



FRENCH-UZBEKISTAN SUMMER SCHOOL ON REMOTE SENSING

SAMARKAND STATE UNIVERSITY
6 & 12 JULY 2020

Objective

Thanks to the FPACUP¹ European program aiming to support the exploitation of Copernicus data and services, the French Land Data Center Theia organizes in Samarkand a French-Uzbekistan Summer School on Remote Sensing technics, data and products. The objective of this Summer School is to promote the use of Copernicus as well as Theia data and value-added products.

Dissemination and capacity-building using Copernicus as well as Theia data and value-added products.

Experts from French Institutes (INRAE, CNRS, CNES, IGN, IRD, University of Strasbourg) will attend this Remote Sensing Summer School aiming to encourage European-Uzbekistan cooperation on the use of Earth Observation data for continental surfaces, to exchange experiences, and to train Uzbek students in this expertise.

The scientific community and the public stakeholders are the main targeted audience of the action, but the private sector can also benefit from synergies and pooling effects. Beside the offered

training, some research works using Copernicus data and products will be presented. The use of Sentinel remote sensing data (in particular Sentinel-1 and Sentinel-2) and the training of new users in remote sensing will be important points of this summer school.

Four goals

1. Promoting Sentinel remote sensing data and training of new users in remote sensing: downloading data, preprocessing, etc.
2. Teaching to use the remote sensing image processing software OrfeoToolBox (OTB) and QGIS (Open Source softwares for the processing of remote sensing images). OTB and QGIS facilitate the use of remote sensing data: Feature extraction, Calibration, Classification, Segmentation, etc.
3. Promoting Copernicus value-added products and services such as urban and landuse/landcover maps.
4. Sharing lessons learned on added-value products, developed and produced within Theia such as Soil Moisture at Very High Spatial and Temporal Resolutions or Rapid Mapping Service. Theia products and algorithms are complementary to Copernicus products. ■

¹ FPACUP: Framework Partnership Agreement on Copernicus User Uptake

Program

Day 1 >> Course on optical remote sensing: physics of measurement, radiation, satellite imaging.

Day 2 >> Course on radar remote sensing: physics of measurement, radiation, satellite imaging.

Day 3 >> Copernicus image data training (in particular S1 and S2). Download and preprocessing of Sentinel-2 (optical) and Sentinel-1 (radar) images with radiometric calibration of radar images and atmospheric correction of optical images.

Days 4 & 5 >> Practical work on image processing: import/export, visualization, contrast, digitizing/

vectorising, segmentation, classification, create map layout using open access software such as QGIS and OTB.

Day 6 >> Presentation of Global Copernicus Land added-value products

Day 7 >> Parallel tutorial sessions (up to 5). each focusing on a given theme (Landuse/Landcover mapping using Sentinel-1/2 images, Estimation of soil moisture in agricultural areas using Sentinel-1/2 images, Disaster Rapid Mapping or Height estimation of lakes and rivers by altimetry, Drought estimation and mapping).

Targeted Audience

60 to 80 people ideally reparted as following: 50% of academics (professors and students), 25% of public actors (managers or engineers from ministries) and 25% of private actors.

Furthermore, the summer school organized will be open to neighboring countries. aiming to welcome at least ten people from Uzbekistan neighboring countries.

French Presenters

- » **Dr. Nicolas BAGHDADI & Dr. Hassan BAZZI**, French National Research Institute for Agriculture, Food and Environment (INRAE)
- » **Dr Christina CORBANE**, European Commission, Joint Research Centre Space, Security and Migration (Ispra)
- » **Dr. Clément MALLET**, French National Geographic Institute (IGN)
- » **Dr. Hervé YÉSOU**, Rapid Mapping Service of ICube Laboratory, University of Strasbourg
- » **Dr. Mehrez ZRIBI**, French National Center for Scientific Research (CNRS).
- » **Dr. Michel LE PAGE**, French Institute of Research for Development (IRD)
- » **Dr. Arnaud SELLÉ**, French Space Agency (CNES)

Organizers

- » **Nicolas BAGHDADI**
INRAE, Theia, TETIS, France
- » **Muhtor NASIROV**
Samarkand State University, Uzbekistan

Sponsors



The FPCUP European program supports this initiative as pursuing the six following Copernicus objectives:

1. Increase socio-economic benefits by promoting the use of Earth observation in applications and services;
2. Foster the development of a competitive European space and services industry ;
3. Increase demand for Copernicus data and Copernicus information
4. Promote the use of Copernicus data and Copernicus information by institutions and bodies, international organisations and European, national, regional or local authorities,
5. Increase market penetration, including the expansion of the existing markets and creation of new markets and competitiveness of the European downstream operators;
6. Demonstrate European added value.

www.copernicus.eu



Created in 2012 with the support of 12 French research organizations, Theia, the French consortium for continental surfaces data, pursues four main objectives:

1. Promoting and facilitating access to spatial Earth observation data;
2. Developing value-added products for the scientific community and public stakeholders;
3. Networking scientists and users;
4. Promoting French research on a European and international scale.

www.theia-land.fr