

ICA SPATIAL DATA STANDARDS COMMISSION

ACI COMMISSION SUR LES NORMES RELATIVES AUX DES DONNÉES LOCALISEES

PRESENTATION OF ACTIVITIES FOR 2003 -2007

ICA Cartographic Congress, Moscow, Russia
July, 2007

written by
Prof. Harold Moellering
Commission Chair

PRESENTATION ITEMS

- I. Commission Membership
- II. 2003 -2007 Terms of Reference
- III. Achievements in Current Term
- IV. World Spatial Metadata Standards Book
- V. Commission Meetings Held
- VI. Current and Future Work of Commission
- VII. 2007-2011 Terms of Reference
- VIII. Finances

COMMISSION MEMBERSHIP LIST - July, 2007

ICA COMMISSION LEADERSHIP

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Mr. Jan Hjelmager, Vice Chair and European Coordinator
Dr. Abbas Rajabifard Vice Chair and Asia-Pacific Coordinator
Mr. Antony Cooper, Vice Chair and Africa-Middle East Coordinator
Dr. Tatiana Delgado, Vice Chair and Latin America Coordinator
Prof. Milan Konecny, SDI Coordinator

ICA COMMISSION MEMBERS

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Mr. Antony Cooper, South Africa
Ms. Paloma Abad, Spain
Dr. Bengt Rystedt, Sweden
Mr. Michel Huet, IHO
Mr. David Danko, ISO/TC211

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Mr. Richard Hogan, United States (Interim)
Mr. Beljin Jugoslav, Yugoslavia

ICA EXECUTIVE COMMITTEE CONTACT

Prof. Milan Konecny, President, ICA

INTERNATIONAL OBSERVERS

Prof. Henri Aalders, Comité Européen de Coordination des Normes, CEN/TC287

Mr. David Danko, ISO/TC211/WG3/T15 - Metadata
Mr. Wolfgang Zechnall, Comité Européen de Normalisation, CEN/TC278/WG7
Mr. Michel Huet, International Hydrographic Organization
Dr. Stuart Weibel, Dublin Core Metadata Group
Dr. Wolfgang Kainz, International Geographical Union
Dr. Manfred Ehlers, International Society of Photogrammetry & Remote Sensing
Mr. Miklos Pinther, United Nations Headquarters (Outgoing)
Ms. Alice L.K. Chow, United Nations Headquarters (Incoming)
Mr. Ulrich Boegli, World Bank
Mr. Henry Tom, ISO/TC211 Outreach

ICA COMMISSION ON SPATIAL DATA STANDARDS
ACI COMMISSION SUR LES NORMES RELATIVES AUX DONNEES LOCALISEES
TERMS OF REFERENCE, 2003-2007

August, 2003

The Commission was originally organized to examine standards that specify the spatial data transfer process, and any standards associated with that process. The earlier cycles of work discussed international developments for transfer standards, conducted a detailed examination of the transfer standards themselves, and then examined the national and international metadata standards. In its fourth cycle of work, the Commission examined the developing Spatial Data Infrastructure (SDI) at the Global, Regional, National levels, and its ramifications on the world of the ICA. Now in its fifth cycle of work, the Commission proposes to develop a conceptual model of the SDI and define the technical characteristics of the SDI. The following Terms of Reference are proposed for the Commission for the 2003-2007 time period.

- 1) To develop a conceptual model of the Spatial Data Infrastructure (SDI) using the UML modeling language and associated modelling concepts, working in the areas of science, technology and standards, at the Global, Regional and National levels.
- 2) To define the technical characteristics of the SDI, and concepts for appropriate data sets for the SDI.
- 3) To participate at the scientific level of the SDI in several organizations active in that area. This work will be closely coordinated with the ICA Executive Committee.
- 4) To develop a report on this developing area, or to hold a specialist meeting on this topic.
- 5) To organize reporting sessions on the Commission's activities at the 2005 and 2007 ICA meetings.
- 6) To organize and hold Commission meetings in the summers of 2004 & 2006.
- 7) To continue to serve as a Category A Scientific Liaison with ISO/TC211 Committee on Geographic Information/Geomatics, and begin liaison with various GSDI organizations.
- 8) To exchange information and reports by the ICA member countries and relevant bodies concerning the development standards for the transfer of digital spatial data, metadata and the SDI.

