

IUGONETメタデータ・データベース 構築の現状

阿部修司[1], 梅村宜生[2], 小山幸伸[3], 堀智昭[2], 林寛生[4],
新堀淳樹[4], 田中良昌[5], 上野悟[6], 金田直樹[6],
米田瑞生[7], 元場哲郎[5], IUGONETプロジェクトチーム

- [1] 九州大・宙空環境研究センター、[2] 名古屋大・太陽地球
環境研究所、[3] 京都大・理・地磁気センター、
[4] 京都大・生存圏研究所、[5] 国立極地研究所、[6] 京都大・
理・附属天文台、[7] 東北大・惑星プラズマ大気研究センター

メタデータDBとは？

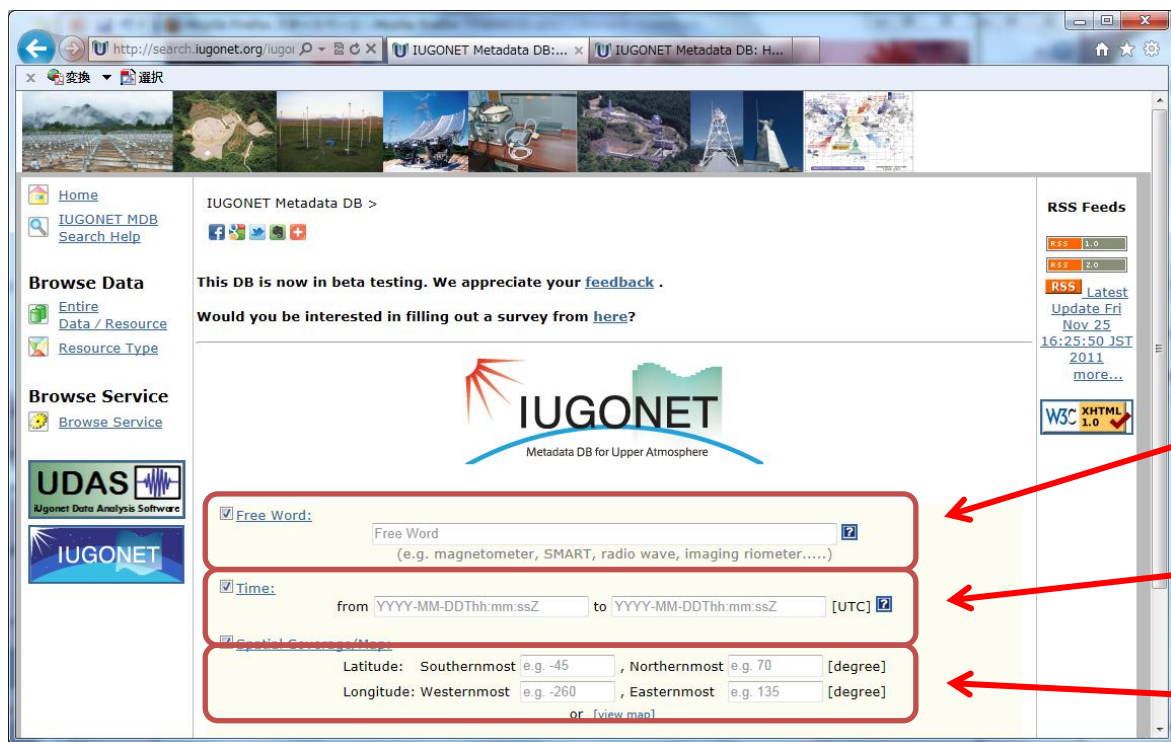
- メタデータ・・・観測データそのものではなく、
観測データに付帯した情報。
e.g. 観測開始終了時刻、観測場所、
観測データの所在情報。
→ メタデータを介して
観測データへアクセス。
- メタデータDB・・・これらのメタデータを集めて
検索可能にしたもの。

様々な研究機関にある観測データのメタデータを、
1クエリーで検索可能！

(いつ、どこで、どの物理量が同時観測されたのか？)

- 学術機関リポジトリで広く使用されているフリーソフトウェア「DSpace」をカスタマイズ
- 2011年5月にβ版を公開
(今年度末メインサーバを名大→九大に移行)
- 利用者からのフィードバックを受け、いくつかの改良をおこない、今年度末に正式版を公開予定

