

NSDI / Standards of Geospatial Information in Japan

Kiev, Ukraine, 22 February 2018

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JICA Expert Team**

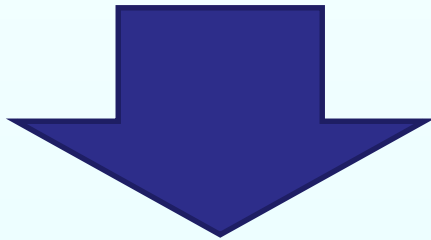
1. Brief History and Legal Frame of Japanese NSDI
2. Three Policies for Access to NSDI
3. Standardization
4. Utilization; Now and the Future

1. Brief History and Legal Frame of Japanese NSDI

	Date, Year	Event
1	17 Jan. 1995	Great Kobe earthquake
2	Sep. 1995	Inter-ministerial committee on GIS
3	1996-	National Programs for GIS and NSDI
4	2002	Revision of Survey Act , to adopt ITRF94 (Geocentric coordinate system)
5	2003	GSI Maps (web maps by GSI) started
6	2007	NSDI Act [*] enacted <small>* Basic Act on the Advancement of Utilizing Geospatial Information</small>
7	FY 2008/2011	NSDI Basic Plan ^{**} FY2008-2011 <small>** Basic Plan for the Advancement of Utilizing Geospatial Information</small>
8	11 Mar. 2011	Great east Japan earthquake
9	FY 2012/2016	NSDI Basic Plan FY2012-2016
10	FY 2017/2021	NSDI Basic Plan FY2017-2021

FY: Financial Year (begins April and ends next March in Japan)

- Great Kobe Earthquake (in January 1995)
 - There were no efficient GIS base map for disaster management




- Inter-Ministerial Committee on GIS was organized in September 1995
- National program for GIS and NSDI was formulated
 - GIS Long-term Plan FY 1996-2001
 - GIS Action Program 2002-2005, 2010

2003 GSI has released web map named **GSI Maps**


2004 Google Maps opened (in US, UK, Canada)

NSDI Act

Article 9: The national government shall develop a NSDI Basic Plan. The national government shall also review the Plan.



Article 10: The national government shall make institutional arrangements for the cooperation among related administrative organizations ... for the development of NSDI Basic Plan and the implementation of policies based on the Plan.



NSDI Basic Plan

Cabinet Decision

NSDI Steering Committee*



* Committee for the Advancement of Utilizing Geospatial Information (AUGI)

Committee for the Advancement of Utilizing Geospatial Information (AUGI)

Chairman :

Deputy Chief Cabinet Secretaries*

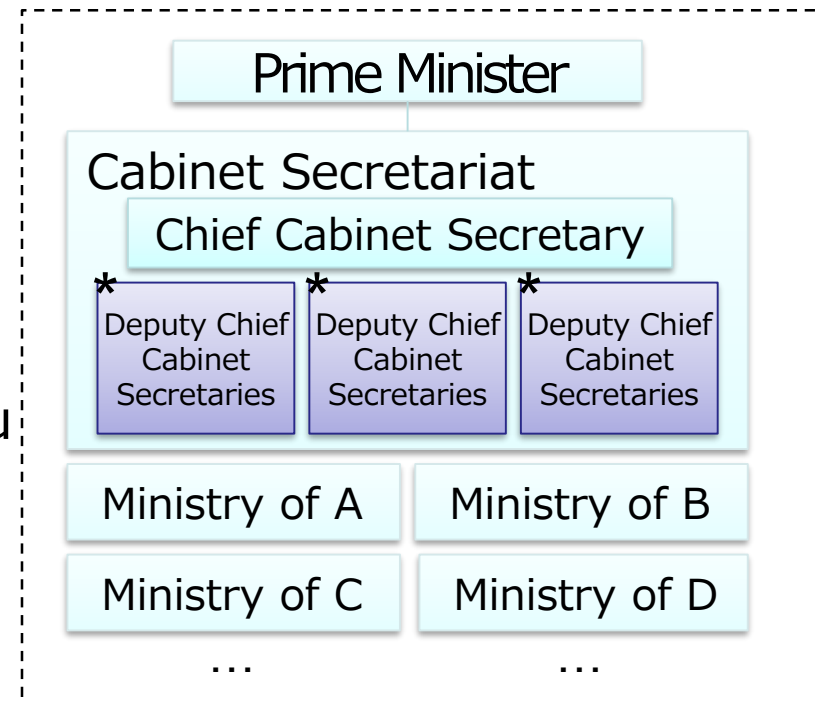
Secretariat :

AUGI office, Cabinet Secretariat

Members :

Director-general of the ministry bureau
(Related government ministries and agencies)

Almost all ministries



Responsibilities and Cooperation

Central Government

◆ Responsibility

Developing and carrying out comprehensive policies

◆ Legal and other Measures

Taking legal, financial, and other measures

◆ Enhancement of Liaison

Taking necessary measures to enhance the liaison

Local Governments

◆ Responsibility

Developing and carrying out policies in harmony with the circumstances of their regions

Private Sector

◆ Efforts

- Providing high quality geospatial information
- Cooperate with the State and/or local governments in their policies

Cooperation

Research Institutions
(Universities etc)

