

# The IUGONET and its products for space weather study

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1. Intro	2. Metadata Database				
<b>Objectives of the IUGONET</b>	Colution	Metadata design	<b>Description of data set</b>	Observatory xml version="1.0" encoding="UTF-8"?	Instrument xml version="1.0" encoding="UTF-8"?
B Institute C University D Research Center	Solution IUGONET provides a new research platform that enables metadata extracted from ground-based observation data to be shared.	Based on SPASE SPACE PHYSICS ARCHIVE SEARCH AND EXTRACT http://www.spase-group.org/	<pre> </pre> </th <th><observatory>  Person data <?xml version="1.0" encoding="UTE-8"?&gt;</observatory></th> <th><instrument></instrument></th>	<observatory>  Person data <?xml version="1.0" encoding="UTE-8"?&gt;</observatory>	<instrument></instrument>





### **Overview and Timeline** of the project

Task	Y2009	Y2010	Y2011	Y2012	Y2013	Y2014	Detail	
Virtual information center (VIC) of UA studies	System installation	Normal operation		System update		$\rightarrow$	Construct the integrated research environment (T	
Development of metadata DB system	Prototype system devel.	Regular system devel.	Open to public				Design and develop the metadata DB system	
Design the Metadata format standards	Ver.1 format	Update & document				$\rightarrow$	Release the format ver. and keep updating if necessary	
Development of data analysis software	Specifications and basic design	Programming	Open to public			<b></b>	Develop and release analysis softwares for U data	
Maintenance&exte nsion of existing DBs of Observation data		Maintenance of obs. DBs & exam. of non- digital dataset		Effort focused on old data from Y2012 on			Incorporate non-DB'd d into the DBs	
Metadata generation		Collecting metdata from each obs. DB		Effort focused on old data from Y2012 on		Generate metadata in t designated format and to metadata DB		
Operation of metadata DB						<b></b>	Release the metadata l for community	
VIC extension to related fields						$\rightarrow$	Wrap up the project and discuss further extension	





## 3. Analysis Software

#### Access http://www.iugonet.org/software.html

### Features of the IUGONET analysis software

Automatic

The IUGONET Data Analysis Software (UDAS) is the plug-in software for THEMIS Data Analysis Software suite (TDAS) and Space Physics Environment Data Analysis Software(SPEDAS), evolution of TDAS

The IUGONET data (e.g., geomagnetic data, aurora data, radar data, and so forth), sattelite data (THEMIS, GOES, WIND, and ACE) can be handled.

It is possible to use many routines to visualize and analyze time series data.

It accesses the IUGONET data through the Internet, and then the data are automatically downloaded onto the user's computer

UDASH net Data Analysis Software TDAS is Data Analysis Softwar IDL Relationship between UDAS, TDAS/SPEDAS, and IDL New version of **UDAS for SPEDAS** 

ver. 1.00 is just

released!

download IUGONET SSL, Berkeley, THEMIS, GBO Directories for CDAWeb, the downloaded OMNI, ACE, data are created Wind, etc. automaticallv Data can be easily plotted, for example, by only three basis commands with the TDAS/UDAS/SPEDAS/-CUI tool. 1. Set a time period 2. Load \*\*\* data 3. Plot the loaded data tplot, +++

**Data Servers** 

on the Interne

If using the GUI tool, only a few simple clicks of your mouse are required to procedure the same plot as that created by the above command with the CUI tool

**User PC** 

Data are

tplot

loaded as

variables

timespan, 'yyyy-mm-dd'

iug\_load\_\*\*\*

TDAS

IDL

THEMIS Satellite

Atmosphere





Paper for IUGONET system is published:

"Progress of the IUGONET system - metadata database for upper atmosphere ground-based observation data"

Abe S, Umemura N, Koyama Y, Tanaka Y, Yagi M, Yatagai A, Shinbori A, UeNo S. Y. Sato, N. Kaneda, Earth, Planets and Space 2014, 66:133, doi:10.1186/1880-5981-66-133





Currently, not only IUGONET institutes but also other Japanese institutions, such as NAOJ, NICT and Kakioka Magnetic Observatory of JMA, registered metadata in **IUGONET MDB.** These additions will contribute to efficient interdisciplinary scientific research. It is important to promote interoperability and/or metadata exchange between the database development groups. A memorandum of agreement has been signed with the ESPAS project, which has similar objectives to IUGONET with regard to a framework for formal collaboration. Furthermore, we will be collaborate with other society for example satellites observation, simulations, big data center, and so on with a view for making/linking metadata databases. For the contribution to WDS, IUGONET includes three WDC members. The development of effective data systems will contribute to the progress of scientific research on solar terrestrial physics, climate and the geophysical environment.



- Account for up to 73% of data is related to IUGONET.
- We developed basic technologies for virtualization of TDAS/SPEDAS/UDAS.
- IUGONET products are essential to understand the interaction of Sun-Magnetosphere-Upper Atmosphere-Lower Atmosphere.



Any kind of cooperation, metadata input and feedback, especially for linkage of the databases, is welcome!

### 5. Information Landing page IUGONET website <u>http://www.iugonet.org/</u> Mailing list **Publications** Publication list <u>http://www.iugonet.org/publist.html</u> **Software repository** Github <u>https://github.com/iugonet</u>

Help movies IUGONET channel in YouTube <u>http://www.iugonet.org/software.html</u>

The IUGONET Users Mailing List provides you with all the latest IUGONET-related information about new releases of UDAS and IUGONET Metadata Database, IUGONET workshops, and so on. Let's subscribe! http://www.iugonet.org/mailinglist.html

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