Considering Standards for Specifications of Global Map Version 2

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1. Project Outline
What is Global Map?

- Digital geographic dataset
  - Covering the whole land area
  - Spatial resolution: 1 to 1 million scale or 1km
  - Unified specifications
  - Open distribution worldwide
    - Downloading freely for non-commercial purposes

For...

- Analyses for solving global environmental problems
- Achieving sustainable development and
- Mitigating large scale disasters
Each National Mapping Organization (NMO) is assumed to develop Global Maps of each country.

- Supporting schemes are available for those countries who are not able to develop Global Map by themselves.
- Global Map data are open to public through the Internet

Participation

- **164** countries and **16** regions
  - 97% of global land area
History of Global Mapping Project

1992
Agenda 21 was adopted at Earth Summit (UNCED).
Japan proposed “Global Map” concept.

1996
ISCGM was established.

2000
Started providing Global Map data

2002
Johannesburg Summit (WSSD)
Global mapping is included in adopted “Implementation Plan”.

2008
Completion of Global Map Version 1
International Steering Committee for Global Mapping (ISCGM)

- 20 members, mostly heads of NMOs
- Liaisons including ISO/TC211
- Chair: Prof. D. R. Fraser Taylor (Carleton Univ., Canada)
- The Secretariat is located in Geographical Survey Institute of Japan
2. Global Map data and the data development
8 thematic layers

Vector layers
- Boundaries
- Drainage
- Transportation
- Population centers

Raster layers
- Elevation
- Land Cover
- Land Use
- Vegetation (Percent Tree Cover)
Vector layers

- **Boundary**
  - Coastline, Administrative boundaries

- **Drainage**
  - River, Inland water, Dams

- **Transportation**
  - Road, Railway, Airport

- **Population centers**
  - Location, Name of Cities
Raster layers

- **Elevation**: Information in 1m interval
- **Land cover**: 20 categories
- **Land use**: 9 categories
- **Vegetation**: Percent tree cover
## Development Approaches

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<th>National / Regional</th>
<th>Global</th>
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<tr>
<td><strong>Vector layers</strong></td>
<td>Most of 4 layers are available in completed 73 datasets.</td>
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| **Raster Layers**| Some of 4 layers are available. | Land cover and Vegetation (percent tree cover)  
*NMOs contributed to collecting ground truth data and data validation* |
Progress of vector layer development

As of 20-11-2008

Legend

- data available
- data for verification
- developing data
- considering joining the project
- not participating in the project

Most elevation data of current Global Map are compiled from GTOPO30, contribution of United States of America.

This map is for the purpose of reference and the boundaries in this map are not authorized by any organizations.
Progress of vector layer development
Land use, land cover and vegetation

- Similar each other, burdensome for NMOs

- Developed by GSI, Chiba Univ. with field check by NMOs

- Development by using satellite images for the following two layers
  - Global Land Cover by National Mapping Organizations (GLCNMO)
  - Percent Tree Cover (as Vegetation layer)
How to obtain GM Data

● Step 1: Visit www.iscgm.org and go to registration page.
● Step 2: After the registration, User ID and a password will be issued.
● Step 3: Go to download page

Available data

- Global Map version 1
  - Global version: GLCNMO and Percent Tree Cover
  - National and regional version: 73 datasets
    - Vector: VPF / shape, Raster: BIL / TIFF

- Global Map version 0

- Viewer, specifications, newsletter, etc.
3 Standardization issues for new specifications
Challenges at the next stage

- Promotion of the use of Global Map
  - Discussions with actual/potential users
  - Release of Global Map by user friendly format
  - Assistance in exploring new applications
- Development of Global Map version 2 by 2012 (within 5 years)
  - Formulation of an Action plan for the next 5 years.
  - Revision of specifications
Discussions at ISCGM meetings (1997-1998) and adoption in 2000

8 Data layers
- Vector: VPF format
- Raster: BIL format

Spatial Reference: ITRF94 / GRS80

Tiling: 5 degree × 5 degree
  (Latitude: 0 degree ± 40 degree)

Metadata based on ISO15046

Extensions:
- Scale larger than 1:1 million can be accepted for small island nations.
- Antarctica: Special projection and feature values
Problems of GM specifications ver.1

- Complexity of VPF
  - No common GIS software for editing VPF data
  - Most of GM data were submitted in non-VPF format
- Ambiguity of specifications for vector layers
  - E.g. Primary and secondary roads are defined by each NMO
  - GM format become obsolete
- Fitness to Web Mapping
  - GM cannot be viewed directly by web browsers
- Preliminary survey on GM specifications in 2007/2008
  - Revision of tiling structure
  - Reduction of the gap in data density among countries
Discussion on new format of GM vector data

- New format should;
  - Be pervasive throughout the world
  - Comply with the requirements of distribution of geo-information through web service
- Introduction of GML3 (ISO19136) has been discussed at past ISCGM meetings.
- ISO19115 is also being considered for meta data.
#### Land cover layer

- One of the Essential Climate Variables (ECVs) identified by GCOS (Global Climate Observation System)

- Data comparison is difficult between different legend systems.

- GLCNMO adopted Land cover classification system (LCCS) proposed by FAO, being discussed in TC211 (ISO19144)
The way to new GM specifications

- Questionnaire survey on specifications
  - NMOs, Liaison organizations
  - Registered users
- Consideration on new Specifications by WG2
- Workshop on new Specifications
  - September 2009, Tokyo
- To be adopted at ISCGM 16 meeting
  - 25 October 2009, Bangkok
- Comments and suggestions are welcomed.
  E-mail: sec@iscgm.org
Thank you very much.