<http://search.iugonet.org/iugonet/>



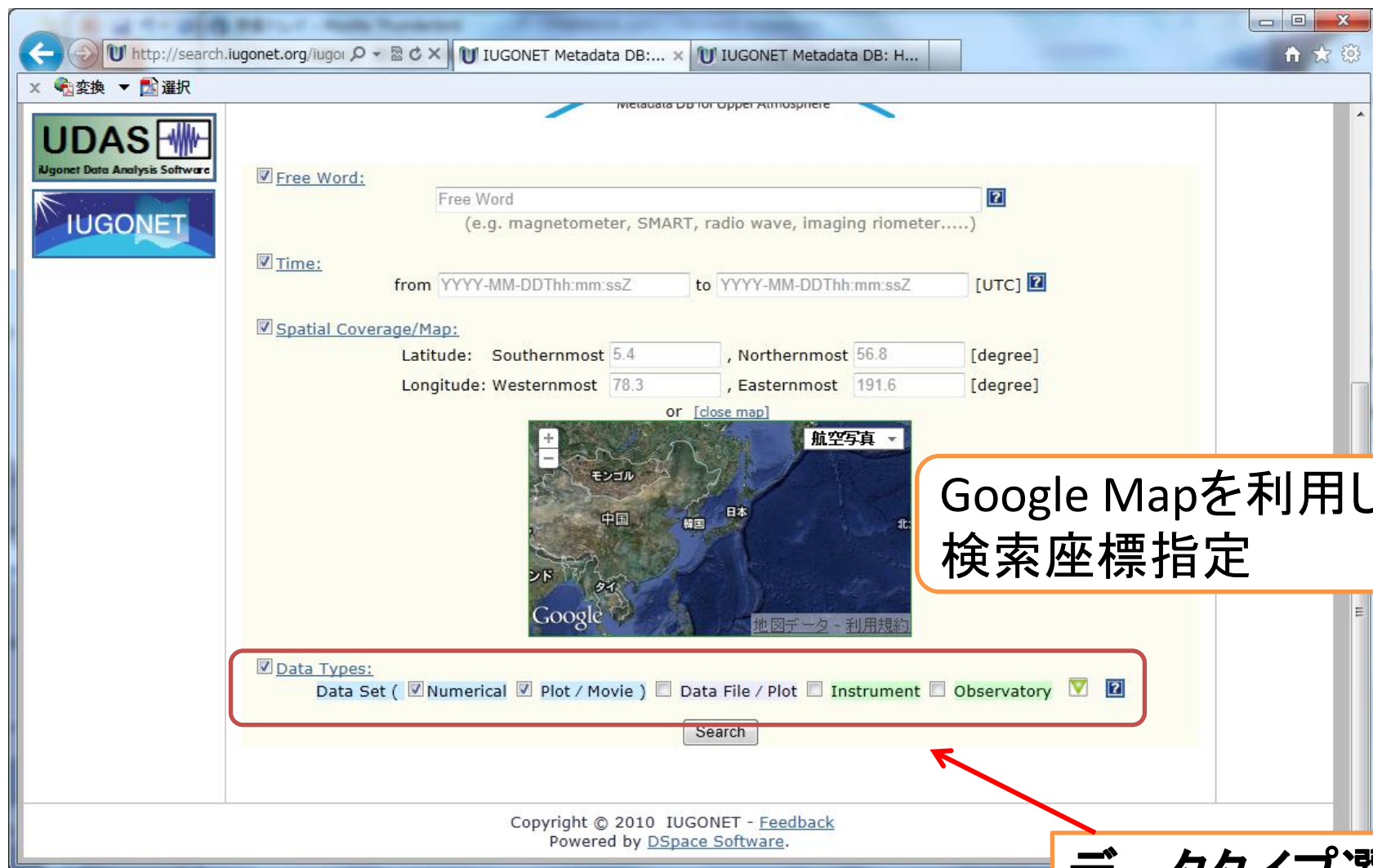
The screenshot shows the IUGONET search interface. On the left, there are navigation links: Home, IUGONET MDB, Search Help, Browse Data (Entire, Data / Resource, Resource Type), Browse Service (Browse Service), and UDAS (Iugonet Data Analysis Software). The main content area has a header with the IUGONET logo and a message: "IUGONET Metadata DB > This DB is now in beta testing. We appreciate your [feedback](#) . Would you be interested in filling out a survey from [here](#)?" Below this is a search form with three sections: "Free Word:" with a text input field and a help icon; "Time:" with "from" and "to" date-time pickers and a UTC checkbox; and "Spatial Coverage/Maps:" with latitude and longitude pickers (Southernmost, Northernmost, Westernmost, Easternmost) and a "view map" link. On the right, there are "RSS Feeds" for RSS 1.0, RSS 2.0, and RSS Latest, with a "W3C XHTML 1.0" validation icon.

フリーワード検索

時間範囲選択

観測範囲選択

β版の紹介



The screenshot shows the IUGONET search interface. The browser address bar displays <http://search.iugonet.org/iugonet>. The page includes a sidebar with the UDAS logo and the IUGONET logo. The main search area contains the following sections:

