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Mapping Africa for Africa

Mapping Africa for Africa (MAFA) is a new initiative intended to accelerate the pace of geo-information activities in Africa and to be a catalyst for promoting the importance of geo-spatial information for decision support in the development of the continent. As a contribution to African renaissance, MAFA is expected to spearhead a plan of action providing the fundamental geo-spatial information/maps for sustainable development in support of projects under the New Partnership for Africa's Development (NEPAD).

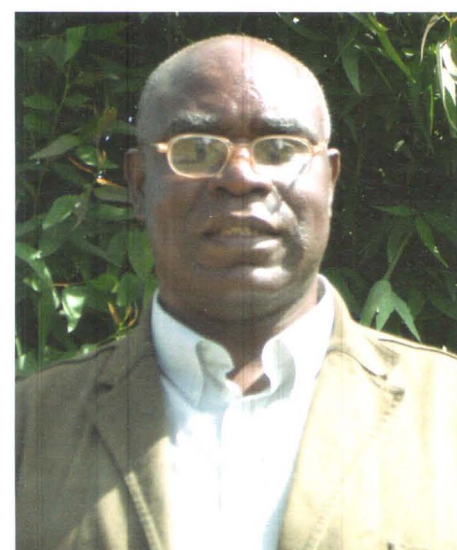
MAFA results from the 'Durban Statement on MAFA' agreed at the International Cartographic Association conference held in South Africa in 2003. It presents recommendations and an action plan for the United Nations Economic Commission for Africa (UNECA), under the guidance of its Committee on Development Information (GeoInformation subcommittee, CODI-Geo) to implement activities relating to MAFA in collaboration with ICA and other global institutions and organisations. The obligation of ICA to create a Working Group (WG) on 'Mapping Africa for Africa' has already been met.

The MAFA initiative has to address the poorly mapped status of Africa: only a few countries have maps covering their territory adequate for national development purposes. Further, environmental and economic needs of Africa extend beyond territorial boundaries, requiring maps covering large regions for intervention and support purposes. African governments need to recognise national mapping as a key national asset the progress of which needs to be enhanced.

One of the challenges of ICA is to prepare for a world that will increasingly depend on the effective use of geographic information and the application of cartography and GIScience. It is upon this premise that the ICA WG on MAFA will address the promotion of international technical and scientific support, along with advisory services from ICA and its affiliate members.

Similarly, the WG has to develop strategies that will aid countries in Africa in capacity development and knowledge

sharing. As the leadership role of ICA in Cartography and GIScience is internationally known it is expected to promote awareness of cartographic issues and resources in Africa to the international community. Thus ICA will be seen to be contributing to the understanding and solution of African problems through the use of cartography and geo-spatial data.



Mr Haggai Nyapola.

MAFA therefore has a daunting task ahead of it. Its urgent work includes the establishment of the African Reference Frame (AFREF) and an audit of the geo-spatial data available in African countries. Initial data capture needs to be supplemented by maintenance; also required are updating programmes and conversion of existing fundamental datasets to digital form using innovative and standardised methodologies. Decision-makers have to be persuaded to allocate sufficient financial resources at national levels to develop the geo-information infrastructure.

Ultimately, development in Africa will advance when people in Africa have the knowledge and capacity to identify their own spatial data problems and agree on their own solutions. 🌍

Haggai Nyapola, ICA vice-president and chair WG on MAFA, P.O. Box 32883, 00600 Nairobi, Kenya, e-mail: nyapola2000@yahoo.com



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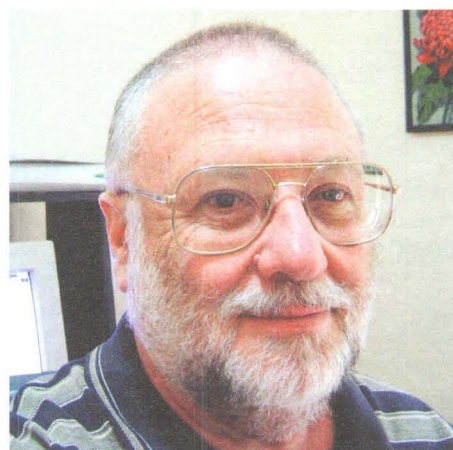
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ICA Offshore

One significant focus of ICA work comes from the members of the *ICA Commission on Marine Cartography*. It has few members but they interact effectively with a number of other associations to bring cartographic and spatial expertise to bear on issues from a marine or maritime perspective. Mostly, the members work by correspondence but hold a work meeting whenever they can, usually at the biennial International Cartographic Conferences. Anybody with an interest in marine cartography is welcome to attend.



Ron Furness

The vast majority of humankind lives on or near the coast and, by whatever definition is used for coastal regions, it is generally agreed that human pressures threaten them all. These threats, together with such issues as hugely differing time-scales, varying data sets and interpretive perspectives, bring unique but exciting challenges to GIS and cartographic professionals and practitioners applying the potential of GIS to aid in the management of the world's coastal regions.