- 9) To collect and distribute in the Commission copies of all spatial data standards published in ICA countries and by relevant international bodies.
- 10) To serve as a focal point of information concerning digital spatial data transfer, metadata, and SDI developments throughout the world.
- 11) Continue to develop the Commission World Wide Web Home Page.
- 12) To identify research and education needs that arise from the standards and SDI process.

ACHIEVEMENTS DURING THE 2003-07 ICA TERM

- 1) Discussions with the Elsevier editorial staff carried out relative to file formats, for chapters and figures, and sequencing of submissions of Parts to maximize efficiency as specified in the Elsevier book contract. In October, 2002 Book editors were surprised to learn that our current supervisory editorial Elsevier contact was retiring, and it appeared that this section of Elsevier was being reorganized. Later we were informed that the book materials would be turned over to a new set of Elsevier supervisory editors. This delays submission of the Parts 1-4 manuscripts by no fault of the book authors or editors.
- 2) Commission held Executive Committee meeting in Johannesburg, S. Africa to plan efforts for the coming 2003-07 ICA Proposed Terms of Reference.
- 3) The Commission held its annual meeting in Ithala, South Africa with Antony Cooper as local host and coordinator. Major discussion items were:
 - * Continue plan for the Commission SDI efforts for the 2003-07 ICA cycle;
 - * Continue UML modeling on some test SDI structures;
 - * Investigate additional avenues for UML modeling effort;
 - * Write and approve the Proposed Terms of Reference for the 2003 Durban ICA Congress.
- 4) Prof. Moellering, Commission Chair, awarded ICA Honorary Fellow Award by the 12th General Assembly of the ICA, for his dedication to the work on spatial data standards, and Chair of the ICA Standards Commission on behalf of the ICA.
- 5) Several Commission Members presented Scientific papers in the main Durban ICC Technical meetings.
- 6) A public Commission Reporting Session was presented at the ICC 2003 Cartographic Conference in Durban on Thursday, August 14, 2003. Approximately 50 people attended this session. Primary presentation topics were:
 - * Introduction to the ICA Standards Commission - Harold Moellering
 - * ISO/TC211 World Metadata Standards Work - David Danko
 - * Metadata & SDI Activities in S. Africa - Antony Cooper
 - * Metadata & SDI Activities in Asia/Pacific - Craig Macauley
 - * Metadata & SDI Activities in Europe - François Salgé
 - * Metadata & SDI Activities in N. America - Cameron Wilson, Richard Pearsall

and Harold Moellering

- * Metadata & SDI Activities in Cent. & S. America - T. Delgado
- * Metadata & SDI Activities in Africa/Middle East - Antony Cooper
- * ICA International SDI Participation - Milan Konecny
- * Commission Discussion on SDI Modeling - Harold Moellering
- * Questions and Discussion - Harold Moellering

- 7) Commission completed the manuscript version of the ICA book Crosstable on Spatial Metadata Standards under the editorship of Prof. Moellering, October, 2003.
- 8) Commission held minimeeting in Berlin on October 26, 2003 prior to the beginning of the TC211 Plenary meetings. Main topic of discussion are reports on the various SDI Reference Models.
- 9) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings October, 2003 held in Berlin Germany. At that meeting Prof. Moellering presents Olaf Østensen, Chair of ISO/TC211, with a Prototype copy of the ICA Standards Commission Crosstable on Spatial Metadata Standards.
- 10) Prof. Moellering participated in an ICA Executive meeting held in Prague, Czech Republic, January, 2004.
- 11) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings May, 2004 held in Kuala Lumpur, Malaysia.
- 12) Commission held a minimeeting as part of the Geomatica international meetings in Havana Cuba, May, 2004. Topics were discussed on various initiatives to develop the SDI, SDI reference models, and UML modeling concepts for the SDI.
- 13) Professor Moellering holds meeting with Elsevier Editors to speed up work on the ICA metadata book, June, 2004.
- 14) The Commission held its annual Summer 2004 meeting at the International Hydrographic Organization headquarters in Monaco during the first week in July, with Michel Huet as local coordinator and host. Most of the discussion was involved in further developing our UML modeling of the SDI. Plans are also made to develop and write a scientific paper on this topic for the A Coruna ICC meetings in July, 2005.
- 15) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings September, 2004 held in Pallanza, Italy.
- 16) Parts 1-5 of the ICA metadata book galley proofs are finally produced by Elsevier in October, 2004.
- 17) The Commission book authors and Editors are working hard to evaluate, correct and update the galley proofs for the metadata book. Commission authors complete the evaluation, correction, and updating of the Parts 1-5 of the ICA metadata book, April, 2005.

