Proceedings of
ISPRS Technical Commission VI Symposium

E-LEARNING AND THE NEXT STEPS
FOR EDUCATION

27 – 30 June 2006
Tokyo, Japan

Editors
K. Cho, and M. Yoshimura

Sponsors
Japan Association of Surveyors
Japan Society of Photogrammetry and Remote Sensing

Published by: Japan Society of Photogrammetry and Remote Sensing (JSPRS) on behalf of ISPRS

ISSN 1682-1750
PREFACE

It is our great pleasure to organize the ISPRS Commission VI Symposium in Tokyo, Japan from 27 to 30 June, 2006. The theme of Commission VI is “Education and Outreach”. In recent years, meaning and role of e-Learning are expanding in the field of education. The highly integrated multimedia & internet technologies are pushing e-Learning to change the style of education. The needs of education are also changing. The rapid advancement of technologies is increasing the needs for on job training and life-long education. Reduction of children’s interest to science is requesting some excitement to science education. Recognizing the importance of face-to-face education, we have to think about optimizing e-Learning for education.

The main theme of the Symposium is “e-Learning and the Next Steps for Education”. In order to clarify the main theme, we have invited three experts on education from different fields as keynote speakers, namely Prof. Hans van Ginkel, Prof. Yasunori Matogawa, and Prof. Joachim Höhle. We would like to thank them for kindly accepting our invitation in spite of their busy schedules.

Total of 60 papers, including manuscripts of the three keynote speakers, have been submitted to the Symposium. We would like to thank all the authors for providing their papers in due time for printing the proceedings. Reflecting the activities of the five Working Groups and one Special Interest Group of the Commission, the themes of the papers include, but not limited to, s-Learning, training, capacity building, distance education, datasets, and student organizations. We believe that this symposium will give us an excellent overview of the current status and the future of various aspects of education in the field of remote sensing, photogrammetry and GIS.

Finally I would like to thank Mitsunori Yoshimura and Takahiro Endo of the symposium secretariat group for their dedicated work on preparing the proceedings.

Kohei Cho
Commission VI President
ISPRS Council 2004 - 2008:

President: Ian Dowman United Kingdom
Secretary General: Orhan Altan Turkey
Congress Director: Chen Jun PR China
First Vice President: John C. Trinder Australia
Second Vice President: Emmanuel Baltsavias Switzerland
Treasurer: Stanley Morain USA

Local Organising Committee:
Shunji Murai, Keio University (Chairman)
Kohei Cho, Tokai University (Com. VI President)
Masahiro Setojima, Kokusai Kogyo co.
Kunio Nonomura, Japan Map Center
Kunihiko Ono, Japan Association of Surveyors
Haruhsia Shimoda, Tokai University
Hirofumi Chikatsu, Tokyo Denki University

Program Committee:
Kohei Cho, Tokai University, Japan
Shunji Murai, Keio University, Japan
Joachim Höhle, Aalborg University, Denmark
Manos Baltsavias, ETH, Switzerland
Henrik Haggren, HUT, Finland
Alain Duperet, IGN, France,
Anders Boberg, KTH, Sweden
Gerhard Konig, BUT, Germany
Mark R. Shortis, RMIT University, Australia

Xiaoyong Chen, AIT, Thailand
Sjaak J.J. Beerens, ITC, Netherlands
Timothy Foresman, ICRSE, USA
Venkatesh Raghavan, Osaka City University, Japan
Rahmi Nurhan Celik, ITU, Turkey
Zhu Qing, Wuhan University, China
Jaakko Järvinen, HUT, Finland
Armin Gruen, ETH, Switzerland

Technical Commission VI:
Commission VI President Kohei Cho Japan
Commission VI Secretary Mitsunori Yoshimura Japan

WG VI/1 : Educational Frameworks and Methodologies
Chair: Henrik Haggren Co-chairs: Alain Duperet, Anders Boberg

WG VI/2 : e-Learning
Chair: Gerhard Konig Co-Chair: Mark Shortis

WG VI/3 : International Cooperation and Capacity Building
Chair: Xiaoyong Chen Co-chair: Sjaak J.J. Beerens

WG VI/4 : Internet Resources and Datasets
Chair: Timothy Foresman Co-chair: Venkatesh Raghavan

WG VI/5 : Promotion of the Profession to Students
Chair: Rahmi Nurhan Celik Co-chair: Zhu Qing

Special Interest Group on Technology Transfer Caravan
Chair: Armin Gruen, Co-chair: Shunji Murai

Copyright 2006

Copyright resides with the author(s) of a paper except where it is retained by an author’s employer.
# Table of Contents

