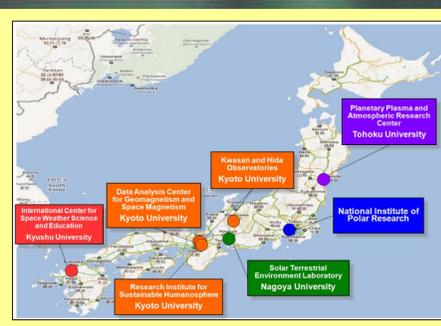


IUGONET

Inter-university Upper atmosphere Global Observation Network (IUGONET)

T. Hori¹, A. Yatagai², Y. Koyama³, S. Abe⁴, Y. Tanaka⁵, A. Shimbori², S. UeNo⁶, N. Umemura¹, Y. Sato⁵, M. Yagi⁷, and N. O. Hashiguchi²

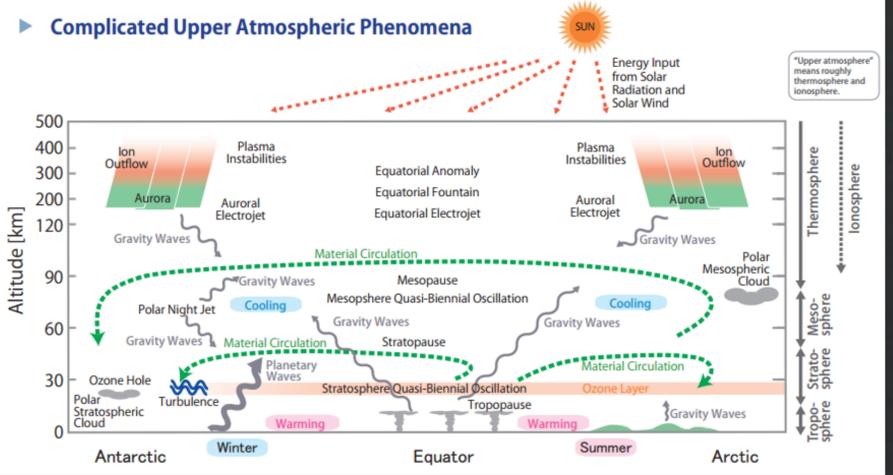
¹STE Lab, Nagoya Univ., ²RISH, Kyoto Univ., ³WDC for Geomag., Kyoto, Kyoto Univ., ⁴ICSWSE, Kyushu Univ., ⁵NIPR, ⁶Kwasan and Hida Obs., Kyoto Univ., ⁷PPARC, Tohoku Univ.



The Inter-university Upper atmosphere Global Observation Network (IUGONET) is a Japanese inter-university project for 6 years (FY2009-FY2014) by the National Institute of Polar Research (NIPR), Tohoku University, Nagoya University, Kyoto University, and Kyushu University to build a database of metadata for ground-based observations of the upper atmosphere. The IUGONET institutes/universities have been collecting various types of data by radars, magnetometers, photometers, radio telescopes, helioscopes, etc. at various locations all over the world and at various altitude layers from the Earth's surface to the Sun. The metadata database will be of great help to researchers in efficiently finding and obtaining these observational data spread over the institutes/universities. This should also facilitate synthetic analysis of multi-disciplinary data, which will lead to new types of research in the upper atmosphere. The project has also been developing a software to help researchers download, visualize, and analyze the data provided from the IUGONET institutes/universities.

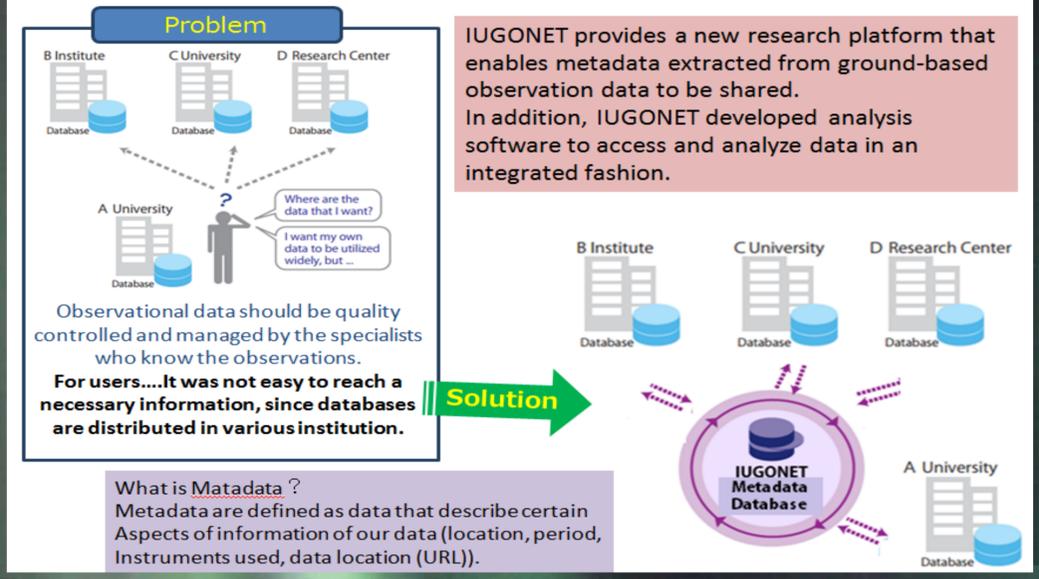
IUGONET website: <http://www.iugonet.org/>

Studies on Upper Atmosphere (UA)



It is crucial to combine various kinds of observations to explore long-term variations of the UA.

