

Crowdsource Mapping Response to the Great East Japan Earthquake



KOKUSAI KOGYO CO., LTD.

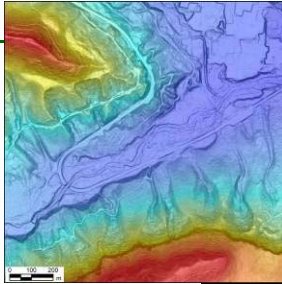


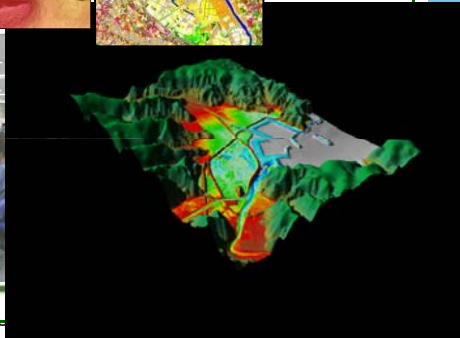




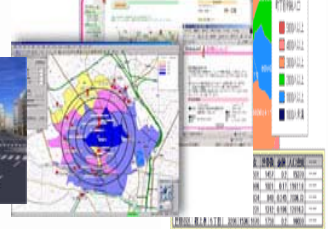


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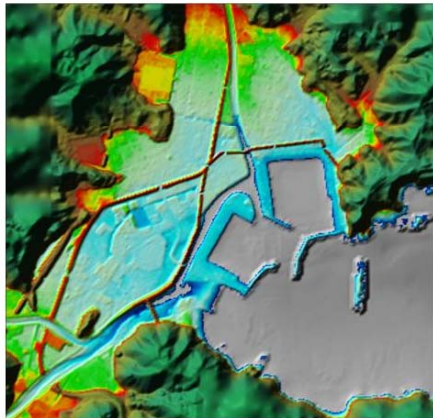
Business Fields of KOKUSAI KOGYO(KKC)

- KKC can provide the total solution from Data capturing to Consulting

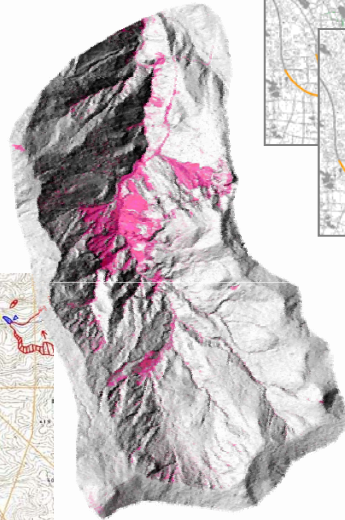
1 Data Capturing	2 Data Processing & Analysis	3 Consulting & Engineering Services
<p>Capture geospatial data through various kinds of sensors</p> <p>Various Satellite Sensors 3 Lidar sensors 3 Digital Image Sensors(DMC) 1 Oblique Image Sensor</p> <p>Satellite Remote Sensing Digital Aerial Photography</p> <p>LIDAR</p> <p>Ground Survey Mobile Mapping GPS</p> <p>Marine Survey Narrow Multi-Beam</p>	<p>Provide high quality data processing technology and professional interpretation</p> <ul style="list-style-type: none"> •5 PhDs, 351 registered surveyors •Specialties Photogrammetry, Remote Sensing, GIS Analysis, Geospatial DB design     	<p>Consulting based on processed geospatial data and technical expertise</p> <ul style="list-style-type: none"> •20PhDs, 260Professional Engineers •Specialties Disaster Prevention, River Planning, Road Planning, Urban Planning & <p>Planning Service</p>    <p>Planning & Design</p>  <p>GIS Solutions</p>

