

Sub-task Number: US-09-02c

Sub-task Title: Global Road and Human Settlements Mapping on GEO Grid

Overarching Task: Socio-Economic Indicators

Area: USER ENGAGEMENT

Relevant Committee: UIC

Related Targets: (to be included in 2009)

Sub-task Definition (as given in the 2009-2011 Work Plan):

Develop a global road and human settlements map on GEO Grid. Related activities will include: (i) System development of GEO Grid towards sharing, developing and distributing data; (ii) Research & development for producing relevant data using satellite images; and (iii) Collection, maintenance, and evaluation of relevant remote sensing and GIS data.

Leads (GEO Member or PO, Entity carrying out the work, Contact: e-mail):

Japan (AIST), Point of Contact: Masashi Matsuoka, m.matsuoka@aist.go.jp

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Motivation/Background

There is an urgent need for up-to-date global road and human settlements maps— especially to make progress towards the International Strategy for Disaster Reduction and the MDGs, to simulate global spatio-economic models. In this sub-task, we propose to develop global road and human settlements map on GEO Grid.

Outputs (e.g. products and services which result from the activities of the Task/sub-task; outlined in the form of deliverables with timelines)

Planned:

- Global Road and Human Settlements Map
- System to develop associated data on GEO Grid

Produced (current status):

In the National Institute of Advanced Industrial Science and Technology (AIST), development of the E-infrastructure “GEO Grid” for earth environment research has been tackled since 2005. GEO Grid on earth observation offers various data in an IT environment for safe and secure use by enterprises and research communities. Especially to develop proposed maps, practical implementation needs authentication technology and approval technology for source data on Web GIS. Then, development in consideration of the affinity of the standardization technology which OGC defines (WMS, WFS, WFS-T, CSW, etc.), and OGSA and GSI (Grid Security Infrastructure) technology which OGF (Open Grid Forum) defines or the existing open source GIS technology including FOSS4G (Free and Open Source Software for GIS) should be furthered on GEO Grid.

Activities (operations or work processes through which resources are mobilized to produce specific outputs; outlined in the form of milestones including timelines)

Planned:

1. System development of GEO Grid towards sharing, development and distribution of associated data
2. Research and development for producing associated data using satellite images
3. Collection, maintenance, and evaluation of the various existing data developed and managed by GEO member countries and related organizations.

4. Collection, maintenance, and evaluation of remote sensing and GIS data developed and managed by GEO member countries which can be used for the development and updating of associated data
5. Collection and maintenance of the validation data of the existing associated data developed and managed by GEO member countries

Progress (current status):

We developed initial version of software to extract road vector from satellite images.

Implemented the software on the web as Web GIS tool.

CODATA Global Roads Data Development Working Group Workshop was held on 22-23 June 2009, at the Lamont Campus, Columbia University, Palisades, NY

Resources (indication of resources – e.g. financial, human – contributed by GEO Members or Participating Organizations to produce outputs)

AIST partially support for GEO Grid system development.

Apply to international and domestic fund for promoting these developments.

Architecture and Data Component

1) Please briefly describe any task-related Earth observation resources (data set, system, website/portal) and any related Web Service interfaces that are contributed to GEOSS. State whether these items are or will be registered with the GEOSS Component and Service Registry for access via the GEO Web Portals, and whether any associated standards or other interoperability arrangements will be registered in the Standards and Interoperability Registry.

2) Please also describe what data and information your activity/system needs that you would request to be accessible through the GEOSS Common Infrastructure.

Capacity Building Component

(capacity building is defined to include the development of capacity related to: (i) Infrastructure and technology transfer (Hardware, Software and other technology required to develop, access and use EO); (ii) Individuals (education and training of individuals to be aware of, access, use and develop EO) and (iii) Institutions – building policies, programs & organizational structures to enhance the value of EO data and products).

1) In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.

Workshop is planned

Plan to provide software to extract road from satellite image to the member

2) Have any additional CB needs for this Task been identified? Please provide a short description.

User Engagement Component

(please briefly describe to what extent end users are engaged in this Task and influence the nature of the outputs produced)

Science and Technology (S&T) Component

1) Please briefly describe the elements of scientific research or technological development contained in this Task.

2) In relation to the S&T component(s) of this task, please describe gaps, priorities, continuity needs, barriers, scientific expertise and additional resource needs (this information will be used for developing a gaps and needs assessment in Task ST-09-01)

Members and POs' Contributions to Outputs and Activities above:

(Input is optional. This section gives the chance to Members and POs to provide more details (3-5 lines) on their individual activities, making a clear connection with the Outputs and Activities outlined above).

Japan

Data-bases, integration of information systems, data fusion, user interfaces.

AIST: To develop global road and human settlements maps on GEO Grid.

ICSU

CODATA Working Group: Global Roads Data Development:

<http://www.codata.org/taskgroups/WGglobalroads/index.html>.

Development of a 'crowd-sourcing' framework for global road mapping. Standards should be established and then the WG can collate existing products to achieve goal of creating a public commons global road data layer that can be improved/updated through crowd sourcing. Potential data sources include OpenStreetMap (OSM), Africa@home, and national-level data sets for which WG can obtain permissions.

Participation (Table to be filled in 2009):

Type	Member or PO	Representing	Contact Name	EmailAddress
Lead (PoC)	Japan	AIST	Masashi Matsuoka	m.matsuoka@aist.go.jp
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