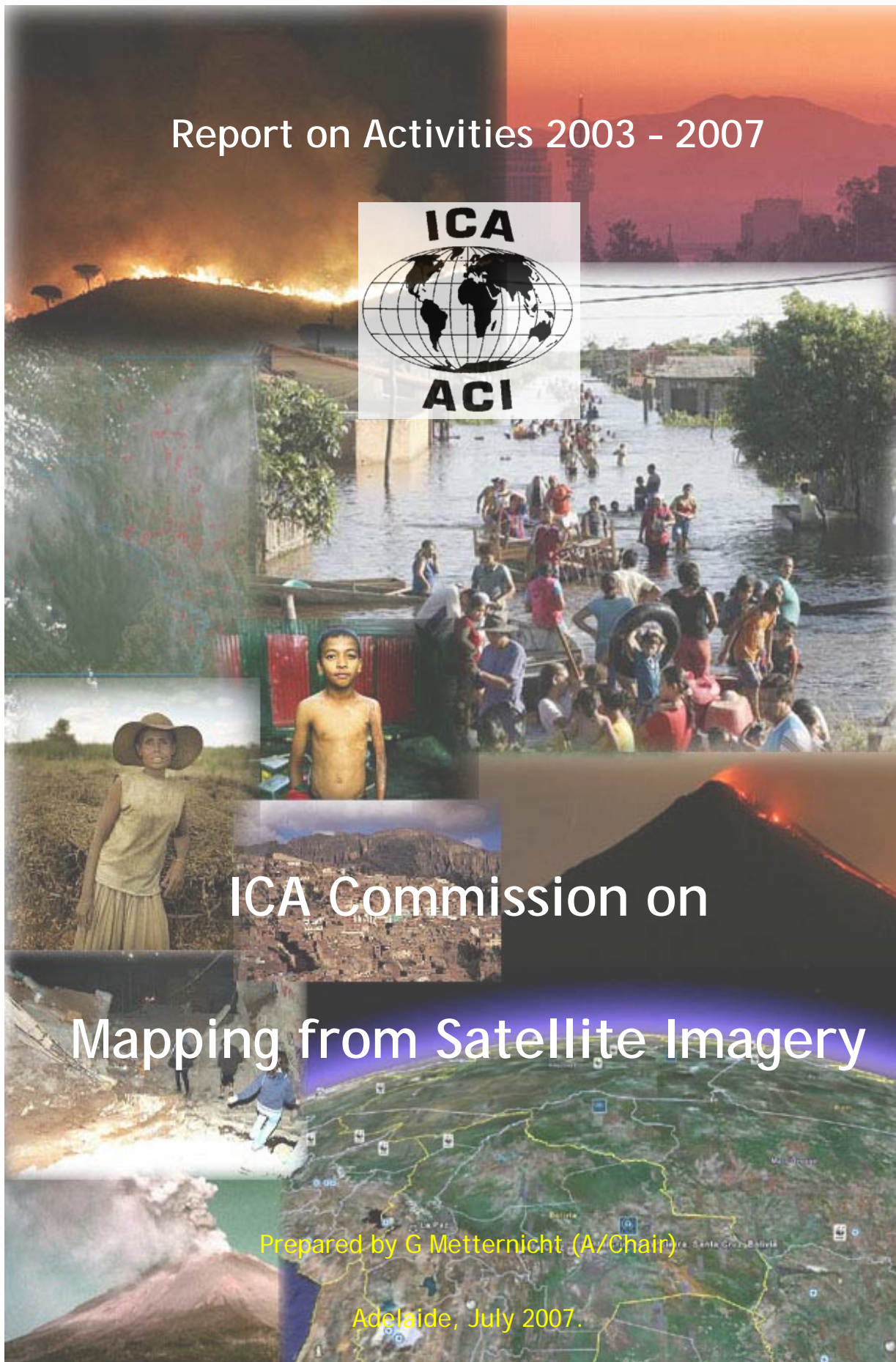


Report on Activities 2003 - 2007



ICA Commission on

Mapping from Satellite Imagery

Prepared by G Metternicht (A/Chair)

Adelaide, July 2007.