There has been extensive development of GIS in relation to terrestrial natural resources information, more recently extended to include socioeconomic data, but there has been a slower uptake in relation to coastal and marine systems. The international collaboration stimulated by the Commission seeks to extend its examination of the latest state of data modelling and management to a consideration of the requirements for extensive spatial data infrastructures.

The Commission is responsible for a number of initiatives, which are explained below.

◆ Links between the Commission and the International Geographical Union's Commission on Coastal Systems, over the last decade or so, have resulted in the international collaboration known as CoastGIS (www.coastgis.org). There have been five biennial conferences that bring together researchers and practitioners focussed on spatial issues relating to coastal regions and on the potential of geographic information systems. The next two conferences will be held in Aberdeen, Scotland, in 2005 (www.coastgis2005.org.uk) and Australia in 2006 (www.uow.edu.au/science/eesc/conferences/coastgis06.html).

◆ A small group in Hungary is working on a multilingual gazetteer of marine names.

◆ The significance of the effort required internationally to produce hydrographic surveys and nautical charts covering the world's oceans and coastal regions is under-recognised. Collaboration between ICA and the International Hydrographic Organization (IHO) and the International Federation of Surveyors (FIG) has led to two members from this ICA Commission working on the FIG/IHO/ICA Advisory Board for Standards of Competence for Hydrographic Surveyors and Nautical Cartographers. The recent introduction of internationally accepted standards of competency for nautical cartographers has come out of the collaboration: the Chinese Naval Academy at Dalian, PRC, will soon be awarded the very first recognition by the Advisory Board for its degree course in nautical cartography. The standards can be downloaded from www.iho.shom.fr.

Approved and recognised Standards of Competence for Hydrographic Surveyors have been in existence for many years, but only in 2003 were such standards finally approved and accepted by the parent bodies of the Advisory Board. This has been a significant step for nautical cartography. 🌐

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Educational Cartography: A Significant Commercial Sector

The status and quality of cartography in the school curriculum needs to be raised. Map-related pedagogy is poorly developed in most countries and non-existent in many. There is an increasing gap between how maps are used in the 'real world' and how they are taught at school. Research evidence is also patchy. There is a very strong body of literature on young children's understanding of small, familiar spaces and their ability to use large-scale plans and aerial photographs. Yet there is limited evidence about the thinking of older school students using small-scale maps and 'new' forms of spatial representation such as digital elevation models. Above all, we have insufficient evidence of children using GIS tools for problem solving and decision making.

The Cartography and Children Commission of the International Cartographic Association (ICA) addresses some of these issues, aiming to:

- promote the use and enjoyment of maps by children and young people
- increase understanding of children and young people's engagement with maps
- raise the standard of educational cartography.

We are achieving these aims in the period 2003-2007 by disseminating research into children's cartographic thinking and stimulating debate on the design and realisation of maps and atlases for schools.

We collaborated with the Commission for Geography Education of the International Geographical Union (CGE-IGU) in a major conference attended by more than 140 people at the University of Strathclyde, Glasgow, in August, 2004. A book, *Geographical Education: Expanding Horizons in a Shrinking World*, edited by W. A. Kent, E. Rawling and A. Robinson, was published to coincide with the event. There will be a wide selection of papers at the International Cartographic Conference in A Coruña, Spain in July 2005 and the online research bibliography on cartography and children (in several languages) on the commission's website (<http://lazarus.elte.hu/ccc/ccc.htm>) continues to be maintained. Many commission members are directly involved



Economic threats to the children's life, by Antayam Samvel (14) from Belarus, one of the winners of the Barbard Petchenik Children's World Map Competition, 2003.

in editing and the production of maps and atlases for children in their own countries. These include both conventional and digital products. As an international contribution to promoting good practice we have published a collection of papers in a *Forum* section of the journal *International Research in Geographical and Environmental Education* (12:4, 2004).

A highly visible way of drawing public attention to the ICA is through the Barbard Petchenik Children's World Map Competition. The aim of this competition is to promote children's creative representation of the world, to enhance their cartographic awareness and to make them more conscious of their environment. The awards are given every two years, preferably at least one for each continent, with special consideration for the age of the child producing the drawing. The 2003 entrants for the competition can be seen at www.icaci.org/petchenik2003/. This extremely popular competition has now been held for ten years and Jeet Atwal plans a retrospective exhibition for the A Coruña conference. A book of selected competition maps is currently being prepared by Commission members and will be published by ESRI: we hope this will stimulate further interest in children's mapping worldwide.

Cartography and children represents a growth area in research, and educational cartography is a significant commercial sector: there is much still to do. 🌐

Dr Patrick Wiegand, chair, Cartography and Children Commission, ICA, e-mail: p.a.wiegand@education.leeds.ac.uk.