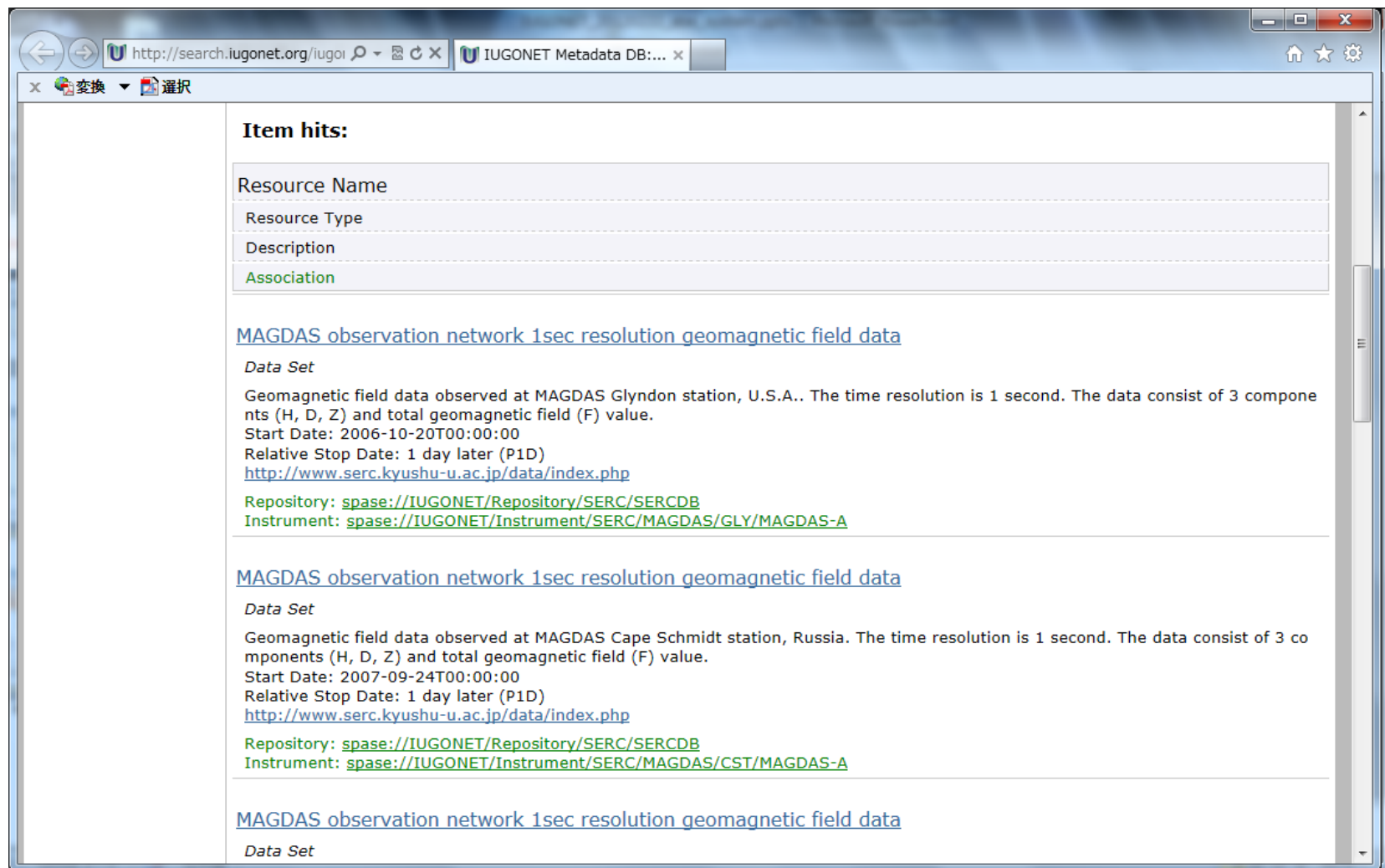
- Free Word:** A text input field with the placeholder "Free Word" and a help icon. Below it, an example is given: "(e.g. magnetometer, SMART, radio wave, imaging riometer.....)".
- Time:** Two date-time input fields labeled "from" and "to" in the format "YYYY-MM-DDThh:mm:ssZ", followed by a "[UTC]" label and a help icon.
- Spatial Coverage/Map:** Latitude and longitude input fields. Latitude: Southernmost (5.4) and Northernmost (56.8) [degree]. Longitude: Westernmost (78.3) and Easternmost (191.6) [degree]. Below these is a map of East Asia showing Japan, Korea, and China. A red box highlights the "Data Types" section, which includes checkboxes for "Numerical", "Plot / Movie", "Data File / Plot", "Instrument", and "Observatory". A red arrow points from the "Data Types" section to the "データタイプ選択" label in the bottom right.

At the bottom of the search area is a "Search" button. The footer of the page contains the text: "Copyright © 2010 IUGONET - Feedback Powered by DSpace Software."

Google Mapを利用した
検索座標指定

データタイプ選択

見やすい検索結果



The screenshot shows a web browser window with the URL <http://search.iugonet.org/iugoi>. The page displays search results for "MAGDAS observation network 1sec resolution geomagnetic field data". The results are organized into three sections, each with a table of metadata.

Resource Name
MAGDAS observation network 1sec resolution geomagnetic field data

Resource Type
Data Set

Description
Geomagnetic field data observed at MAGDAS Glyndon station, U.S.A.. The time resolution is 1 second. The data consist of 3 components (H, D, Z) and total geomagnetic field (F) value. Start Date: 2006-10-20T00:00:00 Relative Stop Date: 1 day later (P1D) http://www.serc.kyushu-u.ac.jp/data/index.php

Association
Repository: spase://IUGONET/Repository/SERC/SERCDB Instrument: spase://IUGONET/Instrument/SERC/MAGDAS/GLY/MAGDAS-A

Resource Name
MAGDAS observation network 1sec resolution geomagnetic field data

Resource Type
Data Set

Description
Geomagnetic field data observed at MAGDAS Cape Schmidt station, Russia. The time resolution is 1 second. The data consist of 3 components (H, D, Z) and total geomagnetic field (F) value. Start Date: 2007-09-24T00:00:00 Relative Stop Date: 1 day later (P1D) http://www.serc.kyushu-u.ac.jp/data/index.php

Association
Repository: spase://IUGONET/Repository/SERC/SERCDB Instrument: spase://IUGONET/Instrument/SERC/MAGDAS/CST/MAGDAS-A

Resource Name
MAGDAS observation network 1sec resolution geomagnetic field data

Resource Type
Data Set

公開版の紹介

The screenshot shows the IUGONET website interface with several red callout boxes highlighting specific features:

- 観測機器バナーを左上に移動し GIFアニメ化**: A callout pointing to a banner image of observation equipment in the top-left corner.
- 検索内容を切り替える タブインターフェース**: A callout pointing to the search tabs labeled "All", "for Sun", and "Spatial".
- 緯度経度の配置変更。より視覚的に！**: A callout pointing to the latitude and longitude input fields (North, West, East, South) in the search criteria section.

The website layout includes a left sidebar with navigation links like "Home", "IUGONET MDB Search Help", "Browse Data", and "Browse Service". The main content area features the IUGONET logo and search filters such as "Free Word", "Time", "Spatial Coverage/Map", and "Data Types". The right sidebar displays "RSS Feeds" and a "W3C XHTML 1.0" validation badge.



The screenshot shows a web browser window with the URL <http://iugonet7.serc.kyushu...>. The page features the IUGONET logo and the text "Metadata DB for Upper Atmosphere".

On the left sidebar, there are links for "Home", "IUGONET MDB", "Search Help", "Browse Data", "Entire Data / Resource", "Resource Type", "Browse Service", and "Browse Service". Below these are logos for "UDAS Iugonet Data Analysis Software" and "IUGONET".