IUGONET overcomes data diversity



Metadata database (MDDDB)

The IUGONET metadata database has been released since last year! It is now available at <http://search.iugonet.org/iugonet/>.

Iugonet Data Analysis Software suite (UDAS)

The official version of the IUGONET data analysis software, named UDAS (currently version 3.00.1), can be downloaded from the project website at <http://www.iugonet.org/en/software.html>.

IUGONET Metadata DB

of metadata registered (as of Jun. 20, 2013): **8,469,964** (* including "Granule")

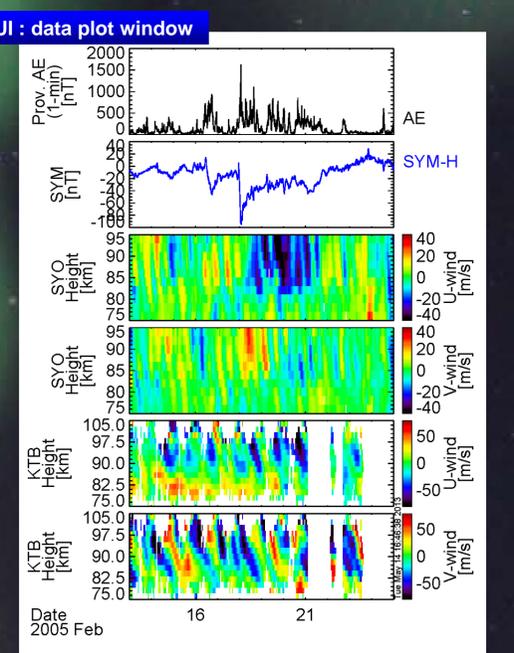
Search Filters:

- Free Word Search:** (e.g. meteor radar, MF radar, SuperDARN, EISCAT,....)
- Time Range Search:** from YYYY-MM-DDThh:mm:ssZ to YYYY-MM-DDThh:mm:ssZ [UTC]
- Spatial Coverage/Map:** North, South, East, West [degree]
- Data Types:** Data Set, Numerical, Plot / Movie, Data File / Plot, Instrument, Observatory

Free word search, **time range search**, **spatial coverage search**, **type of metadata**

List of the observational data available through UDAS and the UDAS command to download/read them

No.	Dataset name	Load routines
1	Solar imaging telescope (SMART at Hida Obs)	iug_load_smart
2	Iitate Planetary Radio Telescope	iug_load_iprt
3	Jupiter's/solar wide band spectral data in HF-band	iug_load_hf_tohoku
4	Automatic Weather Station	iug_load_aws_rish
5	Boundary layer radar	iug_load_blr_rish
6	L-band Lower Troposphere radar (@Shigaraki, Japan)	iug_load_ltr_rish
7	Equatorial Atmospheric Radar (@Sumatra, Indonesia)	iug_load_ear
8	MU radar (@Shigaraki, Japan)	iug_load_mu
9	Meteor radar	iug_load_meteor_rish
10	MF radar	iug_load_mf_rish
11	Wind Profiler radar	iug_load_wpr_rish
12	Ionosonde (@Shigaraki, Japan)	iug_load_ionosonde_rish
13	Radiosonde	iug_load_radiosonde_rish
14	SuperDARN radar ☆	iug_load_sdfit
15	EISCAT radar	iug_load_eiscat
16	Imaging Riometer	iug_load_iriio_nipr
17	Low Frequency Radio Transmitter	iug_load_lfrto
18	Geomagnetic indices, WDC magnetometer stations	iug_load_gmag_wdc
19	NIPR fluxgate magnetometers ☆	iug_load_gmag_nipr
20	210° Magnetic Meridian magnetometer network ☆	iug_load_gmag_mm210
21	MAGDAS ground magnetometers	iug_load_gmag_serc
22	STEL induction magnetometers	iug_load_gmag_stel_induction
23	NIPR induction magnetometers	iug_load_gmag_nipr_induction



An example of parallel display of time-series data Geomagnetic indices, MF radar at auroral latitude, and Meteor radar at the equator. Such a parallel display can be easily drawn by a few basic commands.

The IUGONET project adopted **DSpace** as the metadata database platform. DSpace is a free software widely used by digital repositories at many universities over the world.

DSpace consists of PostgreSQL, Tomcat, Lucene, and so on. It can provide fundamental functions of registering, retrieving, providing and harvesting of metadata written even in the IUGONET common metadata format.

UDAS provides a graphical user I/F (GUI) tool, too!

Load Data Window, **Main window of GUI**

Display of data use policy

Search Results

Item hits: The common time fit/cut data of SENSU SuperDARN Syowa South HF radar distributed by ERG-SC

Go to metadata details

list of data the user is looking for

list of link(s) to metadata of contact person

The "search result" shows part of metadata - title, description, and access URL if available - of data that match input keyword(s), time range, and spatial coverage.

The metadata "title" is a link to the metadata details which include at least link(s) to metadata of contact person responsible to the data.

The "access URL" leads the user to the web site of the observational database. The user may be able to obtain the data files if they are available online.