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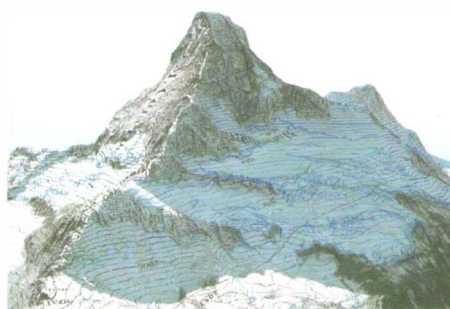
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Mapping Reaches the Heights

The ICA Commission on Mountain Cartography was established in 1999 to define the topics involved and promote methods and knowledge of mountain cartography among scientists and professionals in cartography and related fields. The challenges have become more urgent in recent years because of the increased social and economic importance of mountain regions: they are exploited for recreation and for human transport and transit, there are increasing economic pressures on mountain zones, and natural hazards are ever-present. The International Year of the Mountains (2002) showed the importance attached to such environments by the UN.

The Commission holds its biannual workshops in locations relevant to its mission to examine the specific nature of the representation of mountainous areas and the handling of spatial data related to mountain environments. Subjects such as avalanche and glacier mapping, relief presentation, tourist mapping, data capture, photogrammetry, remote sensing, geo-visualisation and multimedia all form items of discussion. In October 2004, the 4th ICA Mountain Cartography workshop was held at Vall de Núria, Catalonia, Spain with 40 international participants.

The first topic discussed was 'Risk and natural hazard mapping, snow avalanches' which covered snow avalanches in the Tyrolean Alps and the Catalan Pyrenees, along with hazard analysis and an associated geo-spatial system for data management, modelling and visu-



The Matterhorn in 3D, with topographic map draped over a DTM; image as reproduced in the latest report of the ICA Commission on Mountain Cartography.

alisation in an Alpine valley. Understanding the dynamics of avalanche-path mapping using tree damage and tree-ring information was demonstrated, whilst the detection of potentially unstable areas and rock-fall hazard assessment in the Pyrenees using LIDAR was also covered. The session on 'Cartography of glacial phenomena' primarily considered the role of photogrammetry in change detection and glacier retreat mapping. 'Visualisation, rendering, animation' focused on 3D methods, including graphic design, visualisation, and an interesting hardware use of 'Lenticular Foil Technology' to deliver True 3D representation.

'Alpine cartography, cave mapping, mountain tourist mapping' considered different ways of communicating 'mountain mapping'. A tourist map for a new recreation area in the Tibles Mountains, Romania was discussed. Public evaluation of whether US National Park Service 3D trailhead maps are better than conventional maps for orientation was summarised. The transformation from traditional panorama perspectives on the painter's canvas to digital rendering was explained and another contribution described the design and production of natural-colour shaded relief maps using satellite land cover data.

A series of papers on 'Topographic mountain cartography: relief representation, hill shading and cliff drawing' concluded the workshop. Twelve diverse presentations looked at issues ranging from free and low cost datasets for international mountain cartography, to the production of new map sheets for mountain zones in South America. The representation of mountainous regions in the National Atlas of Switzerland, hill shading on Canadian topographic maps and the role of field checking were also considered.

The Commission will next meet during the International Cartographic Conference in A Coruna, Spain in July 2005 and the 2006 workshop will be held at 'GOZDNA SOLA', Triglav National Park, Slovenia, from 30 March to 1 April. Further information can be found at www.mountaincartography.org

Lorenz Hurni, chair and Karel Kriz, co-chair



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Latin American Perspective

The ICA Executive Committee held a meeting in Mexico City in February 2005 at the invitation of the Pan American Institute for Geography and History (PAIGH). This business meeting resulted in a Memorandum of Understanding (MoU) signed by ICA president Milan Konecny and PAIGH secretary-general Santiago Borrero to "advance spatial data infrastructures at multi-levels, as in the Global SDI and Global Mapping initiatives."

One major item discussed at the meeting was preparation for the 22nd International Cartographic Conference (ICC) in A Coruña, Spain, to be held from 9th to 16th July 2005. A record number of abstracts have been submitted and over five hundred oral presentations will be given, along with over two hundred posters; www.icc2005.org/ shows full details. A number of associated professional workshops and ICA Commission meetings will also be held during July, both in A Coruña and elsewhere in Spain.

The Hispanic community is deeply involved in this conference and in the development of cartography in general. The EC visit to Mexico was a related attempt by ICA to reach out yet farther



ICA Executive Committee with host Santiago Borrero (centre) at PAIGH in February 2005.

to Latin American cartographers. Already the vibrant nature of geomatics in the western hemisphere is reflected in the United Nations Regional Cartographic Conferences for the Americas. The 8th conference in this series will be held in New York from 27th June to 1st July this year. PAIGH, with 21 member nations and four permanent observer nations, plays a significant role in promoting and supporting this international activity. Created in 1928 as a correspondent member of the Organization of American States (OAS), the Institute is located in Mexico City, providing technical assistance, training through research centres, distribution of publications and supporting technical meetings on cartography, geography, history and geophysics.

The interest shown by PAIGH in cartography includes a number of Committees (Fundamental Geospace Data, Institutional Enhancement and Technical Cooperation, Thematic Applications, and Standards) each of which has working groups. Interests in geography and geophysics are similarly organised. In addition, one of the Institute's journals, *Revista Cartographica*, is used to disseminate research findings and overviews of cartographic activity in the Americas.