- 18) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings June, 2005 held in Stockholm, Sweden.
- 19) Using the Part 4 galley proofs, the Editors complete the evaluation, correction & updating of the metadata book Crosstable, June, 2005.
- 20) Commission holds Executive Committee meeting in Santa Cruz, Spain, July 3-8, just prior to the main Summer Commission meetings.
- 21) Commission holds annual meeting in Santa Cruz, Spain, July 3-8, just prior to the Coruna ICC scientific meetings the following week.
- 22) Several Commission Members presented Scientific papers in the main Coruna ICC Technical meetings.
- 23) Commission presents scientific paper at Coruna ICC titled "Developing a Modeling for the Spatial Data Infrastructure
- 24) Michel Huet, Commission Member from the IHO, organizes the IHO Chart Exhibition with the ICC Map Exhibition. Several Commission Members cooperate with the IHO in organizing and judging the chart competition.
- 25) The Commission cooperates with the ISO in organizing the joint ICA/ISO Standards Workshop. Primary presentations were:
 - * International Standardization: An Overview, Henry Tom, ISO/TC211
 - * ICA Commission on Spatial Data Standards, Prof. Harold Moellering, Chair
 - * Work of the International Hydrographic Bureau, Michel Huet, IHO

* Geography Markup Language (GML): Overview, etc., Clement Portele, TC211
* Land Cover Classification System (LCCS), Antonio Di Gregorio UN/FAO

- 26) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings September 12-16 in Montréal, Canada.
- 27) Commission holds Minimeeting at Montreal TC211 meetings, September 11. More planning on SDI work is discussed.
- 28) ICA Standards Commission book "World Spatial Data Standards" is published in November, 2005. Elsevier organizational and editorial delays pushed publication back by two years.
- 29) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings May 22 - 26 in Orlando, Florida, USA.
- 30) Commission holds Minimeeting at Orlando TC211 meetings, May 21. More planning on SDI work is discussed.
- 31) Commission holds Executive Committee meeting in Vienna, Austria July 3, just prior to its 2006 Summer Commission meetings.
- 32) The Commission held its annual Summer 2006 meeting in Vienna, Austria the week before the GICOM meetings there, with Wolfgang Kainz as local coordinator and host. Most of the discussion was involved in further developing our UML modeling of the SDI. The Commission Coruna scientific paper was expanded to a journal-length manuscript. Plans are also made to develop and write a scientific paper on this topic for the Moscow ICC meetings in August, 2007.
- 33) The SDI scientific manuscript is submitted for journal review in September, 2006
- 34) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings in Riyadh, Saudi Arabia, November 11-15, 2006
- 35) Prof. Moellering appointed to be official Representative to GSDI-9 meetings in Santiago, Chile, November 3 - 11, 2006. Negotiates dates for ICC 2009.
- 36) Commission holds small Minimeeting at GSDI-9 meetings in Santiago, Chile.
- 37) Commission SDI scientific manuscript accepted for publication by IJGIS Journal
- 38) Commission holds Minimeeting in Havana, Cuba the week before the main Geomatica 2007 meetings. The main work is completing and polishing the Commission scientific paper for the Moscow ICC meetings.
- 39) Prof. Moellering is the official ICA Representative at the Geomatica 2007 meetings in Havana, Cuba, February 12 - 16, 2007. He gives an opening presentation on the scientific work of the ICA.