Geospatial Information

Fundamental Geospatial Data

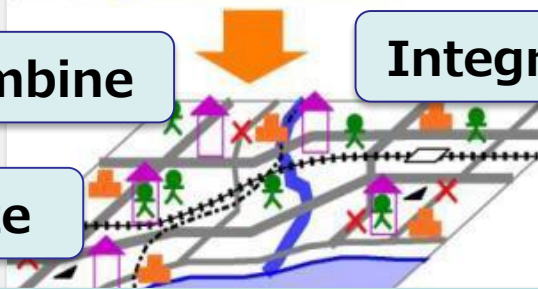


Fundamental Geospatial Data

Combine

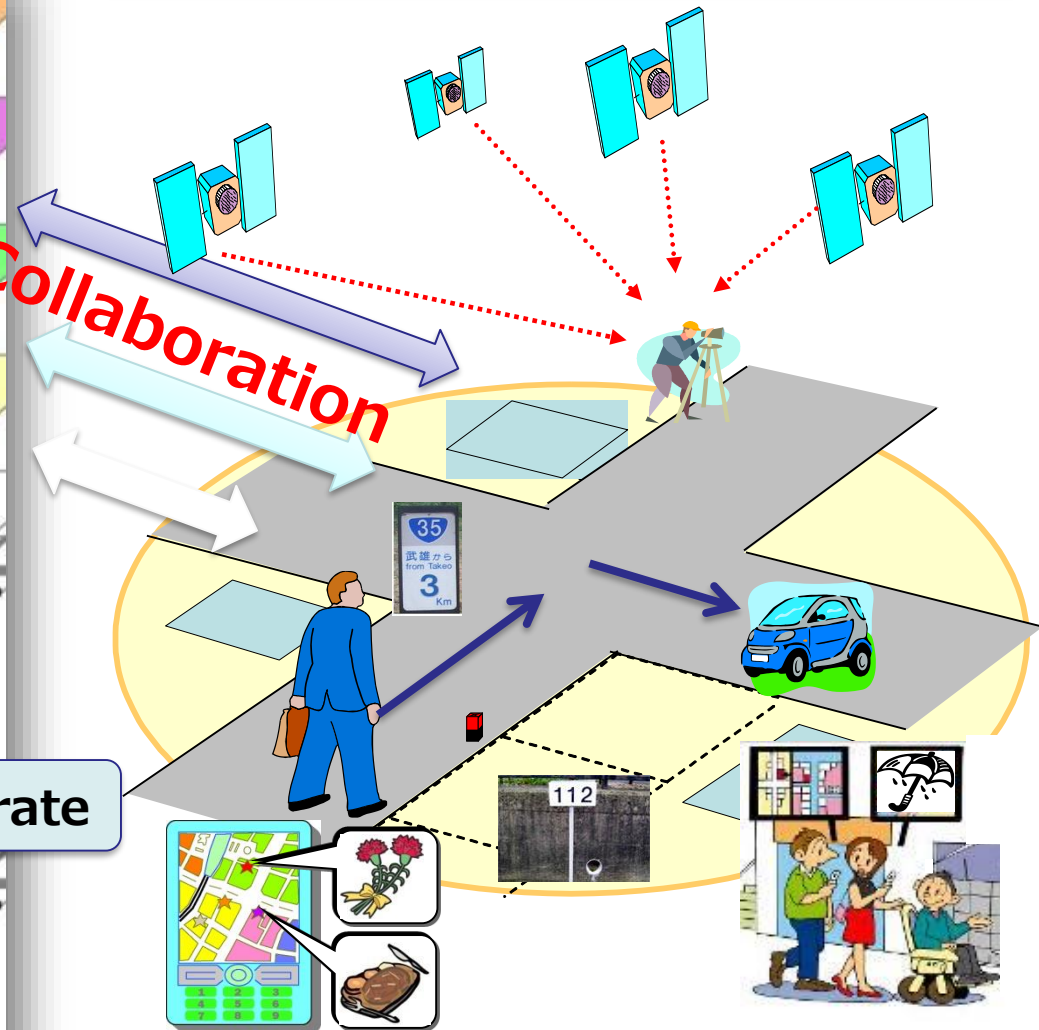
Integrate

Analyze



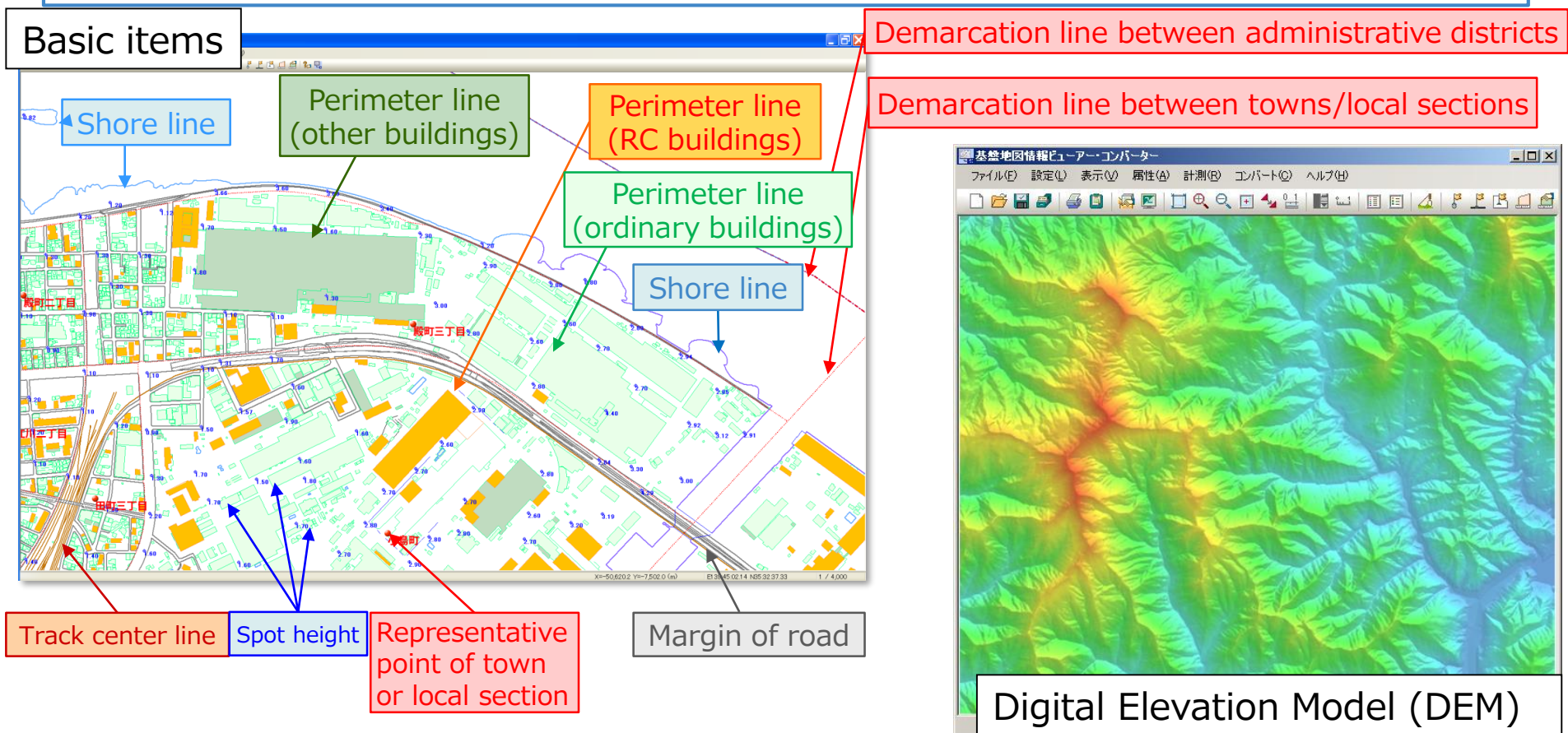
Satellite Positioning

Multi-GNSS Satellite Positioning



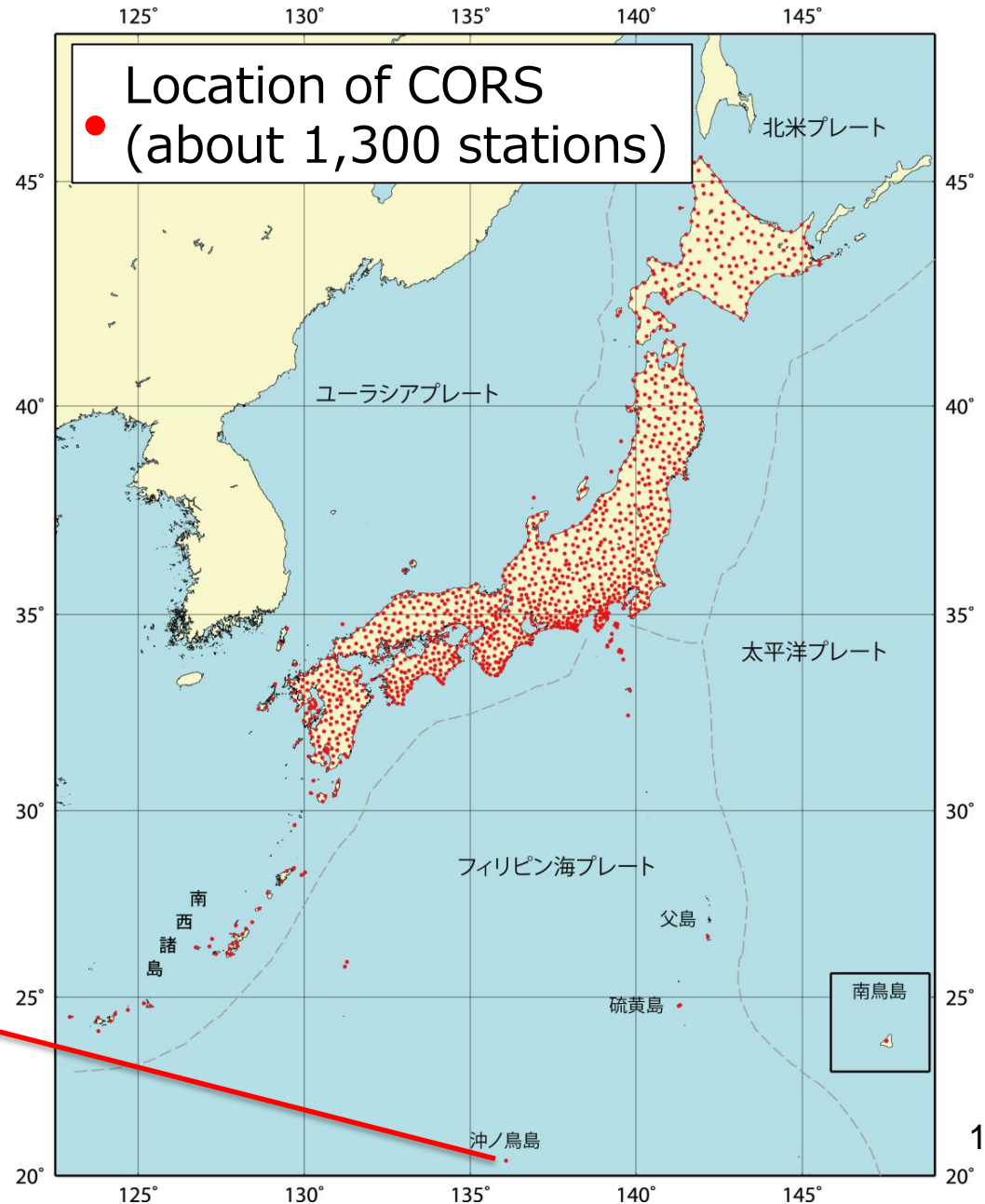
Promote comprehensive measures for utilization

