

Global Mapping Forum 2008

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Abstract

Global Mapping Forum 2008 was held from June 5-7 at the United Nations University in Tokyo and at Keio Futsubu and Chutobu School in Kanagawa prefecture, jointly organized by the Geographical Survey Institute / Ministry of Land, Infrastructure, Transport and Tourism, the International Steering Committee for Global Mapping and the United Nations University. Three hundred and forty-six participants from 26 countries met in Tokyo to celebrate the near completion of Global Map Version 1, and exchanged their ideas about developments and uses of the Global Map to cope with global environmental problems and other issues. At the closing session of the forum on June 6, the “Global Map Tokyo Declaration” was adopted. The Tokyo Declaration states that the Global Map gives a common understanding to the people involved in environmental issues, and therefore has to be user friendly, that coordination between users and producers is essential and that capacity building is needed.

1. Introduction

The Global Mapping project is an endeavor to develop the Global Map, basic geographical information for achieving sustainable development and solving global environmental problems. Since the Ministry of Construction (the current Ministry of Land, Infrastructure, Transport and Tourism; MLIT) of Japan proposed the concept of the Global Mapping in 1992, the National Mapping Organization (NMO) of each country and the International Steering Committee for Global Mapping (ISCGM) have promoted the Global Mapping project. The Geographical Survey Institute (GSI) has contributed to the project not only as a participating organization, but also as the Secretariat of ISCGM since the establishment of ISCGM in 1996. In 2002, this project was registered with the World Summit on Sustainable Development (WSSD also known as Johannesburg Summit) as a type 2 initiative with the goal of the completion of global coverage by the year 2007, and as a result, Global Map Version 1 was released in June 2008.

In order to offer opportunities for data providers and users to exchange their ideas about developments and use of the Global Map for coping with global environmental problems and other issues, the Global Mapping Forum has been held several times to date; the first Global Mapping Forum was held in Gifu, Japan in 1997, the second in 1998

in Sioux Falls, USA, the third in 2000 in Hiroshima and the fourth in Okinawa in 2003.

Global Mapping Forum 2008 was the fifth of the series of forums and was held on the occasion of the release of Global Map Version 1, including two new Global Maps (Percent Tree Cover and Land Cover), on Earth Day (June 5) of 2008. This paper summarizes Global Mapping Forum 2008 and its outcomes.

2. Global Mapping Forum 2008

2.1 Outline

The “Global Mapping Forum 2008” was held from June 5-6, 2008 at the United Nations University (UNU) and concluded on June 7 with an event “Global Map School” held at Keio Futsubu and Chutobu School. The forum was jointly organized by the GSI/MLIT, ISCGM and UNU, and was supported by Ministry of Foreign Affairs of Japan, Ministry of Education, Culture, Sports, Science and Technology, of Japan and Ministry of the Environment of Japan.

Many presentations and discussions were held by leading figures from government, academia, and industry, and 346 participants from 26 countries met in Tokyo and discussed the development and use of the Global Map, and adopted the “Global Map Tokyo Declaration” at the closing

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session on June 6.

2.2 Program

The first day of the forum included opening greetings and 8 presentations (special lectures and key note lectures). On the second day, 33 presentations in 5 sessions including the poster session (15 presentations), and panel discussion at the closing session were held. An excursion was made on the third day.

2.2.1 Opening Session, Keynote lecture and Special lectures

At the opening of the first day, H. E. Mr. Takuya Hirai, Senior Vice-Minister of MLIT, and Dr. Iwao Kobori, Senior Programme Advisor of UNU, delivered opening addresses, followed by a keynote lecture, special lectures and a report on the global environment and the Global Map, from the standpoint of the government and key figures as follows.



Photo 1 Opening address by H. E. Mr. Hirai

- A special lecture titled “Global Environmental Policies of Japan” by Mr. Toshiro Kojima, Vice-Minister for Global Environmental Affairs, Ministry of the Environment, Japan. Mr. Kojima introduced strategies of the government to be a leading environmental nation in the 21st century and Japan’s leadership to form a post-2012 framework (low-carbon society, adaptation).
- Keynote lecture titled “Maps, Mapping and Society: Some New Directions” by Prof. D. R. Fraser Taylor,

Chairperson of ISCGM. Prof. Taylor explained the nature of maps and mapping in the information era and emphasized the power of cybercartography and cybermaps.

