

Role of Japan Coast Guard toward the integration of marine-related data and information

Dec 8th, 2011

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Japan Coast Guard

Scope of presentation:

- Outline of the Japan Hydrographic Oceanographic Department (JHOD), Japan Coast Guard

 - Experts on marine-related data and information management

- JHOD's activities against the Great East Japan Earthquake

 - Importance of marine-related data and information toward the disaster

- To the next steps

 - JHOD's experience and contribution to the integration of marine-related data and information

Outline of JHOD

Ministry of Land, Infrastructure,
Transport and Tourism



Japan Coast Guard



Administration Department

Equipment and Technology Department

Guard and Rescue Department

Maritime Traffic Department

**Hydrographic and Oceanographic
Department (JHOD)**



Total budget:

about 2billion JPY

Staff employed:

About 250 (Tokyo)

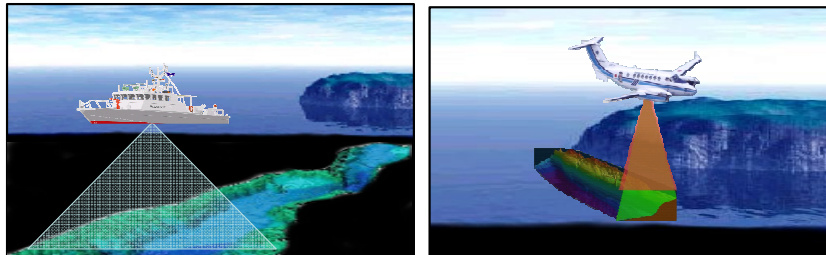
160 (Regional)

150 (SV crews)

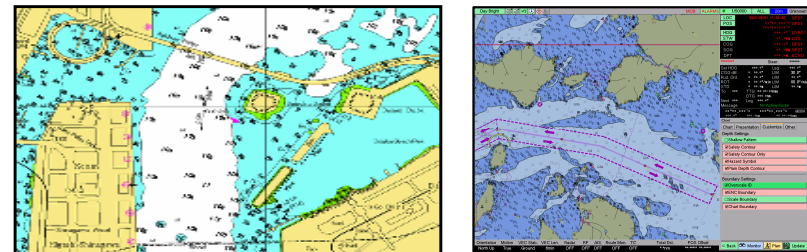
Outline of JHOD

Hydrographic and Oceanographic Department (JHOD)

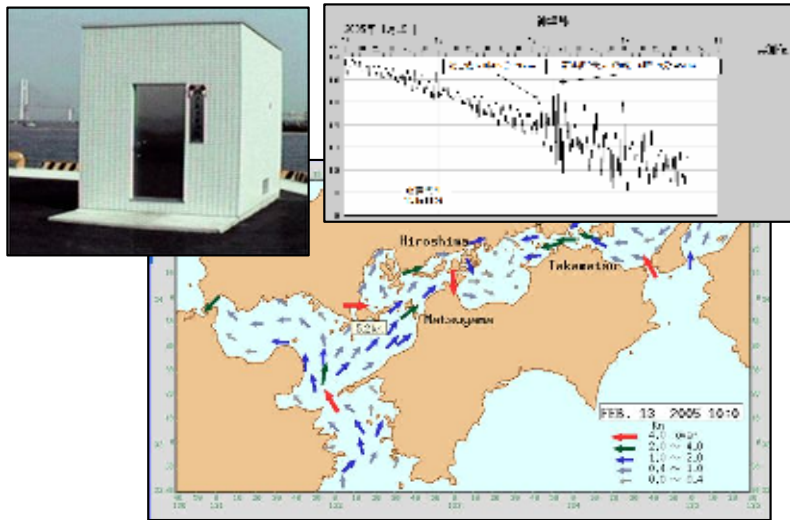
Hydrographic Survey



Nautical chart and publication



Observation of tide, current and marine pollution



Oceanographic Data and Information Service

The left part of the image is a screenshot of the Japan Oceanographic Data Center (JODC) website. It features the JODC logo, the text '日本海洋データセンター' and 'Japan Oceanographic Data Center', and sections for 'International Project' (listing programs like NEAR GOSS, IODWESTAC, etc.), 'About JODC', 'Online Data (J-DOSS)', and 'Notice of System'. The right part of the image is a photograph of the JODC office interior, showing a modern workspace with desks, computers, and large windows.

Japan Oceanographic Data Center

JODC



- the synthetic marine data bank of Japan
- under the framework of International Oceanographic Data and Information Exchange (IODE) promoted by UNESCO/IOC

History

- 1961: resolution by IOC of UNESCO
- 1965: JODC was established in JCG
- 1994: JODC data online service system (JDOSS) had launched
- 2004: Ceis Net had launched
- 2010: Marine Information Clearing House had launched



Japan Oceanographic Data Center

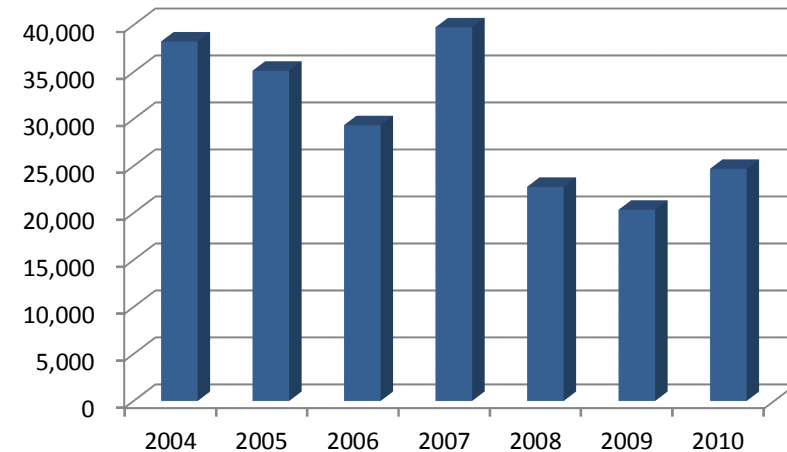
JODC



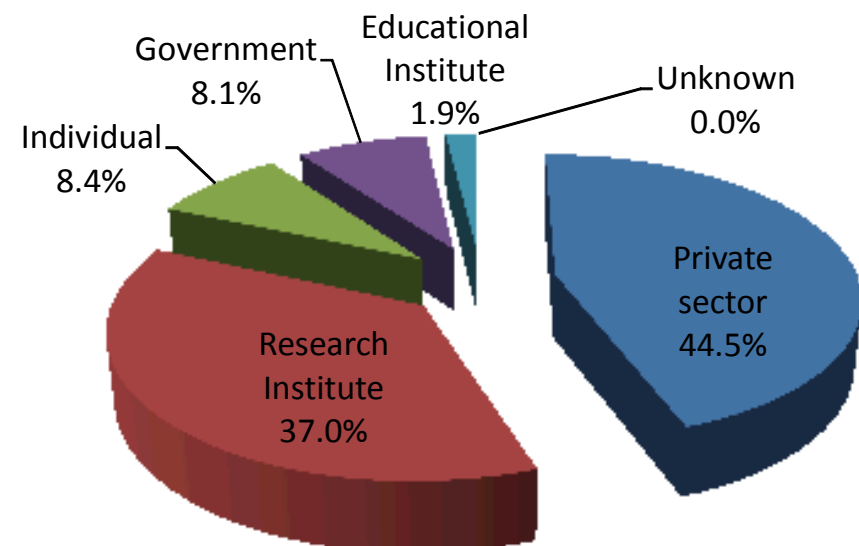
Data Items in JODC

- Ocean Station Data
- Marine Organisms
- Ocean Current
- Tide (Sea Level)
- Tidal Current
- Marine Pollution
- Bathymetry and Marine Geophysics
- Oceanographic Information
 - Cruise Summary Report etc.
- Gridded Data Products
 - Temperature (1 ° Mesh)
 - Salinity (1 ° Mesh)
 - Ocean Current (1 ° Mesh)
 - Depth (500m Mesh)