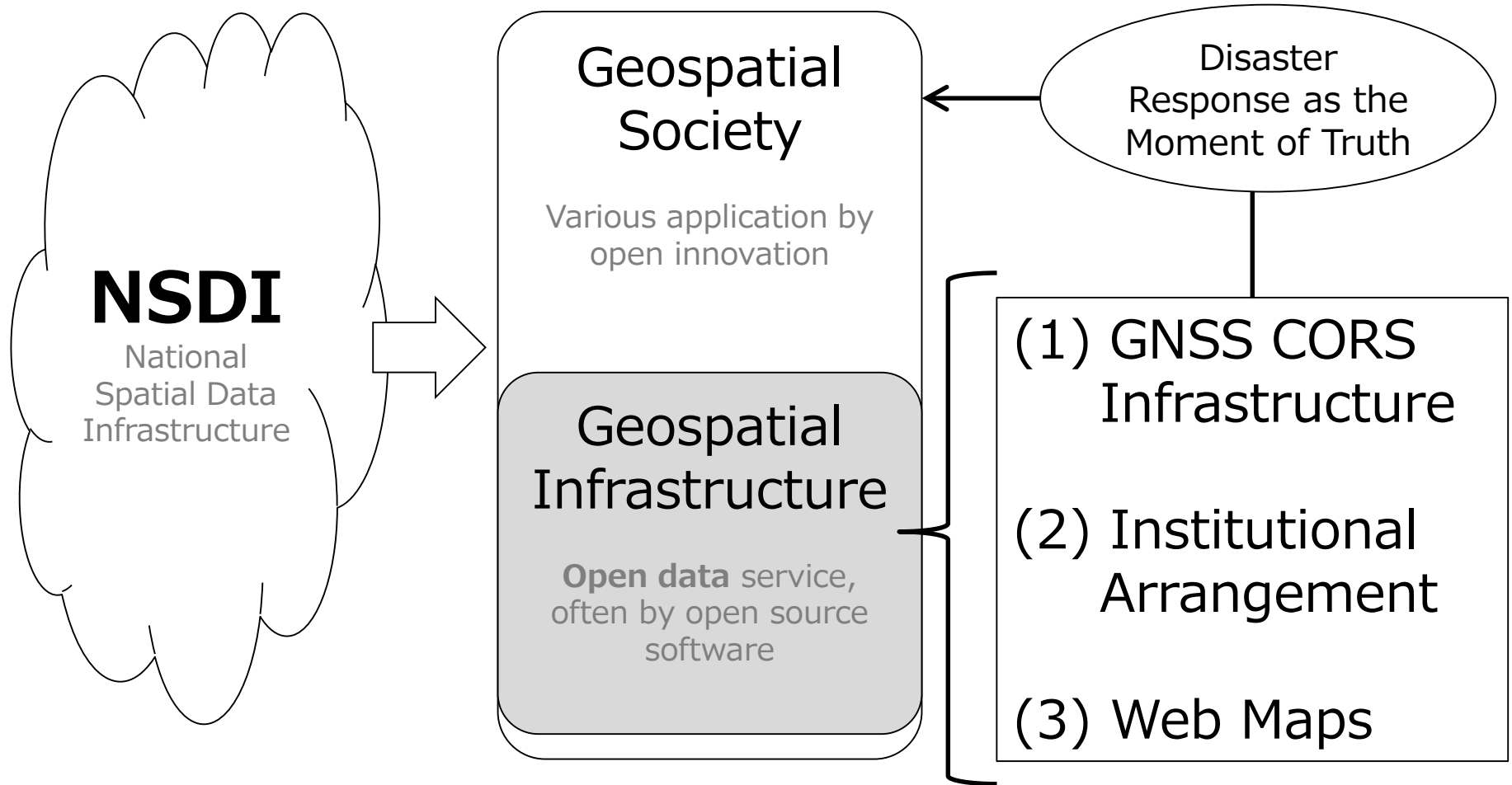
- Reference for positioning on digital maps
- Free download available for anyone to use at any time
- Data resolution is same as 1/2,500 scale map in urbanized area.
- Mostly completed in FY2011





CORS:
GNSS-based
Continuously
Operating
Reference
Station





GSI broke down our contribution to NSDI into 3 (three) components. Ownership and involvement matters, to implement NSDI.

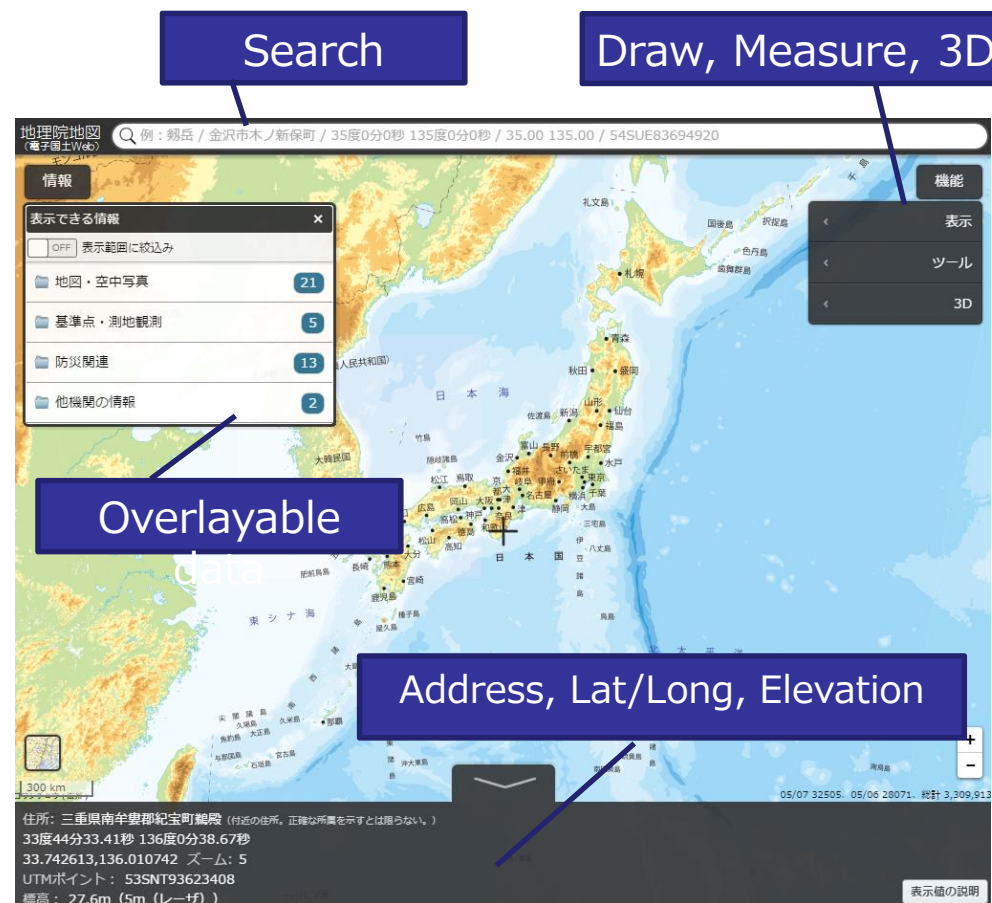
2. Three Policies for Access to NSDI

1. Open Data Policy
2. Open Source Policy
3. Open Innovation Policy

GSI Maps: Tile-based web maps since 2003

<http://maps.gsi.go.jp/>

- Anyone
 - on the Internet
- Anytime
 - 24hours 365days
- Any devices
 - PC / smartphone
- Any data
 - maps, photos, ...

