REPORT

of the

Maps and the Internet Commission

of the

International Cartographic Association

Submitted July 15, 2007

by

Dr. Michael P. Peterson
Department of Geography / Geology
University of Nebraska at Omaha
Omaha, NE 68182
Tel. (402) 554-4805, Fax (402) 554-3518
http://maps.unomaha.edu

and

Prof. Dr. Georg Gartner
Institut für Kartographie und Geo-Medientechnik
Technische Universität Wien
Karlsgasse 11, A-1040 Wien
Tel: +431/58801-12611, Fax: +431/58801-12699
http://www.ikr.tuwien.ac.at
e-mail:georg.gartner@tuwien.ac.at

Web page for the Commission:
http://maps.unomaha.edu/ica/

Introduction

The Maps and the Internet Commission was established at the 1999 ICA General Assembly in Ottawa, Canada. The commission represents a continuation of the former Map Use Commission and a recognition that the Internet has led to a major change in the way maps are distributed and used. Since 1999, the commission has sponsored annual meetings, co-sponsored sessions at meetings with other commissions and organizations, and presented a number of workshops in different parts of the world. The work of the commission has led to an edited book – Maps and the Internet – in 2003, with a paperback released in 2005. Another book is in preparation. This report covers the 4-year period between 2003-2007.

Terms of Reference

1. Focus attention on disseminating maps and spatial data through distributed electronic networks. Product: Journal articles and web pages.
2. Examine Internet map usage and project future areas of growth. Product: Oral or published report.
3. Examine web map user issues to better serve user needs. Product: Oral or published report.
4. Promote the exchange of information about effective Internet mapping for an international audience. Collaboration / coordination with the ICA commission on visualization and virtual environments. Product: Workshop(s) and web pages.
5. Improve user access to maps by examining the potential of Internet map metadata. Product: Materials to be used in workshop(s).
6. Promote instruction on Internet mapping through collaboration /`coordination with other ICA commissions (education & training; cartography and children; national and regional atlases). Product: Materials to be used in workshops.

I. Meetings

2003

August 5-7
ICA Commission on Maps and the Internet & the ICA Commission on Visualization and Virtual Environments

Stellenbosch, South Africa

The Maps and the Internet Commission held its annual meeting in Stellenbosch, South Africa, from August 5-7, 2003. This was the fourth continent for the commission meetings, having met in North America (Tennessee, USA, in 2000), Asia (Guangzhou, China, in 2001) and Europe (Karlsruhe, Germany in 2002. The commission met with the Commission on Visualization and

Virtual Environments on August 7 for combined sessions. A total of 40 people attended the meeting and there were 13 presentations. Representatives from the following countries attended the meeting: Australia, Austria, Brazil, Canada, China, Cuba, Czech Rep, Germany, Jordan, Kenya, Netherlands, Poland, South Africa, and the USA.

A 90-minute informational meeting was also held in conjunction with the ICA meeting in Durban.

2004

January 28-29
2nd Symposium on LBS and Telecartography 2004

Vienna, Austria

The Maps and the Internet Commission co-sponsored a meeting with the Department of Cartography and Geomedia Technique, Technical University of Vienna, Austria. The two-day program examined new forms of mapping. The series of meetings held in Austria were a response to technological developments in miniaturizing devices for telecommunication, computing and display and an increased interest in both incorporating cartographic presentations on such mobile devices and developing services that are specific to a particular location. The broad variety of disciplines involved in this research and the differences in approaching the basic problems is probably typical of a developing field of interdisciplinary research. The meetings contributed in identifying some main areas of research and development in the emerging area of LBS and Telecartography. The contributions from about a dozen countries reflect the main areas of interest: positioning, modelling and awareness, visualisation and cartographic communication and application development.

September 7-9
UPIMap 2004
International Joint Workshop on Ubiquitous, Pervasive and Internet Mapping

Tokyo, Japan

The First International Joint Workshop on Ubiquitous, Pervasive and Internet Mapping, held in Tokyo from September 7th to 9th 2004, was sponsored by the International Cartographic Association (ICA) Commission on Ubiquitous Mapping, the ICA Commission on Maps and the Internet, the Center for Spatial Information Science (CSIS) at the University of Tokyo, the

Geographic Information Systems Association (GISA) of Japan, and the Japan Cartographers Association (JCA).

