

E-Learning with EuroSDR

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SUMMARY

“Learning by doing” is the motto of EuroSDR’s Educational Service. Under this slogan four distance learning events have been organized with three already finished. Eight course topics were elaborated. Students from EU and non-EU countries apply for the courses; they attend a host venue for two days, where a short introduction is given about the management, structure and content of the courses. Furthermore the communication forms and requirements are discussed. Social events are coupled to the training, so the students can meet colleagues from other countries in an informal way. The completed distance learning courses have proved that this educational form has significant potential in training personnel from national mapping agencies or other organisations.

1. THE BEGINNING: OEEPE

An agreement was signed by the national delegates of five European countries on 12th October 1953 to establish collaboration in research, development and technology transfer for mapping institutions. The five countries were alphabetically: Austria, Belgium, Germany, Italy, and The Netherlands. The agreement created an organization: OEEPE (Organisation Européenne d’Etudes Photogrammétriques Expérimentales – European Experimental Photogrammetric Organization).

OEEPE had a strong duality in membership: not only the national mapping agencies (NMAs) provided delegations, but also the academic sphere: universities and research institutes. By 2004 the organization had grown to seventeen member states (Fig. 1).



Figure 1: Member states of OEEPE in 2004

Delegates hold scientific and administrative meetings twice a year: in spring in the Northern part of Europe and in fall in the Southern part.

In order to provide increased flexibility in its operations and to better reflect the changing research needs of its members, OEEPE changed its name to EuroSDR (European Spatial Data Research) in 2003. In 2005 EuroSDR was incorporated as a not-for-profit organization under Irish company law. These two changes are aimed at developing OEEPE into a modern organization (EuroSDR).

2. AFTER TRANSITION: EUROS DR

The organization has been known as EuroSDR (European Spatial Data Research) since October 2003. Hungary had observed the work of OEEPE for a considerable time. In 2004 the second module of EuroSDR's Educational Service was organized in Budapest. Hungary joined the organization in 2005 and became one of the first seven countries to join under the new legal status, the seven being Austria, Belgium, Germany, Finland, Hungary, Sweden and the United Kingdom. The President is elected every two years, and the office is currently held by Mr. Keith Murray from Ordnance Survey, UK.

The aim of the organization is twofold:

- To research and develop systems for the production and dissemination of core geospatial data and information (national mapping data), and promote the applications of all such data and information.
- To stimulate interaction and co-operation between research organizations and the public and private sector, to exchange ideas about relevant research problems and to transfer research results obtained to geographical information (GI) production organizations.

EuroSDR is a research platform for national mapping agencies, academic institutes, the private sector, industry and user groups, concerned with the implementation of technology developments in the provision of national and European spatial data infrastructures vital to sustainable spatial planning and development [www.eurosd.net].

The position of secretary general is currently held by Mr. Kevin Mooney from the Dublin Institute of Technology, Ireland. The president, secretary general, the commission presidents and the chairman of the Science Committee (Prof. Christian Heipke) constitute the Executive Team. The Steering Committee (SC) comprises national delegates and project leaders in addition to the Executive Team.

EuroSDR operates as a network of NMAs and research institutes cooperating with each other on several levels. They host thematic workshops as well as general assembly meetings. The organization finances research programs and reports results in high quality publications. EuroSDR maintains a series of Official Publications (Fig. 2).

The organization has five scientific commissions:

1. Sensors, primary data acquisition and georeferencing
2. Image analysis and information extraction
3. Production systems and processes
4. Core geospatial databases
5. Integration and delivery of data and services

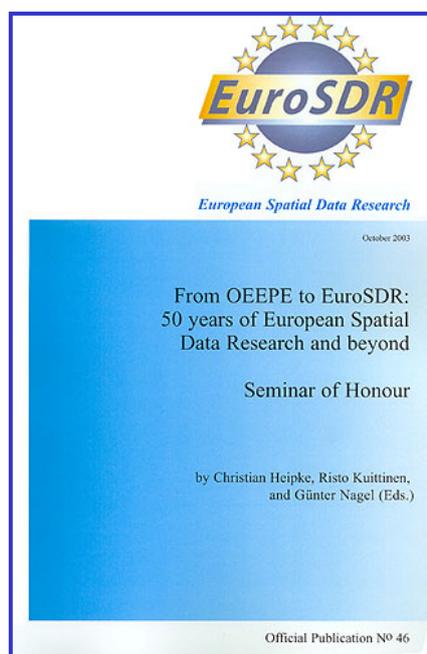


Figure 2: The Official Publication series (the transition exemplar)

Current research projects can be seen in Table 1.

