

Joint ICTP-IAEA Workshop on the Use of Cosmic Ray Neutron Sensor for Soil Moisture Management and Validation of Remote Sensing Soil Moisture Maps



10, 12, 14, 17, 19 May 2021
An ICTP - IAEA Virtual Meeting
Trieste, Italy

Further information:
<http://indico.ictp.it/event/9562/>
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Cosmic Ray Neutron Sensor (CRNS) has potential for soil moisture monitoring of agricultural land. The results can be used for irrigation scheduling and extreme weather events forecasting. Remote sensing can extrapolate the acquired soil moisture data to larger areas.

Director:

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Description:

The increasing demand for food production due to population increase and climatic hazards requires improving land management practices. One of major demands is to support the decision processes by reliable and representative information on soil moisture, which is difficult to obtain by conventional soil moisture measurements. CRNS is a suitable technique for this purpose since it is non-invasive and has a large footprint overcoming the problem of soil moisture spatial microvariability. The data acquired from CRNS measurements can be used for hydrological modelling, validation remote sensing soil moisture products and practical agricultural and environmental applications such as improving agricultural water use efficiency, irrigation scheduling, drought management and flood forecast.

Topics:

- Basic principles of soil moisture measurements using Cosmic Ray Neutron Sensor (CRNS)
- Overview and demonstration of data download and data processing
- CRNS data products: time series filter, root zone moisture extrapolation and rainfall estimation
- Spatial mapping with CRNS
- Use of CRNS data for irrigation agriculture
- Use of CRNS for supporting agricultural land management
- Use of CRNS for supporting drought monitoring
- Added value of combining CRNS and point scale soil moisture
- Overview of remote sensing soil moisture data products
- Use of CRNS data for validation of remote sensing soil moisture products
- Applications of remote sensing soil moisture data products
- Factors affecting the accuracy of cosmic-ray neutron counts and estimated soil moisture
- Efforts to a harmonized data processing approach for cosmic-ray neutron sensors
- The use of cosmic-ray neutron sensors in hydrometeorology

Local Organiser:

P. CREMINELLI, ICTP, Italy

Speakers:

G. BARONI, Alma Mater Studiorum - University of Bologna, Italy
T. FRANZ, University of Nebraska-Lincoln, USA
R. ROSOLEM, University of Bristol, UK
W. WAGNER, Vienna University of Technology, Austria

How to apply:

Online application:
<http://indico.ictp.it/event/9562/>

Female scientists are encouraged to apply.

Registration:

There is no registration fee.

Deadline:

28 April 2021

