

# **Report of the ICA Commission on Ubiquitous Mapping 2003-2007**

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## **1. OBJECTIVES**

This commission deals with a "well-mapped society" where maps will be available anywhere and anytime. Today, the number of ways maps and geo-spatial information are likely to be employed is very large and diverse. As the individual gains the ability to access relevant spatial information on demand, human behavior will be influenced in interesting ways. The commission concentrates more on theoretical than practical issues. Its terms of reference are:

1. To organize regional workshops including site observation to comprehend the contemporary situation of mobile, car-navigation and location-based mapping
2. To clarify the similarities and differences in comparing variant systems to establish an evaluation scheme
3. To place the notion of Ubiquitous Mapping in domain of Theoretical Cartography

## 2. ACTIVITIES

### (1) First International Workshop on Ubiquitous, Pervasive and Internet Mapping (UPIMap2004)

ICA joint workshop of the commission on Ubiquitous Mapping and Maps and the Internet was held in Tokyo, Japan, from the 7<sup>th</sup> to 9<sup>th</sup> September 2004. There were some 40 participants from U.S.A., Mexico, Austria, Australia, Germany, Czech Republic, India, China and Japan. It was assisted by local academic associations such as Japan Cartographers Association, GIS Association and Center for Spatial Information Sciences of the University of Tokyo. On the first day, there was a technical tour to understand actual situation in Tokyo of the advancement of ubiquitous and internet mapping. Participants took a mini-bus equipped with a car-navigation system and watched TV showing the same screen of the system simultaneously to understand how it functions. Then they walked through the city center passing through a park using a pedestrian navigation system in a cellular phone to the Sony showroom where they saw a demonstration of a variety of in-car navigation systems. After this visit they moved to the Tokyo metropolitan traffic control center to observe a big screen of operation room. The next place was the VICS center where information on traffic flow is collected automatically by a sensor located on-site. The information assembled by the center is furnished to users either through posts located on routes or through FM to their navigation system. After the lecture about the VICS total system they moved to a mapping company to see how they digitalize data to make maps. After ward, there was a welcome party in the evening at the traditional Japanese restaurant.

On the second day in the morning, there was a plenary session on the advances of ubiquitous mapping in Japan. After the welcome address by Prof. Atsuyuki OKABE, CSIS of University of Tokyo, Chairman of the Commission, Prof. Takashi MORITA, made a presentation on the actual situation of ubiquitous mapping in Tokyo using PPT and movies. In the afternoon, there was a session on

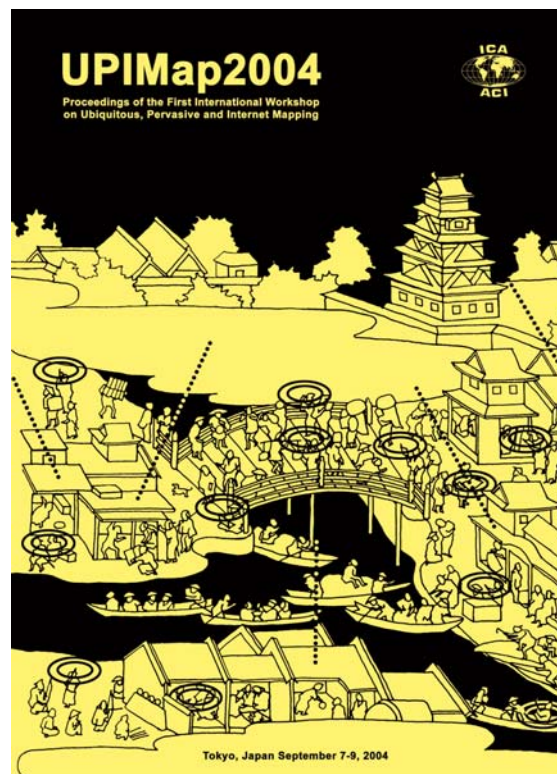


Fig. 1 Proceedings of UPIMap2004

ubiquitous mapping (five presentations) and on the internet (four presentations). On the third day, after the session of mapping theories (five presentations) in the morning there was a special session on SVGOpen (workshop on SVG) in the afternoon. In the evening, there was a closing session and farewell diner to exchange ideas for the future direction of the domain at Japanese traditional popular restaurant.