The number of download:



Type of user:



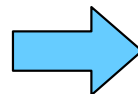
Coastal Environmental Information
Service

Ceis Net

- Web-GIS system against oil-spill disaster
- List of information:
 - Shoreline, off-shore status
 - Equipment for disaster prevention
 - Fishery rights
 - Marine protection area

etc

Snapshot of Ceis Net



These experience and expertise will be useful for the integration of marine-related data and information.

Environmental information as Ceis Net provides:

A Case of Ferry ARIAKE:

In Nov. 2009, Ferry ARIAKE run aground at Kumano, oil-spill spread around the coastal area.

Ferry ARIAKE

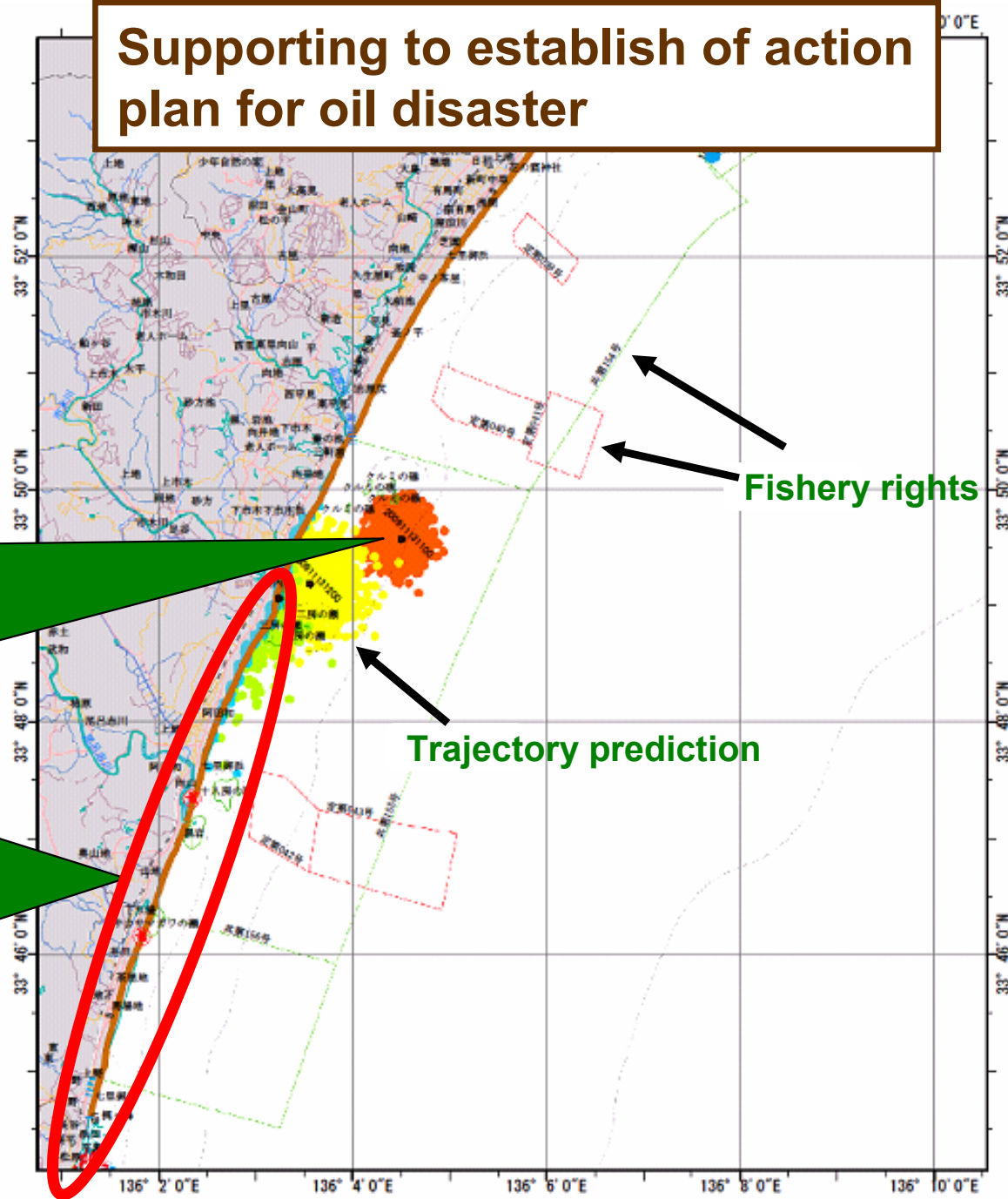


Environmental status
In the coastal area



Gravel

Supporting to establish of action
plan for oil disaster



Trajectory prediction

The Great East Japan Earthquake

Personnel damages (person)

Killed : 15,840

Missing : 3,607

Injured : 5,951

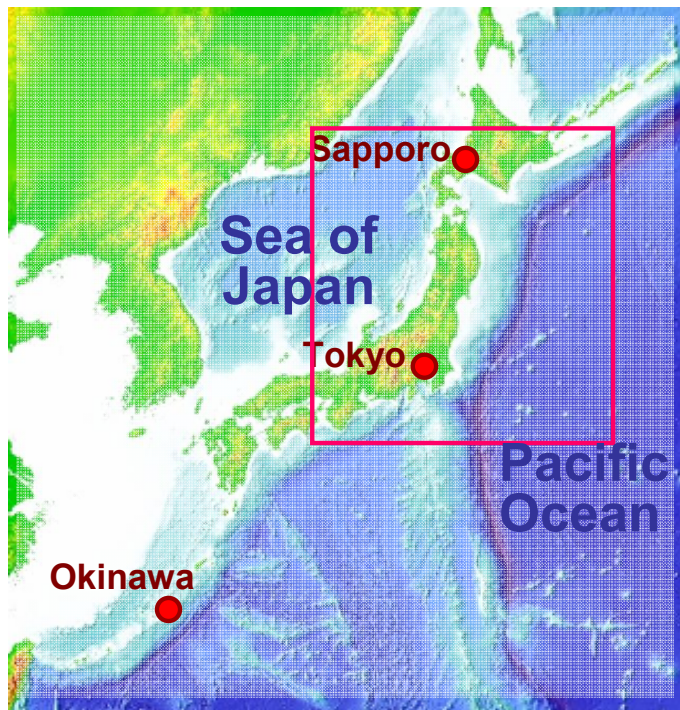
Property damages (door)

