G-Spatial Information Center in Japan

ISO/TC 211 Seminar
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What is the G-Spatial Information Center?

The Geospatial Information Center

- is a data distribution support organization aiming at effective utilization and promotion of geospatial information which various entities maintain for various purposes.
- was developed based on the “Basic Plan for the Advancement of Utilizing Geospatial Information”, Cabinet decision of March 27, 2012

*By advancing measures as one unit, the national and local governments, private companies, etc., are aiming to build an information center that will share and provide geospatial information about Japan.*

Basic Plan for the Advancement of Utilizing Geospatial Information
Cabinet decision of March 27, 2012

- Start of the operation : Nov.24, 2016
- Datasets handled : 574 datasets
  (as of Mar.25, 2017)
Public-Private-Partnership information infrastructure

A goal to reach of Geospatial Information Center is to be a distributed and integrated hub for geospatial information.

**Authorities**
- Ministries and agencies
- Incorporated administrative agency
- Prefectural governments
- Cities, districts and villages

**Private sector**
- Mapping companies
- Air survey companies
- Car navigation services
- Infrastructure services

**Autonomous body**

**Academic institution**
- Universities
- Institutes
A goal to reach of Geospatial Information Center is to be a distributed and integrated hub for geospatial information.
Activities of G-Spatial Information Center

- Provide GS data and Hub functions for disaster responses
- Help accumulate experiences of disaster responses
- Through data depository service for National/Local Gov., Support Open data and data uses.
- Consulting services for Government
- Help find diverse geospatial data
- Provide ready-to-use “application packages” for social issues.
- Help develop “application package” for social issues
- Public/Private/Academia collaboration to develop new methods of data integration/analytics
- Encourage GS open resources (S/W, Data, Human Resource)
- Outreach of GS information with open source communities

GS Data Deposition service for Gov.

Information Hub for disaster responses

GS Data Distribution services

R&D service of GS data applications

GS Open Resource Hub
### Handling information (Apr. 2017)

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
<th>Data Holders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base information</strong></td>
<td>Base map, earth map, aerial photo, terrain map, digital land map data, national land numerical information, detailed location data, walking space network data, maritime ledger, micro-topography</td>
<td>MLIT, MIC, Autonomous body</td>
</tr>
<tr>
<td><strong>Geography・Geology・Land classification</strong></td>
<td>Geological map, geological survey map, natural resource map, terrain classification, land-use, hydrological map, national numerical information</td>
<td>MLIT, AIST, JOGMEC</td>
</tr>
<tr>
<td><strong>Disaster prevention・reduction</strong></td>
<td>Volcano map, land classification based on volcano location, emergence road map, shaky land map</td>
<td>MLIT, Cabinet office, AIST</td>
</tr>
<tr>
<td><strong>Meteorological observation</strong></td>
<td>Riverine monitoring camera, water-level observation data, phased array radar data</td>
<td>MLIT, NICT</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>National inventory data, 10 m grid land-use data, vegetation type data</td>
<td>MOE, MLIT</td>
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<td><strong>Dynamic data</strong></td>
<td>Traffic volume data, drive record data, car-mounted camera, tourism statistic data, congestion data, population fluidity data, tourist velocity data</td>
<td>Pioneer, Zenrin DataCom, Agoop, NaviTime Japan</td>
</tr>
<tr>
<td><strong>Static data</strong></td>
<td>GEOSPACE aerial photo, digital map, admin vector data, MMS points data, urban 3D model, 3D map Aerial photo, good-3D DSM points data Distortion free aerial photo image, MMS road information data</td>
<td>NTT, Asia Air Survey, Asahi Air Survey, PASCO, Kokusai Air Survey</td>
</tr>
</tbody>
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※: for compensation
Major Functions of G-Spatial Center

The first platform of distributing/exchanging GS data of public/private and academic sectors.