- A report titled “Outline of Global Map version 1” by Dr. Kazuo Komaki, Director General of GSI. Dr. Komaki gave an outline of the Global Map and introduced the release of Global Map Version 1 and views toward the next stage of the project.
- A special lecture titled “Global Environment on Global Map” by Dr. Yoshio Tsukio, Professor Emeritus of the University of Tokyo. Dr. Tsukio first emphasized the great power of maps, then explained the circumstances of maps in each era, and introduced many applications of the Global Map.



Photo 2 Keynote lecture by Prof. Taylor



Photo 3 Special lecture by Dr. Tsukio

2.2.2 Lectures

On the afternoon of the first day, efforts for the global environment and involvement of geographic information including the Global Map were presented in the lectures from the perspective of expertise. The presentations made were:

- “Global Spatial Data Infrastructure: Perspectives from the United Nations Statistic Division” by Dr. Paul Cheung, Director of the United Nations Statistics Division. Dr. Cheung recognized the close and fruitful cooperation between the Global Mapping community and the United Nations, and stated that a process of standardization, for which the United Nations has a key mandate, was important to share geo-coded information among countries and regions for common purposes.
- “Role of Geographic Information for Global Warming Issue” by Prof. Akimasa Sumi of the University of Tokyo, who is an expert on global warming studies. Prof. Sumi explained the necessity of more accurate and reliable geographical information to be applied to more comprehensive integral assessment models in the near future. He expected a contribution from the Global Map to this field.
- “Japanese Industry’s Challenges toward the Mitigation of Global Warming” by Mr. Satoshi Mukuta, Managing Director, Nippon Keidanren of Japan, an organization of the business world of Japan. Mr. Mukuta introduced the endeavors of Japanese industry and the fundamental principals of its actions. He also mentioned strategies to realize a low carbon society in the short and long terms, improving energy efficiency and developing innovative technologies.
- “Global Spatial Data Infrastructure” by Mr. Jarmo Ratia, the ex-president of the GSDI Association. Mr. Ratia introduced activities and achievement of GSDI Associations and outlines of the EuroGlobalMap, a European contribution to the Global Mapping Project produced by EuroGeographics.

2.2.3 Reception

After the closing of the first day sessions, a

reception was held in the UNU where H. E. Mr. Tetsuzo Fuyushiba, Minister of Land, Infrastructure, Transport and Tourism of Japan at the time delivered a welcome speech on the importance of the Global Map. In response to the minister’s speech, Prof. Fraser Taylor, Chair of ISCGM, publicly acknowledged Japan’s leadership in Global Environmental Mapping. Dr. Jiro Kondo, Professor Emeritus of the University of Tokyo, also delivered a celebratory speech at the reception.



Photo 4 Greeting by H. E. Mr. Fuyushiba at the Reception

2.2.4 General Presentation

Starting from the morning of the second day on June 6, eighteen oral presentations (4 sessions) by producers and users of the Global Map and 15 poster presentations were made. Many examples and possibilities of the development and use of Global Map data were introduced. Summaries of these sessions follow.

Session 1:

The following four presentations were made on the “Development of Global Map.”

- “Global Land Cover by National Mapping Organizations (GLCNMO)” by Prof. Tateishi, Chiba University, Japan. Prof. Tateishi explained the processes of creating new 1km global land cover data and vegetation data called GLCNMO and Percent Tree Cover respectively.
- “Land Cover Mapping from MODIS 1km 16-day Composites across China: methodology and results” by Dr. Zhang Yonghong, Chinese

Academy of Surveying and Mapping, China. Dr. Yonghong stated that the State Bureau of Surveying and Mapping produced the land cover data of China for Global Mapping project phase 2 in cooperation with ISCGM, and presented the methodology and result of land cover mapping across China.