## Keynote Speeches

**Ginkel H.V.,**  
Sharing Knowledge: Roles of E-Learning in Creating the Global Learning Space  
1

**Matogawa Y.,**  
Sparking New Interest in Children’s Minds - Space Activities for Our Next Generations -  
3

**Höhle J.,**  
Education and Training in Photogrammetry and Related Fields  
Remarks on the Presence and the Future  
4

## Technical Session 1  
New Approaches for Education

**Haggren H.,**  
Progressive Learning Network, PLN  
12

**Rub M.,**  
An Internship Amongst Millions of Points  
13

**Martin A., McGovern E., Mooney K., and O’Rourke K.,**  
The Experience of E-learning: Progress towards a New Learning Paradigm  
16

**Murai S., and Ono K.,**  
Continuous Professional Development (CPD) for Surveyors  
19

## Technical Session 2  
Tools and Materials on Remote Sensing

**Duong N. D.,**  
CARST 1.0 and Remote Sensing Training at GeoInfo Ltd. in Vietnam  
23

**AlSultan S., Lim H. S., Matjafri M. Z., and Abdullah K.,**  
Developed of a Computer Aided Instruction (CAI) Package in Remote Sensing Educational  
29
<table>
<thead>
<tr>
<th>Authors</th>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takeuchi S., Oguro Y., and Duong N. D.</td>
<td>35</td>
<td>Low-Cost Virtual Reality Viewer as an Introductory Tool for Learning Remote Sensing Image Processing</td>
</tr>
<tr>
<td>Beerens S.</td>
<td>45</td>
<td>Building Capacity in Geo-information Handling: Addressing Diversified Needs</td>
</tr>
<tr>
<td>Koshimizu H., Maruyama H., Sakahe S., Kisanuki J., Nagayama T., Kayaba S., Abe M., Kishimoto N., and Okatani T.</td>
<td>51</td>
<td>Application of Global Geographic Framework Data for Education - Global Map -</td>
</tr>
<tr>
<td>Hassan A., and Subari M. D.</td>
<td>55</td>
<td>Geomatic Education in Malaysia: Time to do Some Realignment</td>
</tr>
<tr>
<td>Yamada K., and Tsuda K.</td>
<td>60</td>
<td>Activities towards Dissemination of Geographic Information in Macedonia</td>
</tr>
<tr>
<td>Koenig G., and Schiewe J.</td>
<td>65</td>
<td>E-Learning Courses for GIS and Remote Sensing in Germany Status and Perspectives</td>
</tr>
<tr>
<td>Krueger A., Brinkhoff T., and Grendus B.</td>
<td>71</td>
<td>Towards a Sustainable E-learning Solution for GI-Education</td>
</tr>
<tr>
<td>Katterfeld C., and Paelke V.</td>
<td>76</td>
<td>Interoperable Learning Environments in Geosciences - A Virtual Learning Landscape</td>
</tr>
<tr>
<td>Dam T.</td>
<td>84</td>
<td>Multi-usable Courseware for Flexible and Demand-driven Education at ITC</td>
</tr>
<tr>
<td>Amhar F.</td>
<td>89</td>
<td>Indonesia Contributions in ALOS Project</td>
</tr>
</tbody>
</table>
Saito G., Hanayama M., and Osawa K.,
Understanding and Teaching for Regional Differences of Agriculture using Satellite Data

Tuya S., Batbayar J., Kajiwara K., and Honda Y.,
A Comparison of Five Potential Evapotranspiration Methods and Relationship to NDVI for Regional use in the Mongolian Grassland

Iino N., Kinoshita K., and Kanagaki C.,
Satellite Images of Air Pollutants and Land Cover for Environmental Education and Disaster Prevention

Technical Session 6
Internet Resources for Education

Guzzardo G., and Foresman T. W.,
High Growth Job Training Initiative for Remote Sensing Community

Jeong J. H., Yamamoto Y., and Takagi M.,
Integrating Disaster Information on a Web based GIS

Tsuchida S., Kinoshita K., and Kajikawa D.,
The Image integrated Database for Weather Study using Mt SAKURAJIMA

Cho K., Yano Y., and Iwasa R.,
Sea Ice Image Dataset for Education (SIDE)

Technical Session 7
International Training

Amhar F.,
Indonesia Experience in Geospatial Training

Naburo N. P., and Munju N. L.,
Promoting ISPRS Aspirations in Geospatial Technology Application in Developing Countries and EReT Cameroon Approach to the International MSc Geoinformatics Programs

Martinic J. S. D., and Horn J.,
International Partnership for a Joint Educational Programme in a Developing Country in South America, Case of BOLIVIA