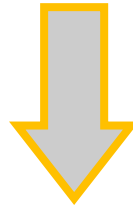


- Open Data Policy

We use **open standards** such as XYZ method.



We use the Government Standard License which is similar to **CC-BY**.



Our data can be **embedded in any online or offline systems** .

Open source policy

- Open Source Software
 - Free / Open Source Software (FOSS) for web maps emerged since the latter half of 2000s.
 - e.g. Leaflet, OpenLayers, Cesium, ...
 - GSI also introduced such FOSS to serve its service more efficiently and effectively.

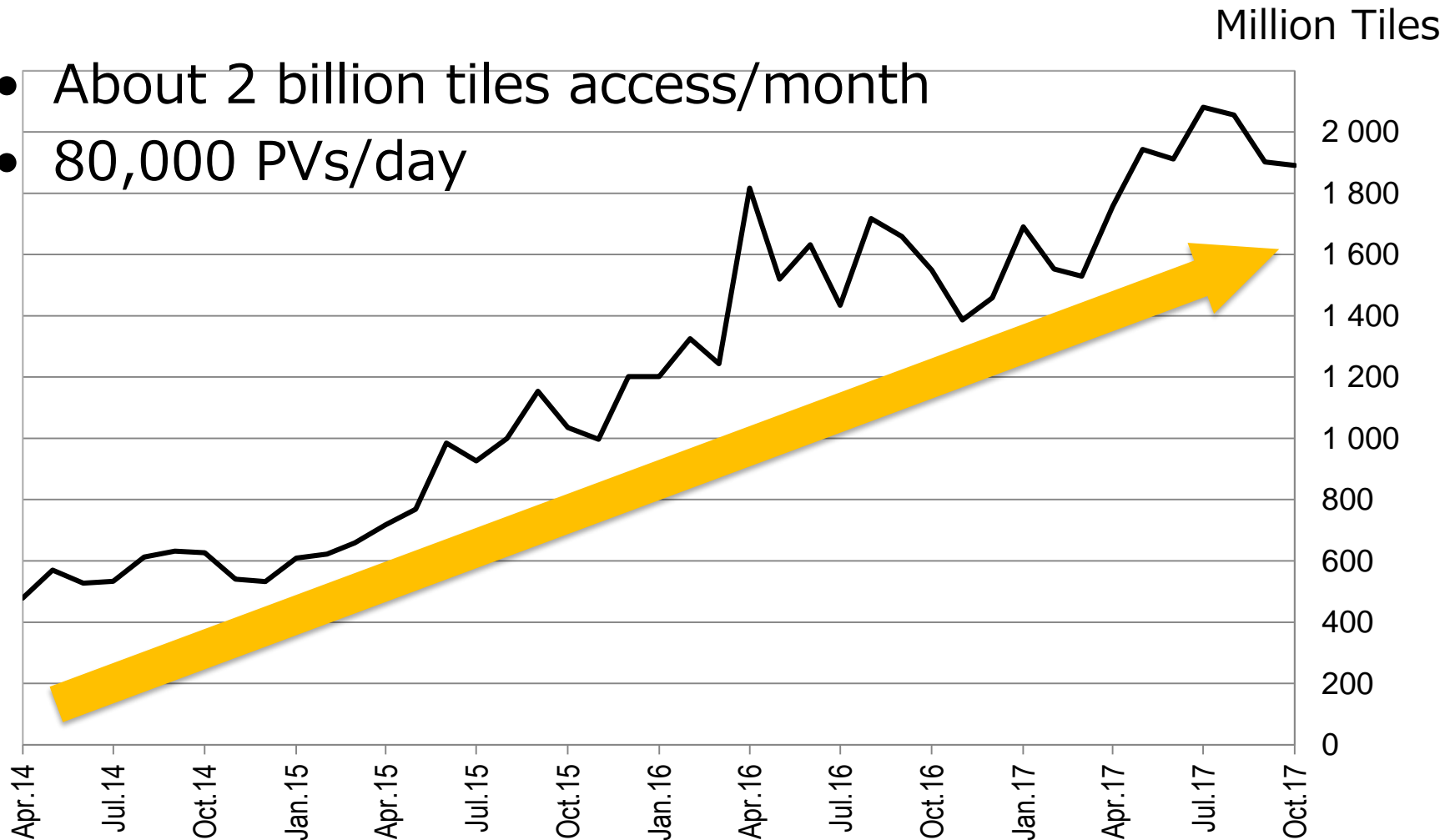


- GSI Maps Partners Network

- A participatory network of software developers and tool providers to promote wider application of geospatial information through extensive use of GSI Tiles.