- “ALOS Satellite Imagery Utilization for Global Mapping Project” by Dr. Takeo Tadono, Associate Senior Researcher, JAXA. Dr. Tadono introduced an overview of ALOS “Daichi” satellite and examples of satellite imagery analysis and utilization for Global Mapping project.
- “Global Mapping: Kenya’s Participation” by Mr. Ephantus Mundia Murage, Director of Surveys, Survey of Kenya. Mr. Murage introduced the developing process and situation of the Global Map of Kenya from the view point of an organization participating in the Global Mapping project.

Session 2: Four presentations were made on “Development of Large-Area Digital Geographic Information and Capacity Building” as follows.

- “The Global Map of the United States within the Context of the North American Atlas” by Mr. Jay Donnelly, USGS. Mr. Donnelly introduced the North American Atlas and explained that applying Global Map standards and technical specifications enabled simultaneous production of initial U.S. data for the North American Atlas and for the Global Map.
- “Experiences in the Use of Open Interoperability Standards with EuroGlobalMap” by Mr. Chris Higgins, University of Edinburgh, UK. Mr. Higgins reported experiences gained in the application of open geospatial interoperability standards to the use of EuroGlobalMap within the European tertiary academic sector.
- “Geoinformation Integration Activities in Geological Survey of Japan and OneGeology Project” by Dr. Shinji Takarada, Researcher, Geological Survey of Japan (GSJ). Dr. Takarada introduced activities to integrate geoinformation

such as the GEO-DB project and the Integrated Geological Map Database promoted by GSJ and explained the OneGeology project and the contribution of GSJ to this project.

- “Capacity Building for Developing Global Map Data in Senegal and West African Countries, Goals and Perspectives” by Mr. Youssou Ndong, Director of DTGC, Senegal. Mr. Ndong emphasized the importance of capacity building and explained the Global Mapping Seminar in Senegal organized by Japan (MLIT/ISCGM) as one of the most important technical and scientific events to help developing countries.

Session 3: Five presentations were made on “Global Map Application 1” as follows.

- “Digital Environmental Information in Meeting Global Environmental Challenges - The Role of Global Map” by Dr. Srikantha Herath, Senior Academic Program Officer, UNU. Dr. Herath briefly introduced three of the UNU programs under the Environment and Sustainable Development Program, which were dependent on global environmental data, and mentioned the use and expectations of the Global Map.
- “Adaptability to Large-Scale Disasters Using Global Mapping Initiative and Other Geo-Information: Bangladesh Perspective” by Brigadier General Mohd Habibur Rahman Khan, psc, Surveyor General of Bangladesh. Brig. Gen. Khan stated that the disaster management with geo-information support was especially important for countries vulnerable to climate change due to global warming, and expected a contribution of the Global Mapping initiative to this field.
- “Towards Global River Discharge Using a Distributed Hydrological Model” by Dr. Saavedra V. Oliver, Earth Observation Data Integration and Fusion Research Initiative, Department of Civil engineering, Engineering School, the University of Tokyo. Dr. Oliver introduced an application of Global Map to the river discharge study in Meghna River, and showed the feasibility of developing

Global River discharge using the Global Map and Global rain fall data.

- “The Possibility of East Asian Spatial Data Infrastructure Development – Comparing with a Case of EU” by Dr. Kyong-rock Ye, Researcher, National Institute for Land and Infrastructure, Japan. Dr. Ye mentioned the importance of Spatial Data Infrastructure to efficiently set the place of regional hub facilities, and that the extend usage of the Global Map was expected to set up an East Asian Spatial Data Infrastructure.
- “Geography Education with Global Map” by Prof. Koji Ohnishi, University of Toyama, Japan. Prof. Ohnishi introduced the situation of geographical education in his university and his trial of GIS education with the Global Map at the University of Toyama.

Session 4: Five presentations were made on “Global Map Application 2” as follows.

