WG4 SENSECO

November 18 -21 , 2019
CETAL – INFLPR, Măgurele, România

WG4&WG1 - Training School

"Traceability Chains, Uncertainty Propagation and Calibration/Validation"

Location: Center for Advanced Laser Technologies – INFLPR, Magurele, Romania

Dates: November 18-21th, 2019

This workshop aims to provide a guidance on 1) laboratory based radiometric calibration and the corresponding uncertainty propagation equation, applied to field spectrometers, and 2) uncertainty/variability propagation of field measurements to top of the canopy radiances using radiative transfer models. The training school will bring together both experts and young scientists working with field spectrometers.

Registration:
Application with abstract and CV to participate in the workshop must be emailed to the workshop organisers – Laura MIHAI (laura.mihai@inflpr.ro), Andreas HUENI (ahueni@geo.uzh.ch), Javier PACHECO-LABRADOR (jpacheco@bgc-jena.mpg.de) before **1 September 2019**. The workshop is limited to 8 participants and is not open for the public at large.
The accomodation and travel expenses will be covered by COST Action ES1309 in the limit of 800 euro maximum/ participant, respecting the COST rules for travel support.
Eligibility criteria: Young PhD-students and researchers who have a proven background in field spectroscopy and/or vegetation monitoring using spectrometers. Programming skills (Python, Matlab or R) are recommended.
Trainers:
Andreas HUENI, researcher at the Remote Sensing Laboratories, Dept. of Geography, University of Zurich, Switzerland / Leader of SENSECO - WG4
Laura MIHAI, researcher at the National Institute for Laser, Plasma and Radiation Physics, Romania / Vice-leader of SENSECO -WG4
Javier PACHECO- LABRADOR, researcher at Max-Planck-Institute, Jena, Germany / vice-leader of SENSECO - WG1
Simon TRIM, University of Zurich, Switzerland

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Important dates:
Application deadline: **1 September 2019**
Notification of application: **15 September 2019**

PROGRAM

The workshop is organized in two days of radiometric calibration and determining the measurement equation using different methods hands-on sessions and two days of propagation of measurement uncertainties and parameters variability from leaf to top of the canopy scale, as following:

Day 1 (November, 18): 09^{00} - 18^{00}
Welcome to CETAL and introduction to SENSECO and its objectives related to this training school
Theoretical approach
- Key concepts for uncertainty analysis

Coffee break
- Introduction to propagation law of uncertainties

Lunch
- General steps for uncertainty budget
- „Steps 1-5 from uncertainty budget"

Coffee break
- „Steps 5-8 from uncertainty budget"

Day 2 (November, 19):
Case of study: spectrometer system for field measurements
- Hands-on for system laboratory radiometric calibration – radiance calibration

Coffee break
- Hands-on for system laboratory radiometric calibration – irradiance calibration

Lunch
- Describing the traceability chain for the case of study

Writing down the calculation equations *Coffee break*
- Considering the sources of uncertainty

Day 3(November, 19): 09^{00} - 18^{00}

- Steps 4-6 – Determining the formal relationships for the case of study

Coffee break

- Steps 7-8 – Uncertainties propagation for the case of study

Lunch

- Introduction to RTM and LUT generation

Coffee break

- Uncertainty propagation in RTMs

Day 4 (November, 20): 09^{00} - 14^{00}

- Instrumental uncertainty propagation from leaves to canopy with RTMs

Coffee break

- Parameters uncertainty propagation from leaves to canopy with RTMs
- 12-12:30: Conclusions and final remarks

Lunch