Terms of Reference 2003 - 2007

- 1) To analyse the various types of existing and forthcoming satellite imagery in view of their potential inputs for producing and updating topographic and thematic maps and databases;
- 2) To continue with the inventory and analysis of the cartographic capabilities of different remote sensing systems;
- 3) To research the state of the art of cartographic standards (e.g.. legend, symbology, etc) for remote sensing based mapping of different domains:
 - a) urban areas;
 - b) land cover,
 - c) forestry;
 - d) environment.
- 4) To study and report on methods and techniques for satellite-based change detection and its cartographic representation (e.g. temporal cartography).

Chair and Vice-Chair

Chair (2003 - 2005); Vice-Chair (2005-2007)

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Activities

Year 2003: GIS and mapping for agricultural decision support

An international course on "GIS and mapping for agricultural decision support" was held in Bangkok, from the 8-12 December 2003 under the auspices of the International Cartographic Association (ICA), the Environmental Systems Research Institute (ESRI), and Land Development Department of Thailand. The instructional team consisted of Dr. Graciela Metternicht, Vice-Chair of the ICA commission on Mapping from Satellite Imagery, Dr. Joel L. Morrison, Professor Emeritus of The Ohio State University, and Mr. Makram Murad-al-shaikh, Senior Instructor of ESRI, Redlands.

The workshop combined a tutorial on modern cartography with special emphasis on the use of Geographic Information Systems and remote sensing, and a hands-on workshop using ESRI's ArcMap software. Mr. Murad-al-Shaikh presented a tutorial on the basic principles of cartography, the use of ArcMap for data classification and map presentations. Dr. Morrison discussed the effects of the shift to electronic technology used in cartography, the need and use of standards, outlining existing international standards that are available to the geo-spatial data community. Lastly, A/Prof Metternicht lectured on the use of remote sensing with specific emphasis on data collection and image processing techniques related to soils and vegetation. She summed up the discussion by touching on applications of remote sensing for topographic map revision and database maintenance and revision. The workshop was attended by 25 staff from the Land Development Department of Thailand.

Mr. Ard Somrang, Director General of the Land Development Department opened the weeklong workshop by welcoming the students and instructors to Bangkok.

The gracious hosts of the Land Development Department, under the leadership of Ms. Wanarat Thothong, were superb in providing the local logistics including a banquet with Karaoke on Thursday evening. Graduation ceremonies on Friday afternoon were presided over by Mr. Chaiwat Wittibutr, Deputy Director General of the Land Development Department. The instructors and students were impressed with the first class facilities made available by the Land Development Department. The week proved beneficial to instructors and students alike.



Participants of the 'GIS and mapping for agricultural decision Support' workshop
Report prepared by Joel Morrison and Graciela Metternicht (Vice-Chair, ICA Commission on Mapping from Satellite Imagery)

Year 2006: United Nations/Zambia/ESA Regional Workshop on the Applications of Global Navigation Satellite System Technologies in Sub-Saharan Africa

Professor Graciela Metternicht, Chair of the ICA Commission on Mapping from Satellite Imagery assisted to the UN/ESA workshop hosted by the Ministry of Health of Zambia, in Lusaka from the 26th to the 30th June 2006. This commission activity took place as result of the MOU signed between the ICA and the United

Nations Office for Outer Space Affairs in 2005, which aims to increase the awareness of the use and applications of GNSS and other space technologies to support sustainable development in all its aspects: economical, environmental, asocial, technological, cultural and ethical.

This regional workshop addressed, inter alia, the space technology applications such as remote sensing, precision agriculture, aviation, transport and communications, e-learning, telehealth and landscape epidemiology. Professor Metternicht's presentation on behalf of the ICA and this Commission were on "Use of remote sensing and GNSS in precision agriculture" and "Current developments of remote sensing for mapping and monitoring land degradation at regional scale".

Since 2001, the Office of Outer Space Affairs of the United Nations has organised a series of regional workshops and international meetings to promote the use of GNSS. These workshops and meetings presented the status of existing and near-term GNSS systems and their augmentations and also presented examples of GNSS applications that support sustainable development and protect the environment.