- “Sea Level Rise and Global Map” by Prof. Nobuo Mimura, Ibaraki University, Japan. Prof. Mimura introduced the effects of sea level rise and efficiency of GIS-based approach including the Global Map for vulnerability assessment.
- “Climate Change (Land Use and Forest) and Global Map” by Dr. Yoshiki Yamagata, Special Senior Researcher, National Institute for Environmental Studies, Japan. Dr. Yamagata stated that land cover and forest cover maps obtained from the Global Map were important information for looking at the relation between climate change and land use.
- “Construction of a Global Map of the Philippines: Assessment of Renewable Energy Resources to Mitigate and Adapt Global Climate Change” by Dr. C. M. Pascal, Mariano Marcos State University, Philippines. Dr. Pascal presented case studies to demonstrate the use of the Global Map as a part of dynamic decision support system that was important for renewable energy resource assessment.
- “Application of Geographic Information on

Wildlife in Japan” by Mr. Toshio Torii, Director of Biodiversity Center, MOE, Japan. Mr. Torii explained that the national survey on wildlife had a close relationship with geographic information and that the Global Map was useful for conservation of several migratory birds.

- “Utilizing Global Map to Support Coastal Zone Management Planning in Indonesia” by Mr. Suwahyuono, Head, Center for Marine Resource Surveys, BAKOSURTANAL, Indonesia. Mr. Suwahyuono explained that integrated coastal zone management was declared in law in Indonesia and that multi-thematic spatial data was required. He introduced efforts to utilize the Global Map to fulfill the requirement for spatial data.

Poster session: Fifteen presentations were made in the reception room of UNU.

- “The status of our earth using Global Map (1)” by Infrastructure Development Institute
- “The status of our earth using Global Map (2)” by Infrastructure Development Institute
- “International Standards for Geographic Information and Japan Profile for Geographic Information Standards (JPGIS)” by the Association of Precise Survey and Applied Technology, Japan
- “Automated terrain classification of global topography from 1-km SRTM30 DEM” by Ms. Junko Iwahashi, Geographical Survey Institute of Japan
- “The ICSU CODATA Roads Data Development Working Group: Working Towards an Up-to-Date Publically Available Global Roads Data Set” by Mr. Alex de Sherbinin, CIESIN, Columbia University, USA, Dr. Koki Iwao, AIST, Japan
- “International Year of Planet Earth” by Mr. Teruki Miyazaki, Secretariat of the IYPE Japan
- “Toward global mapping under Global Earth Observation Grid” by Dr. Koki Iwao, AIST
- “Promotion of utilization of the Global Map data” by MLIT
- “The Use of the Global Map in the Disaster Reduction Collaborative Education –Making a disaster safety map by collaboration of Japan and

- Turkey” by Natural Disaster Youth Summit
- “Works and Exhibition of Maps Created by using ‘Global Map Data’” by Tokushima Geographical Society
- “Global Map School” by Dr. Ota, Keio Futsubu School
- “The Second Administrative Level Boundaries data set project (SALB)” by Mr. Steeve Ebener, WHO, Geneva, Switzerland
- “Land Use/Cover Change Analysis in Nairobi City Using Multi-Temporal Remote Sensing and GIS” by Charles N. Mundia and Dr. Masamu Aniya, Graduate School of Life and Environmental Sciences, University of Tsukuba
- “A Hybrid Approach to Land Use/Cover Mapping for 2000 Based on Landsat 7 ETM Plus Data in Zimbabwe” by Mr. Courage KAMUSOKO and Dr. Masamu ANIYA, Graduate School of Life and Environmental Sciences, University of Tsukuba
- “SELENE ‘KAGUYA’” by JAXA



Photo 5 Poster Session

2.2.5 Closing Session

At the closing session of the forum, under the chair of Prof. D. R. Fraser Taylor, 5 panelists (Mr. Ephantus Mundia Murage, Director of Surveys, Survey of Kenya; Prof. Ryutaro Tateishi, Chiba University; Dr. Srikantha Herath, Senior Academic Program Officer, UNU; Dr. Yoshiki Yamagata, Special Senior Researcher, National Institute for Environmental Studies, Japan; and Mr. Yoshikazu Fukushima, Secretary General of ISCGM) held a panel

discussion on the future of the Global Map, and finally the two-day agenda in the UNU was closed by adopting the “Global Map Tokyo Declaration” resulting from discussions by all the participants. A summary of this declaration is given in section 2.3.