Fig.2 UPIMap2004 in Tokyo, Participants in front of Japanese Traditional Restaurant

## **(2) Second International Workshop on Ubiquitous, Pervasive and Internet Mapping (UPIMap2006)**

UPIMap2006 was held in Seoul, Korea, from the 23-25 October 2006. This workshop was the second event, the first one was held in Tokyo in September 2004. It was sponsored by the ICA Commission on Ubiquitous Mapping and the Commission on Maps and the Internet and was held at the University of Seoul. Its main purpose was to bring together ideas from different countries on the concepts and state of art of this field, and to discuss future directions for study. The local organizing committee was set up by professor Yun-Soo Choi (Chair) of the University of Seoul and was assisted by his departmental staff. On the first day, after the morning registration, an opening ceremony was held as part of the Seoul GIS Symposium at the Hall of Korean Chamber of Commerce and Industry, located in center of Seoul. A

welcome address was delivered by the dean of the University of Seoul; San-Bum Lee. Then a representative of the city of Seoul explained the prospective of U-GIS used in the city of Seoul. The guest speaker was Dr. Masatoshi Arikawa, associate professor of the Center for Spatial Information Science of the University of Tokyo, who gave a speech on “Ubiquitous mapping in Japan”, explaining the general situation of the field, and pointing out the similarity for an ubiquitous mapping environment in East Asia, especially between Korea and Japan there by proposing to search for possible collaboration in the future. After lunch, there was a technical tour of the Seoul Transport Operation and Information Service where we received a lecture about the system’s objectives, functions and its effectiveness in the operation room equipped with big screens. The objective of the system is to collect various types of traffic information in real time and to establish scientific traffic management and transportation policy as well as to offer to citizens various kind of traffic information. On the way to the service, student guides demonstrated the pedestrian navigation system using cellular phone. People pay about \$10 per month to use this function (cf. \$2-3 in Tokyo). We finished the first day with a wonderful Chinese meal with the deputy mayor of Seoul. The second and the third day were devoted to oral and poster presentations. There were 38 papers from 10 different countries (Korea, Japan, U.S.A, Germany, Austria, Czech, Bulgaria, Latvia, Iran and Philippines) divided into nine sessions. At the beginning of the opening session, Professor Ki-Ho Kim, the director of the Institute for Urban Science of the University of Seoul, delivered his welcome speech. Then ICA President Milan Konecny introduced the overall activities and studies of the ICA, followed by the chair of the commission of ubiquitous mapping Takashi Morita, who explained the aims of the workshop. Sessions were composed of “concept and methodology (1, (2)”, “system design (session 1 and 2)”, “data and spatial information (session 1 and 2)”, “visualization (session 1 and 2)”, “application issues”, including four papers in each. As a whole, we could verify the



Fig. 3 Proceedings of UPIMap2006

progress of this field since the last workshop in 2004, shown by the increasing number of proposals of various systems, and more concrete and new proposals deduced from the experiences of real system already in use. The similarity between Seoul and Tokyo urban spatial structure, address system, sign system, the development of navigation systems and confronting similar issues for finding directions was very suggestive for re-evaluating the importance of the notion of spatial context and the interaction between real space, map and user in the concept of ubiquitous mapping. The last session was closed by the address by general manager of the workshop; Professor Jay-Hyoun Kwon of the University of Seoul and declaring the success of the workshop.



Fig.4 UPIMap2006 in Seoul, Technical Tour at Seoul Transport Operation and Information Service

### 3. CONCLUSION

We have realized regional workshops with the participants from different countries having different cultural background. Ubiquitous mapping asks us to consider much of the context; the relationships between the real world, spatial image, map and information/communication infrastructure. Thus, it is important to verify how the system needs are similar and different when the cultural and social context differ or when the general conditions seems different. We have to continue studies on these topics.

We have not yet suitable definition of ubiquitous mapping to establish a reasonable position in the field of theoretical cartography. We must continue our efforts.