- 40) Michel Huet and Dr. Tatiana Delgado organize a Geomatica Workshop on the Marine Spatial Data Infrastructure in cooperation with GEOCUBA, the IHO, the ICA, and the ISPRS.
- 41) Several Commission Members present scientific papers at the Geomatica 2007 meetings in Havana, Cuba.
- 42) The Commission, as a Category A Scientific Liaison to ISO/TC211, fields a delegation of Commission members to the TC211 Plenary meetings in Rome, Italy, May 11-15, 2007
- 43) Commission holds Minimeeting at Rome TC211 meetings, May, 2007
- 44) Commission holds Executive Committee meeting in St. Petersburg, Russia to plan efforts for the coming 2007-11 ICA Proposed Terms of Reference.
- 45) Prof. Moellering invited to referee all ICC Moscow abstracts on Theme 7, Spatial Data Infrastructures and Standards. This results in seven scientific paper sessions, and one poster session.
- 46) The Commission held its Summer annual meeting July 28 - August 2 in St. Petersburg, Russia, with Prof. German Kuroshev as local host and coordinator. Major discussion items were:
 - * Expand Moscow Commission paper into full journal manuscript form;
 - * Plan to begin MSDI modeling work with UML modeling;
 - * Continue plan for the Commission SDI efforts for the 2007-11 ICA cycle;
 - * Investigate avenues for possible semantic and Ontology modeling work.
- 47) Participate in ICA-National Mapping Organization Special Session in Moscow ICC meetings, with Prof. Moellering giving invited presentation on the work of the Commission.
- 48) Present Commission scientific paper at main Moscow ICC scientific session.
- 49) Commission plans Minimeeting at Moscow ICC per request of ICC Organizing Committee.

NEW ICA BOOK PUBLISHED

WORLD SPATIAL METADATA STANDARDS

Being published by Elsevier Science/Pergamon
ISBN - 0080439497

Harold Moellering, Editor-in-Chief
Henri J.G.L. Aalders, Associate Editor
Aaron Crane, Associate Editor
November, 2005

1. Introduction to World Spatial Metadata Standards

An Introduction to Metadata for Geographic Information - Henri J.G.L. Aalders

2. Regional Summaries of Spatial Metadata Developments and Associated Activities

- Edited by Henri J.G.L. Aalders

European Efforts in the Field of Geographic Metadata and Related SDI Activities -
Henri Aalders (NL) François Salgé (FR), & Alexander Martynenko (RUS)

North American Metadata Standards Developments in Canada and the United
States of America - Kian Fadaie (CDN), Julie Binder Maitra (USA) & Valerie
E. Hume (CDN)

Metadata Standards Development Activities in the Asia- Pacific Region - Craig
Macauley (AUS), Du Daosheng (China), Kazuhiko Akeno (Japan) & Tae-
Jung Min (Korea)

Metadata Standards Development Activities in Central and South America, and the
Caribbean - Tatiana Delgado-Fernandez (CU), Dora Inéz Rey-Martinez
(PCIDEA) & Martha Ivette Chaparro-Dominguez (CO)

Spatial Metadata in Africa and the Middle East - Antony Cooper (SA) & Elizabeth
J.O. Gavin (SA)

Global Spatial Metadata Activities in the ISO/TC211 Geographic Information
Domain - Olaf Østensen (ISO) & David Danko (USA)

3. Scientific & Technical Characteristics for Assessing metadata standards for geographic datasets

- Harold Moellering and Aaron Crane Eds.

Introduction to the Scientific and Technical Characteristics for Assessing Metadata
Standards for Geographical Datasets - Harold Moellering & Aaron Crane

Scientific & Technical Characteristics of Metadata Standards for Geographic
Datasets - Edited by Harold Moellering & Aaron Crane, Developed by the
ICA Spatial Data Standards Commission 1995-99, Version 7.0, Sept, 2002

4. Scientific and Technical Assessments with Full Descriptions of the Spatial

Metadata Standards - Edited by Aaron Crane, Charles Ruhl & Harold Moellering

Introduction to the Scientific and Technical Assessments of Spatial Metadata
Standards - Harold Moellering