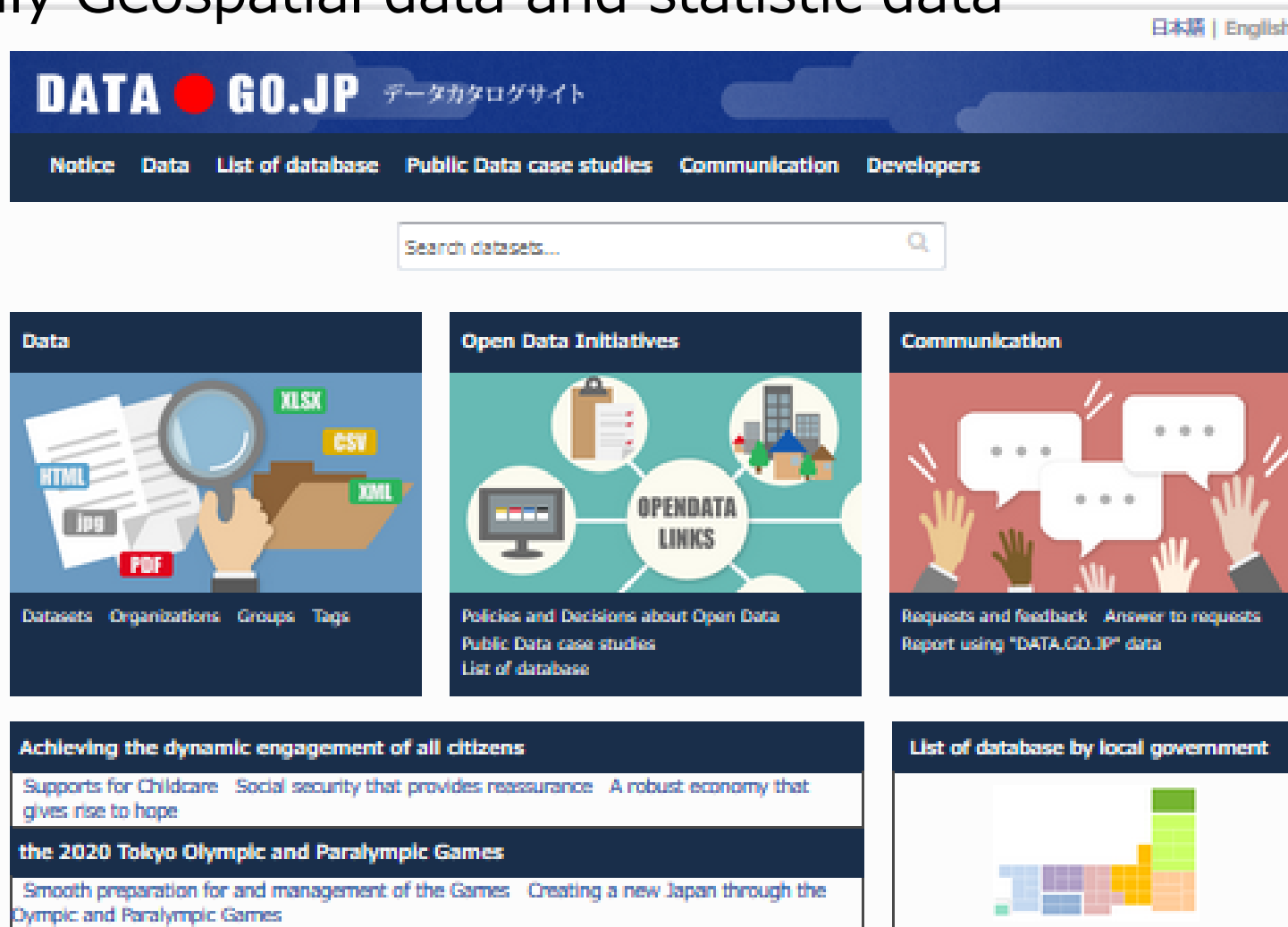


- About 2 billion tiles access/month
- 80,000 PVs/day

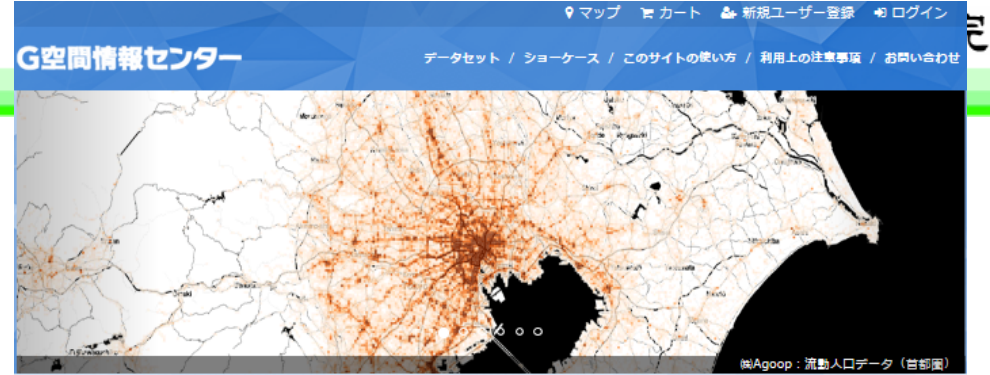


<http://www.data.go.jp/?lang=english>

Mainly Geospatial data and statistic data



The screenshot shows the homepage of DATA GO.JP. At the top right, there are language options for 日本語 and English. The main header features the logo "DATA GO.JP" and the tagline "データカタログサイト". Below the header is a navigation menu with links for Notice, Data, List of database, Public Data case studies, Communication, and Developers. A search bar labeled "Search datasets..." is positioned below the menu. The main content area is divided into several sections: "Data" with icons for HTML, PDF, XLSX, CSV, and XML; "Open Data Initiatives" with a central "OPENDATA LINKS" icon and links to Policies and Decisions about Open Data, Public Data case studies, and List of database; "Communication" with icons for speech bubbles and hands, and links for Requests and feedback, Answer to requests, and Report using "DATA.GO.JP" data; "Achieving the dynamic engagement of all citizens" with text about child care, social security, and the 2020 Tokyo Olympic and Paralympic Games; and "List of database by local government" with a bar chart showing data distribution.



G空間情報センターは、産官学の様々な機関が保有する地理空間情報を円滑に流通し、社会的な価値を生み出すことを支援する機関です。平成24年3月に政府で閣議決定された地理空間情報活用推進基本計画に基づき、設立され、一般社団法人社会基盤情報流通推進協議会が運用を行っているものです。[詳細はこちらをご覧ください。](#)

データセットから探す

データセット数	データ量	データセットへ >
572件	15TB	

条件から探す

カテゴリ... × エリア... × キーワード... 検索

NEWS

- 2017.05.08 [MyCityForecastのカスタマイズ機能の寄贈提供開始予定のお知らせ](#)
- 2017.04.18 [【公開】全業CS立件国10mデータを公開しました。](#)
- 2017.04.17 [【公開】指定航空運送場所データを公開しました。](#)
- 2017.04.13 [【更新】将来人口・世帯予測ツール（予測結果閲覧権限プログラム、「人口情報メッシュ配分プログラム」操作マニュアル）を更新しました。](#)
- 2017.04.10 [【公開】松江駅構内人流センサデータ、2017年3月分を公開しました。](#)
- 2017.04.03 [【公開】CS立件国自動作成ソフト](#)

人気のデータセット

- 1 [将来人口・世帯予測ツール](#)
- 2 [リアル3D都市モデル](#)
- 3 [福島原発気象観測・情報提供サービス POTOKA](#)
- 4 [歩行空間ネットワークデータ](#)
- 5 [松江駅構内人流センサデータ 2017年1月](#)
- 6 [空中写真（カラー画像）](#)
- 7 [通行実績データ](#)
- 8 [リンク旅行集計データ](#)
- 9 [大和市役所でのドローン空撮デモ飛行](#)
- 10 [湯浅統計@湯浅産データ](#)