InterSENSOR-0
DiracTRUST (reliability of INS/GNSS orientation)
NewPLATFORMS: Unconventional Platforms for Remote Sensing
Automated Extraction, Refinement, and Update of Road Databases - from Imagery and other Data
Automatic Tree Extraction
EuroSDR Sensor and Data Fusion Contest - Comparison of the Map Information Content of Airborne SAR and Optical Image Data
Automated Change Detection
Detection of buildings for cadastral maps
Procedures and Methods for Automated DTM Quality Control
The Digital Camera Calibration Network
Evaluation of building extraction - from imagery and laserscanning data
State-of-the-art in Generalisation

Table 1: Current research projects

More details of research projects can be found on the website: www.eurosd.net.

3. EDUCATIONAL SERVICE AND E-LEARNING

In addition to its research works and publications, EuroSDR also offers e-learning courses preceded by educational seminars.

The **Educational Taskforce** is one of five task forces within the organization. The current chairman is Prof. Joachim Höhle, from Aalborg University, Denmark. The members are J. Höhle (Aalborg University), C. Heipke (University of Hannover), K. Tempfli (ITC, Enschede), A. Stein (ITC, Enschede), K. Mooney (DIT, Dublin), A. Barsi (BME, Budapest).

The first E-Learning Educational Service, **EduServ1**, was held in 2002 and hosted by Aalborg University. The computer conference system *First Class* was used for all communication, as well for distributing the training materials. There were three courses:

- A. Integrated sensor orientation (C. Heipke – K. Jacobsen, University of Hannover)
- B. Orientation of aerial images on database information (J. Höhle, Aalborg University)
- C. Laserscanning and interferometric SAR (K. Tempfli – G. Huurneman, ITC Enschede, The Netherlands)

The courses attracted twentytwo participants from ten countries. There was a two day introductory seminar in Aalborg on 10th –11th of October 2002, during which the teachers introduced the courses, the course materials and the requirements. They showed the data sets, and the processing software. A presentation about the conference system was also held. An example of the learning material is shown in Fig. 3.

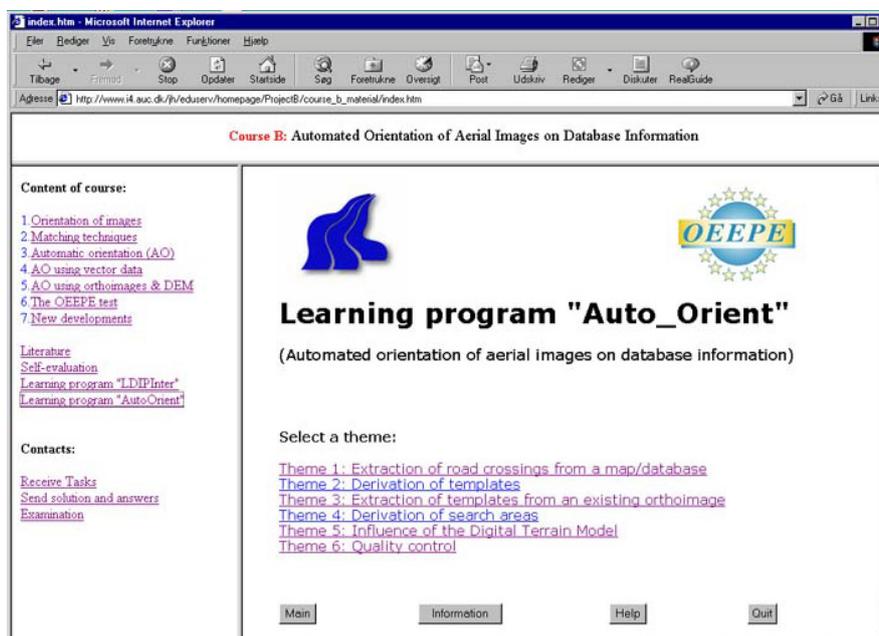


Figure 3: Demo page from the learning material on the web

On successful completion of the courses a certificate with the signature of OEEPE's president and of the course coordinator was given (Fig. 4).

