RawMatCop Academy

Unlock Earth Observation Data to Enhance your Professional Skills

rawmatcop.eitrawmaterials.eu

Credit: European Union, Copernicus Sentinel-2 imagery

Course Details

To attain the highest sustainability standards within the raw materials sector, innovative breakthrough programmes are increasingly turning to earth observation technologies to achieve a safe and sustainable supply of raw materials. The RawMatCop course combines expert lectures from the industrial and the research communities with hands-on work using case studies to demonstrate Copernicus applications. Participants will learn how Copernicus can make securing primary and secondary raw materials more cost-effective and safer, and can help comply with environmental legislation.

Course Topics

- Introduction to Copernicus and Earth Observation data

- Basics of imaging technology, optical and active remote sensing in raw materials

- Optimised ways to monitor environmental impact and increase safety

- Copernicus' tools to tackle the industrial and societal challenges of raw materials in Europe

Case Studies & Exercises

- Mineral exploration and mapping of deposits

- Monitoring of mining activities including waste management

- Environmental impact monitoring

- Water detection

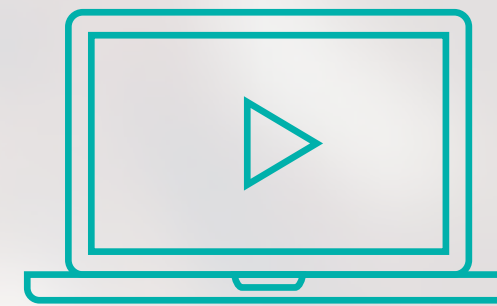Credit: European Union, Copernicus Sentinel-2 imagery

Course Details

Entrepreneurs and industry professionals from the exploration, mining and processing sectors who are looking for innovative techniques to monitor and manage raw materials in their organisation will benefit from the course. We also welcome geoscientists, development and environmental experts, researchers, master and doctoral students working in the raw materials sector as well as remote sensing practitioners interested in learning raw materials applications.
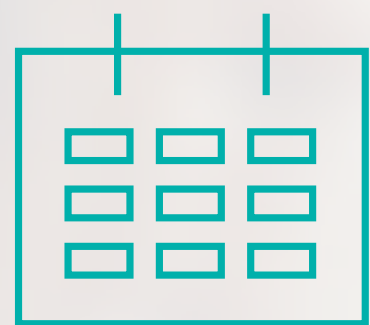
4-DAY COURSE

ONLINE

CERTIFIED COURSE

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Course Content

DAY 1

Keynote Speaker

- Raw materials challenges and applications of Earth Observation in the sector
- Accessing Sentinel data using Copernicus Open Hub
- Selection of the region of interest (ROI)
- Exploring Sentinel-2 products for selected ROI
- Downloading selected product(s)

Exploring Sentinel-2 product in SNAP

- Opening and displaying the product
- Creating a subset and resample the product
- Exploring spectral information

Algebraic operations and spectral indices

- Detecting water, vegetation and bare soil in a mining setting
- Identifying iron bearing minerals

DAY 2

Keynote Speaker

- Applications of Copernicus and satellite data in raw materials

Classification and Clustering

- Unsupervised clustering methods (e.g. K-Means, Self-Organising Maps)
- Supervised classification (e.g. Random Forest)

Spectral Indices

- Mineral mapping using spectral angle mapper (SAM)

Course Content

DAY 3

Keynote Speaker

- Successful case study in the use of satellite data in raw materials

SAR
Active vs Passive Sensors

- Sentinel-1 imaging
- Amplitude and phase

Radar Distortions

- Signal distortions
- Geometric distortions

Radar-target Interaction

- Radar bands
- Polarimetry
- Backscattering

Radar Image Exercise

- Water detection
- Graph builder

DAY 4

Keynote Speaker

- Practical application of Sentinel 1 data in raw materials – TBC
- Combination of Sentinel-1 and Sentinel-2 data
- Merging Sentinel 1 and Sentinel 2 scenes into one data product
- Added value for monitoring tasks

Assessment and Wrap-up

- Simple online test to assess achievement of learning objectives
- Final Q&A
- Feedback session

Meet our Experts

Credit: European Union, Copernicus Sentinel-2 imagery

Prof. Thorkild M. Rasmussen
Exploration Geophysics at Luleå University of Technology, Expert in Mineral Exploration, Airborne Geophysical and Satellite Data

Dr. Sara Kasmaeeyazdi
Mining Engineer and Post-Doc Researcher at University of Bologna

Dr. Louis Andreani
Independent Consultant in Remote Sensing

Dr. Christian Köhler
Institute of Mine Surveying and Geodesy at TU Bergakademie Freiberg

Dr. Elsy Ibrahim
RawMatCop Researcher at University of Liège and Independent Consultant in the Earth Observation sector (NOVOJY SPRL)

Dr. Ignacio Marzán
Researcher at CSIC (Spanish National Research Council)

See what other participants say about the course

I found that the course was very rich in content and I also met great people with different backgrounds. The biggest takeaway from participating was discovering the huge potential for Copernicus applications waiting for exploitation. It has certainly been a pleasure to be one of the participants in the RawMatCop Academy.

Dr. Pavlos Tyrologou

External Relations Officer at the European Federation of Geologists

I decided to apply to the RawMatCop Academy because Copernicus was identified by our company's "Technology Observatory" as a potentially disruptive technology for our target industries over the next years. The RawMatCop Academy provided me with a good understanding of the potential uses of Copernicus-derived technology for business operations. We are now using the knowledge acquired to demonstrate to clients the great potential of combining IoT with Copernicus data.

Dr. Andrea Bartoli

Director Of Business Development at Worldsensing

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There is a universe of untapped data that can transform your raw materials career, organisation, and help build a greener, more resilient Europe!

Enroll Here

For more information, please contact rawmatcop@eitrawmaterials.eu

RawMatCop
Europe's eye on raw materials

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ACADEMY