The UN/ESA/Zambia workshop was attended by 80 participants from 23 countries, with presentations focused on GNSS-based application areas, policies and strategies for promoting sustainable development, international initiatives and experiences on GNSS implementation and uses in agriculture and management of the environment, tele-health, landscape epidemiology, civil aviation and land transportation; and education and training. Most of the presentations related to agriculture and natural resource management dealt with the use of integrated space technologies (e.g. remote sensing and GNSS) assisted by GIS for surveying, mapping and monitoring aimed at improved decision making. A session on applications of GNSS included meteorology, application of satellite information in disaster management and emergency response in Malawi; uses and applications of GNSS technology in environmental and resources management in the Niger Delta; GPS applications for GIS purposes

in Swaziland; applications of GNSS and remote sensing for environmental sustainability, and GNSS applications for mineral exploration in Zambia.

A special session to identify regional cooperation in applying GNSS technologies to the areas of agriculture management of environment, tele-health and landscape epidemiology, and civil aviation and land transportation was held on Wednesday afternoon. Issues and concerns of application, requirements of implementation, possibilities of success, mechanisms and resources for implementation were discussed. The session concluded with the identification of 4 main projects, namely on:

- 1) International cooperation and networking: legal framework, policy and strategy for the GNSS applications
- 2) Mapping, data access and sharing
- 3) Capacity building and education for: authorities/experts. Knowledge transfer to users and other and users (users: small scale farmers, etc).
- 4) Space technology application for tele health.

The project on capacity building proposes, amongst other things, the creation of an e-library, for framework of information access/sharing. UNOOSA can provide support for this e-library in the form of a portal. The ICA commission on Education and Training could have a participation in the activities of this project, as the purpose is to make provide free access to courses and scientific materials in different areas of the geospatial sciences to African countries of the Sub-Saharan region. Datasets are stored at the country level (UNOOSA web portal). The contributor has the right to request a password (info access password protected). ICA Commission chairs interested in contributing on the creation of this e-library are encouraged to contact Ms Sharafat Gadimova (sharafat.gadimova@unvienna.org). The workshop concluded on Friday with a presentation of summary reports of the sessions.



Participants of the workshop on GNSS

Other activities

Year 2006: CARTOGRAPHICA and the ICA Commission on Mapping from Satellite Imagery.

A call for papers for a special issue of the CARTOGRAPHICA journal focused on research undertaken by commission members using satellite imagery was issued in early 2006. A total of 6 submissions were received. Unfortunately, the Editors of CARTOGRAPHICA were unable to find suitable reviewers for the papers, aside the fact that several appointed reviewers questioned as to why CARTOGRAPHICA would devote an issue to an aspect they did not see related to the objectives of the journal. Peter Keller took the final decision to call off the special issue. As a lesson to be learnt from this activity is that careful selection of journals to be approached for special issues is vital. Therefore, any future plan for special issues related to the work of this commission should focus in journals where 'remote sensing' and its applications is the theme, rather than cartography per se (e.g. International Journal of Remote Sensing, ISPRS Journal of Photogrammetry and Remote Sensing; Journal of Applied Geoscience; Canadian Journal of Remote Sensing; etc).

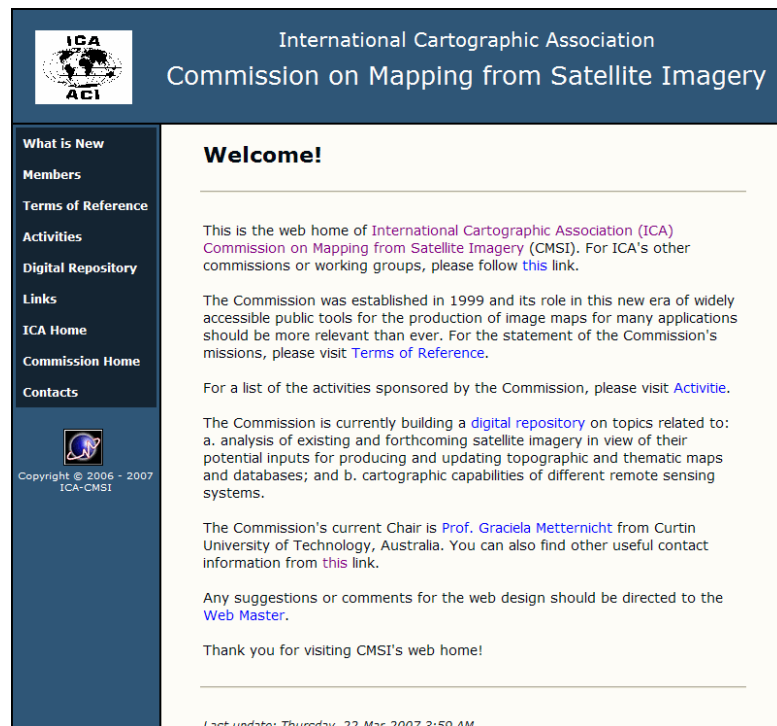
Book proposal:

No advancements have been made in this front. The manuscript provided by Serge LeBlanc some years ago rest with the chair of the Publication Committee, who volunteered to contact Mr LeBlanc and request whether he would still be

interested in its publication. Given the rapid technological changes in this area, the manuscript will need to be updated. I have mentioned Bob McMaster that I could undertake this task, identifying the aspects that need updating, provided an agreement on joint authorship with Mr LeBlanc is reached. So far, I haven't had any news regarding the progress of this discussion with Mr LeBlanc.

Commission website and digital repository

With the assistance of A/Prof Dr. Xiaojun Yang, of the Department of Geography, Florida State University, the an informative and up-to-date website showing the TORs of the Commission, digital repository, useful links, has been created at <http://mailer.fsu.edu/~xyang/ica/Contacts.html>



The Commission's website created by Dr Yang

The digital repository contains all papers presented at the 21st and 22nd International Cartographic Conferences (years 2003 and 2005) on the theme '*Cartography and satellite imagery for the management of natural resources and the environment, early warning and natural disasters mitigation*'.



The digital repository of ICC Conference papers on the theme of MSI

Publications

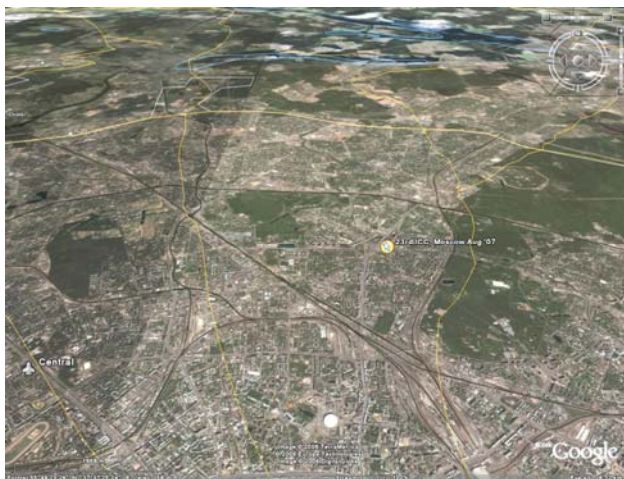
An article promoting the commission and its activities was published in March 2007 in the professional magazine GIM International volume 21, issue 3 (http://www.gim-international.com/issues/articles/id862-Mapping_from_Satellite_Imagery.html). The contents of the article are reproduced hereafter

“The emergence of new, low-cost, internet-based mapping tools like Google Earth, Google Maps, and NASA World Wind that make thousands of satellite images available to a wide audience has greatly influenced perception and awareness. This goes for both the general public and the scientific community, who now see the enormous potential of mapping from satellite imagery. Such tools highlight the crucial role of remote sensing in providing fast, up-to-date cartographic information for informed decision making, particularly for rapid mapping of pre- and post-disaster events, emergency planning, geomarketing, or

even simpler activities like planning a holiday trip.

The ICA Commission on Mapping from Satellite Imagery was established in 1999 and its role in this new era of widely accessible public tools for the production of image maps for many applications should be more relevant than ever. The current terms of reference of the Commission are to:

- Analyse the various types of existing and forthcoming satellite imagery and their potential input for producing and updating topographic and thematic maps and databases
- Develop inventories and analyse the cartographic capabilities of different remote sensing systems
- Research the state of the art of cartographic standards (e.g. legend, symbology etc) for remote-sensing-based mapping within domains such as urban areas, land cover, forestry, and the environment
- Study and report on methods and techniques for satellite-based change detection and its cartographic representation (e.g. temporal cartography).



