



# PROCEEDINGS

## SEMINAR FOR ICA COMMISSION ON NATIONAL AND REGIONAL ATLASES

2001 Beijing

Chief editors LIAO Ke Timothy TRAINOR  
Vice chief editors CHEN Yufen QI Qingwen

## ICA国家与区域地图集研讨会论文集

北京 2001

主 编: 廖 克 Timothy TRAINOR

副主编: 陈毓芬 齐清文

CHINA METEOROLOGICAL PRESS

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# 国际地图学协会 (ICA) 国家与区域地图集研讨会

2001年8月4日在中国科学院地理科学与资源研究所举行



与会者在917大楼前合影



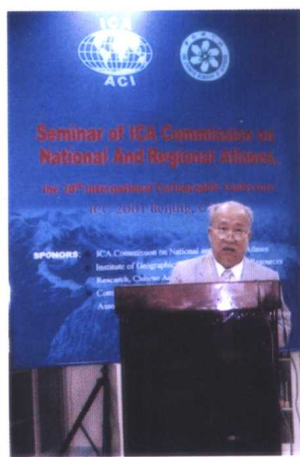
研讨会会场



与会者参观中国地图集展览



廖克教授致开幕词



陈述彭院士致欢迎词



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2001年8月4日在中国科学院地理科学与资源研究所举行



国际地图学协会国家与区域地图集委员会主席崔纳尔博士讲话



中国科学院地理科学与资源研究所所长刘纪远教授讲话



国际地图学协会主席B.里斯德特教授讲话



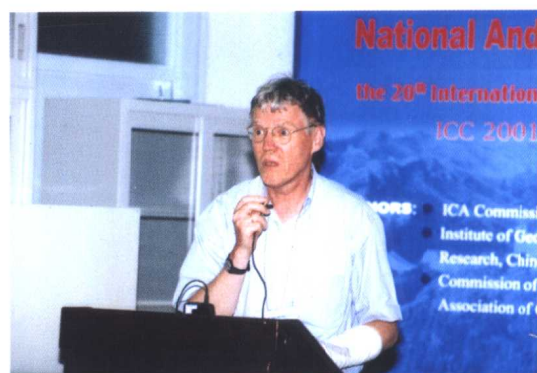
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国际地图学协会副主席K.米兰教授讲话



国际地图学协会国家与区域地图集委员会会议后合影



国际地图学协会秘书长F.奥美林教授讲话

## Preface

On August 4th 2001, the seminar for ICA Commission on National and Regional Atlases was held in the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (CAS). The National and Regional Atlases Commission of ICA, Institute of Geographic Sciences and Natural Resources Research, CAS, and Cartography and GIS Committee in Chinese Geographic Society held the seminar in cooperation. 20 experts from USA, Russia, Sweden, Holland, Japan, Czech, Poland, South Korea and more than 40 Chinese experts attended the meeting. Dr. Timothy Trainor, chairman of the National and Regional Atlases Commission of ICA, presided over the seminar. Prof. Liao Ke, member of the National and Regional Atlases Commission of ICA, the director of Cartography and GIS Committee in Chinese Geographic Society, the researcher in the Institute of Geographic Sciences and Natural Resources Research, CAS, made a proslution. Academician of CAS Chen Shupeng offered his congratulations on the seminar. Prof. Liu Jiyuan, the director of the Institute of Geographical Sciences and Nature Resources Research, Dr. Bengt Rystedt, president of ICA, Dr. Milan Konecny, vice president of ICA, and Prof. Ferjan Ormeling, secretary – general of ICA, all made speeches and expressed their congratulations at the seminar. 8 academic reports were arranged at the meeting. Beside that, an exhibition of Chinese atlases was held. More than 130 atlases including each volume of National Atlas of China, national thematic atlases, and some province and city atlases, which edited and published in the past 10 years, were shown on the exhibition. All of these atlases won the great interest and praise from experts who attended at the seminar. As a part of the seminar, experts were also arranged to visit the Laboratory of Cartography and Geo – Info TuPu and the State Key Laboratory of Resources and Environmental Information System in the Institute of Geographic Sciences and Natural Resources Research, CAS, and Industry Center of Geography Information Technology, CAS. In the evening, Prof. Liu Jiyuan feted all experts. The meeting was held very successfully and left every expert a deep impression.