Disaster Prevention Business of KKC

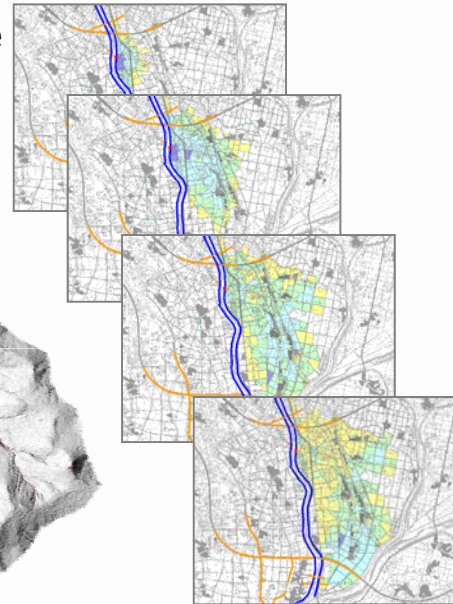
Measuring & Analyzing topography



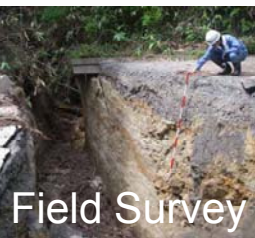
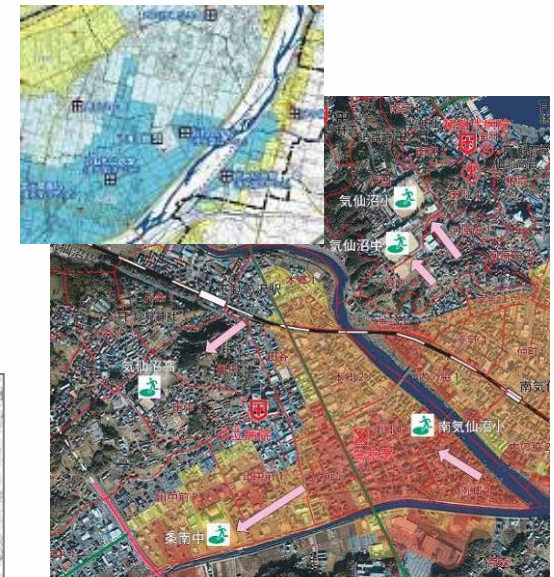
Extracting landslide