Such activity is now concentrating on the need for SDI development in Latin America and the Caribbean region. Nineteen SDI initiatives have been identified at a national level, although regional integration is not proceeding quickly. An international committee, the Permanent Committee on Spatial Data Infrastructure for the Americas (PC-IDEA), is active under the aegis of INEGI, the Mexican national mapping authority based in Aguascalientes. These contributions from Latin America to the development of Global SDI are significant; cartographic and mapping developments in Latin America are important for the rest of the world. The surface picture of uniformity masks a host of differing national approaches to the handling of spatial data; this diversity is reflected in the range of papers from Latin America to be presented at the ICC in A Coruña in July. 🌐

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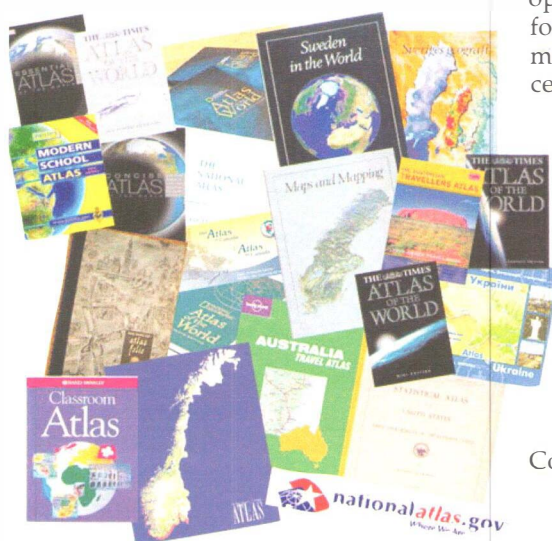
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Atlas: a Window on the World

This is an exciting time for cartography. The volume of available geographic information continues to increase, from diverse sources and providers each with their own characteristics and quirks. One of the best ways to consolidate such data is in an atlas. Atlases are visual windows on our surroundings. Whether they offer views of the entire world or focus on small areas of interest, atlases offer a unique geographic perspective.

Atlas Information System

Turning the page of a printed atlas allows the reader to discover and explore distant places. Atlas information systems operate as a focal point for use and dissemination of this geographic data in a variety of cartographic forms. They allow the data to 'come alive' through an intangible collaboration between atlas developer and atlas user. Interacting with an atlas information system, digital trekkers can begin their journey by zooming from a satellite image sourced from space into large-scale information, and then travel through layers of unfolding geographic detail until they reach their final destination. Members of the ICA Commission on National and Regional Atlases share common interests in fostering the design, production and use of atlases and atlas information systems. For example, the Commission sponsored a special session at the August 2004 conference of the International Geo-



Commission on National and Regional Atlases,
<http://kartoweb.itc.nl/cnra/index.html>.

graphical Union held in Glasgow, Scotland. The Atlas Commission is also collaborating with four other ICA Commissions in sponsoring a joint seminar, 'Internet-Based Cartographic Teaching and Learning: Atlases, Map Use and Visual Analytics' to be held in Madrid prior to the International Cartographic Conference (ICC) in July 2005 (http://redgeomatita.rediris.es/ICA_Madrid2005).

Successes and Challenges

Commission members explore new tools for atlas design, creation, and dissemination. Data integration is a common challenge; atlases are collections of diverse information usually assembled from disparate sources, whilst electronic atlases and atlas information systems often work with spatial files that require some level of data amalgamation. Technical problems like this are the focus of Commission members. Participation in the ICC provides an opportunity for members to share such experiences. This year there are eight presentation sessions planned on atlases and atlas information systems, in which approximately 33 papers will be presented on a variety of concepts and approaches. Members will use this occasion to discuss and collaborate over their successes and technical challenges and learn from colleagues about new approaches to their work. The Commission website (<http://kartoweb.itc.nl/cnra/index.html>) also provides an opportunity to communicate about forthcoming events and recent achievements and serves as a reference for proceedings of past atlas seminars and workshops.

While atlases and atlas information systems serve diverse purposes, the ICA Commission on National and Regional Atlases attempts to find issues of common interest in advancing the work of producing atlases and maintaining atlas information systems. We encourage those interested in this work to participate in Commission activities. 🌐

Timothy Trainor, chair, ICA Commission on National and Regional Atlases, Geography Division, US Census Bureau, Washington DC, USA, e-mail: timothy.f.trainor@census.gov



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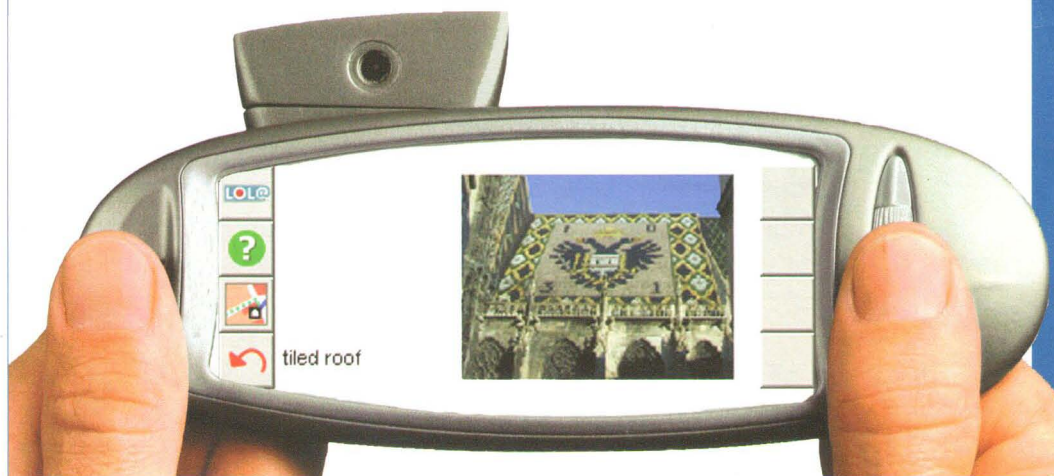
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Cartography and LB Technology

