Country Report on the Status of Geospatial Information Activity of Japan

Geospatial Information Authority of Japan, Ministry of Land, Infrastructure, Transport and Tourism (GSI/MLIT)

Geospatial Information Library

GSI started Geospatial Information Library services on March 28, 2013. It provides an integrative frame work for searching, viewing, obtaining and applying of geospatial information through internet searches. And it provides a comprehensive range of services related to geospatial information, including search, browse, acquisition and use functions. Integrated on the advanced version of GSI's tile-based web map service named " Digital Japan Web," which itself has a successful operation record of 10 years, GSI's geospatial information (maps, aerial photographs, control points) and the public survey results for various types of geospatial information compiled by national and local public organizations are arranged. There is also an introduction on how to use geospatial information.

Geospatial Information Library promotes quick collection of information, reduction of administrative costs by avoiding duplication of redundant or similar information, and data backup for disaster. It serves an important role in sharing of geographic information.

1) Search Service Site

Geospatial Information Library provides a search service site. This site is a gateway to various geospatial information services. Information on maps and aerial photographs can be searched by topic category based on ISO19115, organization, type of product, and the Great East Japan Earthquake struck on 11 March 2011. Direct links to browsing, introduction and acquisition sites make it easy to find and access geospatial information. Geospatial Information Library also provides catalogs of geospatial information. These catalogs help to understand the characteristics and usage examples of each product, and explain how to access to each service.

Fig. 1 Search Service of Geospatial Information Library

2) Further Advancement of a Tile-based Web Map Service Named Digital Japan Web

Since 2003, GSI has been providing the tile-based web map from authoritative sources without any major outage of service even under major natural disasters such as the Great East Japan Earthquake. While the service provides JavaScript API from the start of the service, the implementation has been under constant improvement; the system was implemented initially as an ActiveX component, while it was implemented in pure JavaScript since 2008.

In 2012, the tile scheme of Digital Japan Web is updated to conform to the standard which is compatible among virtually all major tile-based web maps, i.e. the same tile-scheme used in OGC WMTS, OSGeo TMS, OSM slippy map tile names and so on. This enabled further integration of Digital Japan Web with OpenLayers, Leaflet and other JavaScript web map APIs. Since April 2013, Digital Japan Web

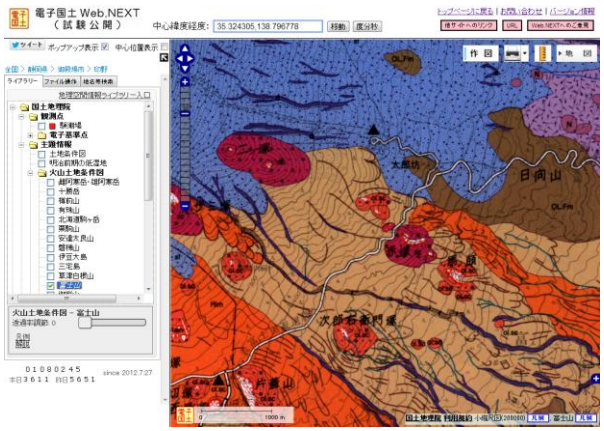


Fig. 2 Digital Japan Web Integrating Volcanic Land Condition Map of Mt. Fuji

implement on the top of OpenScales, an Adobe Flash-based web map library, has been under open experiment so that large KML data can be integrated on Digital Japan Web.

By integrating the fast-growing capability of open source tile-based JavaScript web map libraries and emerging technologies on generating and handling tile map data, much of the thematic maps are integrated on Digital Japan Web (Fig. 2).

3) Service for Browsing Maps and Aerial Photographs

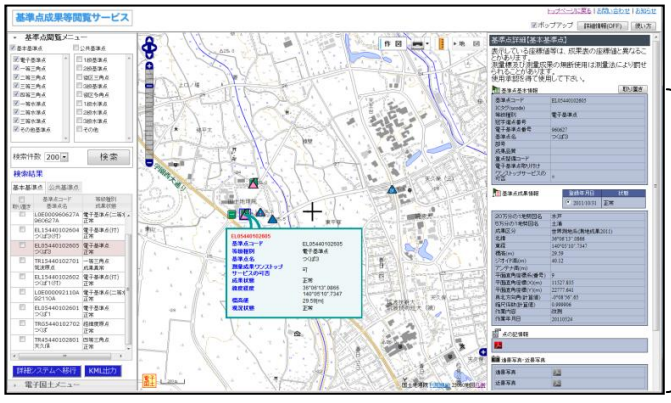
GSI digitalized 140,000 maps from 1880 to the present and 1,250,000 aerial photographs from 1936 to the present. Managing and providing the archives are invaluable records on national land. Anyone can browse these digitalized maps and aerial photographs on the Internet. Changes of land use (for example, artificial reclaimed land or banked up land) are observed from the archives. Viewing such changes is useful for formulating or improving disaster prevention/mitigation measures.

Fig. 3 Search Screen of Maps and Aerial Photographs

Fig. 4 Display Screen of Aerial Photographs

4) Service for Browsing Control Points

The list of control point information can be browsed on the Internet. The list consists of 135,000 points from basic survey results and about 440,000 points from public survey results reported by state and local public organizations. Web search and gathering of survey results online increases the efficiency in survey works.



Information of a Control Point
(A Point Code, Coordinates, Altitude, etc.)

Fig. 5 Search Screen of a Control Point

5) Tools for Utility of Geospatial Information

GSI developed tools to improve utility of geospatial information, which anyone without having professional GIS knowledge can easily compile geospatial data by geocoding API on the Internet from pile of spreadsheets with place name or address, and browse image files with GPS location data on Digital Japan Web. Users easily share their own information with others as geospatial information.