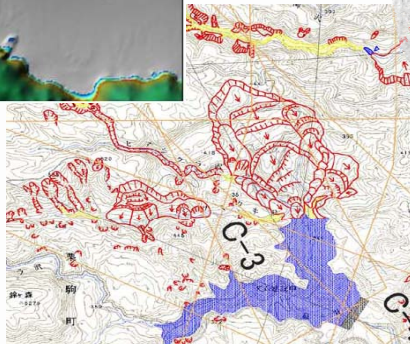
Flood Simulation



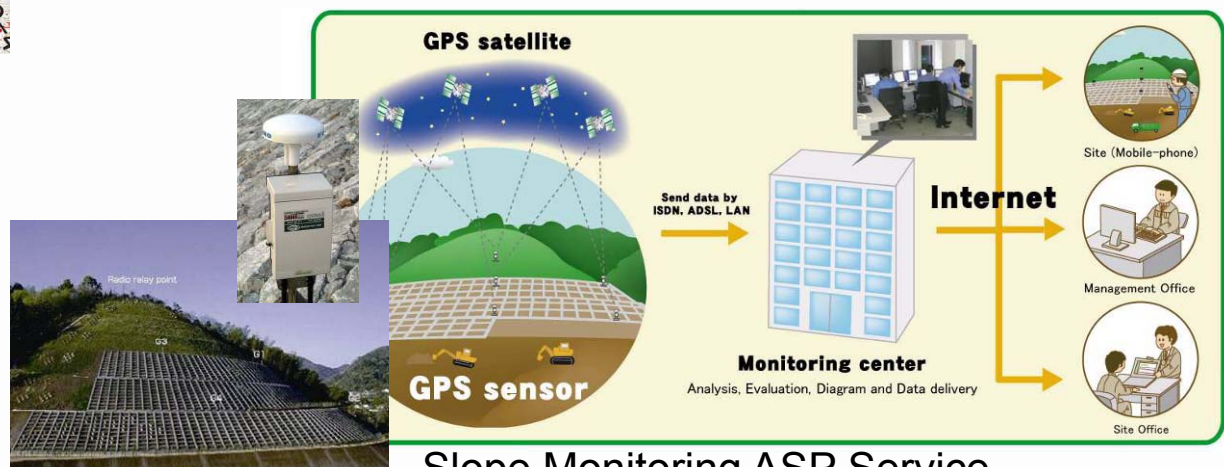
Hazard Map



Field Survey



Disaster preparedness training



Slope Monitoring ASP Service

Responding to Great East Japan Earthquake in 2011

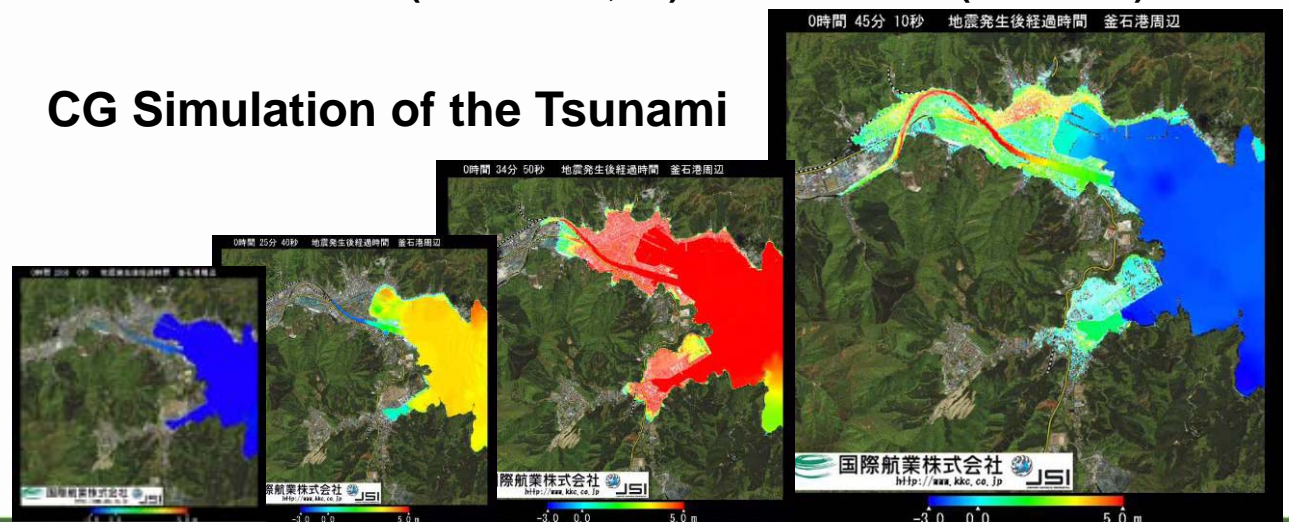