Total Collapse : 121,686

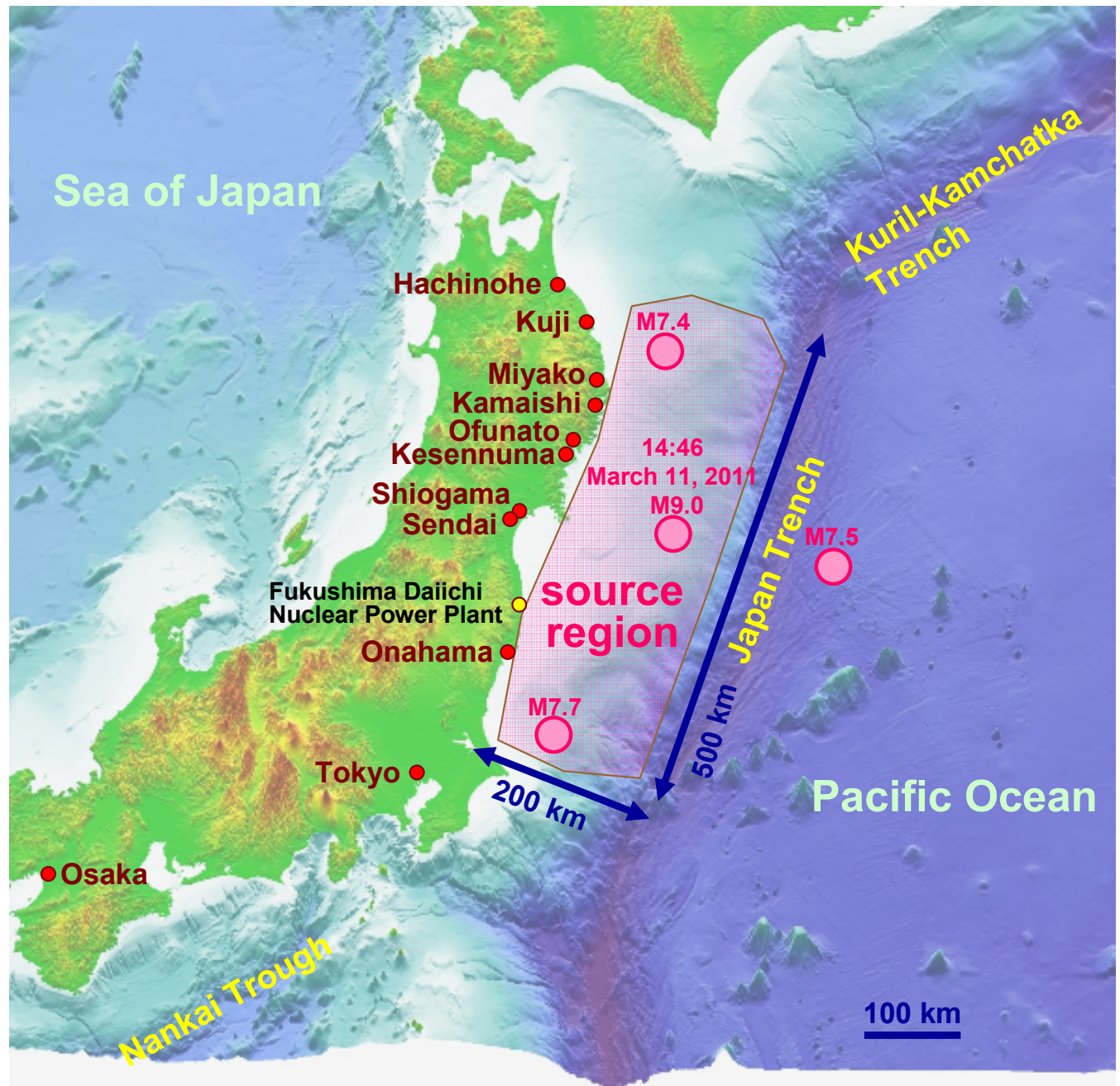
Half Collapse : 198,572

Partially Damaged : 615,092

(ref. National Police Agency of Japan, Dec. 30, 2011)



Japan Coast Guard



A massive tsunami at Kamaishi, Iwate



JHOD's activities against the earthquake and tsunami

For safety navigation:

Navigational warning

Drift trajectory prediction

Sea-bottom obstruction surveys

Preparing new edition charts

For scientific analysis:

Seafloor geodetic observation

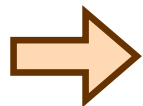
After the disaster

JHOD immediately sent all of survey vessels

Lots of obstructions prevented ships with relief supplies from entering ports in disaster-stricken area



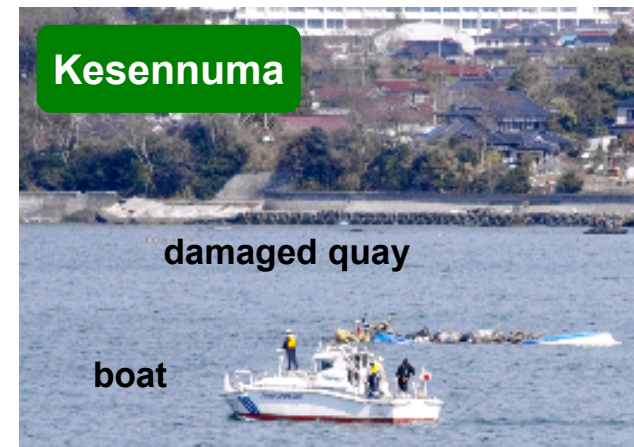
HL 01 Shoyo



Find the obstructions (sunken ships etc) and clear a channel urgently !



Ofunato

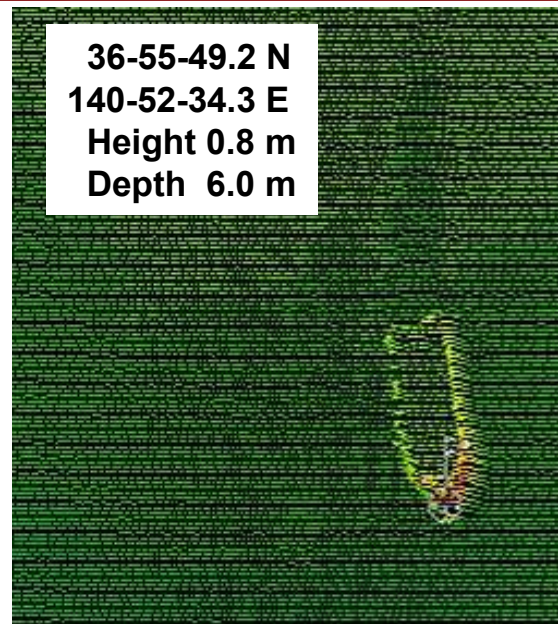
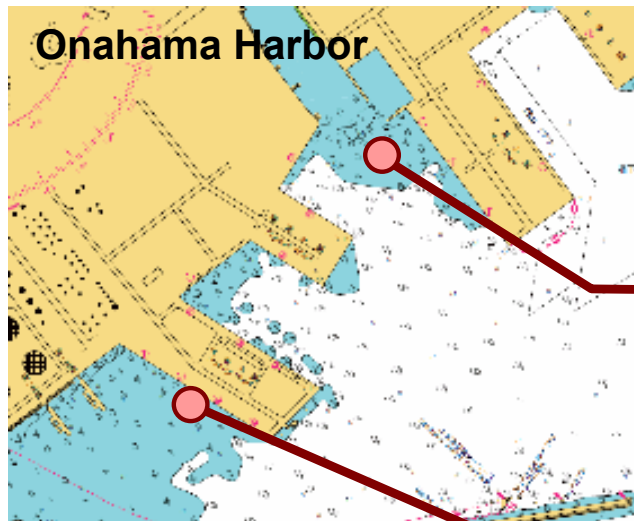