Following the General Assembly of ICA in 2003 the Commission on Maps and the Internet proposed that a joint workshop be held with the Commission on Ubiquitous Mapping in Tokyo. One year later, this workshop became a reality, and every effort was made to present the actual situation of UbiMap in Tokyo. The purpose of the workshop was to highlight the differences in UbiMap implementations between countries, recognizing that UbiMap depends on both the social infrastructure and physical structure of a city. Much of the material presented at the workshop was new to many of the participants.

2005

April 4-5
1st International Workshop on Geographic Hypermedia : Concepts and Systems

Denver, Colorado, USA

The integration of the Web and Multimedia technologies with Geographical Information Science (GIS) has led to the development of new forms of multimedia geo-representations. Currently, many Geomatics solutions are web-based and provide access to multimedia elements in order to support specific application domains. The scope of this workshop was to allow multi-disciplinary researchers in the area of Geographic Hypermedia present their present work and exchange ideas.

The objectives of the workshop were to:
- Survey the state and variety of research areas in geographic hypermedia
- Review the current state-of-the-art geographic hypermedia applications
- Provide guidance to geographic hypermedia system implementers from user experience
- Survey geographic hypermedia for open questions and future research directions

November 28-30
3rd Symposium on LBS and Telecartography 2005

Vienna, Austria

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 hold meetings in Vienna that are dedicated to issues in this field. These meetings have been co-sponsored with the Commission on Maps and the Internet. As a result of ongoing interest in the topics of TeleCartography, cartographic LBS and ubiquitous cartography, a 3rd Symposium

on TeleCartography and LBS took place in Vienna from 28th to 30th November 2005. With over 100 participants, the conference was the largest yet in this series. Many of the articles in this symposium were published in a 2007 from Springer.

2006

October 23-25
*Second International Joint Workshop on Ubiquitous, Pervasive and Internet Mapping (UPIMap2006)*

Seoul, Korea

The ICA Commissions on **Ubiquitous Mapping** and **Maps and the Internet** held a joint workshop in Seoul at the end of October 2006. The workshop was sponsored by the Commission on Ubiquitous Mapping, the Commission on Maps and the Internet, the University of Seoul, the Center for Spatial Information Science (CSIS) of the University of Tokyo. The purpose of the workshop was to bring together international specialists in the field of Mobile Mapping, Location Based Services and Internet Mapping, and to disseminate information to a broader audience on new developments and major areas of research. Demonstrations in Seoul highlighted new developments in ubiquitous and Internet mapping.