International activities have increased over recent years concerning applying cartographic presentations on mobile devices (TeleCartography) and developing innovative services wherein the location of a mobile device becomes a 'variable' of an information system (Location Based Services: LBS). From the beginning, the Department of

(ICA) tries generally to convey cartographic developments. The ICA Commission on Maps and the Internet was founded in 1999. Each year its activities culminate in Commission Meetings at which its intentions are pursued of bringing together international specialists in the field of Internet Mapping and disseminating to a broader public information on new developments and major areas of research. Such meetings



High-resolution display, multi-media information devices for people on the move.

Geoinformation and Cartography of Vienna University of Technology has been interested in these developments, leading to various research projects, students' activities, multidisciplinary co-operations and the organisation of two symposiums on TeleCartography and LBS in Vienna, Austria.

In modern cartography the main focus is on understanding the processes and methods of 'how to communicate spatial information efficiently'. In this respect, the assignment of cartography exceeds the creation of cartographic presentation forms, focusing also on understanding relations within the 'whole system' of communicating spatial information, including user, models and transmission processes. The engagement of modern cartography in fields like LBS and TeleCartography and the various multidisciplinary approaches that include cartographers, have to be seen in this context.

As the body for co-ordinated international activities in cartography, the International Cartographic Association

have been held in Ottawa (Canada 1999), Knoxville (USA 2000), Guangzhou (China 2001), Karlsruhe (Germany 2002), and Stellenbosch (South Africa 2003).

As activities in the field of LBS and TeleCartography may be considered an expansion of Internet Mapping methods and techniques for the mobile internet, it has been of common interest to also hold meetings in Vienna dedicated to issues in this field. As a result of ongoing interest in the topics of TeleCartography, cartographic LBS and ubiquitous cartography, a 3rd Symposium on TeleCartography and LBS will take place in Vienna from 28th to 30th November 2005 (<http://cartography.tuwien.ac.at/symposium2005>). ☎

Dr Georg Gartner, vice-chair ICA Commission on Maps and the Internet, Vienna University of Technology, Vienna, Austria, e-mail: georg.gartner@tuwien.ac.at



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www.icaci.org

Keeping in Touch: Maps for the Visually Impaired

As society becomes more reliant on image-based information for the purposes of mobility many people are excluded precisely by the visual nature of these graphic representations. An important example is those who are blind or partially sighted.

Yet mobility is especially important to people without sight: they have to deal with the challenges of orientation and navigation every day in a way that those who can see take for granted. This means not only way finding but also seeking out information that enables the visually impaired to generate an overall picture of spatial relationships and add knowledge to enrich their travel experiences.

The map, however it is conceived or defined, is the premier tool for both representing mobility and promoting access to it. So how do blind people access this information? Primarily through raised relief tactile maps, three-dimensional spatial representations that use Braille-like representations. However, users report a dearth of such tactile maps. When they do exist they are difficult to obtain, offer poor geographic cover or are of limited quality.

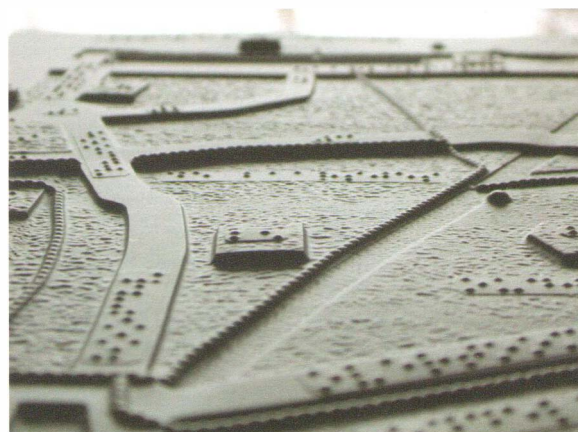
The ICA Commission on Maps and Graphics for Blind and Partially Sighted People works to improve communication and education in the design, production and use of tactile maps and graphics.

This includes:

- sharing, exchanging and disseminating information on design, and developing new production technologies appropriate to user needs
- providing guidance on and encouraging good practice in design and production
- developing co-operation with organisations representing blind and partially sighted people involved in cartography and communication
- creating accessible databases as sources of information about tactile symbols and tactile production

- investigating user perspectives and the implications these will have for tactile-map design.

