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<th>Title</th>
<th>Metadata Database for Geoscience by using DSpace</th>
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<td>Author(s)</td>
<td>KOYAMA, Yukinobu; KOUNO, Takahisa; HORI, Tomoaki; ABE, Shuji; YOSHIDA, Daiki; HAYASHI, Hiroo; SHINBORI, Atsuki; TANAKA, Yoshimasa; KAGITANI, Masato; UENO, Satoru; KANEDA, Naoki; TADOKORO, Hiroyasu; YONEDA, Mizuki</td>
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<tr>
<td>Citation</td>
<td>(2011)</td>
</tr>
<tr>
<td>Issue Date</td>
<td>2011-06-08</td>
</tr>
<tr>
<td>URL</td>
<td><a href="http://hdl.handle.net/2433/141880">http://hdl.handle.net/2433/141880</a></td>
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<tr>
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Kyoto University
We implemented the range search for Time and Space. The 6th International Conference on Open Repositories
Austin, Texas
June 6th – 11th, 2011

Contact address: webmaster@iugonet.org

Issues for investigating upper atmosphere

The integration analysis by using various kinds of observational data is necessary for investigating the mechanism of long-term variations in the upper atmosphere. However, there are no way to cross-search their DBs which are distributed over many research institutes in Japan.

For resolving this inconvenience, we build the metadata DB in order to search their metadata.

Metadata Format

We designed the IUGONET common metadata format [1] which is based on the SPASE Data Model [2][3][4]. Basically the metadata includes URL of observational data, start & end time of observation, spatial coverage of observation and so forth.

The additional elements of our own to the SPASE format are,

1. element for describing the analogue data,
2. element for describing the longitude and latitude which observation covers,
3. element for describing the coordinate system for Solar images.

Metadata DB System & customizing points

We adopted DSpace 1.7.0 as our metadata DB system because there are so many case examples in Japanese academic information repositories.

462,486 records were stored in the DB currently.

Below is an example for time range search.

• Completely shape metadata is stored as ‘content’ of DSpace.
• Some search targets are chosen from the metadata (qualifier is created like right figure.)

[Customizing point #1]

• Customization to handle the IUGONET common metadata format instead of Dublin Core metadata format.

1. Complete shape metadata is stored as ‘content’ of DSpace.
2. Some search targets are chosen from the metadata (qualifier is created like right figure.)

[Customizing point #2]

• Implementation of the range search for Time and Space.

Below is an example for time range search.

( start_time: [from_time TO to_time] OR end_time: [from_time TO to_time] )

OR

( start_time:[00000101000000 TO from_time] AND end_time:[to_time TO 99991231235959] )

, where start_time/end_time means the start/end time of the observation respectively. From_time/to_time is given by the search query.

Conclusion

• We adopted DSpace to the metadata DB for Geoscience.

• We Customized DSpace to handle the IUGONET common metadata format instead of Dublin Core metadata format.

• We implemented the range search for Time and Space.

Finally, we opened our beta version of the Metadata DB for Geoscience to the public.

http://search.iugonet.org/iugonet/

References

[1] Metadata format utilized for the IUGONET metadata database, Tomoaki Hori et al., MGI015-02, JGSI 2010

Fig. Access information in the Metadata points the observational data.

metadataformatregistry