ショーケース



Started operation on November 24, 2016
https://www.geospatial.jp/gp_front/

Main features

Data retrieval by

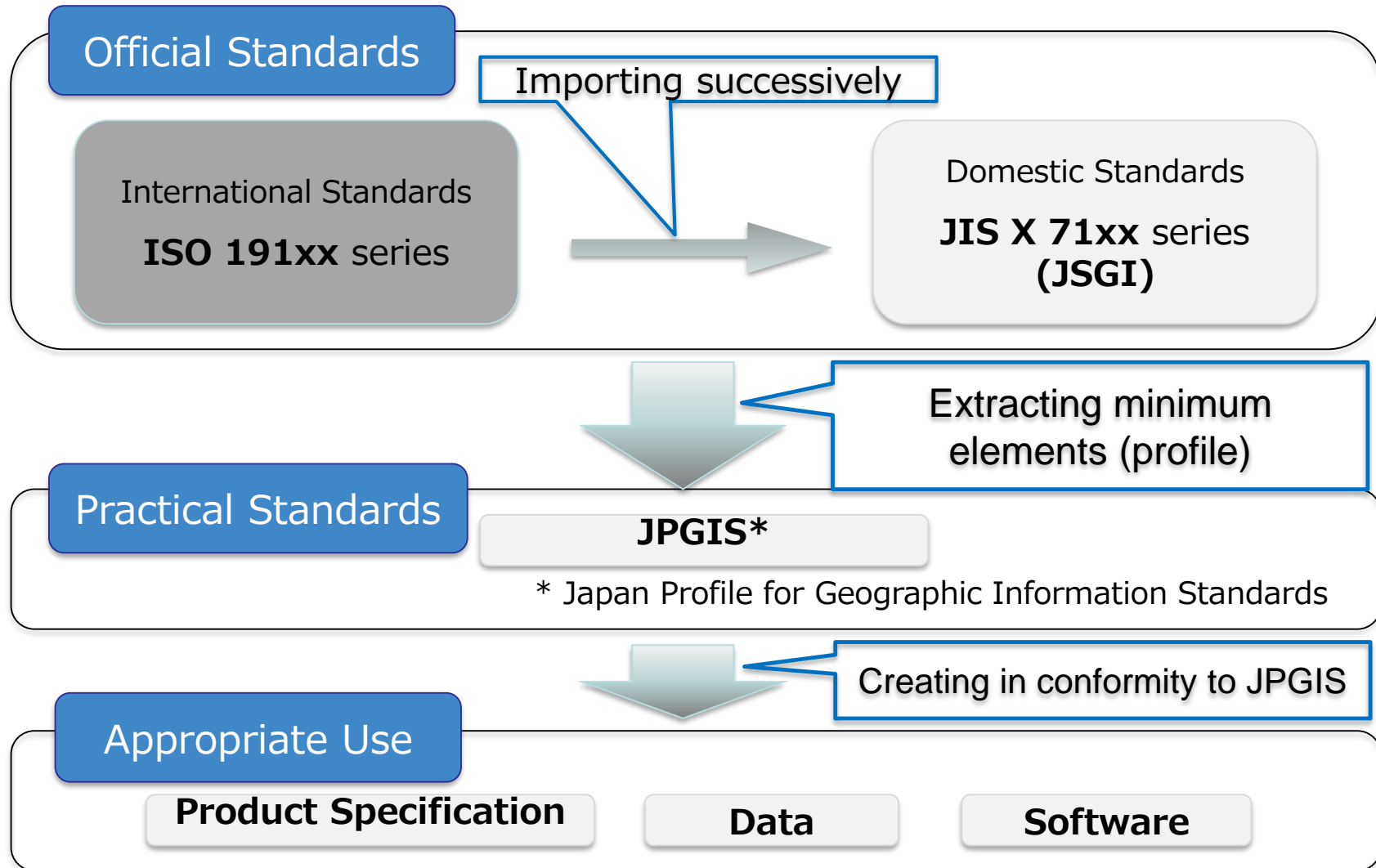
- Category
- Area
- Key words

- Various data are displayed in a unified pattern
- Sample display (sample images, overlapping display with map)

- Show case introduction

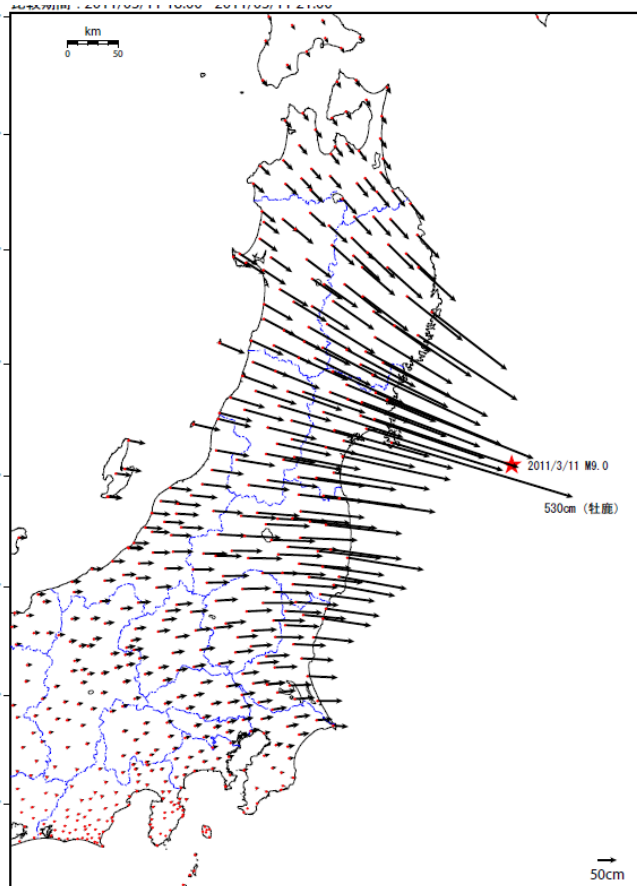
3. Standardization

- GSI has actively participated in **ISO/TC211** since the foundation in view of the magnitude of standardization of geographical information and promotes it developing **Japanese Standards for Geographic Information (JSGI)** in accordance with ISO/TC211.
- Japan has participated in ISO/TC211 since 1994, when ISO/TC211 was founded.
- GSI has played an important role in activities not only in domestic activities but also in international meetings such as TC Working Group.

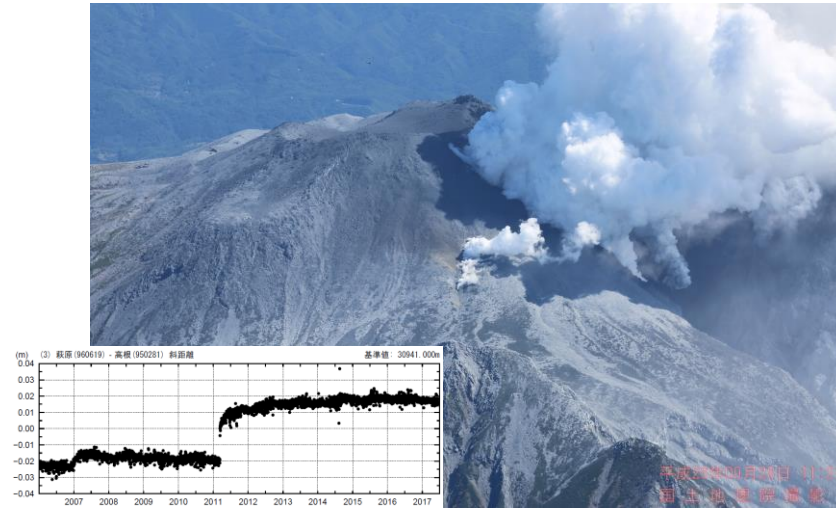


- GSI published **JSGI 2.0** in March 2003 in accordance with the international standards. The JSGI 2.0 is based on JSGI published in 1999 and reflects examinations of practical concerns for the implementation in Japan through **a joint research with 38 private enterprises** titled “Study for practical Standards for Geographic Information.”
- The Japanese government, including GSI, takes the initiative to utilize JSGI at data maintenance that is **properly updating**, dissemination of data and to promote implementation of JSGI and provide technical assistance.

4. Utilization; Now and the Future



Crustal Deformation after Great Tohoku Earthquake

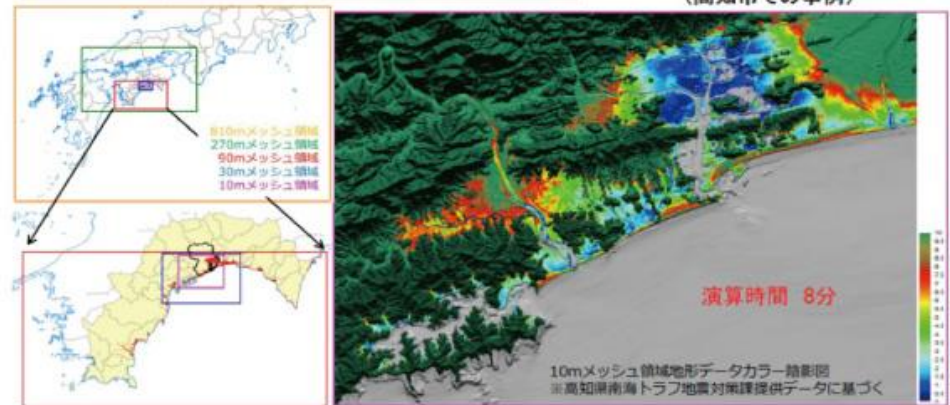


Eruption of Mt. Ontake

Items	Condition
理論式	Non-linear Shallow Water Equations
計算スキーム	Staggered Leap-frog FDM
dx	Nested Grid (810m, 270m, 90m, 30m, 10m)
dt	0.25 sec. (Satisfying stability condition)
潮位	HWL

