EuroSDR

European Spatial Data Research

Welcome

Joep Crompvoets – Secretary-General

Crowdsourcing and National Mapping
Leuven 2017

www.eurosdr.net

INTRODUCTORY QUESTIONS

Who knows what is EuroSDR?

Who does not know what is EuroSDR?

Who is employed at mapping agencies?

Who is from universities or research institutes?

Who is from the private sector?


EuroSDR
NMCAs
+
Research Organisations

EuroSDR

- a European Spatial Data Research Network

  Not-for-profit organisation

  linking National Mapping and Cadastral agencies with Research Institutes and Universities

  for the purpose of applied research in spatial data provision, management and delivery.

  18 country members
  Foundation (OEEPE): 1953

Research and Dissemination Cycle

Mapping Agencies together with Research Institutes

Official Publications and EduServ Courses

Operation

- Delegates meetings
- Workshops
- Research projects
- Publications
- Educational activities

Delegates meetings

- Meet twice per year
- Research planning and management
- Keynote presentations
- Focussed discussions
- Sharing best practice
- Initiate new research

Six technical commissions

- Data acquisition
- Modelling and processing
- Updating and integration
- Information usage
- Business models and operations
- Knowledge transfer

Workshops

- dialogue-based events
- establishment of state-of-the-art in a particular field
- presentations by experts in the field
- small, focussed groups (usually < 50 participants)
- may result in identification of research topics
- planning and dissemination of information on research activities
- documented and information is available for members
- short term approach (< 6 months from idea to realisation)

Recent Workshops

- **EuroGeographics/EuroSDR/JRC workshop on INSPIRE validation data, metadata and services** (Marne-la-Vallée, 2-3/06/2016)
- **EuroSDR Special Session at ISPRS Conference 'Innovative technologies and methodologies for NMCAs** (Prague, July 16)
- **UN-GGIM NMCA Forum at ISPRS Conference highlighting the (research) activities happening at NMCAs** (Prague, July 2016)
- **2nd Workshop 'Preparations for the Sentinels in Europe'** (Oslo, 11–12/10/2016)
- **Economic Value of 3D data** (Barcelona, 30-31/3/2017)

Research projects

- research activities are carried out through projects
- knowledge transfer through active participation of member and non-member organisations
- projects are executed by EuroSDR alone or in collaboration with other organisations and companies
- experiments using data acquired/provided by participants
- multi-site approach
- publication of results in official EuroSDR series
- long term approach (typical length: 1-3 years)

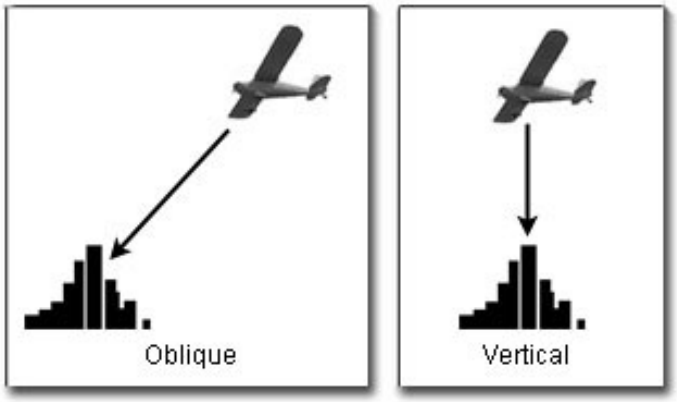
Sensors and Data Acquisition

UAVs/Remotely Piloted Airborne Systems (RPAS)

Erosion monitoring

Systems
System integration
Data processing
Operation

Oblique imagery

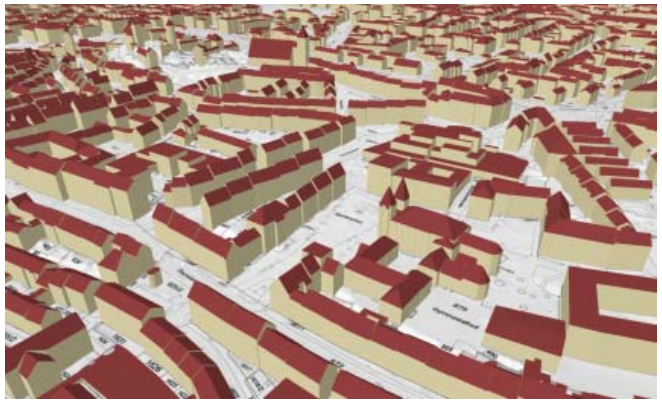


Archiving

16 principles
Embedded Archiving

Long term preservation of **digital** Geographic Information

3D Special Interest Group (3D-SIG)



Addressing current issues of NMAs

- 3D data models
- capturing 3D objects
- producing 3D objects
- updating of 3D objects
- consistency of 3D data
- benefits of 3D data