This corpus is composed of speeches and reports that made at the seminar, and most of them were both in Chinese and English. The content of exhibition of Chinese atlases and the names of participants were listed as an appendix.

The editors  
March 2003

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## **Speech at the Opening Ceremony of Seminar for ICA Commission on National and Regional Atlases**

*LIAO Ke*

(Institute of Geography Sciences and Natural Resources Research, CAS, Beijing 100101)

Mr. Chairmen, Distinguished Guests, Ladies and Gentlemen:

Today, we hold the Seminar for ICA Commission on National and Regional Atlases in Beijing, just before the opening of the 20th International Conference of Cartography. As a member of the International Cartographic Association Commission on National and Regional Atlases, I am honored to be the host for this Seminar and to warmly welcome all of you: the members of the National and Regional Atlases Commission, the specialists, the scientists and the distinguished guests.

In August 1990, we have held the ICA National and Regional Atlases Commission meeting in Beijing. I was also a host for that meeting, as we expected, the meeting was held very successfully. Dr. Bengt Rystedt who was the Chairmen and is now the president of ICA, Dr. Timothy Trainor who was the secretary and is now the chairman of the commission and other commission members made their major contributions to that meeting. At the meeting, we have heard about the on-going compiling progress of the atlases from the following countries: China, Sweden, Spain, Canada, India, Czech and Slovakia, the Netherlands and USA. We have also heard a lot about the principles and methods on designing the information systems of the National atlases and computer-aided cartography. Nearly 70 various types of Chinese atlases in middle and large scales were presented. That meeting has left everyone a deep and pleasant impression. After the meeting, we published meeting proceedings with the full papers in English and abstracts in Chinese.

It has been eleven years since the last commission meeting held in Beijing, during this period of time, many great progresses and new achievements have been made on cartographical sciences, the progress of our work has been rapidly accelerated due to the development of computer technology and telecommunication technology. The National Atlases from those countries: China, Canada, India, Sweden, Spain and Slovakia, the progress of which was reported on last meeting have already been accomplished and published during the period of time. These atlases were not only published in printed versions but also in electronic ones. At present, large varieties of multimedia electronic atlases have been published. The Internet maps, atlases and Internet data bank of atlases have been extensively developed and produced. The GPS, RS and GIS have been rapidly developed, the recombination of those three factors resulted into a new geo-information science at much higher levels. We will hear a lot about it on the ICA conference, which will be held from August 6 to August 10.



Our seminar for National and Regional Atlases held today is a type of discussion meeting in a small scale before the opening of the ICA conference. Because the whole picture of maps can be represented in the forms of atlas, in particular, the large scale of atlas, which to certain extent, can completely reflect the scientific levels and the developmental progresses of the cartography. At this seminar different types of atlases will be on display. There will be the application system of remote sensing and geo-information, computer-aided maps, electronic publishing system, information system of the national atlases, there will also be multimedia-electronic atlases, the combined system of GPS and electronic maps, the Internet maps on the basis of information shared globally, the application system of digital earth and electronic mapping. I believe the above-mentioned topics will be brought up to the discussions during this seminar. We will also hold an exhibition in a small scale to show various types of atlases. We will display at the exhibition The National and Regional Atlases of China, which have been compiled and recently published. I hope that these atlases will draw your attention and interests.

Finally, I wish that this seminar would be a great and a successful one. I wish that our colleagues and guests from all over the world enjoying your stay in China! Here I will also take this opportunity to express our sincere appreciation to professor Liu Jiyuan, the director of the Institute of Geographical Sciences and Nature Resources Research, Chinese Academy of Sciences for his support and all kinds of help that he has done for the seminar.