Activities of the Commission have included a joint international course with ESRI and the Land Department of Thailand, on 'GIS and mapping for Agricultural Decision Support' (Bankgok 2003). As a result of the MOU signed between the United Nations Office for Outer Space Affairs (UNOOSA)

and the ICA (see GIM International, April 2006), the Commission contributed to a workshop organised by the European Space Agency, UNOOSA and the Government of Zambia in June 2006. This, entitled 'Applications of Global Navigation Satellite System Technologies in Sub-Saharan Africa', addressed the role of space-technology applications such as remote sensing in precision agriculture, environmental monitoring, natural-resource survey and landscape

epidemiology.

A digital repository of all papers presented at the 21st and 22nd International Cartographic Conferences (years 2003 and 2005) on the theme 'Cartography and satellite imagery for the management of natural resources and the environment, early warning and natural disasters mitigation' has been created at the commission website (<http://mailer.fsu.edu/~xyang/ica/index.html>).

Commission members have expertise in the areas of satellite-based cartography of urban environments and urban change, land cover/land-use change, estuarine and coastal environments, topographic map updating, production of image maps, agricultural monitoring, and land degradation. To contribute to the Commission's workshop, conference or seminar activities contact the acting chair, Graciela Metternicht (g.metternicht@curtin.edu.au)."

SWOT analysis of the commission

The graphic below summarises perceived Strengths, Weaknesses, Opportunities and Threats for the Commissions' activities in the future. The graphic shows the wealth of opportunities that are available for commission's activities provided we can target the 'right' clients. Clients are National Mapping Organisations, international training centers, and NGOs who by nature of their activities have a vision and mission focused on the use of new technologies for improved mapping activities. Networking is required to improve the Commission's profile in international initiatives like UN SPIDER, GEOSS, GEF, etc.



The way forward

Professor Graciela Metternicht, acting chair, will be applying for the position of Commission chair for the period 2007-2011. Supported by A/Prof. Yang as Commission vice-Chair, they expect to improve the activities and profile of the commission. To this end the following TORs are proposed:

Terms of Reference: 2007 - 2011

- 1) Maintain and improve the digital repository of the Commission on topics related to:
- 2) analysis of existing and forthcoming satellite imagery in view of their potential inputs for producing and updating topographic and thematic maps and databases;

- 3) cartographic capabilities of different remote sensing systems.
- 4) Produce a special edition the ICC theme 'Cartography and satellite imagery for the management of natural resources and the environment, early warning and natural disasters mitigation' with papers to be presented at ICC2007 or ICC 2009, in a scholarly journal of remote sensing, or a book on Mapping from Satellite Imagery.
- 5) Develop closer links with international organisations concerned with the use of satellite imagery (e.g. UNOOSA, UNEP, PAIGH), in view of strengthening ICA's presence, and to produce joint courses or seminars on cartographic applications of satellite imagery.
- 6) Promote knowledge transfer at fundamental and advanced levels on the use of satellite imagery for cartographic applications related to natural and built environments, early warning and natural disaster mitigation.
- 7) Prepare promotional materials reflecting the Commission's terms of reference and activities that can be used to support ICA presence at international forums (e.g. World Map, Map Middle East, meetings of Joint Societies, UN meetings, other regional conferences). Outcomes: posters, fact sheets, booklets.
- 8) Network with ISPRS and other ICA commissions with similar interests in applications of satellite imagery. Such networking would be in view of producing joint workshops or seminars within the period 2007-2011.

Planned Activities

Planned Activities	2007	2008	2009	2010	2011
Website and digital repository updating and maintenance	X	X	X	X	X
Nomination of Commission Co-Chair and commission members.	X				
Establish an electronic mail list of commission members and 'friends'.	X				
Establish an entry on the Commission's website that identifies the Commission members' professional expertise: "The Commission Pool of Experts". Interested parties can contact experts for development of ICA-related activities.	X	X	X	X	X
Planning of workshops for 2008 and 2010 (may be with other ICA Commissions or ISPRS commissions).		X		X	
Call for a special edition of papers from theme 11 ICC. Contact Journal editors, or Publishers	X	X		X	
Preparation of promotion materials to support ICA activities	X	X	X	X	X
Organisation of joint activities with UNOOSA for the ICC Santiago (Chile)			X		
Contact nation members to offer Commission's expert knowledge for organisation of courses/seminars		X	X	X	

Professor Graciela Metternicht

Chair (acting)

ICA Commission on Mapping from satellite imagery

Adelaide, July 2007