Oblique aerial photos



Comparison of aerial photographs pre- and post-disaster

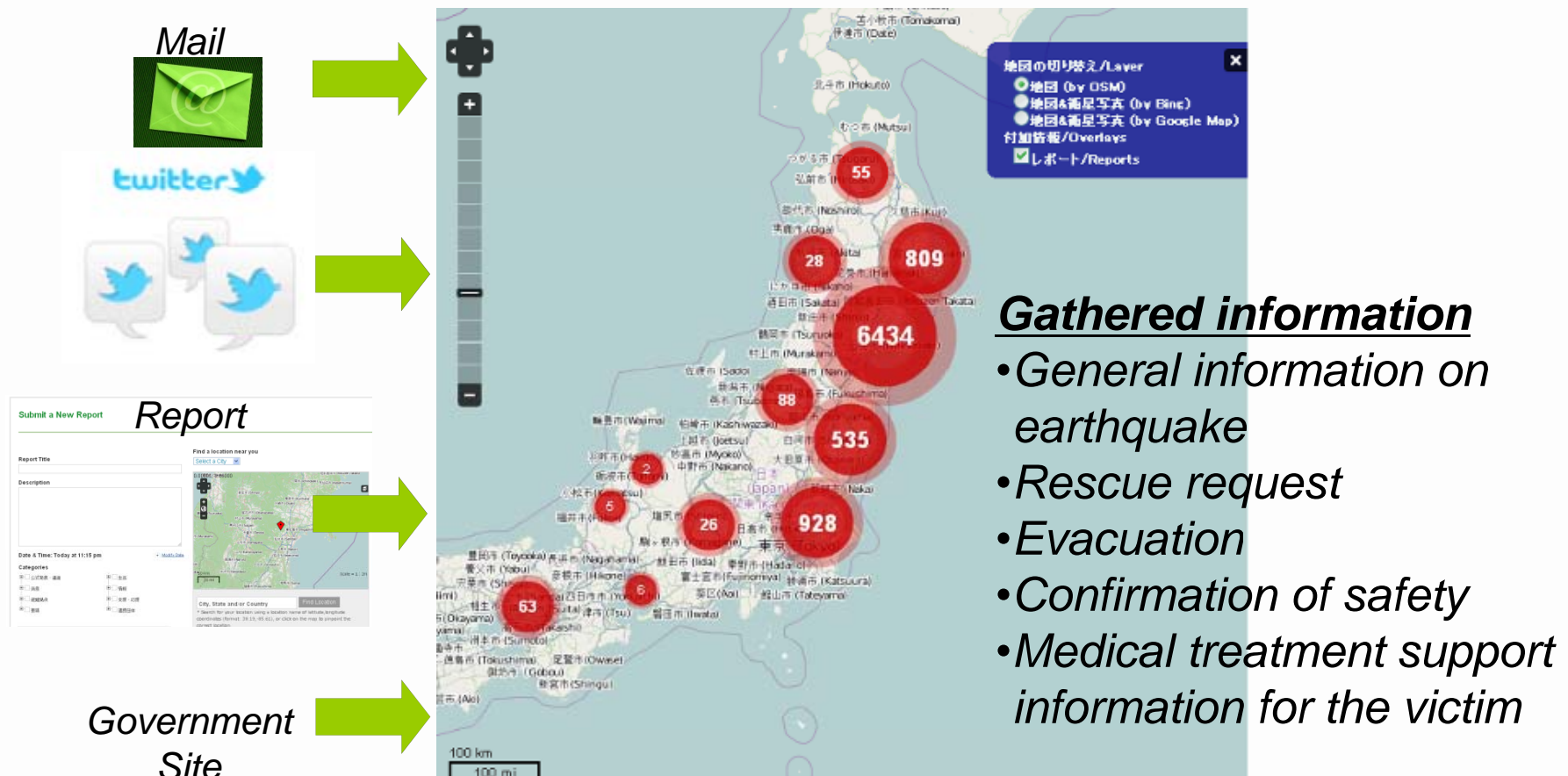


CG Simulation of the Tsunami



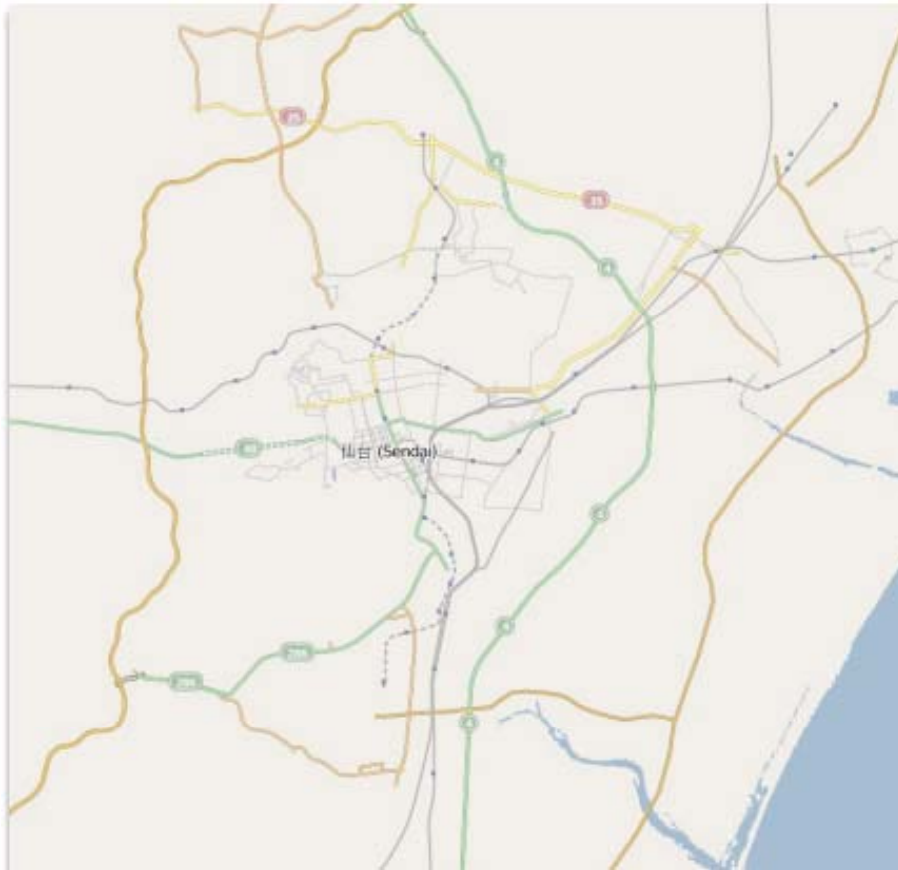
sinsai.info (using Ushahidi)

- Information with location have been gathered and mapped.



