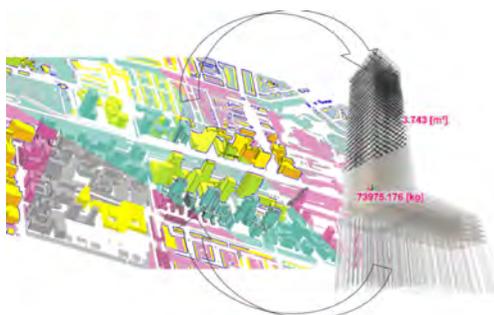


EuroSDR Educational Service 2023



The 21st series of EuroSDR e-learning courses will begin on **February 13-14, 2023** with a **pre-course seminar**, hosted by the University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia. During the seminar, background material of four e-learning courses will be presented by the tutors, participants will meet the tutors and fellow participants, and the learning platform Moodle will be demonstrated. **The four two-week e-learning courses** are scheduled from **March to June 2023**. Each course requires about thirty hours of online study.

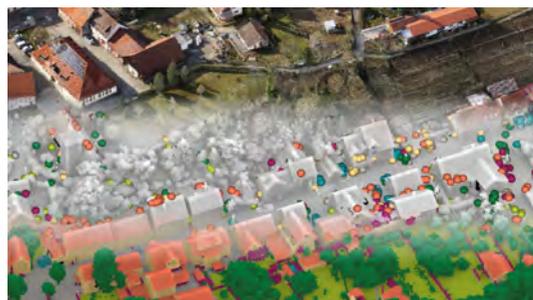


Integration of 3D city models and BIM: GeoBIM

Tutors: Francesca Noardo (Open Geospatial Consortium Europe), Ken Arroyo Ohori (Delft University of Technology)

A lot has been discussed about the integration of geoinformation (i.e. 3D city models) with BIM in the last years. The topic is wide, complex and technically demanding. According to the progress made in the last few years, both on the technical and on the theoretical side, this course will teach the basic knowledge on GeoBIM integration based on the needs of use cases and will show two examples of conversions procedures that support those use cases. After introducing the basics on 3D city models and Building Information Models, students will learn a method to compare two datasets (a 3D city model and a BIM) in order to analyse their integration possibilities and define the actions necessary to get to an integrated dataset, useful for a use case. The students will then practice with two conversion procedures, one Geo to BIM and one BIM to Geo in order to produce suitable data for two specific use cases.

Dates: March 6-17, 2023



3D point cloud classification for mapping purposes

Tutors: Michael Koelle, Norbert Haala (University of Stuttgart), Eleonora Grilli, Fabio Remondino (Fondazione Bruno Kessler)

In recent years, point cloud processing techniques have been extensively investigated in the research community for various applications, and some commercial solutions start to be frequently used in daily practices. In particular, geospatial point cloud classification methods hold an important place, as assigning semantic information to 3D geodata allows for widespread use of such geospatial data.

The course will present the latest developments and solutions for 3D point cloud classification, with particular emphasis on mapping needs, activities and purposes. Starting from traditional yet functional Machine Learning solutions, the course will then focus on more recent Deep Learning methods. Theoretical aspects and practical work will be coupled in order to provide a comprehensive and complete overview of the topic, from the classification of 2.5D DSM to 3D aerial point clouds.

Dates: April 17-28, 2023



Remote sensing and change detection with Sentinel time series data

Tutors: Krištof Oštir, Bujar Fetaj, Matej Račič (University of Ljubljana)

Copernicus, the European Union's earth observation programme, is served by a set of dedicated satellites (the Sentinel families) and contributing missions. Since the launch of Sentinel-1A in 2014, the European Union set in motion a process to place a constellation of almost 20 more satellites in orbit before 2030. The course covers several aspects of processing dense time series data provided by the Sentinel satellites. The focus will be on high-resolution radar (Sentinel-1) and optical (Sentinel-2) data. The first step is to get data, both via classic download via Copernicus Open Access Hub and via Sentinel Hub. The basic processing is done with the open-source programme SNAP and the individual Sentinel Toolboxes. Afterwards, participants will learn how to process time series using Jupyter Notebooks and the Sentinel Hub Statistical API. They query the data, get and store time series as images and data frames (tables), and perform simple machine learning classification.

Dates: May 8-19, 2023



Sustainable Business Models for Open Geospatial Data

Tutors: Joep Crompvoets (KU Leuven), Frédéric Cantat (Institut national de l'information géographique et forestière - IGN)

In the EU Open data directive geospatial and earth observation data are labelled as High Value. As National Mapping and Cadastre Agencies (NMCAs) in Europe are key providers of these types of data and as there is no such thing as a free lunch, NMCAs are enforced to provide geospatial for free but at a cost for themselves.

The course on sustainable business models for open geospatial data will identify and analyse relevant business models that provide open (geospatial) data in a sustainable way. It is the intention that course participants build a sustainable open (geospatial/earth observation) data business model for their organization or an imaginary one.

Dates: June 5-16, 2023

Fees 400 € for pre-course seminar + 1 or 2 courses | 500 € for pre-course seminar + 3 or 4 courses
5 grants for PhD/MSc students covering admission fee are available (see the application form on the EduServ website).

For more information visit
<http://www.eurosd.net/education/current>