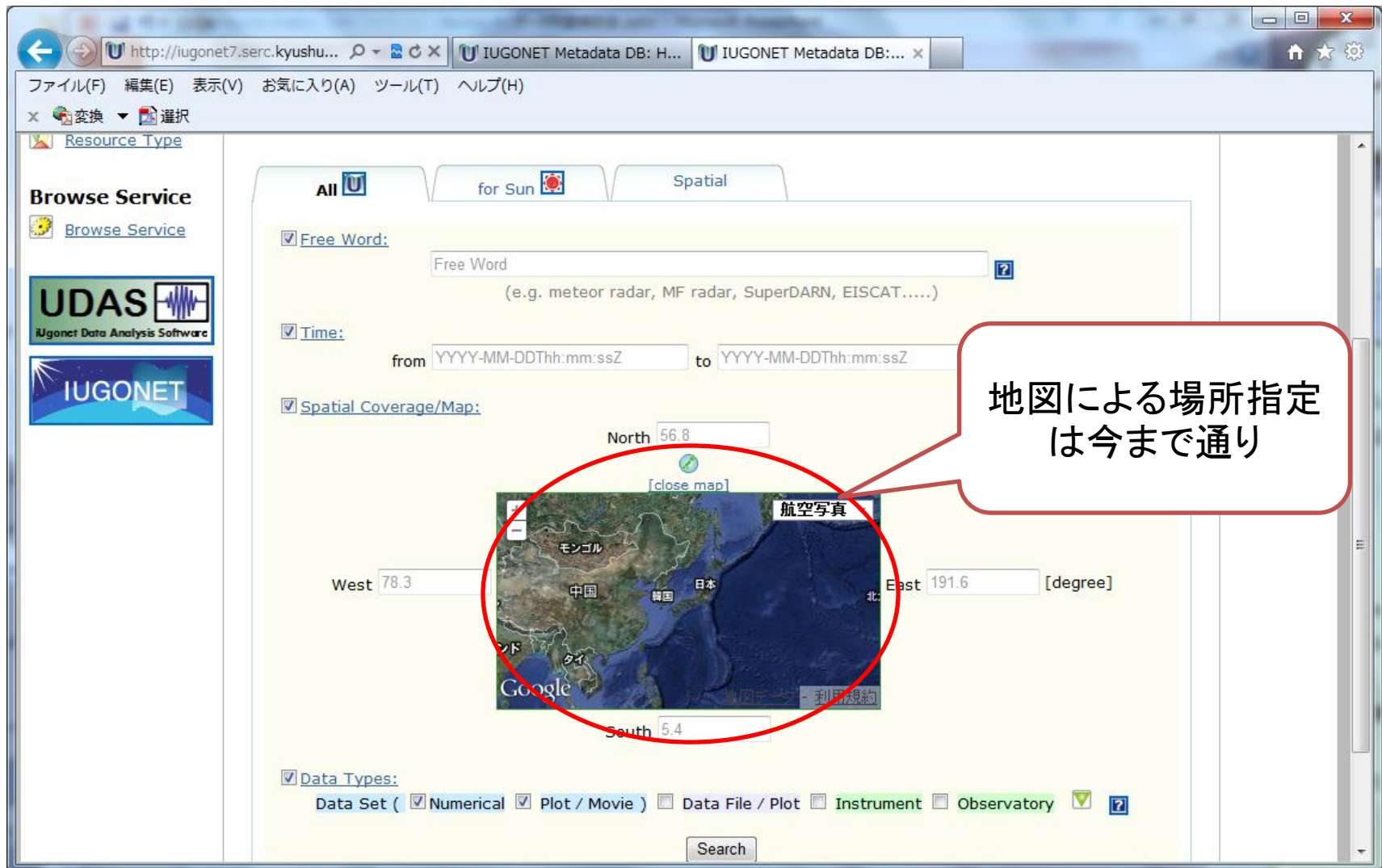
The main content area has tabs for "All", "for Sun", and "Spatial". The "All" tab is selected. Below the tabs, there are search filters:

- ☒ **Free Word:** A text input field with the placeholder "Free Word" and a help icon. Below it, an example is given: "(e.g. meteor radar, MF radar, SuperDARN, EISCAT.....)".
- ☒ **Time:** Two date-time input fields labeled "from" and "to", both with the format "YYYY-MM-DDThh:mm:ssZ". A "[UTC]" label and a help icon are to the right.
- ☒ **Spatial Coverage/Map:** Four input fields for "North", "West", "East", and "South". The values are "50.0", "78.3", "78.3", and "56.8" respectively. A "[degree]" label is to the right of the "East" field. A "view map" button with a map icon is located between the "West" and "East" fields. This button is circled in red.
- ☒ **Data Types:** A group of checkboxes: "Data Set" (checked), "Numerical" (checked), "Plot / Movie" (checked), "Data File / Plot" (unchecked), "Instrument" (unchecked), and "Observatory" (checked). A help icon is to the right.

A "Search" button is located at the bottom of the search filters.

On the right sidebar, there is a "Latest Update" section showing "Sun Oct 30 03:36:46 JST 2011" and a "more..." link. Below this is a "W3C XHTML 1.0" logo.

全メタデータ



http://iugonet7.serc.kyushu... IUGONET Metadata DB: H... IUGONET Metadata DB:...

ファイル(F) 編集(E) 表示(V) お気に入り(A) ツール(T) ヘルプ(H)

変換 選択

Resource Type

Browse Service

Browse Service

UDAS
iugonet Data Analysis Software

IUGONET

All for Sun Spatial

☒ Free Word:

Free Word (e.g. meteor radar, MF radar, SuperDARN, EISCAT.....)