http://www.sinsai.info/?l=en_US

OpenStreetMap Japan



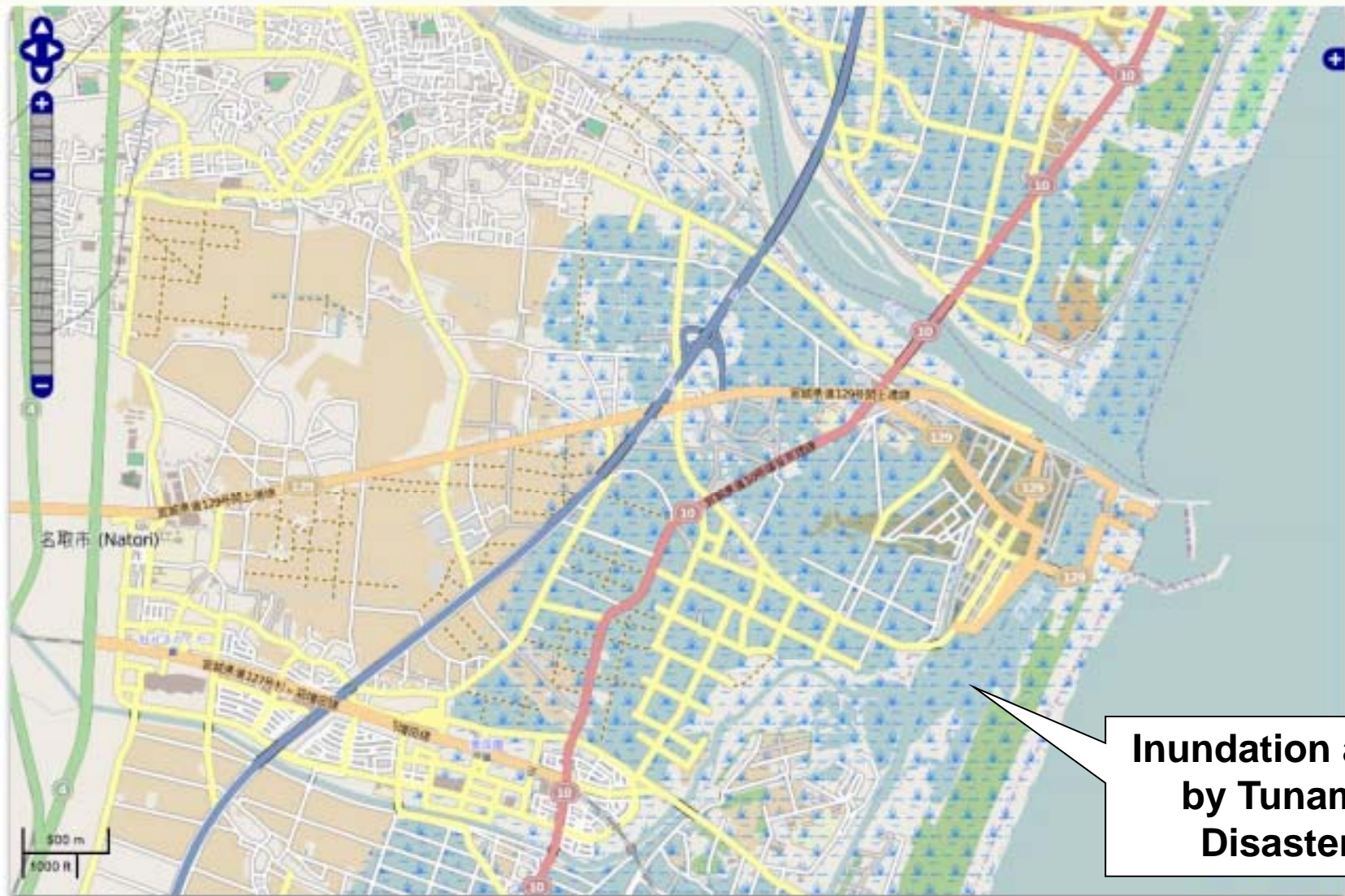
Map situation in 2009



Map situation in May 2011
(2 month after the Earthquake)