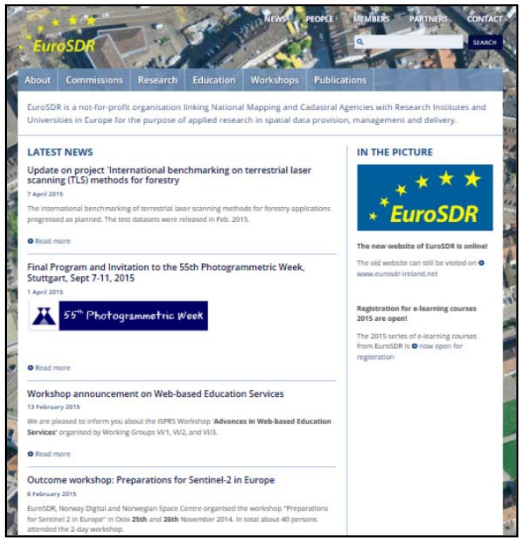
Crowdsourcing

Updating national databases project

Projects

- Oblique Imagery
- Benchmarking on Terrestrial Laser Scanning for Forestry Applications
- High Resolution Dense Image Matching
- Crowdsourcing and National Mapping
- 3D Special Interest Group – Creating an evidence base for economic value of 3D data at a regional level across Europe
- Economic Value 3D
- Mapping from HR Satellite Imagery
- Historic data management
- Open data business modelling
- Linked Data

Information dissemination



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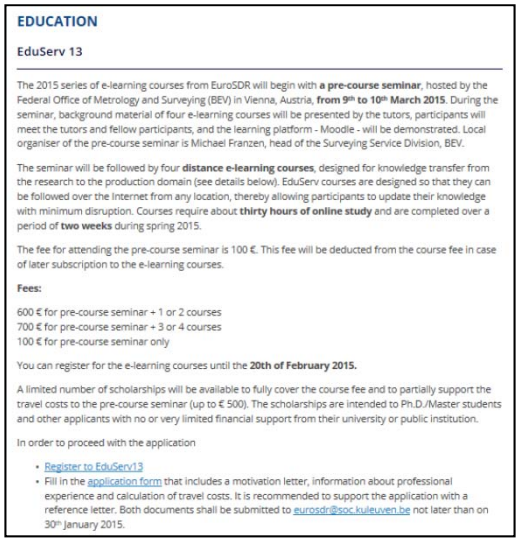
Official publication series



Distance e-learning course

EuroSDR Education Service

EduServ – Educational Service

Two-week courses by e-learning

Followed from workplace or home

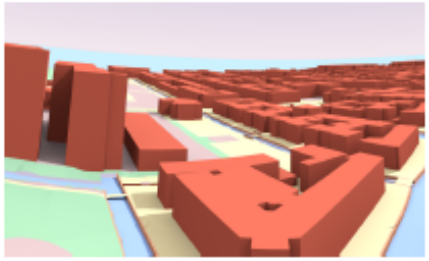
Pre-course seminar

EduServ – Educational Service

- Knowledge distribution via **e-Learning**
- Completed **projects and additional topics**
- In particular for EuroSDR members, but **open to everyone** with a basic understanding of GI

EuroSDR Educational Service 2017

The 15th series of short e-learning courses from EuroSDR will begin with a **pre-course seminar** hosted by the 3D geoinformation group of the Delft University of Technology from 6th to 7th March 2017. During the seminar, participants will hear presentations covering background material of four e-learning courses and the learning Moodle platform; they will meet the tutors and fellow students and will have opportunity to discuss specific questions related to the course topics. The seminar will be followed by e-learning. Each course requires about **thirty hours of online study** and it will be completed over a period of **two weeks** from March till May 2017.

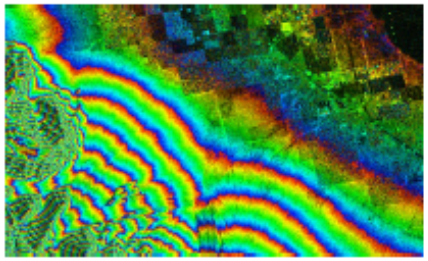


3D City Modelling

Tutors: Ravi Peters, Hugo Ledoux, Jantien Stoter (Delft University of Technology)

This is an introductory course to 3D city modelling. 3D city models are becoming an ubiquitous tool in areas such as urban planning and environmental modelling. This course gives an overview on state-of-the-art in 3D city modelling and its applications, introduces the participants to the underlying principles of 3D city modelling and lets them experience hands-on what it means to create a 3D city model. A number of topics will be discussed: the international CityGML standard, the concept of Level of Detail (LOD) in 3D city models, and the importance of data quality. The goal of the practical exercise, to be executed with FME, is to create a valid and CityGML-compliant 3D city model by combining existing 2D topographical datasets with aerial LiDAR point clouds.