## **Greeting Speech on Opening Ceremony of 20th International Cartographic Conference & Committee on National and Regional Atlas**

*CHEN Shupeng*

(Fellow, TWAS, Academician, IEAS, CAS, Beijing 100101)

Dear President Bengt Rystedt, Distinguish Guests, Ladies and Gentlemen:

It is great honor for us to host the committee on National and Regional Atlas of 20th International Cartographic Conference in such a special and exciting time, when celebrating for the successful applying for hosting 2008 Olympic Games. Welcome to the Institute of Geography Sciences and Natural Resource Research, CAS, the first organization of cartography research in new China. And we really appreciate the long friendship and support from everyone here for the development of cartography in China.

Please allow me to give an abbreviated introduction to the development of Chinese national and regional atlases. Hope this would help you enjoying the exhibition.

In 1930s, in the New Atlas of China (Shen-Bao-Di-Tu), social themes and natural themes were divided and compared to each other. Contours and hypsometric method, instead of graphical symbols represented topography. Thus, the three main step levels were clearly revealed and the geographical conceptions were renewed.

From 1960s on, six volumes of The National Atlases, which was listed in the national science and technology plan, including the general, natural, population, agriculture and economy atlas, were completed in succession. Many provinces and regions, including the Tibetan Plateau, as well as many big cities such as Beijing, Shanghai and Xi'an published their own atlases. This was the first prosperity of regional atlas publishing, which showed the integration of multi-disciplinary. Many new fields in cartography science such as oceanic, medical and environmental atlas were established during this period.

Since 1990s, Chinese atlas has been entered the new "digital" period, in which remote sensing mapping and electronic atlas technology have been developed rapidly. New atlases were compiled for Hong Kong and Macao, by geographical information system, Internet, and multimedia. Thanks to the Digital Photogrammetric theory by Prof. Wang Zhizhuo and Chinese Character Editing System by Prof. Wang Xuan, databases of 1:1,000,000 DTM, 1:500,000 geology, 1:1,000,000 land use, land resource, soil, vegetation and pasture maps were established successively. Chinese Academy of Sciences and Institute of Taipei Central Research will also establish the database of 5000-year cultural evolution atlas cooperative.

Chinese scientists appeals that "Digital Earth" should serve for global peace and regional sustainable development. We are actively taking part in CEOS, IGBP activities, taking on co-

operation programs, such as WMO  $1 \times 1$  km database share, Bio-geochemistry map spotting and global mapping. We warmly welcome instruction and cooperation of every specialist, to meet the opportunities from WTO and the requirements by Western Exploitation Strategy.

At the end of my talk, I hope everyone have a nice trip and a good condition in Beijing and in China.

## **Greeting Speech on Seminar for ICA Commission on National and Regional Atlases**

*LIU Jiyuan*

(Director of Institute of Geography Sciences and Natural Resources Research, CAS, Beijing 100101)

Ladies and Gentlemen:

Chairpersons:

I'm very pleased to be present on the Seminar of ICA Commission on National and Regional Atlases. On behalf of all the staff and myself in our institute, I'm now expressing three words.

Firstly, sincerely congratulate on the holding of the 20th International Cartographic Association Conference in Beijing and also this seminar in our institute. ICA is the world authoritative body for cartography, and has contributed greatly to the promotion of the discipline and profession of cartography in an international context, to the solution of world-wide problems of using cartography in decision-making processes and in dissemination of environmental, economic, social and spatial information through mapping, and to the transferring of new cartographic technology and knowledge between nations. And it's also essential to the progress of geographic science. For several times, cartographers and scientists in our institute attend the ICA conferences and introduced their achievements in cartography research and related geographic projects, including the edition of lots of atlases. Today, paralleled to our seminar is the Exhibition of Chinese National and Regional Atlases, a part of which was chiefly edited by the cartographers and geographers in our institute. These atlases are very important to our research work in analyzing, displaying and communicating geographic information.