Provided by Mr. Daichi Furuhashi@OpenStreetMap Foundation Japan

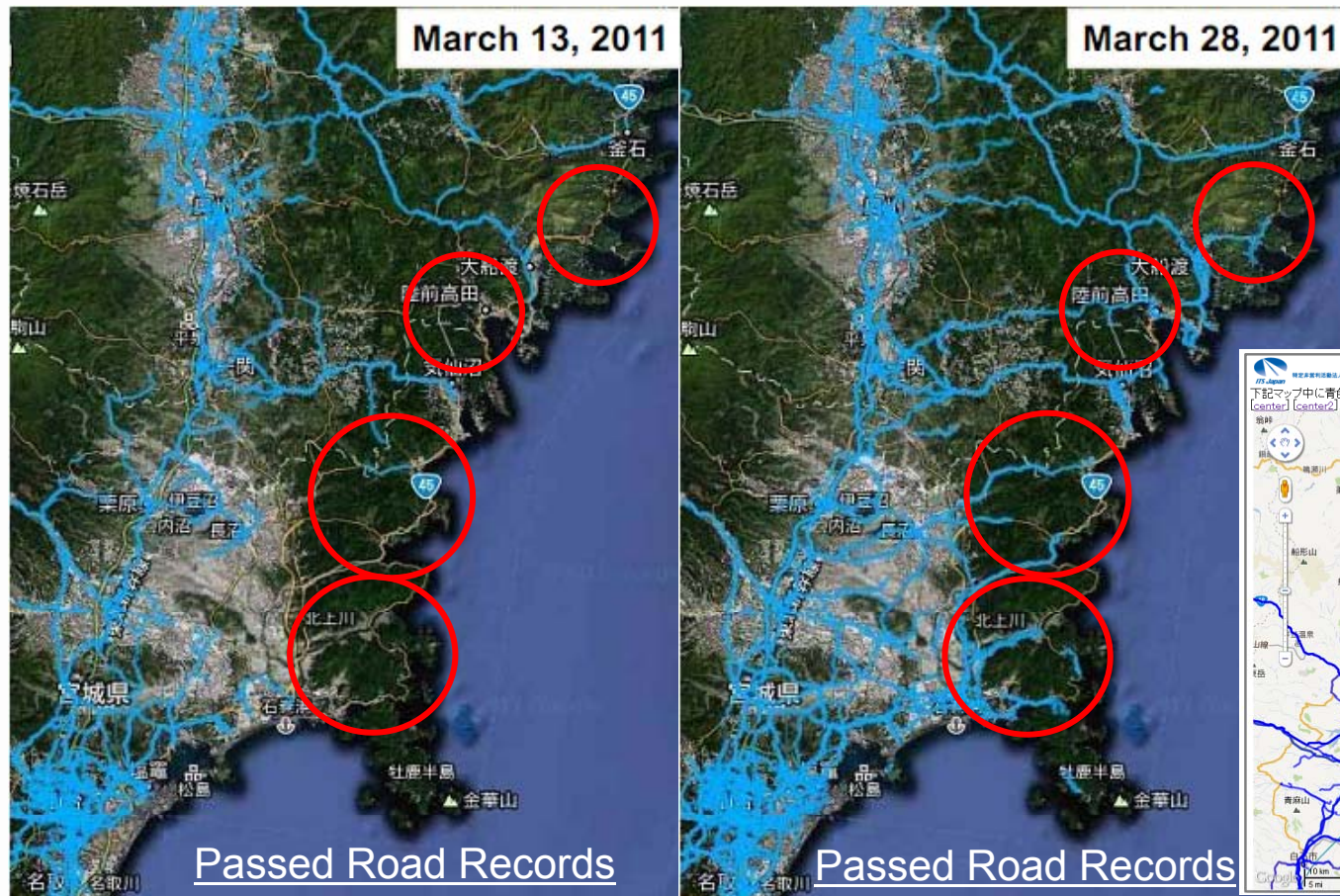
OpenStreetMap Japan



Provided by Mr. Daichi Furuhashi@OpenStreetMap Foundation Japan

Provision of Trafficable Road Information

- It was difficult for the road administrators to grasp damaged roads for some time after the earthquake.
- Trafficable road map created by Probe data were useful to transport relief aid.



Trafficable Road Map



http://www.iutindia.org/urban2011/images/stories/pst_atUMI11/2A/ITSJapan_Uchimura.pdf

Public and Private sector Collaboration



特定非営利活動法人

ITS Japan

自動車通行実績・通行止情報



国土交通省

国土地理院

下記マップ中に青色で表示されている道路は、2011/4/26の0時～24時の間に通行実績のあった道路を示しています。

また、赤色で表示されている道路と通行止マークは、「東北地方道路規制情報 災害情報集約マップ(国土交通省国土地理院)」のデータによる通行止区間・箇所を示しています。(通行止め情報の最終更新は2011/4/26の0時～24時の間に実施されたものです。)

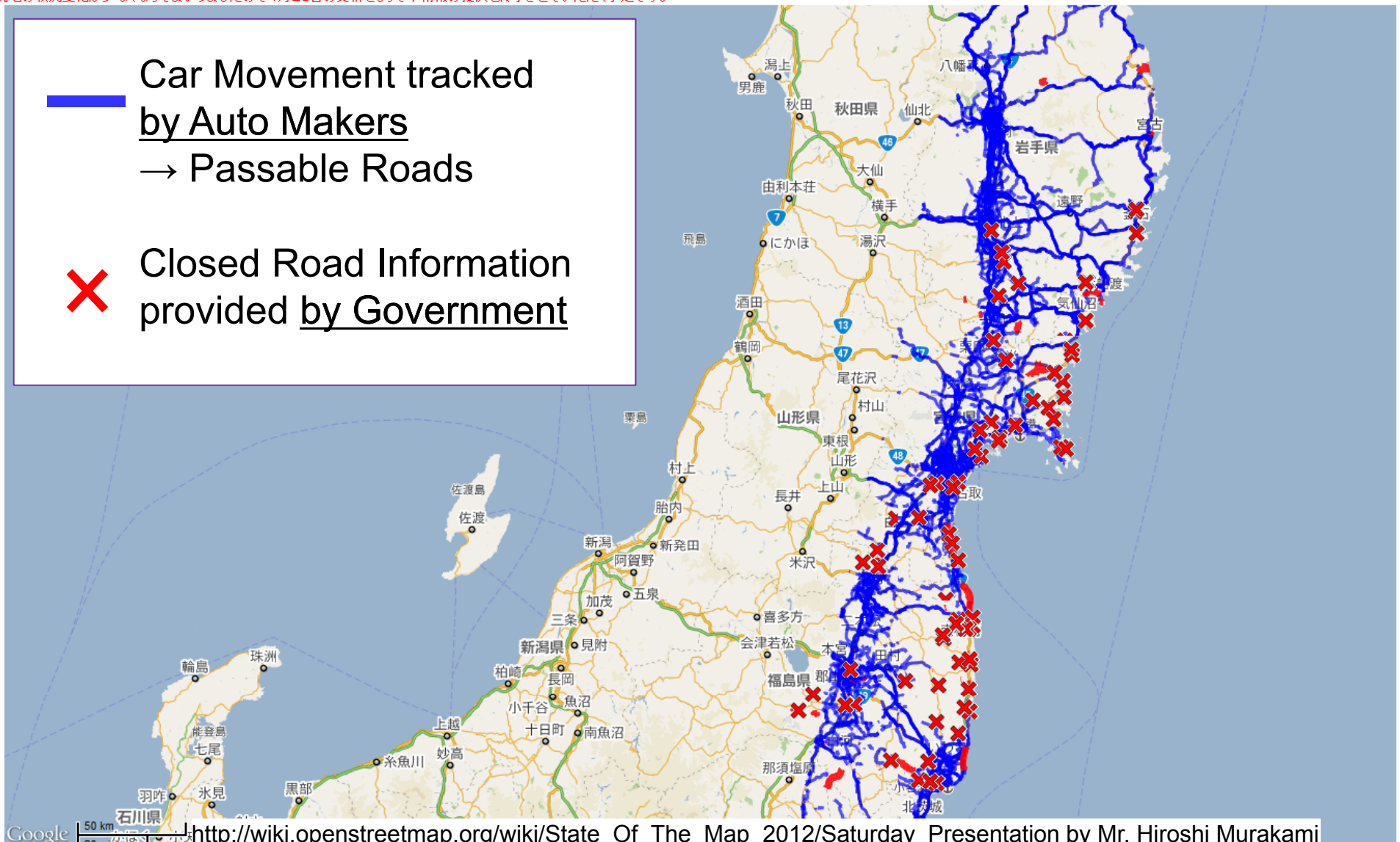
現地の状況変化が少なくなってきたので4月28日の更新をもって本情報の提供を終了させていただく予定です。