Data finding with:
- Category
- Geographic areas
- Keywords
Results of query

Further data exploration could be made by adding more conditions.
Pre-view

Through visualization, users can understand better about data they find.

Example of Dynamic Data

※Grid-based dynamic population data (Agoop inc.) Movie is generated to see the dynamics of the data.
Example of Static Data
※Distribution of maximum values of seismic motion caused by Nankai Trough Earthquake
Distribution of maximum values of seismic motion caused by Nankai Trough Earthquake (Cabinet Office)

Grid-based dynamic population data (Agoop inc.)

Map overlay
Layers can be overlaid with Web-GIS

With this overlay, population at each location could be aggregated by severity of earthquake. It may help better rescue and evacuation guidance.
Introducing Use cases

Use cases of GS applications are introduced as showcases.

- Outline, data used, conditions for uses are described.
- Links are provided to data used. Users can use identical data for their own purposes.
Introducing GS Apps

GS Apps are introduced, that are actually applied to problem-solving.

<developed by Sekimoto Lab, UT>

Using open data on population and public facilities provided by local gov., future of the region will be predicted.
Available information in Disaster

- Pre-disaster arrangements are made with the private sectors for quick and easy information sharing when disasters happen (on going).
  
  e.g.; it took one month to publish for evacuation shelter situations in KUMAMOTO earthquake.

- Data providers

<table>
<thead>
<tr>
<th>Provider</th>
<th>Signed (data will be provided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map data</td>
<td>NTT Space Information, GeoSpace</td>
</tr>
<tr>
<td>Aerial survey data</td>
<td>Kokusai; aerial photo/laser scanning data</td>
</tr>
<tr>
<td></td>
<td>PASCO; aerial photo/laser scanning data</td>
</tr>
<tr>
<td></td>
<td>Aisia air survey; aerial photo/laser scanning data</td>
</tr>
<tr>
<td></td>
<td>Asahi air survey; aerial photo/laser scanning data</td>
</tr>
<tr>
<td>Dynamic data</td>
<td>Navi Time Japan; Link Travel data</td>
</tr>
<tr>
<td></td>
<td>Agoop; fluid population data</td>
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</table>

- Data users

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Signed</th>
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<tbody>
<tr>
<td>Make disaster damage map</td>
<td>Crisis Mappers Japan(specified non-profit corporation) OpenStreetMap Japan (OSMFJ)</td>
</tr>
<tr>
<td>Support IT software development</td>
<td>Gensai-info, Information Technology Disaster Assistance and Response Team (IT DART) OSGeo Japan</td>
</tr>
<tr>
<td>Education</td>
<td>Center of Education and Research for Disaster (CERD)</td>
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Service image of G-Spatial Information Center

1. Data provision
   - Users
   - Download
   - API

2. Application distribution
   - Application companies

3. Data depository of public sector
   - Data depository

4. Creation of new data set
   - Research Data

5. Development of new analysis
   - R&D

6. Data provision in disasters
   - Volunteers

7. Consulting
   - Seminar
   - Local Gov. & Companies

8. Outreach
   - Users

Legend: Service contents at the open of the Center
Future Challenges

• Standardization
  – Currently, focus on collecting existing data
    • Already have their own data specifications/formats
      ➔ Not standardized

  – As more people use, the following challenges would emerge
    • What kind of data specification/format is this? How is data quality? Where is metadata? etc
      ➔ Standardization would be a key solution
G-Spatial Information Center

https://www.geospatial.jp
想定QA

• 地理空間情報以外のデータセット（一般的なオープンデータ）は取り扱っているか
  - 取り扱っている。
• 現在の搭載データの説明情報（メタデータ）の項目は？
• 運用から1年が経過するが、具体的な利活用事例はあるか。ユーザの声は？
• システムのベースは何か？
  - オープンソースを活用。CMSとWebGISを骨格（Drupal + CKA + Geoserver）
• 英語版のサイトはあるか？
  - 現在、ない