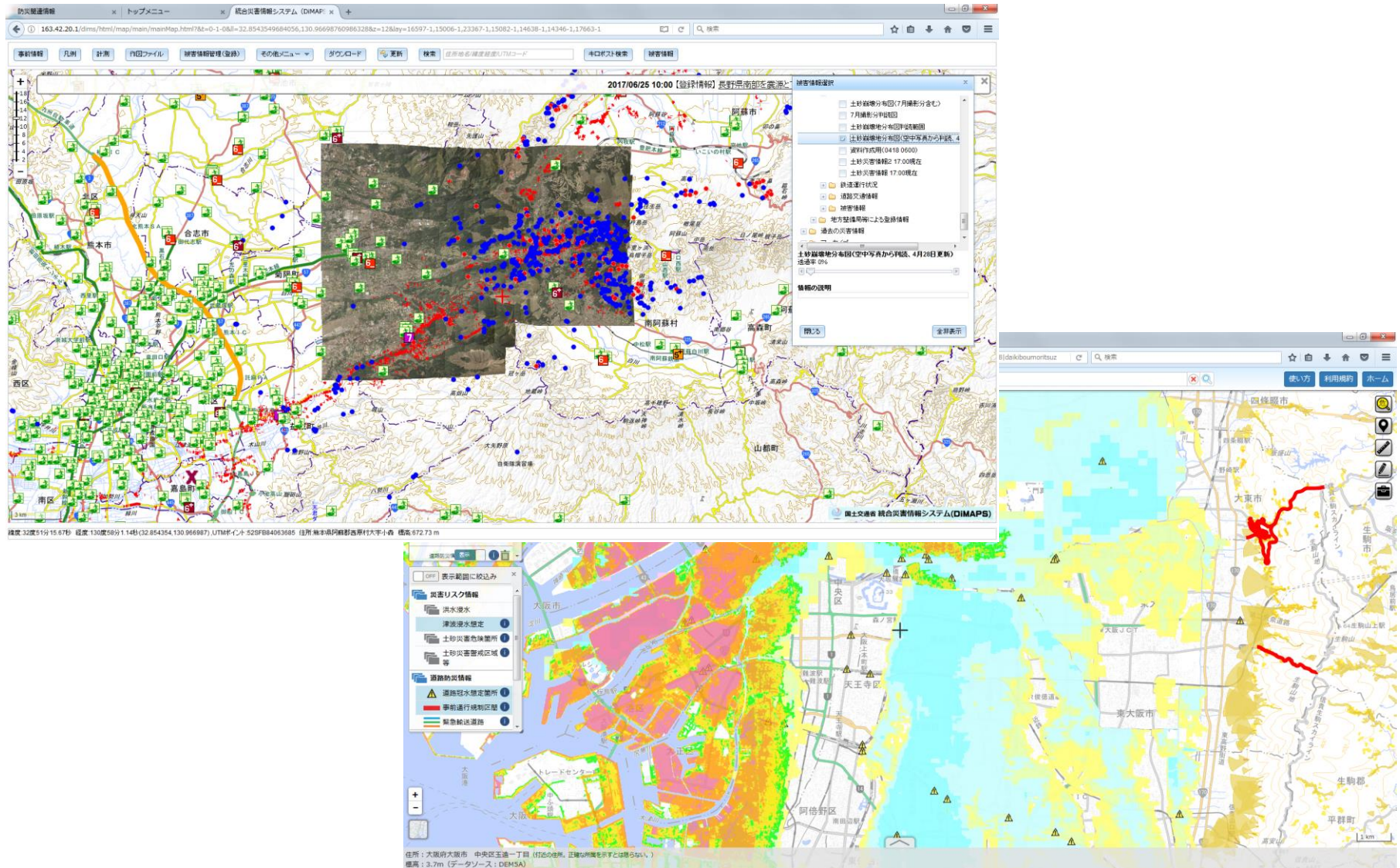
TUNAMI-Code
Tohoku University's Numerical Analysis Model for Investigating Tsunami

(高知市での事例)



"Tsunami" simulation

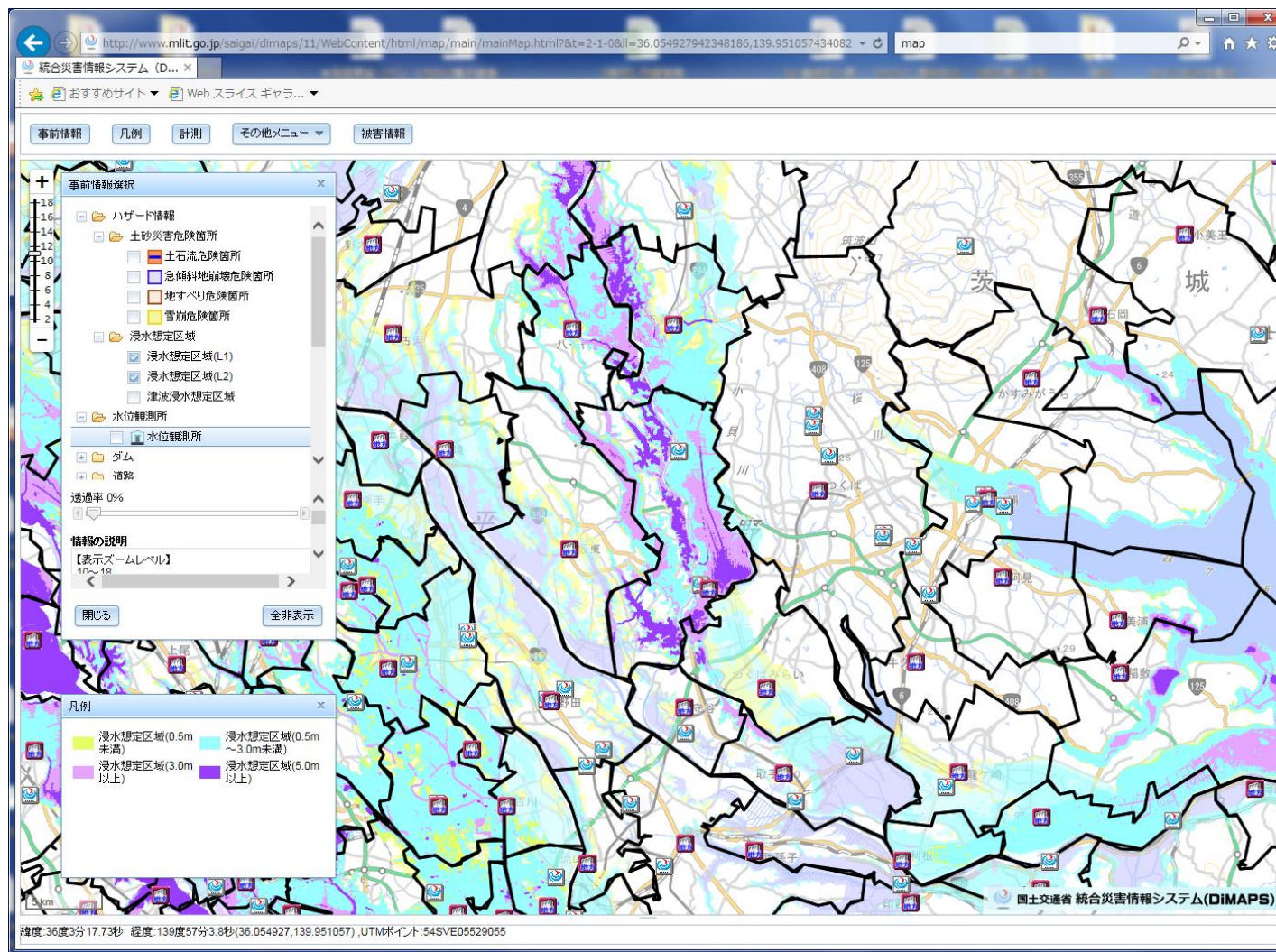
“DiMAPS” for Ministry of Land, Infrastructure, Transport and Tourism



“Hazard Map Portal Site” (flood risk area + Tsunami risk area) 28

DiMAPS by MLIT.

Disaster information and relevant information is displayed on the web map.



This example shows distribution of potential areas suffering from river flood.

Base map data and the platform for web map are offered by GSI.