The second Educational Service (**EduServ2**) was held in 2004. The courses were:

- A. Integrated sensor orientation (C. Heipke – K. Jacobsen, University of Hannover)
- B. Image orientation with GIS data (J. Höhle – M. Potucková, Aalborg University)
- C. Laser scanning and interferometric SAR for DTM generation (K. Tempfli, G. Huurneman, ITC Enschede, The Netherlands)
- D. Digital cameras/sensors and data fusion (B. Csatho – C. Toth, The Ohio State University, USA)

The introductory seminar was held in Budapest from April 15th to 16th, 2004. The E-Learning courses followed from 19.04. – 30.04. (Course A), 10.05. – 21.05. (Course B), 31.05. – 11.06. (Course C) and 21.06. – 02.07. (Course D). A limited number of scholarships were available. The two day introduction was followed by a social event: an excursion to the neighboring city Szentendre.

The organizers agreed to test a low-cost solution: without a sophisticated conference system, only by the use of web and e-mail accessibility is such an event manageable? Feedback from the students indicated that the answer is yes.



Figure 4: EduServ certificate

The participation fees for the Budapest courses were uniquely low at 200 EURO. Good value (**) hotels were available. 25 participants from 11 countries had attended to the courses. Two EduServ1 students joined Eduserv2, indicating the acceptable quality of the courses.

EduServ3 was organized in Dublin by the Dublin Institute of Technology in 2005. The courses were the following:

- D. Digital cameras/sensors (B. Csatho – C. Toth, The Ohio State University, USA)
- E. Coordinate reference systems and transformations for spatial positions (K. Mooney – A. Martin, Dublin Institute of Technology, Ireland)

F. Impacts of improving the positional accuracy of GI databases (Technical University Berlin)

The E-Learning courses were followed between 11.04. – 22.04. (Course E), 02.05. – 13.05. (Course F), 23.05. – 03.06. (Course D). During the event *WebCT* conference system was used.

A comparison of the number of participants at the three EduServ modules to date can be seen in Table 2.

	Course A	Course B	Course C	Course D	Course E	Course F	Sum
EduServ1	14	18	15	0	0	0	47
EduServ2	11	13	10	10	0	0	44
EduServ3	0	0	0	15	12	13	40
Sum	25	31	25	25	12	13	131

Table 2: Number of participants in the completed EduServ courses

The latest **EduServ4** call can be read in the web (www.itc.nl/eduserv4/) with the course titles:

- E. Co-ordinate systems and transformations for spatial position (10-21 April 2006)
- F. Positional Accuracy Improvement in GI databases (1-12 May 2006)
- G. Quality of Geospatial Data and the Related Statistical Concepts (22 May - 2 June 2006)
- H. Methods for checking and improving of DTMs (12-23 June 2006)

The venue of the introductory seminar is ITC in Enschede, The Netherlands, which will run from 30th to 31st March 2006.

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BIOGRAPHICAL NOTES

Arpad Barsi is Head of the Department of Photogrammetry and Geoinformatics. He organized the second OEEPE/EuroSDR Educational Service event in 2004, then in 2005 Hungary joined EuroSDR. He is member of the Educational Task Force.

Dr. Barsi studied at the College of Surveying and Land Registration in Székesfehérvár, at the Budapest University of Technology, spent three months in Zurich with IAESTE scholarship, two semesters at the Vienna University of Technology and wrote his thesis work at the Karlsruhe University. After PhD he was awarded the Bolyai Scholarship from the Hungarian Academy of Sciences and the Alexander von Humboldt Fellowship.

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