Most designers of tactile maps are working in isolation, often producing bespoke tactile maps for single-purpose, individual use. So it is vital to communicate with all of them. In order to pro-



Example of tactile mapping from the Thermoform Atlas of Amsterdam, Bibliotheek Le Sage ten Brook (The Netherlands).

note consistency and improve design the Commission website INTACT (www.surrey.ac.uk/~pss1su/intact/) continues to expand. A newsletter, *Tac-News*, published three times a year, has also recently been introduced.

The renewed interest in this subject is illustrated by the large numbers of papers submitted for the International Cartographic Conference in A Coruña in July 2005 (along with a specialist session at the recent 2005 Association of American Geographers meeting). Theme sessions at the conference included Tactile Mapping: Use and Production, Perceptual & Cognitive Approaches, and Technological Innovation. This last theme is also important to the Commission as new developments in ways of gathering, representing and providing spatial information pertinent to visually impaired users are constantly being monitored: links with GPS look particularly exciting. 🌐

Jonathan Rowell, chair, ICA Commission on Maps and Graphics for Blind and Partially Sighted People, e-mail: j.rowell@apu.ac.uk



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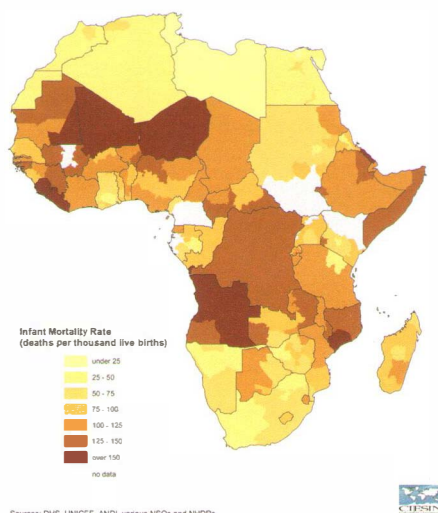
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ICA in Mapping the World

ICA takes its international responsibilities seriously, notably in Africa. A previously published ICA page (by Nyapola in GIM International, January 2005) described the scope of the ICA Working Group on Mapping Africa for Africa. ICA president Konecny and past-president Rystedt continue to devote time to meetings and initiatives which have direct relevance to progress both in African cartography and mapping and to more general international projects. ICA has an ex-officio seat on the board of the Global Spatial Data Infrastructure (GSDI). ICA participation in the April 2005 GSDI meeting in Cairo was extensive. GSDI operates via six standing committees, and the Technical Committee chaired by Doug Nebert has developed the GSDI Cookbook with a special edition for Africa.



Mapping the extent of Africa's child health record.

Further, there was a simultaneously held meeting of the Joint Board of Geo-spatial Information Societies (JBGIS). Constituted by the presidents of FIG (Federation Internationale de Geometres), IAG (International Association for Geodesy), ICA (International Cartographic Association), IHO (International Hydrographic Office), IMTA (International Map Trade Association), ISCGM (International Steering Committee for the Global Map) and ISPRS (International Society for Photogrammetry and Remote Sensing), JBGIS was formed in 1999. This was when the International Union of Survey-

ing and Mapping (IUSM) was dissolved. Along with decisions made about the administrative structure of JBGIS, discussions focused on how to be visible at the World Summit for Information Society, to be held in Tunis next November. Former ICA president Fraser Taylor reported that, so far, the final document does not include geo-spatial information as part of the information society. One option would be to have a slot on geo-spatial information in the ICSU (International Council of Scientific Unions) side-event. ICSU has been informed of JBGIS interest in contributing. The Joint Board has decided to establish an *ad hoc* group for disaster management (under Bengt Rystedt) and for education and capacity building in Africa (under Ian Dowman). It was expected that the first report on disaster management would be presented at the meeting of the ICA Working Group on Early Warning and Risk Management in A Coruña, Spain, in July 2005.

The International Steering Committee for Global Map (ISCGM) also met in Cairo in April 2005 to conduct its twelfth meeting. The Global Map project is a Japanese initiative presented to Agenda 21 in 1992. The project was recognised by the World Summit for Sustainable Development in Johannesburg 2003 and UN has adopted ISCGM as an "NGO in Special Consultative Status with the Economic and Social Council of the United Nations". The main objective of the Global Map project is to achieve a database with geo-spatial data at a resolution of 1km or better. In April 2005 the list of participating or considering organisations contained 142 countries. The aim is to achieve global coverage by 2007. Global Map data has eight layers: Boundaries, Drainage, Transportation, Population Centres, Elevation, Land Cover, Land Use, and Vegetation. One of the basic ideas of the project is the educational and capacity-building aspect. It provides training, technical support and advice to the National Mapping Organisations (NMO) on how to compile the data. When data is verified it will be available to everyone at "a marginal cost".

Next month's ICA page will present further ICA involvement with mapping Africa via the CODI project and its most recent conference in Addis Ababa. 🌍

Bengt Rystedt, past president ICA



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ICA and UN Help Develop Geo-information for Africa

The Committee on Development Information (CODI) is a unit within the UN Economic Commission for Africa, with three subcommittees on Statistics, Information Communication Technology, and Geo-Information. The first CODI meeting took place in 1999 and since then CODI meetings have incorporated the previously regular (1963 to 1996) UN Cartographic Conferences for Africa.