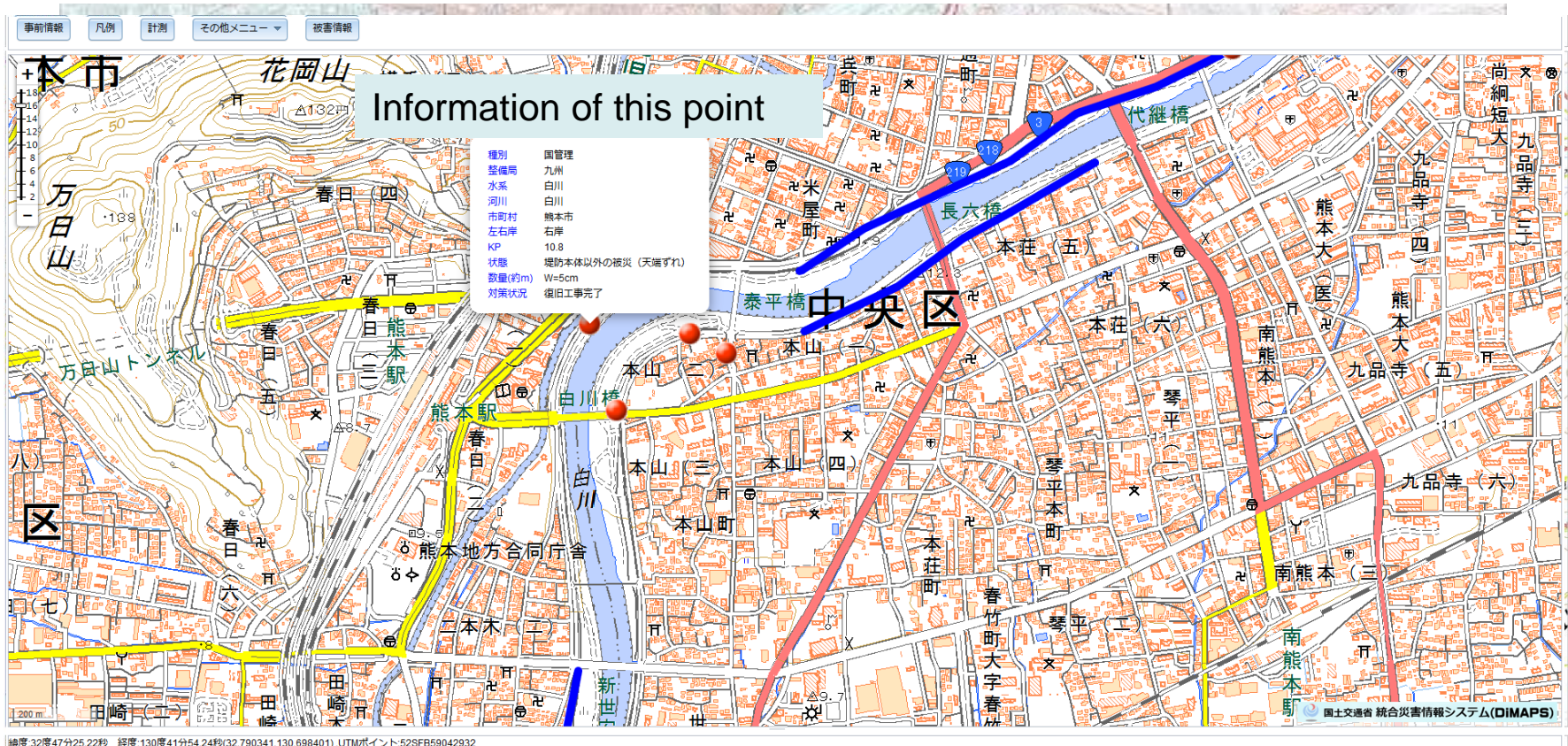
Locations of MLIT Branches, Evacuation Area, Local Government, etc.

Recent Activities by JMA

- Japan Meteorological Agency (JMA) started to open river data about real-time-forecast of flux over 20,000 rivers in Japan since July 2017.



- The web map can provide all kinds of geospatial information as a fundamental platform.
- For example, active faults distribution map that GSI already studied and prepared was released through our website.
- The latest geospatial information about damaged area was also delivered each by each.



Accuracy of satellite positioning is improving.

➡ Self-driving cars

➡ 3D and more detailed and more fresh road information



<http://www.nissan.co.jp>

➡ Pedestrian navigation with smartphone

➡ more detailed and more fresh map maps of underground mall



Geospatial Technology becomes popular.

➡ Geo-data and Geo-tools explode in the society.

➡ data standard and distribution system

<http://enroute1.com/>



3D-survey with UAV



Design with 3D-CAD

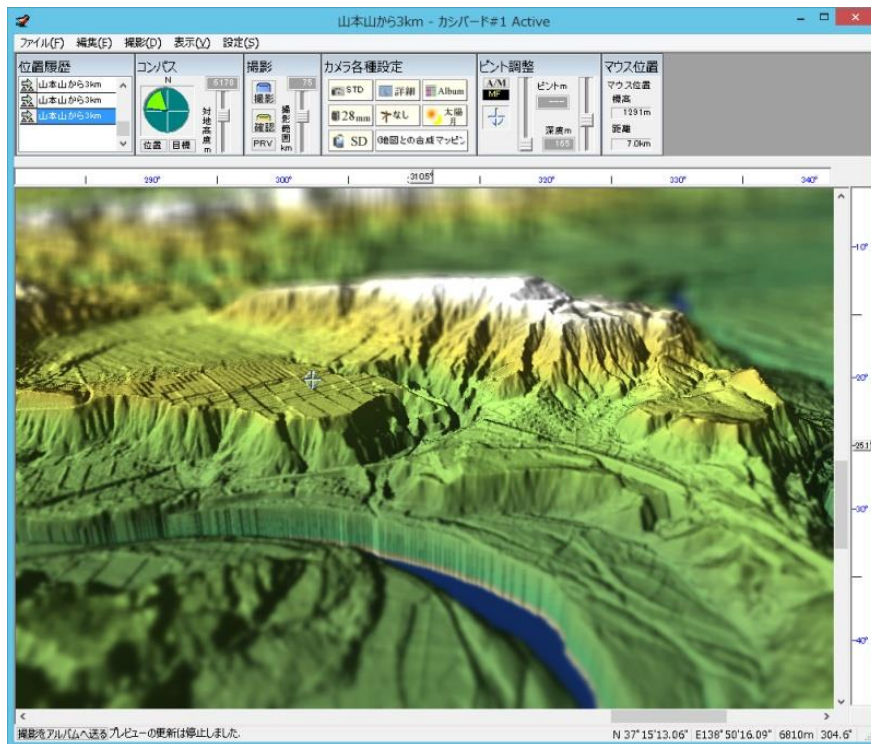


<http://www.actec.or.jp>

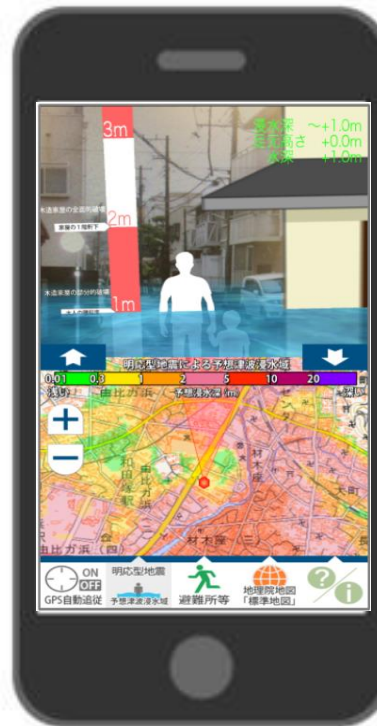
Auto-controlled Construction Machines with GNSS

Safe and Labor-Saving Construction

GSI Web Platform data is “ Open Data”, so anyone can use NSDI data for his own web-sites, applications, etc.



Desktop GIS application



Smartphone APP



Map for visually handicapped

- Geospatial tools may help **visualizing easily for non-trained people**, so that they can understand geographic situation more properly and grow up geographic literacy.
- A lot of data are now being provided to the public through the GSI Map, **based on NSDI and geospatial standards**.
- The GSI continues to **keep the open data policy** in order to take advantage to the Japanese society, including activities of private sectors.