National and International Spatial Metadata Standards

Australia/New Zealand - Craig Macauley

Canada - Kian Fadaie & Valerie Hume

China - Jiang Jing-tong & Liu Roumei

Czech Republic - Petr Rapant, Bronislava Horakova & Jan Ruzicka

Denmark - Anders Neilsen & Peter Kjeld

Finland - Paula Ahonen
Hungary - Istvan Kadar & Tamas Prajczner
Israel - Ammatzia Peled
Japan - Shoji Okuyama, Shinji Takazawa & Kazuhiko Akeno
Korea - Tae-Jung Min & Heung-Muk Cho
The Netherlands - Henri J.G.L. Aalders
Russia - Alexander Martynenko
South Africa - Nic Scheepers & Antony Cooper
Spain - Sebastian Mas
United States - Richard A. Pearsall & Richard Hogan
Dublin Core - Stuart L. Weibel
CEN/TC287 - François Salgé
ISO/TC211/WG3/Project 19115 - ISO/DIS 19115 - David Danko

Example National and International Subject Matter Spatial Metadata Standards and Profiles

EuroGeographics/LeClef - Topography; Marcus Wandinger & Claude Luzet(FR)
EUCommunity/SSSA/ES - Space Imagery; Bernd Eckhardt(D)
EuroGeoSurveys/GEIXS - Geology; Denis Bonnefoy(FR)
USA/NBII Profile - Biology; Susan Stitt(USA) & Anne Frondorf(USA)

5. Crosstable of National and International Spatial Metadata Standards and Characteristics - Harold Moellering Compiler and Editor
Introduction to the Crosstable of Spatial Metadata Standards and Characteristics - Harold Moellering

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COMMISSION MEETINGS HELD DURING 2003-07 ICA CYCLE

- 2) Held Commission Executive Committee meeting in Johannesburg, S. Africa to plan efforts for the coming 2003-07 ICA Proposed Terms of Reference.
- 3) The Commission held its annual meeting in Ithala, South Africa with Antony Cooper as local host and coordinator. Major discussion items were:
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 - * Continue UML modeling on some test SDI structures;
 - * Investigate additional avenues for UML modeling effort;
 - * Write and approve the Proposed Terms of Reference for the 2003 Durban ICA Congress.
- 8) Commission held minimeeting in Berlin on October 26, 2003 prior to the beginning of the TC211 Plenary meetings. Main topic of discussion are reports on the various SDI Reference Models.
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- 27) Commission holds Minimeeting at Montreal TC211 meetings, September 11. More planning on SDI work is discussed.
- 30) Commission holds Minimeeting at Orlando TC211 meetings, May 21. More planning on SDI work is discussed.
- 31) Commission holds Executive Committee meeting in Vienna, Austria July 3, just prior to its 2006 Summer Commission meetings.
- 32) The Commission held its annual Summer 2006 meeting in Vienna, Austria the week before the GICOM meetings there, with Wolfgang Kainz as local coordinator and host. Most of the discussion was involved in further developing our UML modeling of the SDI. The Commission Coruna scientific paper was expanded to a journal-length manuscript. Plans are also made to develop and write a scientific paper on this topic for the Moscow ICC meetings in August, 2007.

- 36) Commission holds small Minimeeting at GSDI-9 meetings in Santiago, Chile.
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 - * Expand Moscow Commission paper into full journal manuscript form;
 - * Plan to begin MSDI modeling work with UML modeling;
 - * Continue plan for the Commission SDI efforts for the 2007-11 ICA cycle;
 - * Investigate avenues for possible semantic and Ontology modeling work.

CURRENT AND FUTURE WORK OF COMMISSION

- 1) To develop a conceptual model of the Spatial Data Infrastructure (SDI) using the UML modeling language and associated modelling concepts, working in the areas of science, technology and standards, at the Global, Regional and National levels.
- 2) To explore research in the area of spatial semantics, ontologies and standards, in collaboration with other ICA Commissions.
- 3) To participate at the scientific level of the SDI in several organizations active in that area. This work will be closely coordinated with the ICA Executive Committee.

The Commission is proud to have published our book "World Spatial Metadata Standards" in November, 2005 by Elsevier, the ICA publisher. This was accomplished in spite of four reorganizations and other inefficiency by Elsevier that delayed this project for two years.