Photo 6 Panel discussion at the Closing Session

2.2.6 Excursion: Global Mapping School

On the final day, an excursion was made to visit a “Global Map School.” The Global Map School is an effort to give exchange classes to students from a variety of different countries using the Global Map. This is a part of the application strategies implemented by the MLIT to enhance the use of Global Map data. The Global Map School is led by Dr. Hiroshi Ota of Keio Futsubu School. This is the third Global Map School. On this day, the school took place between Dr. Ota’s students at Keio Futsubu together with Chutobu Junior High School and Princess Chulaborn’s College Nakhon Si Thammarat of Thailand. With an appropriate lead by the teachers of both schools, the students introduced their respective countries and the areas they live and exchanged ideas on the global environment using the Global Map.

The excursion which visited this exchange class was attended by total of 35 people, and made a visit to Keio Futsubu and Chutobu School in Yokohama, the site of the Japan side.

After the exchange class, ideas and opinions were exchanged between Dr. Ota with relevant people of the Japan side and the excursion participants. Many comments that evaluated this exchange class conducted using the Global Map highly were made by the excursion participants.



Photo 7 Global Map School at Keio Futsubu and Chutobu School

2.3 Outcomes of Global Mapping Forum 2008

During the Global Mapping Forum, many discussions took place on applications, developments and future plans of the Global Map, which will lead to the next phase of the Global Mapping project. The appended “Global Map Tokyo Declaration” was adopted at the closing session of the forum. In the declaration, we confirmed that the Global Map gave a common understanding to the people involved in environmental issues, and therefore had to be user friendly, that coordination between users and producers was essential, and that capacity building was needed.

Another outcome of the forum was that the awareness and interest in the Global Map of all participants was raised. The Global Map is expected to be used in various fields. In addition, new Global Map data, Land Cover and Vegetation (Percent Tree Cover) covering the entire world (Figure 1 and 2), were released on June 5 during the forum from the website of ISCGM.

Based on the policy, participants in the project and the Secretariat will make efforts to enhance data availabilities. The Secretariat plans to release data in different formats in addition to the official format, and works for revising the Global Mapping Specifications to achieve policy.

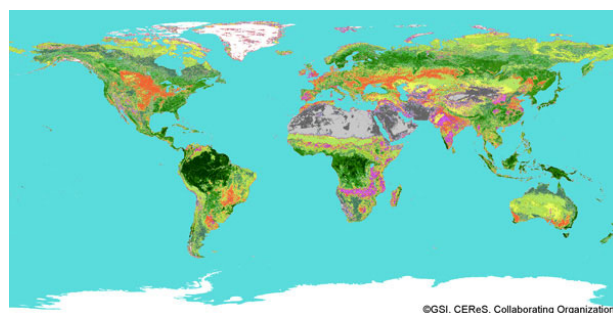


Fig. 1 Global Map version1 (Global Land Cover)

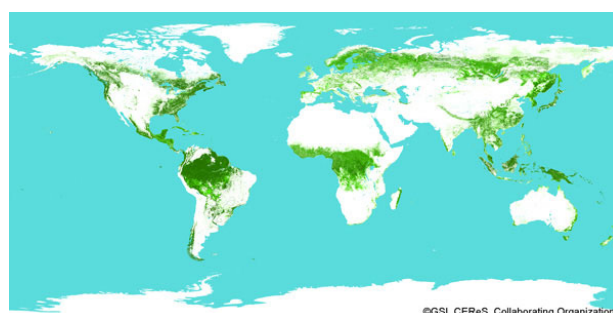


Fig. 2 Global Map version1 (Global Vegetation)

3. Relevant Events

3.1 ISCGM15

The 15th Meeting of ISCGM was held in Kanto Regional Survey Department of GSI in Tokyo on June 4, 2008. Twenty-six participants from national mapping organizations and liaison organizations participated in the meeting and discussed the strategies of the project and the development of the Global Map.

