

## Winter School on Sustainable land management and Earth Critical Zone (ECZ): a journey from ECZ characterization, modelling and Geospatial Decision Support Systems

 **14-18 February 2022**

 *CRISP and Department of Agriculture Università di Napoli Federico II, Royal Palace of Portici (Napoli), Italy*

### BACKGROUND

The Earth's Critical Zone (ECZ) has been defined as the "heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air, and living organisms regulate the natural habitat and determine the availability of life-sustaining resources" (National Research Council, 2001). These days is becoming evident that challenging many current environmental and agriculture challenges indeed require a very strong integration of scientific domains, and this integration is well represented by the ECZ concept. Unfortunately, currently most of European universities do not offer training on this specific interdisciplinary ECZ domain, thus this workshop can play a special role for PhD students and young scientists.

### AIMS

The aim of the winter school is to develop a basic knowledge about (i) understanding and processing ECZ data as acquired by field observation, lab analysis and remote sensing techniques, Raster and vector data, Datacube, (ii) understanding and processing ECZ modelling such as water flows and pollutants transport in the vadose zone-soil-plant-atmosphere system, crop growth, land take, etc. and (iii) the use of the outcoming resulting data to be employed for developing WEBGIS or S-DSS applications.

### PROGRAMME OUTLINE

The winter school is spread over 5 days, divided in morning sessions (09-13h) focusing more on theory and a hands-on afternoon sessions (14.30-18h). A more detailed programme will be shared with you after the selection process is closed.

Day	Content
1	<b>Morning</b> Introduction to the course: (i) housekeeping and support to students, (ii) the rationale behind this Earth Critical Zone (ECZ) course, (iii) data-modelling-GUI pipeline. Let's start from the end: hands-on session on the use of Geospatial tools produced after the LANDSUPPORT Horizon 2020 project <b>Afternoon</b> Geospatial ECZ data on soil, geology, land use from characterization to data handling and processing
2	<b>Morning</b> Geospatial ECZ large dataset on climate, EO from characterization to data handling and processing <b>Afternoon:</b> Hands-on over the content of the morning session
3	<b>Morning</b> ECZ modelling: an overview about the main ECZ modelling, focus on Vadose zone-Soil-Plant-Atmosphere modelling <b>Afternoon</b> Hands-on over the content of the morning session
4	<b>Morning</b> ECZ Geospatial modelling (Geostatistics, Machine learning, etc.) <b>Afternoon</b> Hands-on over the content of the morning session
5	<b>Morning</b> ECZ visualization: an overview about WEBGIS and Geospatial-DSS systems <b>Afternoon</b> Hands-on over the content of the morning session with the production of prototypes tools



Winter School on  
Sustainable land management and Earth Critical Zone (ECZ):  
a journey from ECZ characterization, modelling and Geospatial  
Decision Support Systems

 **14-18 February 2022**

 *CRISP and Department  
of Agriculture Università di Napoli Federico II,  
Royal Palace of Portici (Napoli), Italy*

Please note that the workshop will be held **in person** but a hybrid system will be available in case COVID 19 will not enable students and lecturers to travel.

## REGISTRATION

The winter school is dedicated in particular to PhD students and young scientists, but we welcome everyone that is interested in the topic.

To ensure the best learning experience participation is limited to 30 participants.

If you wish to participate, please **register by 7 January 2022** by filling in [this form](#) and attaching your CV (max. 2 pages). The results of the selection process on the base of the candidates' CV and the frequency of participation (priority will be given to participants that will attend all 5 days) will be communicated to you by **14 January 2022**. If you encounter problems with the registration please contact us at [luciana.minieri@unina.it](mailto:luciana.minieri@unina.it)

No cost of registration will be required.

## POST-EVENT

An English-language online archive/report will be generated that will be freely available to the HE geoscience teaching community.

Looking forward to seeing you in Portici!

Sincerely,

The organising committee:

**CRISP - Interdepartmental Research Centre of University of Napoli Federico II, Italy  
(LEAD ORGANISER)**

Fabio Terribile  
Giuliano Langella

**CNR-ISAFOM - National Research Council, Institute for Mediterranean Agricultural  
and Forest Systems**

Angelo Basile

**BOKU - Institute for Geoinformatics, University of Vienna, Austria**

Francesco Vuolo

**Institute for Geoinformatics, University of Muenster, Germany**

Edzer Pebesma

**IFAPA Centro Alameda del Obispo, Spain**

Karl Vanderlinden Herregods