The Commission had been working on its SDI tasks listed above. Most of our effort has been on Item 1 at our annual Summer meetings, where we are making good progress. Our Expanded Coruna scientific manuscript was accepted by the IJGIS Journal for publication. We are presenting a multiple-authored scientific paper at the Moscow ICC meetings, and will work to expand that into a journal manuscript.

The ICA Executive has been making good contacts with the SDI organizations at the political level. The Commission intends to make contacts/Liaisons with the SDI organizations at the scientific level. A new opportunity has been recognized with Marine SDI, and possible cooperation with the International Hydrographic Organization at a new level.

The Commission will now investigate the areas of spatial semantics and ontologies as

proposed in our 2007-11 Terms of Reference.

ICA SPATIAL DATA STANDARDS COMMISSION
ACI COMMISSION SUR LES NORMES RELATIVES AUX DONNEES LOCALISEES
DRAFT TERMS OF REFERENCE, 2007-2011
July 2006 (Updated March 2007)

The Commission was originally organized to examine standards that specify the spatial data transfer process, and any standards associated with that process. The earlier cycles of work discussed international developments for transfer standards, conducted a detailed examination of the transfer standards themselves, and then examined the national and international metadata standards. In its fourth and fifth cycles of work, the Commission examined the developing Spatial Data Infrastructure (SDI) at the Global, Regional, National levels, its ramifications on the world of the ICA, and developed conceptual models of the SDI. The following Terms of Reference are proposed for the Commission for the 2007-2011 time period.

- (1) To continue the work on developing conceptual models of the Spatial Data Infrastructure (SDI) using various modelling techniques, working in the areas of science, technology and standards, at the Global, Regional and National levels.
- (2) To explore research in the area of spatial semantics, ontologies and standards, in collaboration with other ICA Commissions.
- (3) To participate at the scientific level with other organizations active in standards and SDIs. This work will be closely coordinated with the ICA Executive Committee.
- (4) To develop reports, conference presentations and/or journal articles on our work, or to hold specialist meetings on these topics.
- (5) To help arrange and present tutorials and workshops on standards.
- (6) To organize reporting sessions on the Commission's activities at the 2009 and 2011 ICA meetings.
- (7) To organize and hold full Commission meetings in the summers of 2008, 2009, 2010 and 2011.
- (8) To organise and hold mini-meetings of the Commission at suitable conferences and meetings being attended by members of the Commission.
- (9) To continue to serve as a Category A Scientific Liaison with ISO/TC211, Geographic Information/Geomatics, and establish liaisons with various SDI organizations.
- (10) To exchange information and reports by the ICA member countries and relevant bodies concerning the development standards for the transfer of digital spatial data, metadata and SDIs.
- (11) To maintain the Commission World Wide Web Home Page.
- (12) To identify research and education needs that arise from the standards and SDI processes.

FINANCES

The Commission has been utilizing ICA funds for hiring graduate student help for Prof. Moellering to assist with constructing and editing the Book Part 5 Crosstable. This person has also helped Prof. Moellering generate the video slides for the presentations in the ICA/ISO standards Plenary session, and the Commission ICC scientific paper, both presented in the Coruna ICC meetings. He has also helped in the past to update the Commission OSU web site. Some funds are also utilized to pay for the meeting room expenses at the Commission Summer meetings.

IN-KIND CONTRIBUTIONS

The Commission has been provided access and office facilities for Prof. Moellering at the Department of Geography, Ohio State University, Columbus, Ohio, USA. The Department has also hosted the Commission public web site on its computer facilities.

The Commission Member web site has been provided by the National Survey and Cadastre, Copenhagen, Denmark.

The Commission also thanks the many hosts for our Summer Commission meetings:

- * Masaryk University, Brno, Czech Republic;
- * Council for scientific and Industrial Research, Ithala, South Africa;
- * International Hydrographic Bureau, Monaco;
- * Instituto Geografico Nacional, Santa Cruz, Spain;
- * Geographic Institute, University for Vienna, Austria;
- * Faculty of Geography, St. Petersburg University, Russia.