Dates: 13th–24th March 2017



Synthetic Aperture Radar for Mapping Applications

Tutor: Olaf Hellwich (Technical University Berlin)

The course gives a complete introduction to Synthetic Aperture Radar (SAR). The paging geometry and radiometry are explained using examples from currently available sensor systems. Sensor orientation and geocoding are treated from a geodetic viewpoint. SAR interferometry, SAR polarimetry, polarimetric interferometry and SAR tomography are dealt with intensively. Approaches making use of satellite-borne SAR for solving geodetic problems are discussed. Mapping applications are discussed with an emphasis on high-resolution 3D object detection and reconstruction. The required computer vision and machine learning concepts are included. The course is of interest for both beginners in SAR remote sensing as well as advanced learners interested in the use of pattern analysis techniques.

Dates: 27th March – 7th April 2017

Oblique Aerial Camera Systems for Mapping Purposes

Tutors: Fabio Remondino, Isabella Toschi (FBK Trento), Francesco Nex, Markus Gerke (ITC/University of Twente)

Oblique airborne photogrammetry is rapidly maturing and being offered by service providers as a good alternative or replacement of the more traditional vertical imagery. Nowadays many companies and most of the European National Mapping and Cadastre Agencies still rely on the traditional workflow based on vertical photography but changes are slowly taking place also at production level. Some data providers have already run tests internally to understand the potential for their needs whereas others are discussing on the future role of the oblique technology and how to possibly adapt their production pipelines. Some research institutions and academia demonstrated the potentialities of oblique aerial datasets to generate textured 3D city models or large building block models. The course provides an overview of oblique camera systems, processing methodologies and best practices with also practical works on oblique aerial blocks.

Dates: 24th April – 5th May 2017

Terrestrial Point Cloud for Forest Modelling

Tutors: Liang Xinlian, Juha Hyyppä (National Land Survey of Finland)

The course aims at giving an overview on the state-of-the-art of forest modelling utilizing terrestrial point clouds, e.g. from terrestrial laser scanning, mobile laser scanning and series of images. The course will cover several topics, ranging from the background information (e.g. the instrument, the measurement principles and the potential applications), the summary of the research progresses in the last two decades, the fundamental steps in the data processing chain (e.g. noise reduction, tree detection, tree modelling and parameter estimations), to the pioneering studies. The course will also work on selected topics to discuss the influences of the terrestrial point clouds on the forest modelling. The course is based on the EuroSDR project "Benchmarking on Terrestrial Laser Scanning for Forestry Applications".

Dates: 15th–26th May 2017

Fees
600 € for pre-course seminar + 1 or 2 courses
700 € for pre-course seminar + 3 or 4 courses
100 € for pre-course seminar only

For more information visit
http://www.eurosdr.net/education/current

www.eurosdr.net

EduServ Partners – Many thanks

Year	Host Organisation	Country
2002	Aalborg University, Aalborg	Denmark
2004	Budapest University for Technology and Economics, Budapest	Hungary
2005	Dublin Institute of Technology, Dublin	Ireland
2006	ITC, Enschede	The Netherlands
2007	Charles University, Prague	Czech Republic
2008	University of Applied Sciences, Stuttgart	Germany
2009	Norwegian University of Life Sciences, Ås	Norway
2010	KU Leuven, Leuven	Belgium
2011	ENSG, Paris	France
2012	Dublin Institute of Technology, Dublin	Ireland
2013	CISM, Udine	Italy
2014	Bruno Kessler Foundation, Trento	Italy
2015	Federal Office of Metrology/Surveying, Vienna	Austria
2016	Warsaw University, Warsaw	Poland
2017	Delft University of Technology	The Netherlands

EduServ Courses - A rich track record

- Integrated Sensor Orientation
- Automatic Orientation of Aerial Images on Databases
- Laserscanning & Airborne Interferometric SAR
- Digital Cameras/Sensors
- Co-ordinate Reference Systems and Transformations for Spatial Data Position
- Positional Accuracy Improvement in GI Databases
- Quality of Geospatial Data and Related Statistical Concepts
- Quality Control of DTMs
- Mapping with SAR
- Laserscanning for 3D city models
- CityGML
- Geometric performance of digital airborne cameras
- Schema matching
- transformation for INSPIRE
- Laserscanning for Tree Extraction
- Assessment of the quality of Digital Terrain Models
- The INSPIRE Directive and its Implementing Rules
- Geodetic Reference Systems
- 3D Urban Modelling
- Radiometric performance of Digital Photogrammetric Cameras and Laser Scanners
- Open Standards & Open Source WebMapping
- Integrated use of airborne laser scanning and aerial photogrammetry
- High Density Image Matching
- 3D City Modelling
- SAR for Mapping Applications
- Oblique Aerial Camera Systems for Mapping Purposes
- Terrestrial Point Cloud for Forest Modelling