II. Workshops and Presentations

The chair and co-chair of the commission presented a number of invited workshops and presentations. Prof. Gartner presented a one-week workshop on Internet mapping in Tehran, Iran (2005). Prof. Peterson presented a 3 hour workshop in Belo Horizonte, Brazil (2003). Both presented a one afternoon seminar in Auckland, New Zealand (2005). Prof. Peterson also visited several universities and other research institutions on a trip through Japan, South Korea, China, and New Zealand (2006). Professor Peterson is returning to Brazil in September 2007.
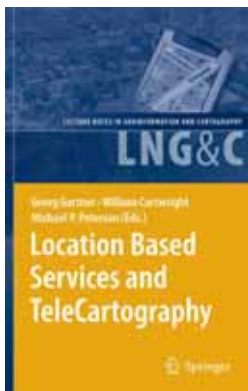
III. Books
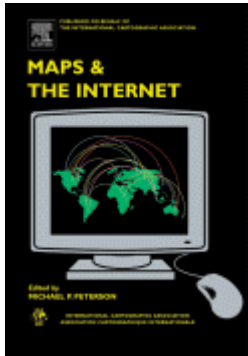
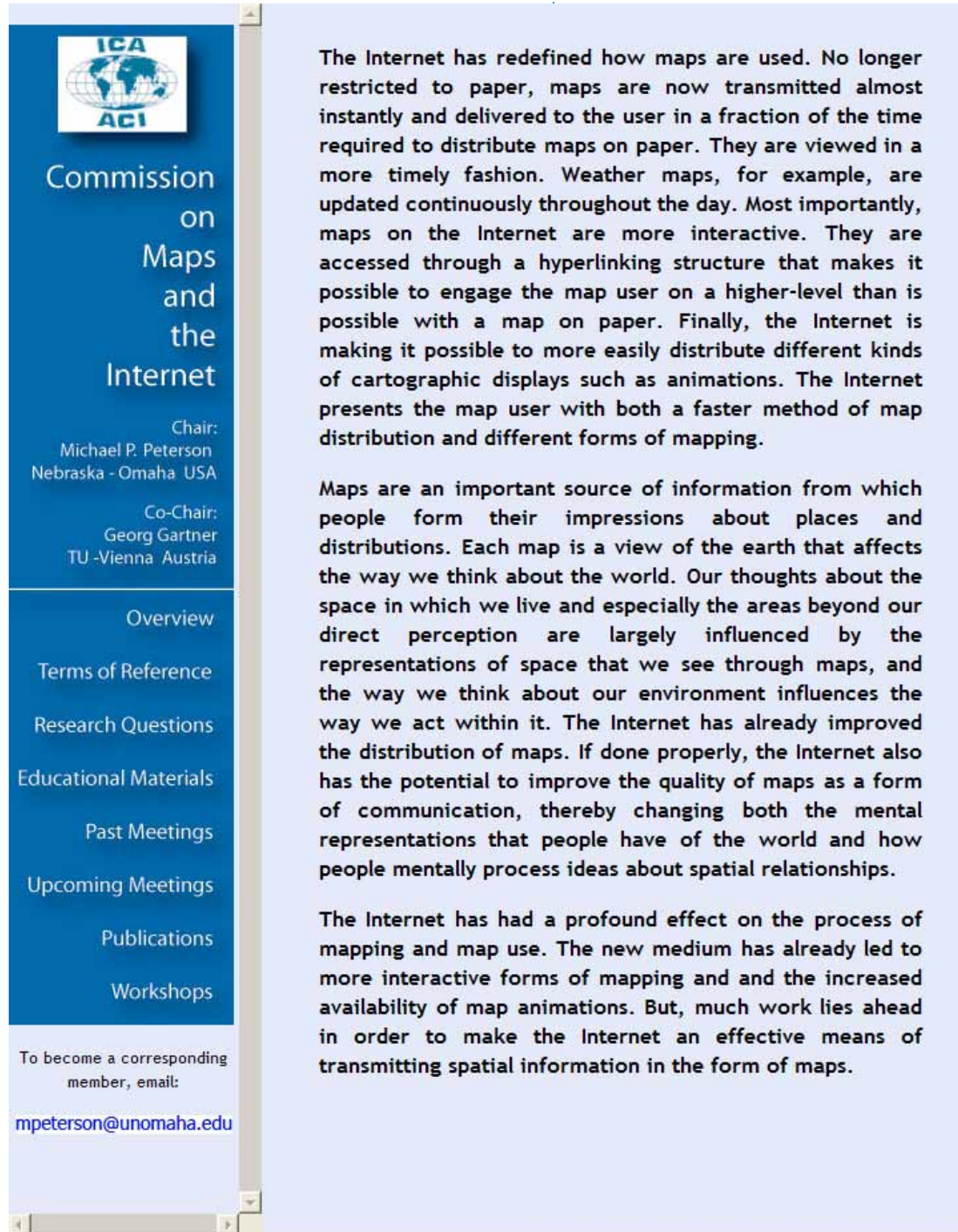Peterson, Michael (ed.) 2003 (hardcover)
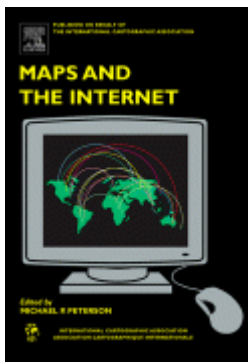
Peterson, Michael (ed.) 2006 (paperback)

Gartner, Cartwright, Peterson (ed.) 2007

Peterson, Michael P. (2007) International Perspectives on Maps and the Internet, Vol. 1, Springer Verlag.