☒ Time:

from YYYY-MM-DDThh:mm:ssZ to YYYY-MM-DDThh:mm:ssZ

☒ Spatial Coverage/Map:

North 56.8 [close map]

West 78.3 East 191.6 [degree]

South 5.4

航空写真

モンゴル 中国 韓国 日本

Google

☒ Data Types:

Data Set (☒ Numerical ☒ Plot / Movie) ☐ Data File / Plot ☐ Instrument ☐ Observatory

Search

地図による場所指定は今まで通り



The screenshot shows the IUGONET Metadata DB web interface. The browser address bar displays the URL `http://iugonet7.serc.kyushu...`. The page features a sidebar with navigation links such as "Search Help", "Browse Data", "Browse Service", and "UDAS". The main content area includes a search form with various filters. A red speech bubble points to the "Solar Spatial Coverage" section, specifically highlighting the "Region" options: "FullDisk" and "PartialRegion". Another red speech bubble points to the "Region" section, highlighting the "East" and "West" input fields, which are used for specifying longitude. A third red speech bubble points to the "Region" section, highlighting the "North" and "South" input fields, which are used for specifying latitude. The "Data Types" section at the bottom includes checkboxes for "Numerical", "Plot / Movie", "Data File / Plot", "Instrument", and "Observatory".

検索領域のワンタッチ
選択

緯度経度の配置変更。
より視覚的に！
東西は地球と逆です

Web ページからのメッセージ



[Detail for Solar Spatial Coverage]

If you want to set Fulldisk/PartialRegion keyword clearly, please check the proper checkbox.

You can input solar latitude and longitude values you are interested in. The Stonyhurst Heliographic Coordinate System is supported in this search. In this coordinate system, left-hemisphere of the solar disk is defined as the eastern hemisphere and right-hemisphere is defined as the western hemisphere.

[Example]

North: N15 or +15

East : E40 or +40

West : W30 or -30

South: S25 or -25

東西南北をEWSNで
置き換えて検索できる
ようにしています

注意：

現在、太陽メタデータの
東西座標は地球と同じよ
うになっています(更新
版を内部テスト中)。

現状については、MDDDB
内で左図のようにヘルプ
で対応しています。

検索結果

Search Results

Time from: to [UTC]

Spatial Coverage

Latitude: Southernmost 21.58 , Northernmost 47.49 [degree]

Longitude: Westernmost 79.10 , Easternmost 135.70 [degree]

Data Set (☒ Numerical ☒ Plot / Movie) ☐ Data File / Plot ☐ Instrument ☐ Observatory

上：全データ検索時、下：太陽データ検索時
 検索元に対応して、Search Result上部の検索窓内容が変わる

Search Results

Time from: to [UTC]

Solar Spatial Coverage

Region: ☐ FullDisk ☐ PartialRegion

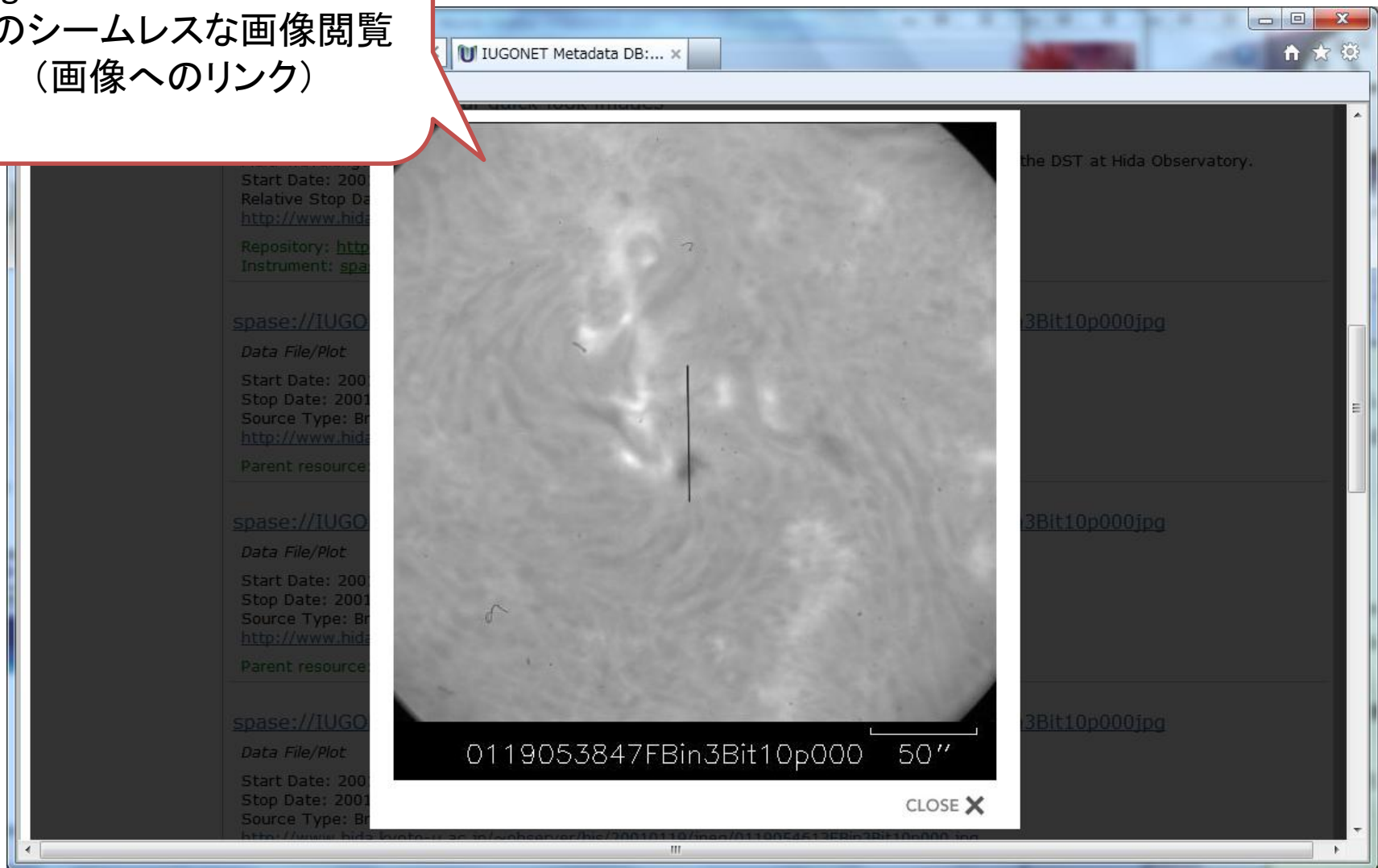
Latitude: Southernmost , Northernmost [degree]