Secondly, warmly welcome you, international & national famous cartographers, scientists and experts, to visit our institute. The Institute of Geographical Sciences and Natural Resources Research (IGSNRR) was born in 1999, reorganized on a base of the two formal institutes, namely the Institute of Geography (IOG) and the Commission for Integrated Survey of Natural Resources (CISNAR). The institute is a multi-disciplinary research organization at the national level. As an important research base for the studies on natural resources and environment, as well as geographical, resource and information sciences in China, it has a certain reputation in these research areas in the whole world. Now, the major subjects of the institute have been involved in the studies on dynamics of the land-based ecosphere and its reaction to the global change, regional resource and environment, the mechanism and the changing pattern of the land-based ecosystem, regional sustainable development and resource economies, ecosystem and its network, as well as geo-information sciences. The institutional organization consists of 2 research centers, 2 research branches, a national key laboratory, a CAS' opened experiment



station, 3 institutional opened research laboratories, 1 information center of resource & environment and 1 GIS industrialization center. Our aims is to build the institute into a key innovation base, training base and one of the best integrated research bodies on national geography, natural resources and geo-information sciences in China. Today, during the intervals, you will have chance to visit some of the research bodies in our institute.

Thirdly, sincerely invite you to cooperate with us in the field of Cartography, Remote Sensing and Geographical Information System. In the knowledge innovation system of IGSNRR, Geo-information Science is one of the four realms. It is mainly engaged in systematic mechanism of resource and environment information, modern theories-method-technology of cartography and Geo-Info-TUPU, data integration of resource and environment, as well as public data sharing and other services of geo-information technology. There are open environment and innovation mechanism for native and international scientists, experts and excellent youth to teach in, to exchange and inter-visit with, or to cooperate in projects with, our institute. Cooperation means bilateral or multilateral development. I wish the cartographers and geographers in our institute have broad range of cooperation with you and other scientists, natively and internationally.

Thank you very much.

## Opening Comments

*Timothy TRAINOR*

(Chair, ICA Commission on National and Regional Atlases)

I welcome all participants to this seminar of the ICA Commission on National and Regional Atlases. I want to first express my sincere thanks to those who helped to organize and host this seminar, particularly Professor Liu Jiyuan, Director General of the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences and Professor Liao Ke of the Institute and the active Chinese representative to the ICA Commission on National and Regional Atlases. On very short notice, due to problems in organizing a Commission seminar at another venue, Professor Liao Ke immediately answered the call for support and began organizing a most successful seminar program.

In the words of our President of the ICA, Dr. Bengt Rystedt, "...No other country has as many maps as China. The tradition of publishing atlases of all kinds is greater here than anywhere else..." It is obvious, with over 130 atlases displayed on the tables behind us, that the tradition of atlas making is alive and well in China, documenting many diverse topics and themes of the nation.

We have a program of interesting topics for presentation. I encourage you to conduct open dialogue and exchange information. Ask questions and challenge our presenters for more information to make this a full experience for each of us. This is an introduction for more that follows in the ICC program during the next week. Several paper sessions are devoted to national and regional atlases.

We all know that technology is moving very quickly as we attempt to exploit and apply as much as possible to maximize our delivery of information. The Commission Terms-Of-Reference reflects the goal of capitalizing on technology. Let me review those Terms:

(1) Promote and support the design, production and use of atlases and atlas information systems by:

- a. Demonstrating design and production applications of national and regional atlases;
- b. Conducting workshops and/or seminars that present recent and potential atlas developments and innovations;
- c. Documenting guidelines and procedures for the design and production of global, national, and regional atlases via the Internet and, where applicable, printed Proceedings.