Kesenuma

damaged quay

boat

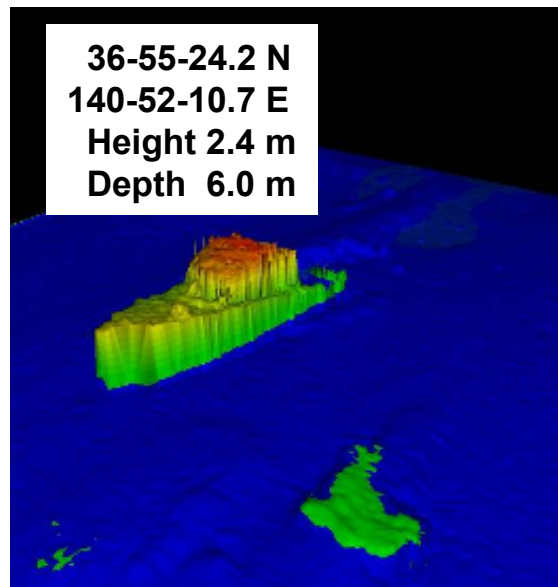
Sunken ships on the bottom of a harbor



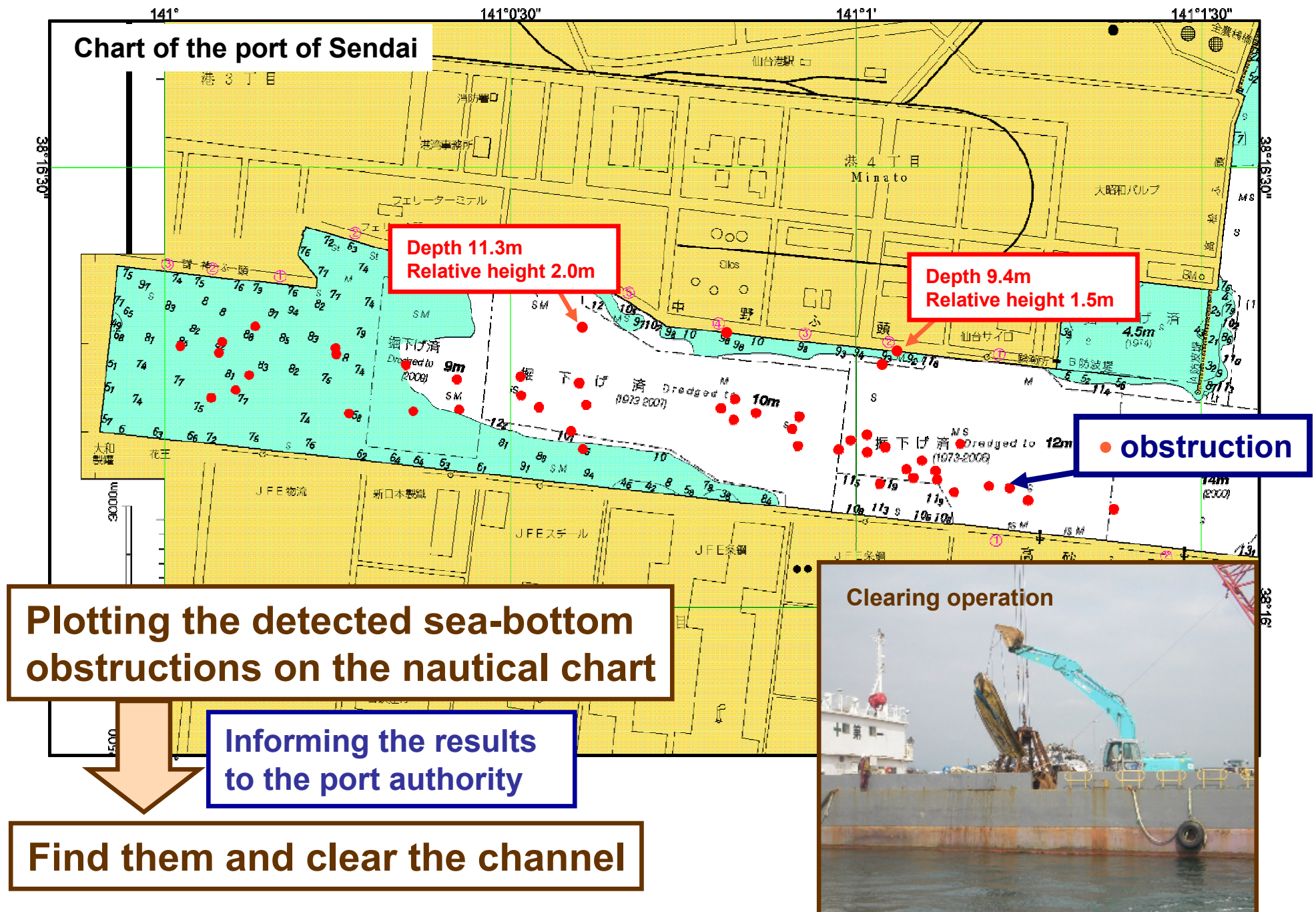
Survey vessel *Tenyo*



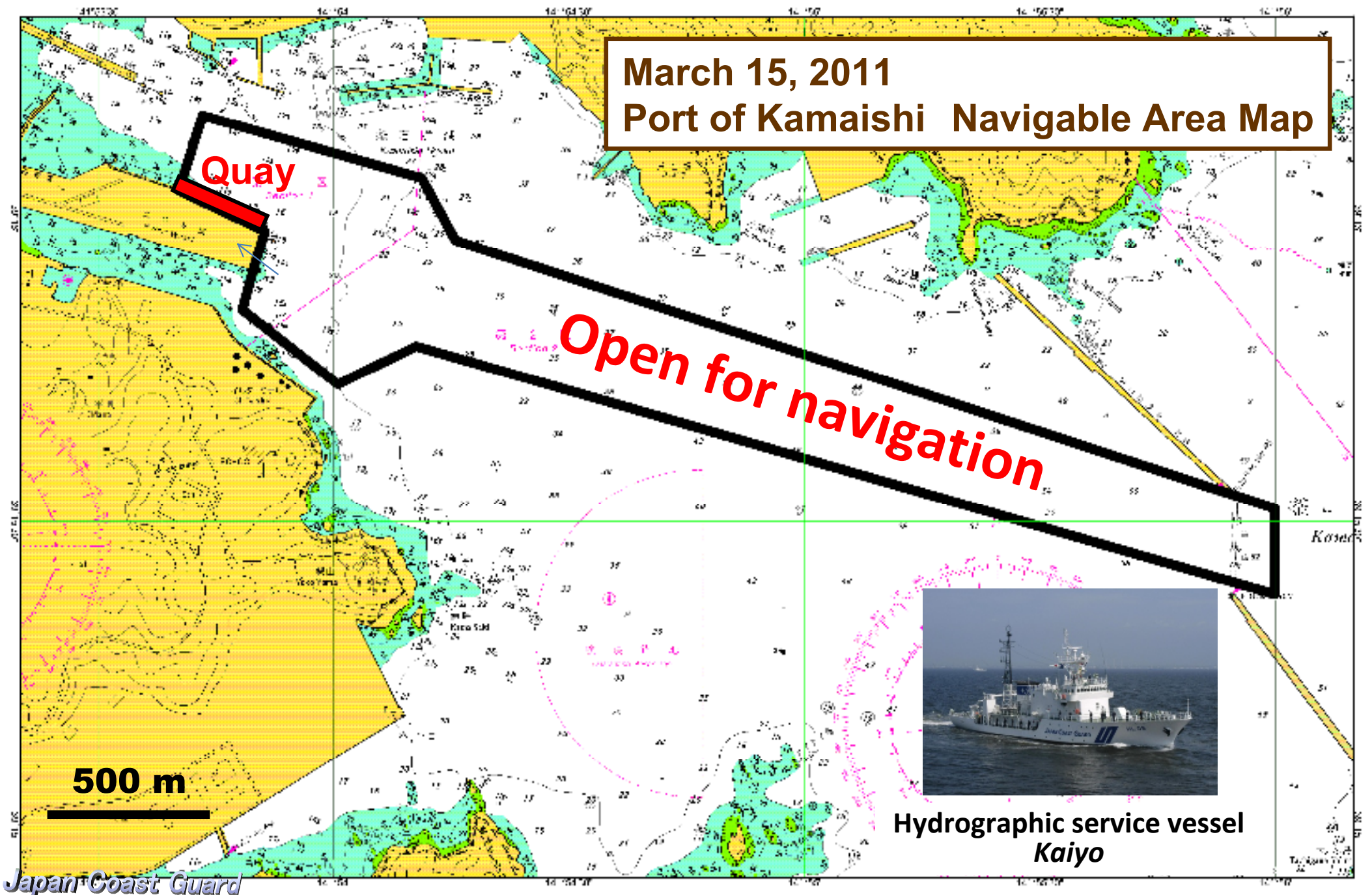