From left to right: Dr Amna Hamid, director, Sudan Remote Sensing Authority and current chair of CODI Geo-Information; Dr Dozie Ezigbalike, head of CODI Geo-Information at UN Economic Commission for Africa headquarters in Addis Ababa, and Mrs Hind Mahmoud, GIS Officer with the World Health Organisation in Khartoum.

CODI consists of member African nations along with ICA and other organisations as affiliate members. CODI meetings are held every second year at UN headquarters in Addis Ababa, the fourth meeting having been held in April 2005. After formal election of the presidium, (Dr Amna Hamid of Sudan was elected to chair the Geo-Information subcommittee) a number of meetings were held resulting in a range of important resolutions.

It was agreed that Geo-Information development, particularly Spatial Data Infrastructures (SDIs), needed to be integrated with wider initiatives, including National Information and Communication Infrastructures (NICIs), leading to an African Information Society Infrastructure (AISI). Those member states that have not yet started to develop SDIs and NICIs should adopt an integrated approach when developing their

national e-strategies, whilst those member states that have already initiated SDIs and/or NICIs should ensure that links are created between the two, with strong co-ordinating mechanisms. An obvious requirement is that government and political institutions continue to allocate necessary resources to extend and maintain the mapping infrastructure, including geodetic framework and core datasets. ICA believes that its initiative on Mapping Africa for Africa (MAfA) creates a framework for such development. It recognises that up-to-date, relevant, standardised and integrated Geo-Information and statistical information are critical for sound decision-making and that there is currently a lack of programmatic approach to the collection, maintenance and dissemination of such information. It recognises that most of 'info-structure' content for Africa is the responsibility of member states and institutions and that the availability of National Administrative Divisions as a fundamental dataset is crucial for the analysis and management of socio-economic phenomena. Progress will be

enhanced by the efforts of the Second Administrative Level Boundaries (SALB) project activated by the UN Geographic Working Group. This will act as a basic platform for the collection, management, visualisation and sharing of socio-economic data at sub-national level, and by further resolutions on effective address coding and earth observation in Africa.

On behalf of ICA, the present author gave a paper entitled 'Maps and Geographic Information to Everyone Everywhere'. This offered a short summary of the work within the ICA and stressed the progress in standards within the field of Geo-Information and new developments in wireless communication. These may open up the possibility for deployment of data communication also in rural areas, at affordable cost.

Bengt Rystedt

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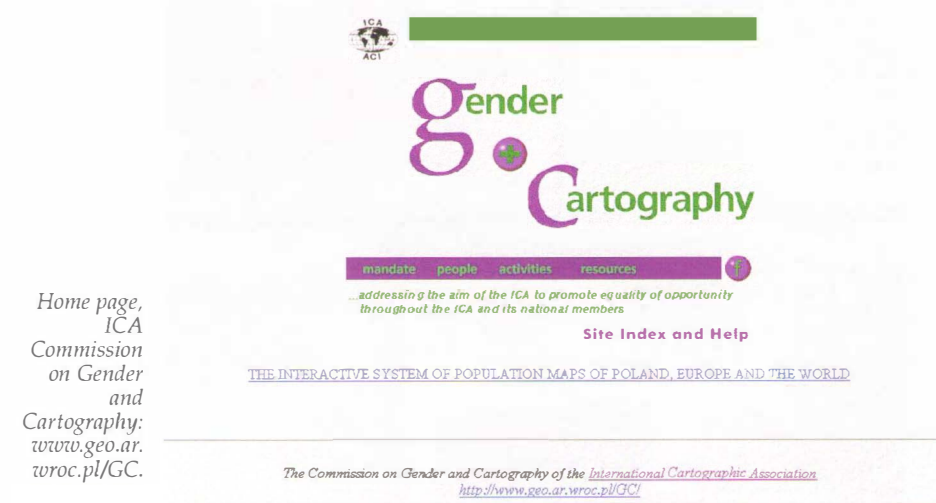
Mapping Society and Social Mapping

The theoretical basis of cartography is of fundamental importance. There are many conceptual issues involved in representing space, many of which are of interest to the ICA Commission on Theoretical Cartography. In particular, it is important to understand how cartographers represent their model of the world and how users interpret what maps mean. These issues reflect the social nature of the study and practice of

data to assist in obtaining an overall picture of their subject. Examples were given of the impact of international agencies such as UNHCR, UNICEF and WHO in supplying data and using it to create practical maps for their own purposes.

Mapping the Totality

As there arises a new generation of map users raised in the digital era, there comes a renewed need to examine the perception of the map image. In particu-



Home page,
ICA
Commission
on Gender
and
Cartography:
www.geo.ar.wroc.pl/GC/

The Commission on Gender and Cartography of the International Cartographic Association
<http://www.geo.ar.wroc.pl/GCI/>

cartography, showing that people are as important as technology in the mapping process. A further commission of the ICA, the Commission on Gender and Cartography, also has a bias towards these societal issues.