Car Movement tracked
by Auto Makers

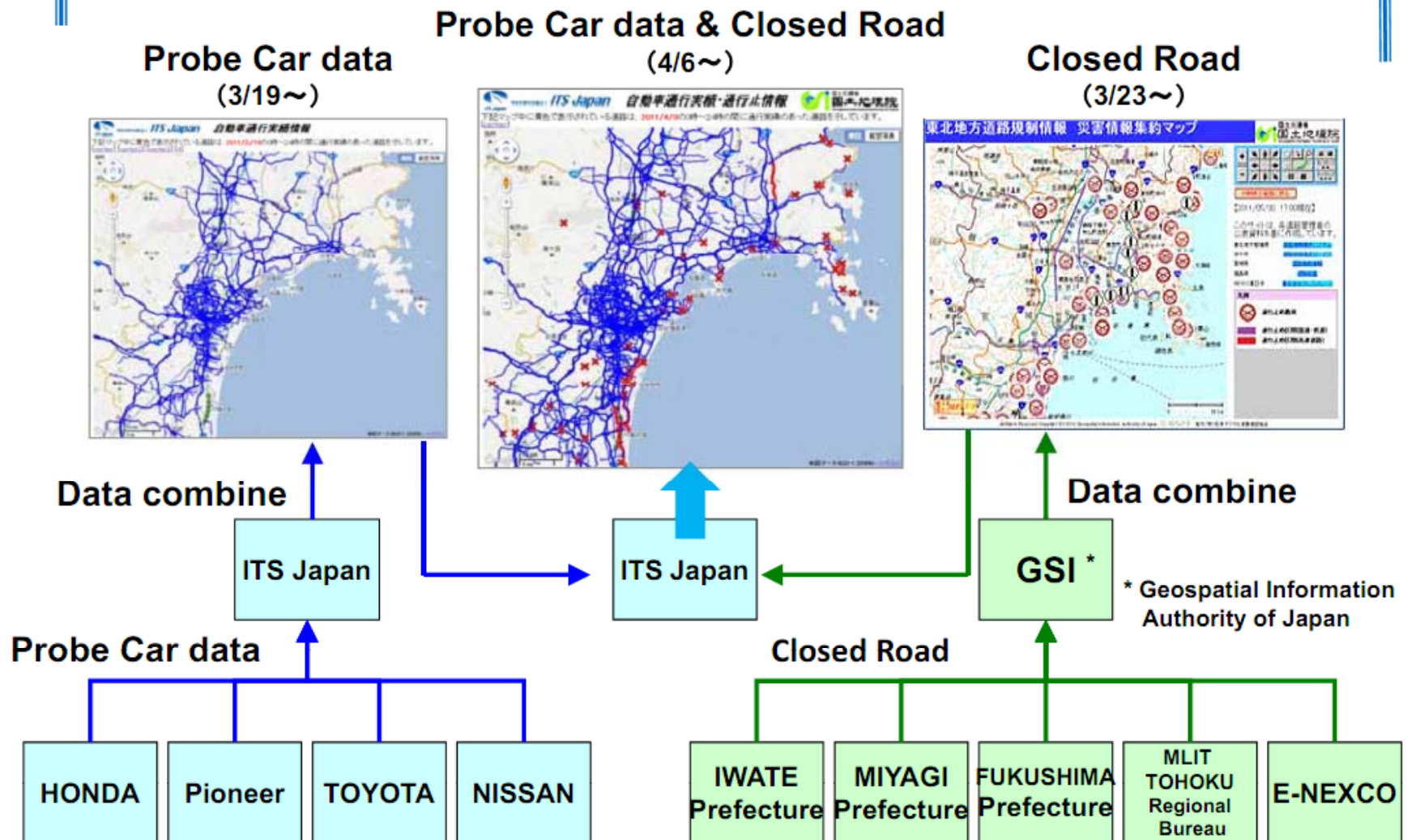
→ Passable Roads



Closed Road Information
provided by Government



Work flow to create Passable Road Map



MLIT : Ministry of Land, Infrastructure, Transport and Tourism
E-NEXCO : Highway company