Longitude: Westernmost , Easternmost [degree]

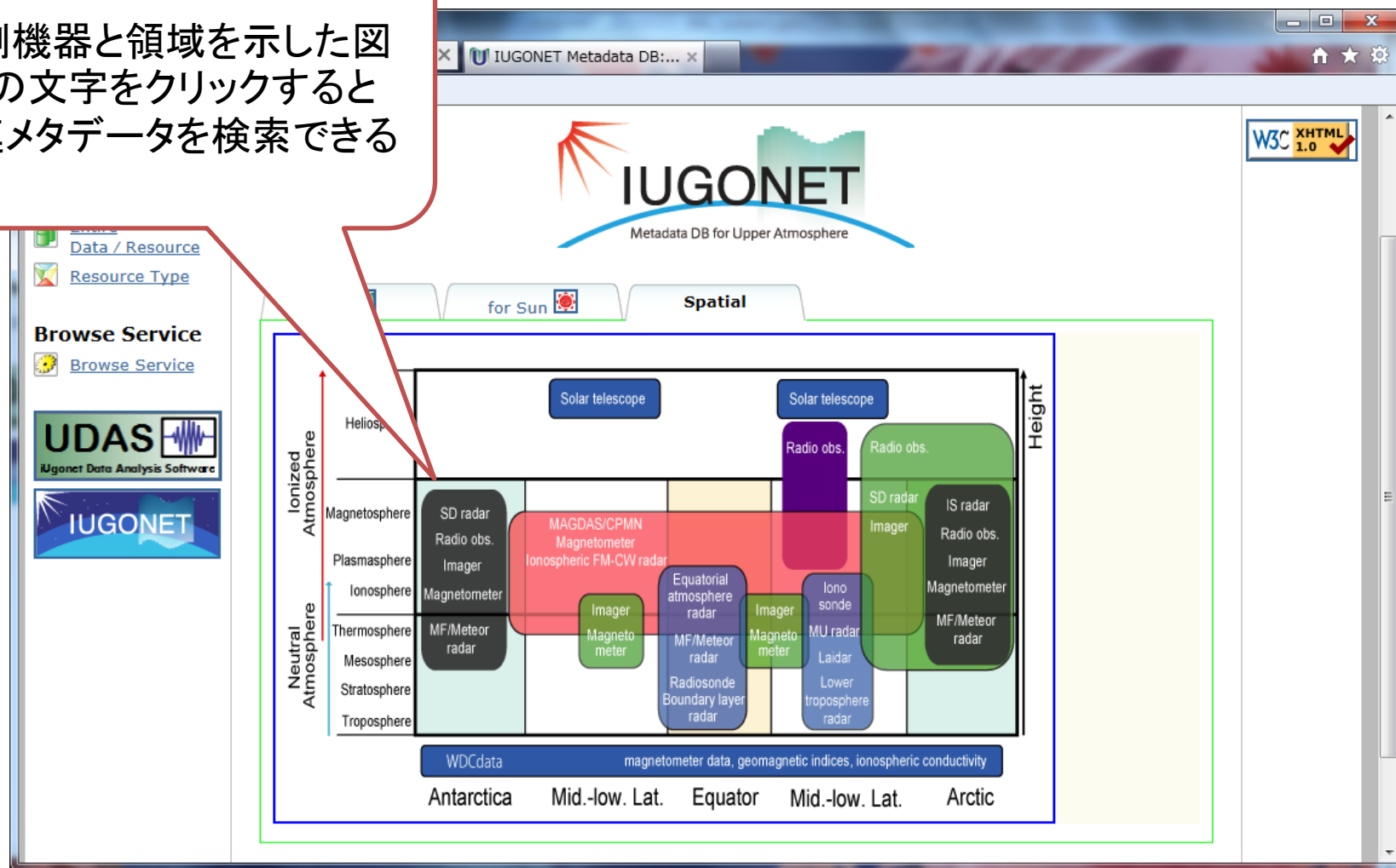
Data Set (☒ Numerical ☒ Plot / Movie) ☒ Data File / Plot ☐ Instrument ☐ Observatory

検索結果

Lightbox2によるMDDDB内
でのシームレスな画像閲覧
(画像へのリンク)



観測機器と領域を示した図
中の文字をクリックすると
関連メタデータを検索できる



自動でキーワードを挿入して検索結果を表示



Search Results

SuperDARN

Time from: [] to [] [UTC]

Spatial Coverage

Latitude: Southernmost [] , Northernmost [] [degree]

Longitude: Westernmost [] , Easternmost [] [degree]

Data Set (☒ Numerical ☒ Plot / Movie) ☐ Data File / Plot ☒ Instrument ☒ Observatory

Results 1-4 of 4.

Results/Page 10 | Sort items by Relevance In order Descending

Item hits:

Resource Name
Resource Type
Description
Association

[SENSU SuperDARN Syowa East HF radar.](#)

Instrument

One of the HF coherent radars at Syowa Station, Antarctica. A component of "Syowa South and East HF Radars of NIPR for SuperDARN (SENSU)", as well as a component of Super Dual Auroral Radar Network (SuperDARN) operated by National Institute of Polar Research



ヘルプはここから！

IUGONET Meta

Would you like to...

