

Recent activities of the IUGONET for accelerating the integrated solar terrestrial science

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The Inter-university Upper atmosphere Global Observation NETwork (IUGONET) is a scientific community by many Japanese institutes conducting observational research for upper atmosphere with 80km altitude and more. This region is a complex research field affected by both upper, for example solar radiations, and lower, for example atmospheric waves. Therefore, accelerating our science is not possible without data sharing infrastructures and platform for cross-sectional research. For the above reason, five Japanese institutes established IUGONET at 2009. IUGONET released many results for promoting the multidisciplinary research by using various kinds of data in the solar terrestrial science. IUGONET Type-A is a one-stop web service to provide data information (metadata) and visualization (quick look images and plots). Users can analysis data and make plots as you see on IUGONET Type-A by performing the indicated process on the analysis software, introduced below. UDAS (iUgonet Data Analysis Software) is a data analysis software written in Interactive Data Language (IDL). It works under SPEDAS (Space Physics Environment Data Analysis Software) as a plug-in. In addition, we developed program templates, called as UDAS egg (UDAS Easy Guide to Generate your load routines), for easily reading various kinds of data on SPEDAS. Users can easily load, analyze and visualize the data owned by each researcher by replacing a few codes (about 10 lines in total) marked on the template according to the instructions. This function is equipped to the latest version of the SPEDAS executables for users who do not own IDL licenses. It allows users to utilize data for interdisciplinary study, and supports the development of integrated solar terrestrial science. We also consider that it is one of our essential task for the future and development of the research field to develop both Japanese and foreign young researchers who can handle data easily. It is so difficult to accomplish it by only one project. Therefore, we holds many data analysis workshops each year in Japan and overseas countries in collaboration with other programs related to scientific research and data, for example ISELION, ISELLI, VarSITI, and WDS, etc. IUGONET developers join workshops and have lecture courses on these, and participants can practically learn how to get and analyze data. In last fiscal year, we held two times domestic lecture courses in Japan, and four international lecture courses in Malaysia, India, China, and Indonesia. The effects of this activity are very clear from the increase of scientific papers by using IUGONET products. In conclusion, Open Data activities of IUGONET mainly intend at the development of solar-terrestrial science, and make many scientific and educational results in our domain. We hope our activity will be helpful for other fields.