Appendix
Commission Web Pages
http://maps.unomaha.edu/ica/

ICA ACI

Commission on Maps and the Internet

Chair:
Michael P. Peterson
Nebraska - Omaha USA

Co-Chair:
Georg Gartner
TU -Vienna Austria

Overview

Terms of Reference

Research Questions

Educational Materials

Past Meetings

Upcoming Meetings

Publications

Workshops

To become a corresponding member, email:

mpeterson@unomaha.edu

The Internet has redefined how maps are used. No longer restricted to paper, maps are now transmitted almost instantly and delivered to the user in a fraction of the time required to distribute maps on paper. They are viewed in a more timely fashion. Weather maps, for example, are updated continuously throughout the day. Most importantly, maps on the Internet are more interactive. They are accessed through a hyperlinking structure that makes it possible to engage the map user on a higher-level than is possible with a map on paper. Finally, the Internet is making it possible to more easily distribute different kinds of cartographic displays such as animations. The Internet presents the map user with both a faster method of map distribution and different forms of mapping.

Maps are an important source of information from which people form their impressions about places and distributions. Each map is a view of the earth that affects the way we think about the world. Our thoughts about the space in which we live and especially the areas beyond our direct perception are largely influenced by the representations of space that we see through maps, and the way we think about our environment influences the way we act within it. The Internet has already improved the distribution of maps. If done properly, the Internet also has the potential to improve the quality of maps as a form of communication, thereby changing both the mental representations that people have of the world and how people mentally process ideas about spatial relationships.

The Internet has had a profound effect on the process of mapping and map use. The new medium has already led to more interactive forms of mapping and and the increased availability of map animations. But, much work lies ahead in order to make the Internet an effective means of transmitting spatial information in the form of maps.

Commission Overview

The Maps and the Internet commission promotes multi-national cartographic research in order to solve scientific and applied problems related to web-based cartography. The commission attempts to enhance cartographic education related to the Internet. In addition, the commission promotes professional and technical standards for maps available through the Internet.

Like all commissions of the International Cartographic Association, formal members are assigned by individual countries. However, anyone can become a corresponding member. Corresponding members receive all commission correspondence and invitations to meetings. Most of the papers given at meetings of the commision are presented by corresponding members. To become an corresponding member, email the chair at mpeterson@unomaha.edu.

Strategies of the commission include regular e-mails to members, meetings, workshops, promotion of standards, and publications.

Terms of Reference

1. Focus attention on disseminating maps and spatial data through distributed electronic networks. Product: Journal articles and web pages.
2. Examine Internet map usage and project future areas of growth. Product: Oral or published report.
3. Examine web map user issues to better serve user needs. Product: Oral or published report.
4. Promote the exchange of information about effective Internet mapping for an international audience. Collaboration / coordination with the ICA commission on visualization and virtual environments. Product: Workshop(s) and web pages.
5. Improve user access to maps by examining the potential of Internet map metadata. Product: Materials to be used in workshop(s).
6. Promote instruction on Internet mapping through collaboration /`coordination with other ICA commissions (education & training; cartography and children; national and regional atlases). Product: Materials to be used in workshops.

Research Questions

Broader research questions associated with Maps and the Internet:

1) Determine the extent and type of Internet map usage.

> It is currently difficult to determine the number of maps that are distributed through the web. This effort could culminate in a type of "map counter" that would tally (or estimate) the number of maps that have been so distributed on a daily, weekly, and monthly basis.

2) How are maps being used?

> Research is needed that examines the users in order to determine how cartographers can better serve their needs. It is important to "know the users;" who uses which maps for what reasons.

3) Promote international user interfaces for maps on the web.

> This would involve developing an iconic vocabulary of map symbols that are simple and clear, and a consistent color vocabulary.

4) Promote the creation of international web map servers.

> International web map servers would distributed maps that could be used by an international audience.

5) Develop a database of web maps with specific themes or authors, areas (coordinates), resolution, dates, etc.

> A large number of maps reside on the web but it is difficult to find them, and particularly to find anything out about them. Maps on the web should be accompanied by a metafile with a description of the contents (e.g. map, soils, Netherlands, 1987, in a standardized format like MARC 2). The metafiles would be aggregated into a database that would point directly to map files available on the web without having to go to each home page.