Tenyo onboard craft



Lots of obstructions detected in the Port of Sendai

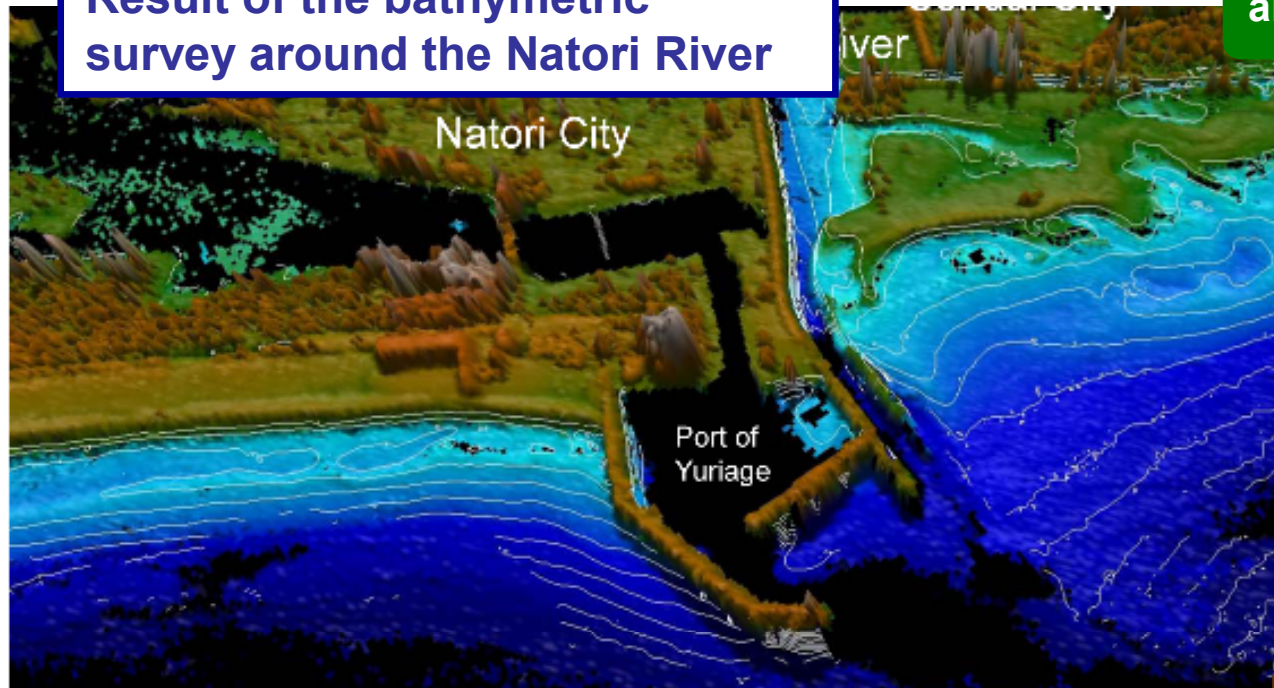


Open the port for transport vessels:

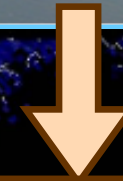
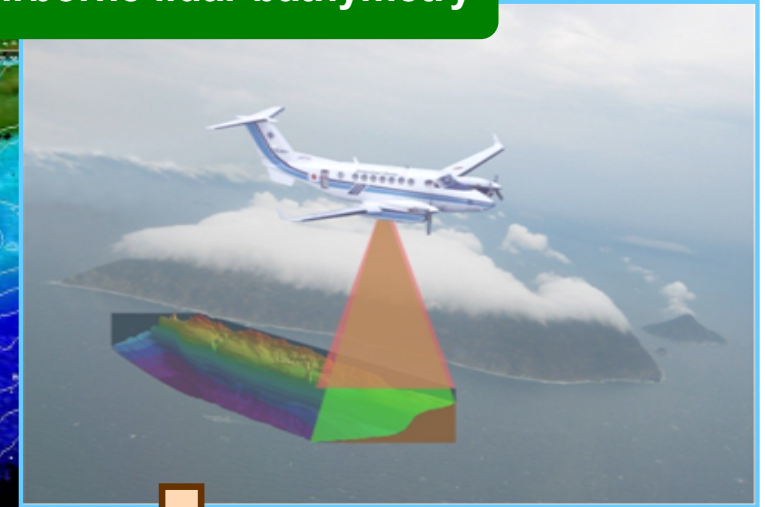


