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We present our activities for sharing upper atmosphere data and promoting interdisciplinary studies in the solar-terrestrial physics community. The upper atmosphere is characterized by the following properties: (1) Both vertical coupling between the multiple spheres and global horizontal circulation are essential. (2) There are a variety of data sets. (3) The long-term variation is important. Thus, collaboration and data sharing are necessary to understand the mechanism of various phenomena in the upper atmosphere. On the other hand, there have been some issues in the research of the upper atmosphere. Database has been built and maintained individually by each university or institute, mainly by domain researchers, so it is often difficult to search and access data and the researchers are responsible for data sharing. In addition, since there are a variety of data sets, resulting in many types of file format, collection and analysis of data are time consuming.
The IUGONET (Inter-university Upper atmosphere Global Observation NETwork) project started in FY2009 to share the upper atmosphere data and promote interdisciplinary studies. We opened many kinds of ground-based observational data to the public via internet. We have developed metadata database for cross-searching various kinds of the upper atmosphere data obtained by the IUGONET members and analysis software for visualizing and analyzing these data. SPASE (Space Physics Archive Search and Extract) metadata model was adopted as a basis of the IUGONET metadata format. The IUGONET provided a plug-in software for SPEDAS (Space Physics Environment Data Analysis Software), which is a grass-roots data analysis software based on IDL (Interactive Data Language) for space physics community and supports multiple missions. We hold meetings for users of these IUGONET data and tools about twice a year. In the presentation, we will introduce these IUGONET activities and new plan to improve the metadata database system.

Keywords: IUGONET, upper atmosphere, data sharing, interdisciplinary study, metadata database, analysis software