(2) Explore and develop new tools for atlas design, creation and dissemination by:

- a. Encouraging exploration and implementation of new atlas design concepts;
- b. Recognizing static, interactive, and multimedia approaches for accessing geographic in-

formation;

c. Evaluating the use of the Internet, CD-ROMs, and other formats for dissemination of integrated geographic data.

(3) Encourage efforts for integrating data for the development of electronic atlases and national and regional atlas information systems by:

a. Evaluating metadata standards as they apply to atlas design, creation and dissemination;

b. Acknowledging requirements for diverse geographic and temporal data themes;

c. Identifying and exploring various alternatives to data integration issues.

With this seminar, we are complying with many of the Commission's Terms-Of-Reference. I wish you all a very productive, enjoyable, and rewarding seminar over the course of this day.

## **Greeting Speech at the Opening Ceremony of Seminar for ICA Commission on National and Regional Atlases**

*Ferjan ORMELING*

(Faculty of Geographical Sciences, Utrecht University, P.O. Box 80115, 3508 TC Utrecht, The Netherlands)

Ladies and gentlemen,

11 years ago, at the previous Atlas Seminar of the Commission on National Atlases in Beijing, also organized by Prof Liao Ke, we had an exhibition of 60 Chinese atlases, produced in the period 1965—1990, but mainly in the 5 years preceding the seminar. These atlases already impressed us enormously. By extrapolating the production trend we had expected a sizeable increase in the number of atlases produced now, a decade later, but we could not have envisaged that this production would almost have trebled. The atlas exhibition at this seminar in 2001 now shows 140 atlases! But the changes are not only in numbers. There has also been a complete transformation of atlas production. You have gone digital, there is a whole range of volumes of the national atlas series, many of which have their electronic counterparts on CD-ROM. The map symbols on the electronic atlas maps can be queried now, there is an impressive range of functionality in the new CD-ROMs, which allow for floating legends, dynamic scale bars, animation of phenomena (flood simulation, DTM fly-through, maps showing the changes in precipitation from month to month, etc) zooming in/out and panning, and the possibility to do measurements on the maps. Not only have the existing atlas producers manifested an enormous growth in technical expertise and volume, but also there are many new atlas production establishments as well, on provincial or municipal level. The latest development is producing atlases for the web. And the atlases produced do not exist in a vacuum, but there is a clear plan to use them in a national atlas-based decision-making support system for national and regional sustainable development. We can learn a lot from you, especially the way in which the atlas efforts are anchored in society, and I can only hope that, as happened 11 years ago, proceedings of this meeting will be published, so that a larger audience, distributed over the world, can profit from this meeting. We hope to be back in another 11 years, and see how you have completed the exiting projects you are planning now.



## **Closing Comments and Vote of Thanks**

*Timothy TRAINOR*

(Chair, ICA Commission on National and Regional Atlases)

This was a full day consisting of interesting presentations made by seasoned scientists, state-of-the-art practitioners, and young scholars. This last group is particularly important as the ICA has identified and strives to include young scholars in its activities, as they are our future. Those who wrote and delivered presentations during the program are recognized for their effort and their high-quality achievements. We accomplished this goal.

The exchange of information that we had during this day is evident in the individual study of the myriad atlases followed by small discussions and collegiate interaction. Printed atlases, electronic atlases and complementary dual media atlases were displayed and demonstrated by the atlas contributors, editors, and developers—all cartographers.

Lastly, I want to sincerely thank our hosts, all of those associated with the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences who made this seminar possible. Many people assisted in making this event possible in a very short period of time. What normally could take a year to plan was accomplished in a few short months. My very special thanks to Professor Liao Ke, a long-standing active member of the Commission, for accepting without hesitation, the challenge I requested of him. This is the second event of this kind that Professor Liao Ke has organized and the quality of his effort is reflected in the excellence of the occasion.

(Note: For those interested in more information about the Commission, please consult the Commission link at <http://www.icaci.org>.)