Airborne bathymetric survey in very shallow water

Result of the bathymetric survey around the Natori River



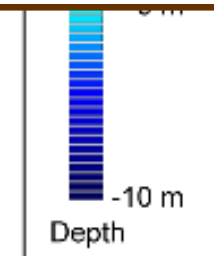
airborne lidar bathymetry



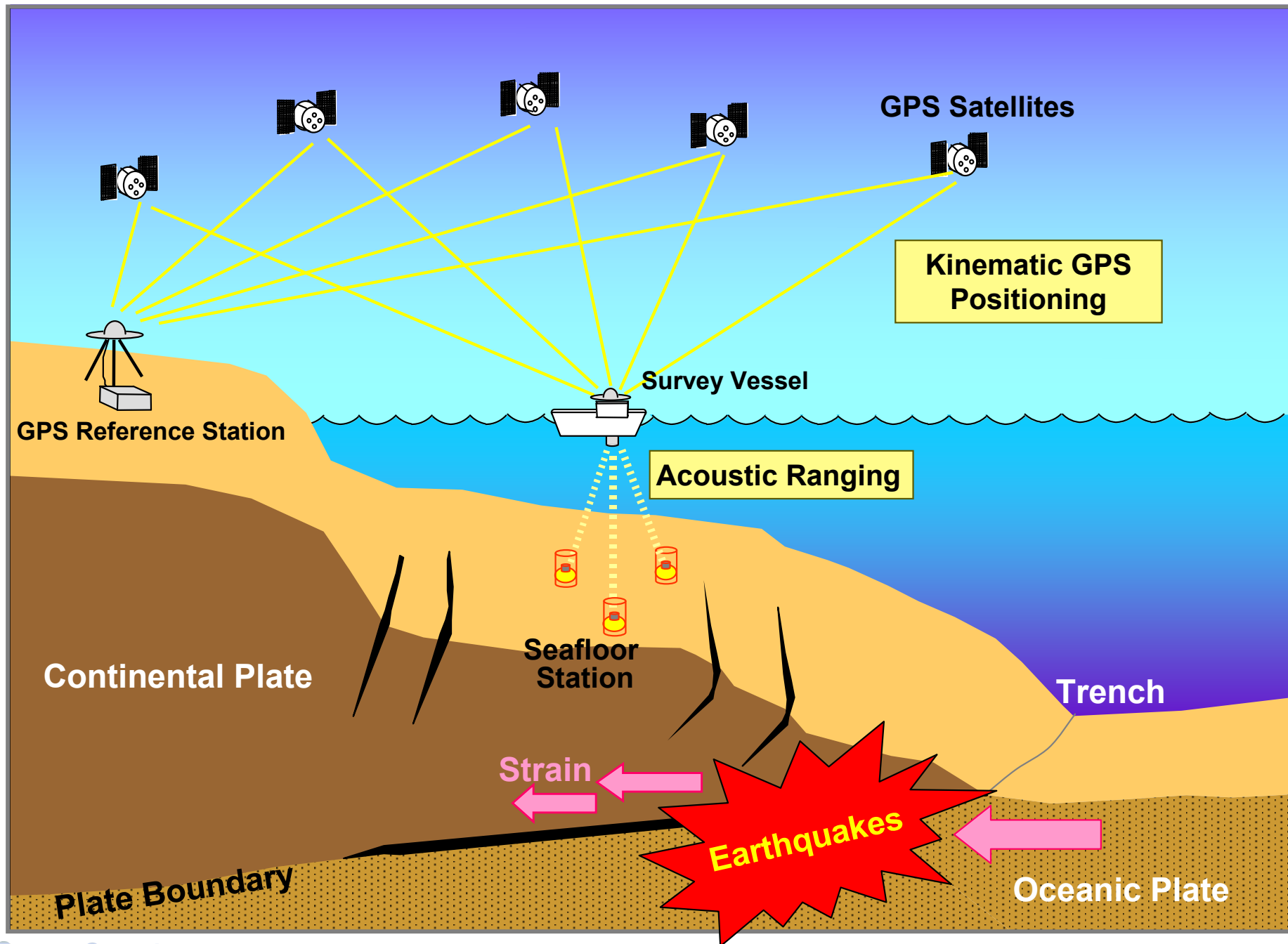
Comparing photos of the estuary of the Natori River before and after



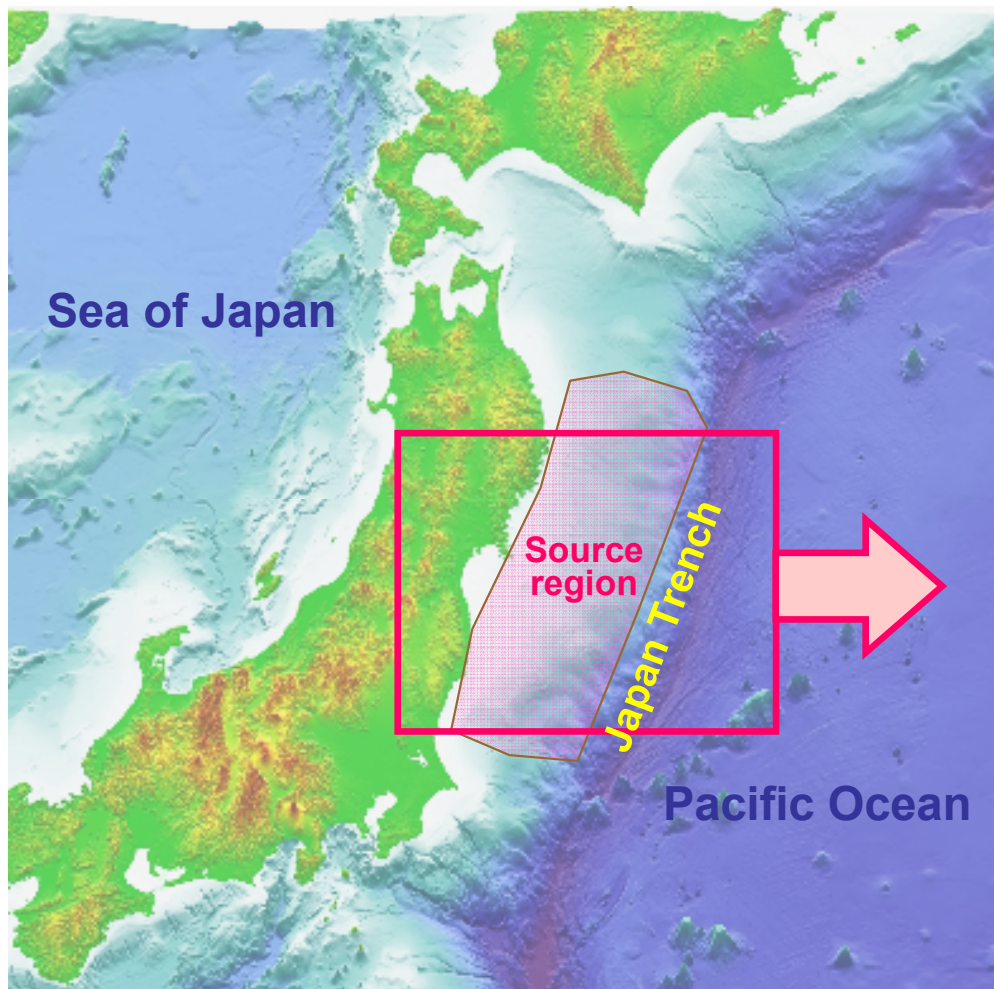
The result will be utilized to the analysis of Tsunami disaster.