20

http://www.iutindia.org/urban2011/images/stories/pst_atUMI11/2A/ITSJapan_Uchimura.pdf

Emergency aerial photography survey agreement

According to the “agreement with GSI (Geospatial Information Authority of Japan) on emergency areal photography survey”, aerial photos are taken immediately after the events by Japanese survey companies

GSI : Geospatial Information Authority of Japan

Request

Aerial Photos

APA : Association of Precise Survey and Applied Technology

Standby notice

Aerial Photos

Asia Air
Survey

Aero
Asahi

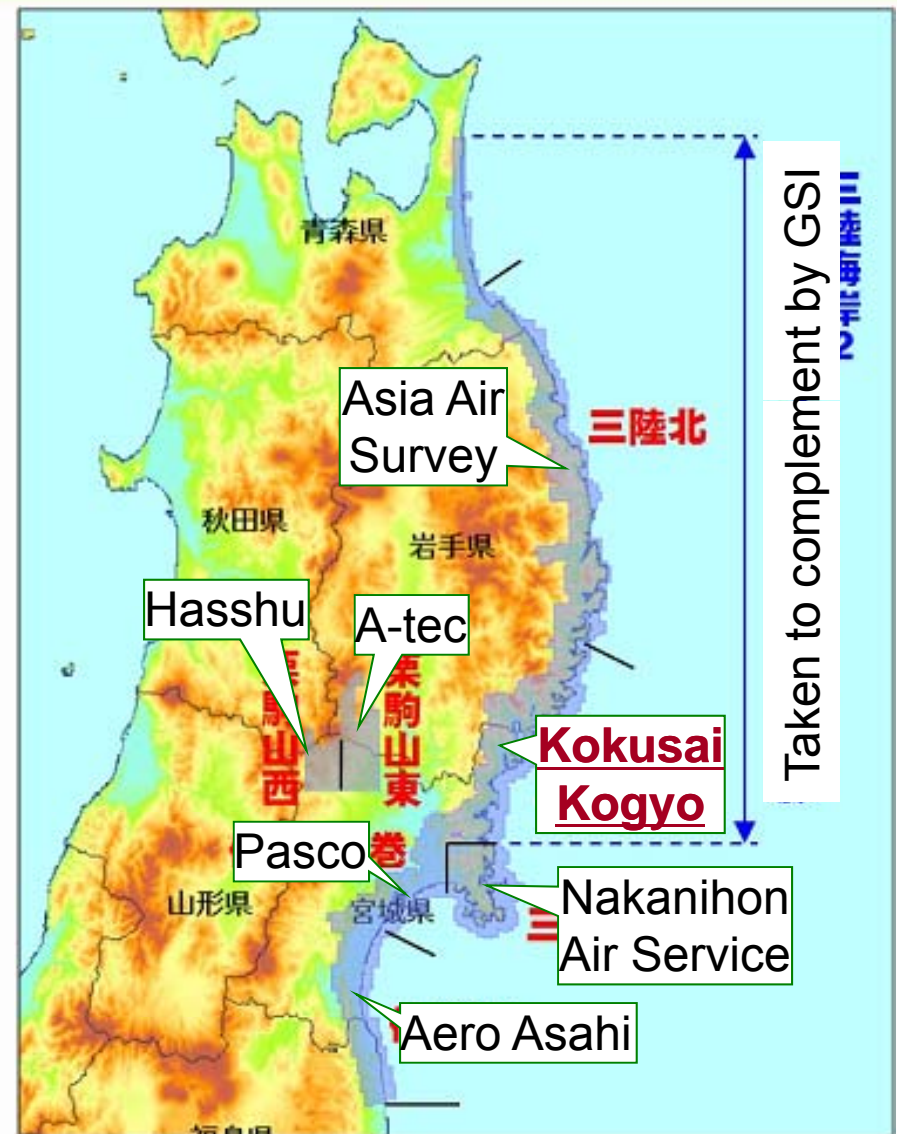
**Kokusai
Kogyo**

Nakanihon
Air Service

A-tec

Hasshu

Pasco



<http://www.gsi.go.jp/common/000064458.pdf>



Timeline of Response for Agreement

March 11th, Friday

14:46	Great East Japan Earthquake
15:30	GSI sends standby notice
15:45	GSI requests APA for list of members
15:54	APA begins contacting member companies
17:59	APA tells GSI: 7 companies ready to respond
22:37	APA tells GSI: 9 companies ready to respond

March 12th, Saturday

12:07	GSI reports to APA that this emergency survey job has been divided among 7 companies
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