Technical Session 8
New Tools for Education

Martin A., McGovern E., and Mooney K.,
Problem based Learning in Spatial Information Science – A Case Study
<table>
<thead>
<tr>
<th>Authors</th>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lahoz J. G., and Aguilera D. G.</td>
<td>145</td>
<td>Teaching Cartography through VRML: Including Breaklines and Vertical Walls in Tins to Render Archaeological Site</td>
</tr>
<tr>
<td>Isaka J.</td>
<td>151</td>
<td>How to broaden the Bases for Digital Remote Sensing Data Analysis for Everybody -From the Experiences of Promoting “MultiSpec ‘hands on Workshops-”</td>
</tr>
<tr>
<td>Iwao K., Nishida K., and Yamagata Y.</td>
<td>157</td>
<td>Training Scheme for Land-cover Mapsvalidation by Ground-truth</td>
</tr>
<tr>
<td>Kinoshita K., Tomioka N., and Togoshi H.</td>
<td>160</td>
<td>Construction and Application of Satellite Image 3D Presentation System for Education</td>
</tr>
<tr>
<td>Kunii Y., Chikatsu H., Ohdake T., and Ono K.</td>
<td>166</td>
<td>Computer-assisted Surveying Education using 3D Simulator</td>
</tr>
<tr>
<td>Lohani B., Reddy P., and Mishra R. K.</td>
<td>179</td>
<td>Airborne Altimetric LiDAR Simulator: An Education Tool</td>
</tr>
<tr>
<td>Trinder J. C.</td>
<td>184</td>
<td>The Role of ISPRS in Education and Training within the Framework of International Organizations</td>
</tr>
<tr>
<td>Chen T. C.</td>
<td>189</td>
<td>37 Years of Internet, 12 Years of ISPRS Online</td>
</tr>
<tr>
<td>Akkoça G., Tatli P., and Celik R. N.</td>
<td>198</td>
<td>Organization and Future of ISPRS Student Consortium</td>
</tr>
<tr>
<td>Parthasarathy J.</td>
<td>208</td>
<td>Positioning and Navigation System using GPS</td>
</tr>
</tbody>
</table>
Technical Session 11 Education on Photogrammetry

Zhu Q.,
The Photogrammetry Education for Multidisciplinary Geomatics in P.R.CHINA

Fras. M. K.,
Analysis of Photogrammetry and Remote Sensing Education in Slovenia and Prospects for the future

Takeda H., Isobe K., Akamatsu Y., Matsuoka R., and Cho K.,
Application of the Simplified Spatial Data Acquisition System K-Scope to Education and Research

Kheiri M.,
Digital Aerial Cameras

Technical Session 12 Thesis and Project Writing

Konecny G.,
Project Proposal Writing

Gruen A.,
Thesis Writing

Murai S.,
Presentation Techniques

Technical Session 13 Various Approaches on Application

Ochi S., Matsuno Y., and Hatcho N.,
Ecological Awareness Mapping by Community Participation

Erdenetuya M., Khishigsuren P., Davaa G., and Otgontugs M.,
Glacier Change Estimation using Landsat TM Data

Shiraki Y., Harada I., Kuze H., and Ichinose T.,
Experimental Study on the Effect of Cheong-gye Stream Restoration on Urban Environment (Long-path Measurement of Atmospheric Pollutant Species with an Obstruction Flashlight)

Sausen T. M., da Costa S.M. F., Di Maio A. C., Barbosa F.V.,
EDUCA SeRe II PROJECT – Ecosystems Atlas of South America and Antarctica through Satellite Images
Technical Session 14  Distance Learning

Paudyal D. R., 254
E-learning Experiences and Sustainability: A Piloting of Distance M.SC. Thesis Supervision at ITC, The NETHERLANDS

Storytelling Approach for VIDEO Demonstration of VRS Service

Murai S., and Murayama H., 264
JICA NET Distance Education on Remote Sensing and GIS for Developing Countries

Technical Session 15  GIS and Remote Sensing

Venkatachalam P., Mohan B. K., Pandya M., Choksi D., and Suri J. K., 272
E-tutor for Learning GIS

Sakai T., Goto S., and Yamashita M., 277
Construction of GIS Education System via Distance Learning

Buddhiraju K. M., Karthik S., Nayak V., and Anu G., 279
A Multimedia Tutor for Digital Image Processing for Remote Sensing

Direction of Digital Image Analysis Training through the 28 Years Experience

Technical Session 16  Capacity Building in Africa and in Asia

Kufoniyi O., 289
Improving Capacity Building in Earth Observation and Geo-information Science in Africa through Educational Networking

Ottichilo W. K., 295
Regional Centre for Mapping of Resources for Development (RCMRD): Geo-Information Capacity Building Activities in Africa

Ishida C., Samarakoon L., Inomata Y., and Ozawa M., 300
JAXA’s Capacity Building Activities in Asia-Pacific Region

Samarakoon L., Ichida C., and Inomata Y., 304
JAXA/AIT Collaboration for Capacity Building in Asia-Pacific
Appendix:

Session 12: support documentation (Emeritus Prof. Shunji Murai) 307

Authors and Co-authors Index 312

Keywords Index 314

Sponsors Index 317