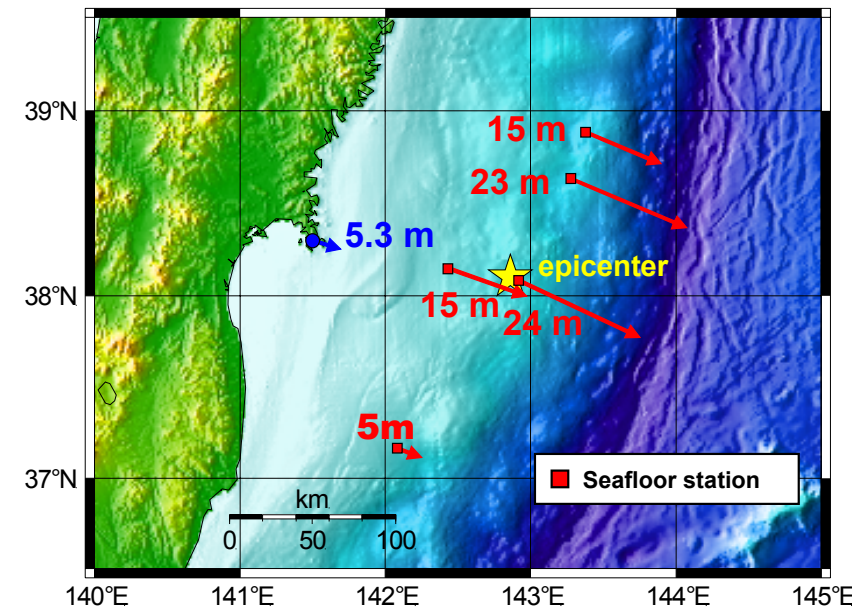
GPS / acoustic seafloor geodetic observation



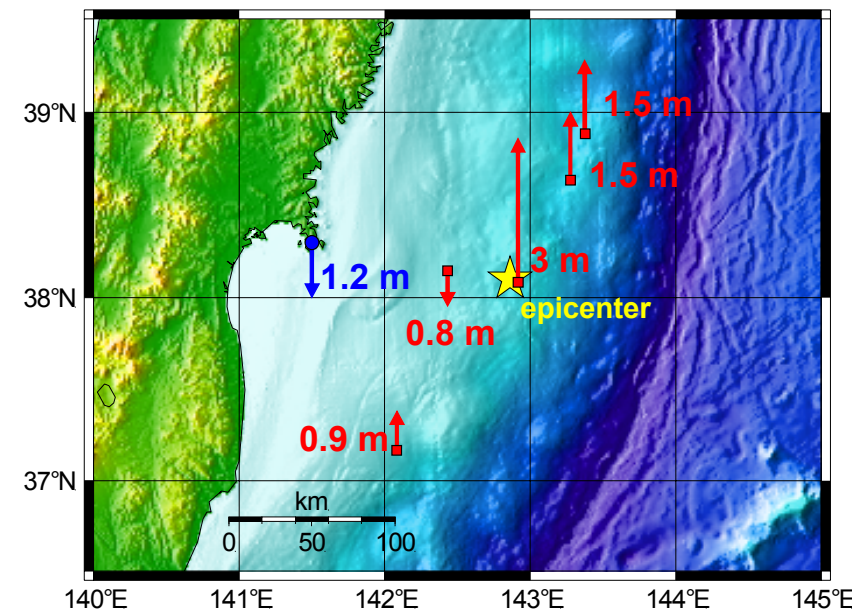
Results of seafloor geodetic observation



Horizontal movement



Vertical movement



Detected seafloor movements:
(horizontal) 24 m
(vertical) 3 m

Publication of new edition charts

Publication

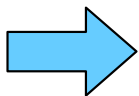
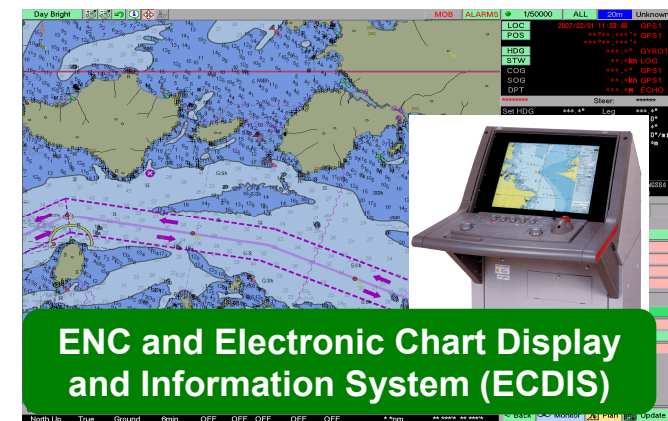
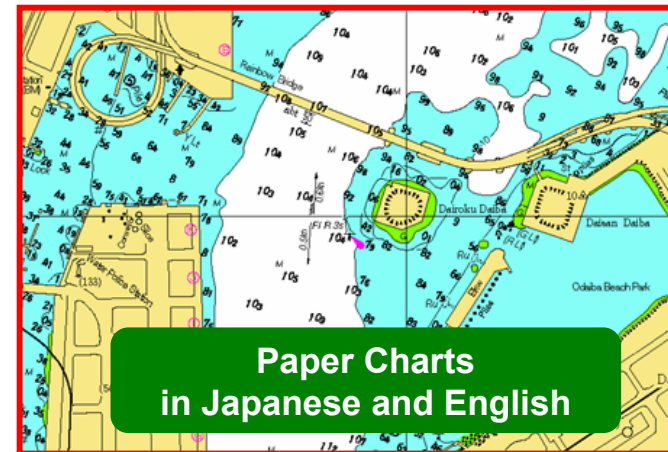
Nautical charts:

- paper charts
- electronic navigational charts

Nautical publications:

- Sailing Directions
- List of Aids to Navigation

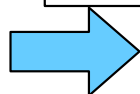
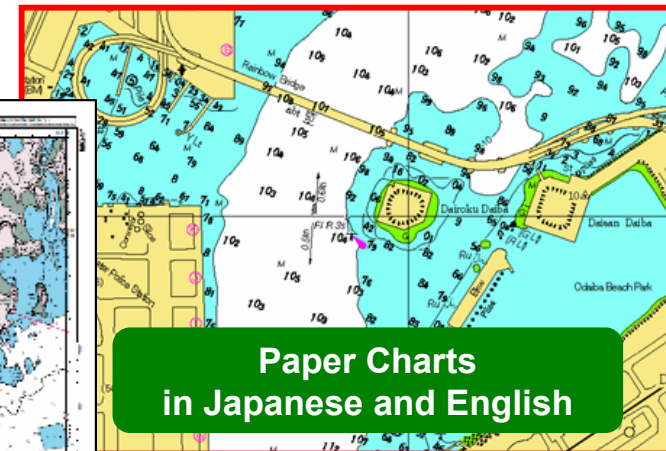
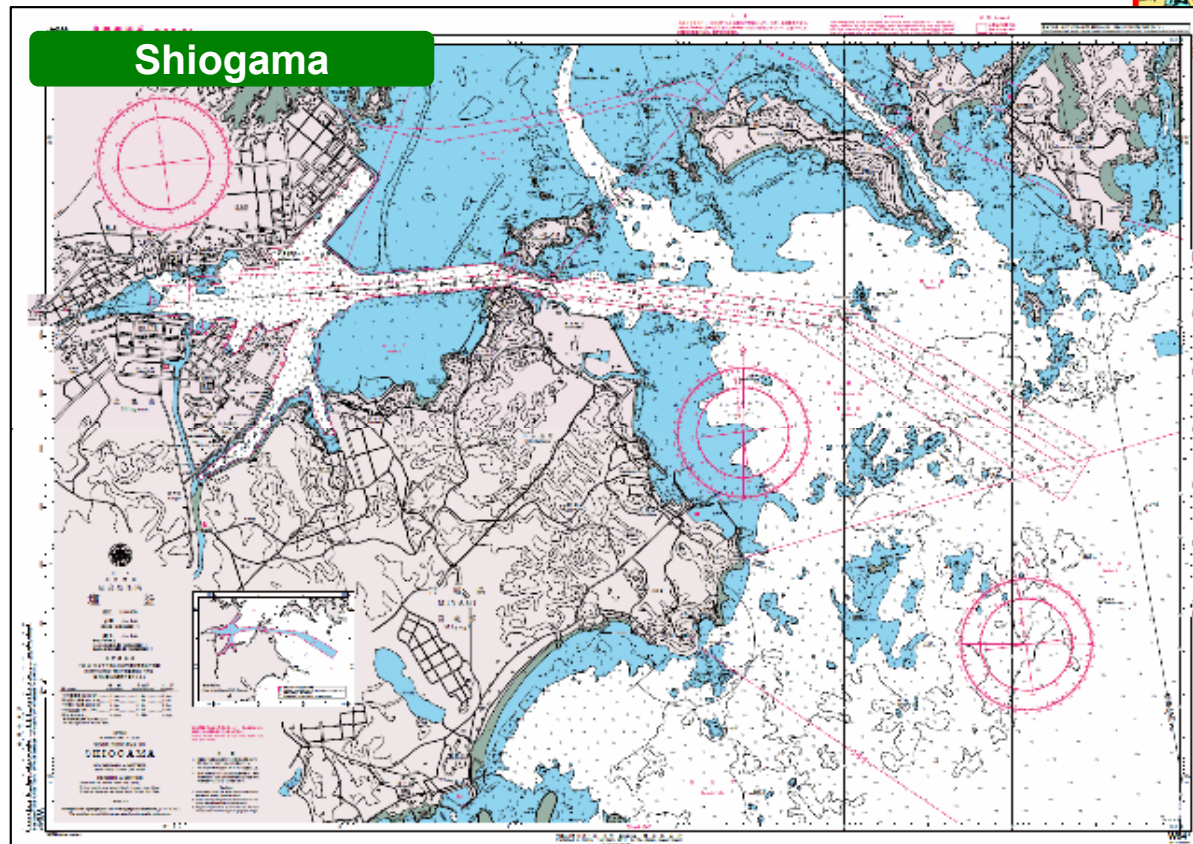
etc.



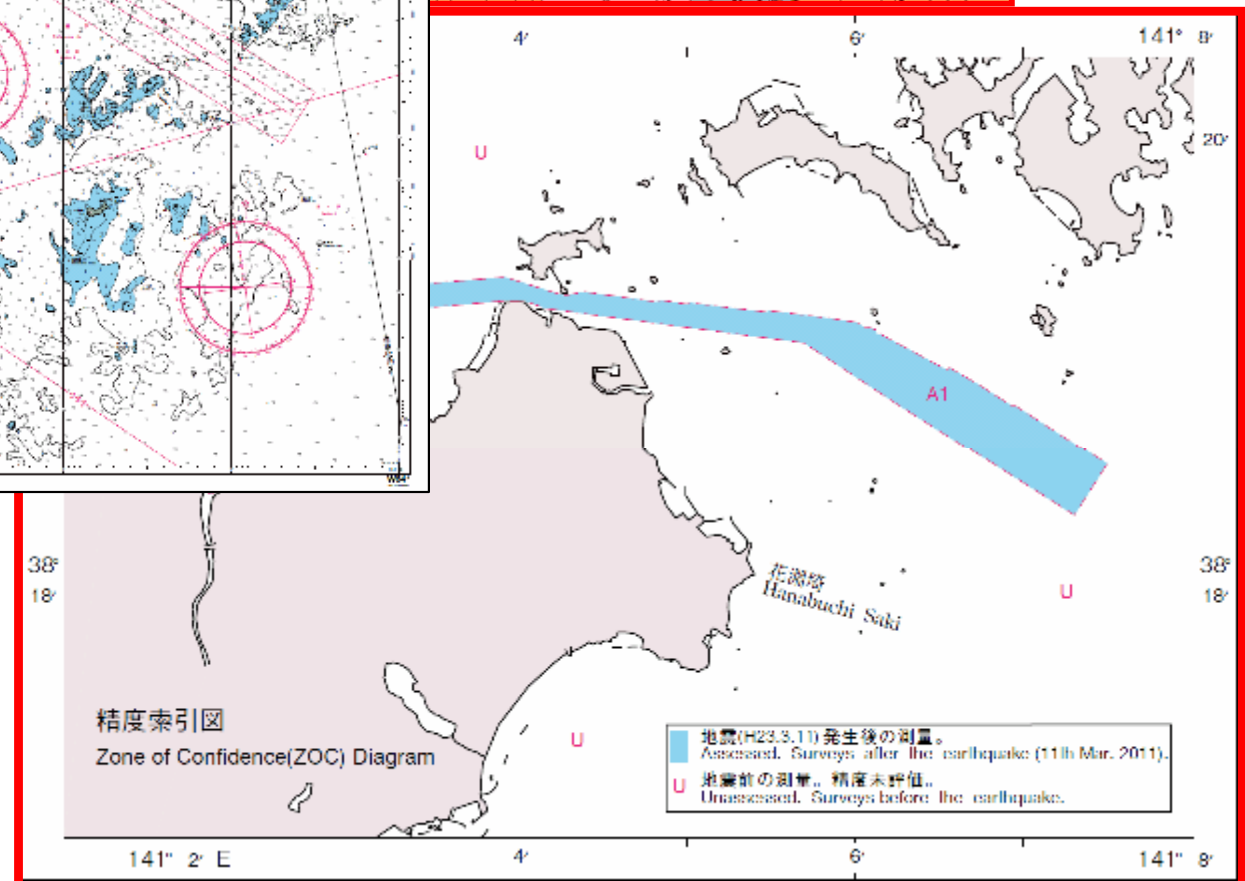
After the Great East Japan Earthquake, new edition chart was published in only 6 months.

Publication of new edition charts

Publication



After the Great East Japan Earthquake, new edition chart was published in only 6 months.



To the Next Steps

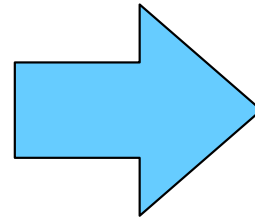
JHOD's experience

**Nautical Charts
and publications**

National Oceanographic Data Center
JODC

Coastal Environmental Information
Service

Ceis Net



Next steps

Marine Information Clearing House
Marine-Page

Web-GIS tool for ocean policy
(Marine Cadastre)

The details of Marine Page and Marine Cadastre will be shown by Dr. IWABUCHI.

To the Next Steps

**Japan Coast Guard,
*as experts on marine-related data and
information management,***

**wish to play a part in the integration of
marine-related data and information
for the evolution of the ocean policy in Japan.**



New JHOD building

Thank you for your attention