Browse Data

- Entire Data / Resource
- Resource Type

Browse Service

- Browse Service

UDAS
iUgonet Data Analysis Software

IUGONET

RSS Feeds

- RSS 1.0
- RSS 2.0
- RSS
- Latest Update Sun Oct 30 03:36:46 JST 2011 more...
- W3C XHTML 1.0

IUGONET
Metadata DB for Upper Atmosphere

Search

☒ **Free Word:**

Free Word [?](#)
(e.g. ionosphere, troposphere, magnetosphere, heliosphere.....)

☒ **Time:**

from to [UTC] [?](#)

☒ **Spatial Coverage/Map:**

North e.g. 70
West e.g. -260 East e.g. 135 [degree]
South e.g. -45
[\[view map\]](#)

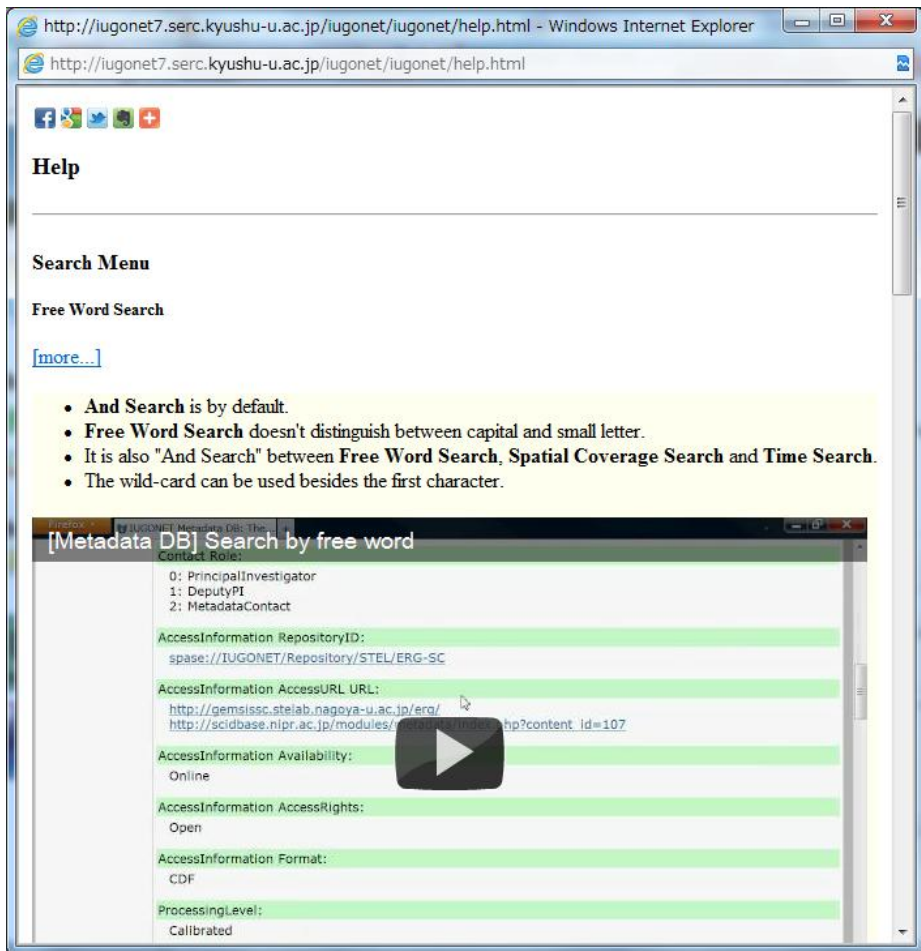
☒ **Data Types:**

- ヘルプ動画を更新

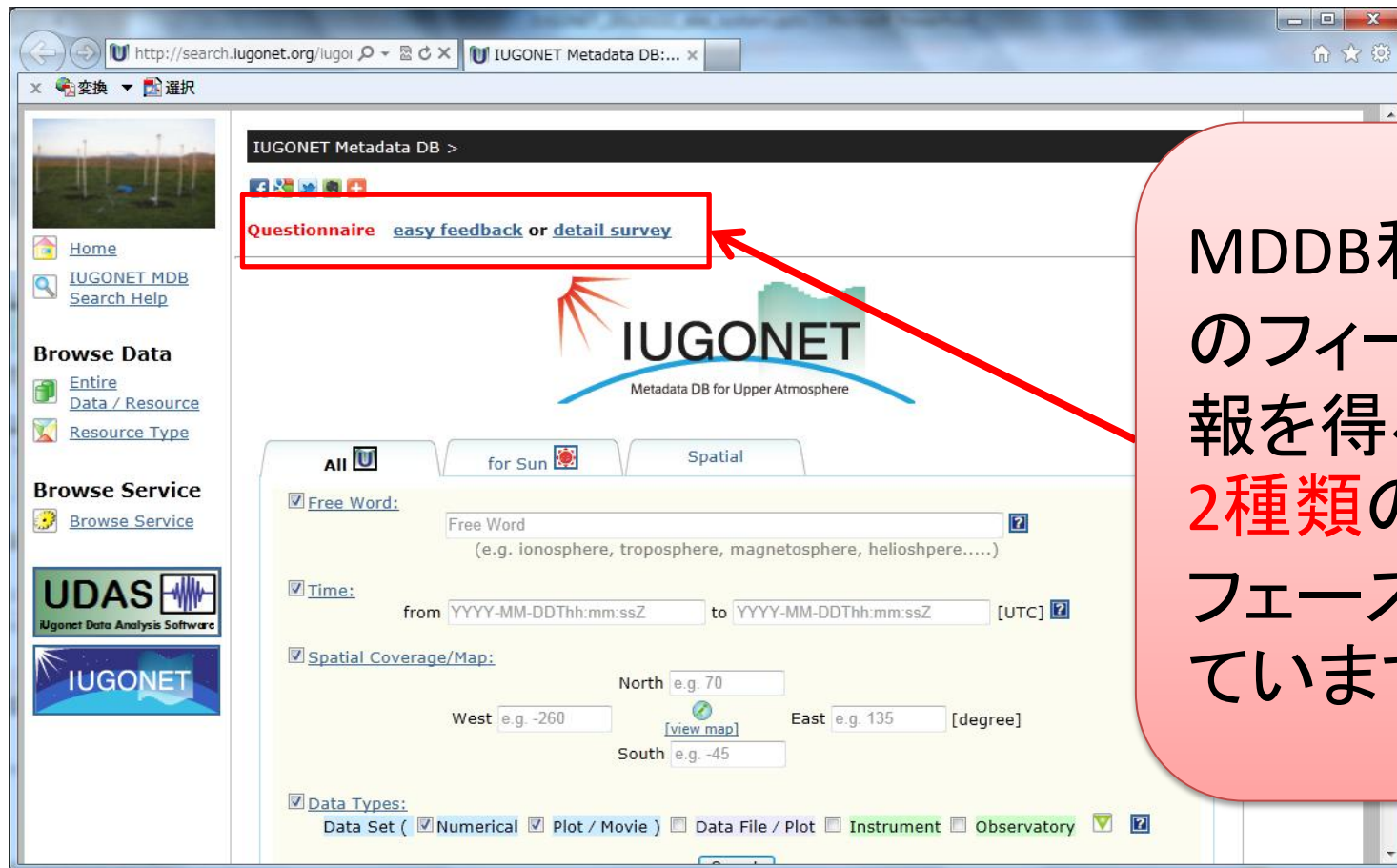
- もっと多くの動画を見たい場合は、

IUGONET
Channel

- <http://www.youtube.com/user/iugonet2009>





フィードバック情報の収集



IUGONET Metadata DB >

[Questionnaire](#) [easy feedback](#) or [detail survey](#)

IUGONET
Metadata DB for Upper Atmosphere

All  for Sun  Spatial

☒ [Free Word:](#)
Free Word
(e.g. ionosphere, troposphere, magnetosphere, heliosphere....)

☒ [Time:](#)
from YYYY-MM-DDThh:mm:ssZ to YYYY-MM-DDThh:mm:ssZ [UTC] ?

☒ [Spatial Coverage/Map:](#)
North e.g. 70
West e.g. -260 East e.g. 135 [degree]
South e.g. -45
[view map]

☒ [Data Types:](#)
Data Set (☒ Numerical ☒ Plot / Movie) ☐ Data File / Plot ☐ Instrument ☐ Observatory ?

MDDDB利用者からのフィードバック情報を得るために、**2種類**のインターフェースを準備しています。

フィードバック(簡易)

[IUGONET Metadata DB](#) >



This DB is now in beta testing. We appreciate your [feedback](#).

Would you be interested in filling out a survey from [here](#)?

Feedback Form

Thanks for taking the time to share your feedback about the IUGONET Metadata DB system. Your comments are appreciated!

Your Email Address:

Your Comments:

Send

メールアドレスとコメントだけで良い簡単フィードバック

フィードバック(詳細)

GoogleDocsを利用した 詳細アンケート

Questionnaire for IUGONET Metadata Database