Census Maps

An open meeting at the Laboratory of GIS, Department of Geodesy and Photogrammetry of the University of Agriculture in Wrocław, Poland, in February this year included, amongst others, members of both Commissions. Sessions were devoted to terminology, reliability, the role of visual perception, geographical education, and cartogram representations. By considering a range of data sources during initial compilation the reliability of maps can be enhanced. The impact of GIS and multi-attribute spatial databases means that a full picture of the environment can be built up. Cartographers preparing representations of the natural landscape can use socio-economic data to inform (and perhaps update) their maps; those preparing census maps can use satellite remote sensing

lar, the role needs to be examined of distorted representations of space, such as cartograms based on some other variable: population, 'time-distance' or other socio-economic ratio value. These maps, along with other more standard representations of socio-economic data, should be thoroughly examined at school level, where up to now the emphasis has been on maps of the environment, topography and physical landscape. The meeting further considered how one could map the totality of the social, economic and demographic characteristics of a complete country. The complicated combination of features and issues which together make up a national culture need to be carefully analysed and compiled if a true picture of the nation is to emerge. Issues such as race, gender, religion, politics and demography need to be conjoined with measurement of the physical extent and characteristics of a country to ensure an accurate map.

Dr Ewa Krzywicka-Blum, Chair, ICA Commission on Gender and Cartography



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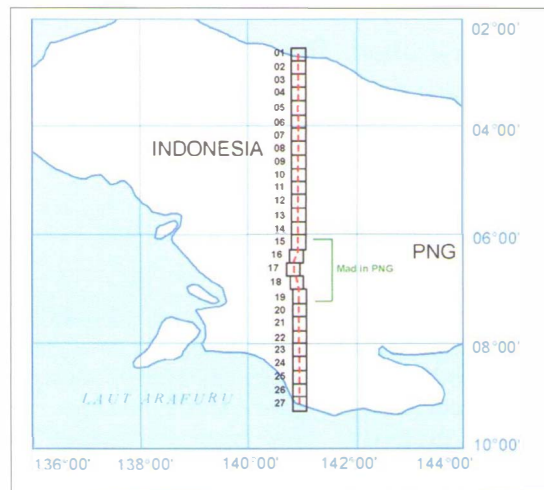
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Mapping Indonesia

The Indonesian national cartographic report prepared by the National Coordinating Agency for Surveys and Mapping (Bakosurtanal) and covering the period 2003 to 2005 was tabled at the ICA special General Assembly in A Coruña in July. This typical report



Sheet diagram for Common Border map, Republic of Indonesia-Papua New Guinea.

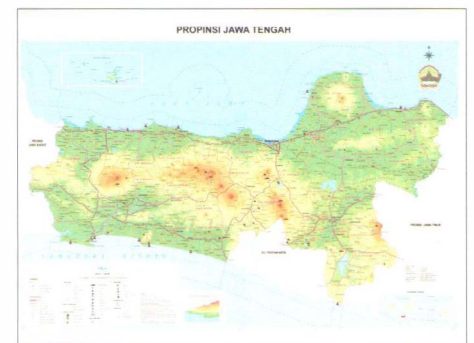
represented notable effort given the strain on that nation's cartographic resources after the 2004 tsunami. The interim report is divided into a number of sections covering among other topics mapping activities (including topographic, marine, thematic, boundary and national atlas mapping) and the development of the Indonesian Spatial Data Infrastructure (SDI). An outline is given of educational and training facilities; there is also an account of the surveying and mapping societies and organisations within Indonesia, along with an overview of the maturing market for maps and spatial data there.

The report includes a substantial number of maps and map extracts. Index diagrams show the coverage of 1:25,000, 1:50,000 and 1:250,000 hard-copy and digital maps produced by Bakosurtanal over large areas of the country. Also indicated is the extent of marine charts showing Exclusive Economic Zone (EEZ), sea-lane bathymetric data, and coastal maps at 1:50,000 and 1:250,000. Geological mapping, soil mapping and land-use mapping are all described, as is the proposed Tsunami

Early Warning System.

What this activity and organisational structure shows is that cartography is proceeding apace in Indonesia. New datasets are being created for a range of applications, from boundary mapping to seismicity monitoring. Map coverage is being gradually extended, and revision of the national topo mapping series (often using SPOT imagery and SLAR) is being given high priority. Public awareness has been raised by educational products and map competitions (Indonesia has a proud record in the Barbara Petchenik children's map contest), leading to a three-fold increase in map sales from the year 2001 to nearly 2.2 million in 2004.

The SDI is a major initiative within the wider field of government policy and spatial data handling for management and administration. In line with a 2003 presidential decree establishing a new National Telematics Co-ordinating Team (TKTI) to support economic growth with information and communication technology, the Indone-



Extract from map of Province of Central Java.

sian SDI focuses on five main elements. These are institutional aspects, legal aspects, fundamental dataset aspects, research and development of science and technology related to survey and mapping aspects, and aspects relating to development of human-resource capability. Cartographers contribute to each of these, helping the development of twenty-first-century Indonesia.

David Fairbairn