In addition to the completion of Global Map Version 1 by the end of 2008, frameworks for the Global Mapping Phase 3, especially revising the Global Map Specifications and the development of Global Map version 2, were discussed at the meeting as it neared the end of Phase 2 of the Global Mapping Project.

Other key issues discussed were the need for trained personnel, partnership with related organizations, and the applications of the Global Map, such as providing data to relief organizations for recent disasters.

Many ideas were introduced at this meeting which resulted in the Resolutions of the Fifteen Meeting of ISCGM.



Photo 8 Participants of the ISCGM15 Meeting

3.2 Events related to the G8 summit 2008

The Japanese Government hosted the G8 HOKKAIDO TOYAKO Summit in July, 2008. One of the main themes of this Summit was “Environment”, in relation to this, the Global Map and the Global Mapping Forum 2008 were introduced in related events. At the Fourth Tokyo International Conference on African Development (TICAD IV, May 28-30, 2008), the Global Map of the African area was introduced on the screen during a break in the conference (Photo 9). Government leaders from various countries, including H. E. Mr. Yasuo Fukuda, Prime Minister of Japan, were present. The Global Map was also mentioned in the “TICAD IV Yokohama Action Plan” as “Promote technical assistance such as establishing and updating the Global Map data for the Africa, describing the status of its environment in five years” in the actions to be taken in the next 5 years under the TICAD Process (chapter 2 of “Addressing Environmental/Climate Change issues” section).



Photo 9 Global Map in the screen at TICAD IV

The Global Map was also introduced in other relevant events, such as the Environment Fair in KOBE on May 23-26 (a side event of KOBE Environment Ministers Meeting 2008), the Integrated Exhibition of the Environment in celebration of the Hokkaido Toyako Summit on June 19-21, the Global Environmental Education Promotion Committee on July 5-6 and the Environmental Showcase at the International Media Center of the G8 Summit in Rusutsu. Many people visited the Global Map booth and looked at the Global Map with interest. Well laid out maps attracted visitors with an understanding of the global environment at a glance. In addition, the Global Map was displayed not only as an output on paper, but also in a digital globe named the “Tangible Earth” at the Environmental Showcase.



Photo 10 Global Map on “Tangible Earth” at the Environmental Showcase

4. Conclusion

GSI made efforts to hold the Global Mapping Forum in Tokyo, and many fruitful discussions were done at the forum. In particular, the importance of the Global Map was recognized and strategies for the next phase of the Global Mapping project were suggested.

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Global Map Tokyo Declaration

Three hundred and forty-six participants from 26 countries met in Tokyo, Japan at Global Mapping Forum 2008 to celebrate the near completion of Global Map Version 1 and discussed the development and use of Global Map to cope with global environmental problems and other issues at a global scale. The participants adopted the following statement at the closing session of the Forum on 6th of June 2008.

Recalling that during the Earth Summit in 1992, the nations of the world addressed global environmental problems and adopted Agenda 21, that ISCGM was established to promote the development of Global Map, and that in 2002 global environment was further discussed in Johannesburg at WSSD where the goal of the development of Global Map was further supported.

We express our gratitude to 179 countries and regions of the world who have participated in the project for their efforts to bring Global Map to this stage.

At the same time, we work to further expand the use of Global Map. We also call on all those countries not yet committed to Global Map to join and work to ensure coverage of the terrestrial surface of the earth.

We further recognize that global environmental problems such as climate change, deforestation and desertification have become serious problems for humanity, that issues on climate change will be a major topic at the G8 Hokkaido Toyako Summit in July, which brings together world leaders. All people, including those dedicated to mapping the earth, should make a contribution to solving these problems.

The users and producers of Global Map call for the strengthening and coordination required to make Global Map, which has been developed with common specifications and internationally agreed standards, and which accurately describes the status and impact of human activities. Global Map gives a common understanding to people who live on the earth. Global Map should be more usable and easily available to assist in decision-making to help solve the common environmental problems facing humanity. Of particular importance in this respect is capacity building activities for and with developing nations.