Please take the time to fill out the questionnaire below which will help us to better serve you.

* Required

Specialized field *

- ☐ Space Physics
- ☐ Geophysics
- ☐ Meteorology
- ☐ Geology
- ☐ Chemistry
- ☐ Engineering
- ☐ informatics
- ☐ Other:

Look and feel of search window *

1 2 3 4 5
bad ☐ ☐ ☐ ☐ ☐ good

Addthis widget for sharing metadata information *

1 2 3 4 5
bad ☐ ☐ ☐ ☐ ☐ good

- 専門分野
- 各種インターフェースの使い勝手(五段階評価)
- よく使うデータベース
- 各種コメント

などを収集する

http://search.iugonet.org/iugonet/open-search/request?query=nipr_1sec_fmagg_syo_&ts=2010-01-01&te=2010-01-05&Granule=granule



**OpenSearchの例
(ブラウザでの結果表示)**

OpenSearchとは、検索結果を他のサイトから自由に利用できるようにするための仕組み

将来、UDAS連携や検索結果を他サイトから利用する拡張のために実装

build.xmlによるシステムインストール

```
[screen 0: bash] dspace@iugonet7:~/iugonet
<?xml version="1.0" encoding="utf-8" ?>
<project name="iugonet" default="extract">
  <property file="build.properties"/>

  <target name="install_git" description="Install Git">
    <get src="http://pkgs.repoforge.org/rpmsforge-release-0.5.2-2.el5.rf.i386.rpm" dest="/tmp" usetimestamp="true"/>
    <exec executable="sudo">
      <arg value="rpm"/>
      <arg value="-ivh"/>
      <arg value="/tmp/rpmsforge-release-0.5.2-2.el5.rf.i386.rpm"/>
    </exec>
    <exec executable="sudo">
      <arg value="yum"/>
      <arg value="-y"/>
      <arg value="install"/>
      <arg value="git"/>
    </exec>
    <exec executable="git">
      <arg value="config"/>
      <arg value="--global"/>
      <arg value="user.name"/>
      <arg value="${GIT_USER_NAME}"/>
    </exec>
  </target>
</project>
```

build.xml

1. Java
2. ant
3. build.xml



IUGONET SYSTEM

build.xmlとは、antで使用するビルドファイル。IUGONETソフトウェアの構築方法を記述したファイルを準備しており、IUGONETシステムを楽にインストールすることが可能。

今後の開発事項

- Look & Feelのカスタマイズ（さらにみやすい詳細表示）
- OpenSearchを用いた、解析ソフトウェア・外部データベースとの連携
- 連想検索（GETAssocを利用したシステムを検討中）
- 冗長化、分散化に向けた準備（handleの同一化含む）