Summary of the EO-SENSE Summer School:
"sEnsing Of vegetation traitS in timE aNd SpacE (EO-SENSE)"

The joint SENSECO summer school was originally planned to be held in Plovdiv, Bulgaria in July 2020. Due to the outbreak of the Coronavirus disease (COVID-19) pandemic, it was first postponed and then decided to be held online on September 23 and 24, 2020.
This brought the advantage of inviting a larger number of participants: instead of the 25 candidates who were initially accepted, we could invite 54 PhDs and master students to attend diverse lectures and tutorials virtually using Zoom.

The event was opened by the main summer school coordinator Enrico Tomellieri from the Free University of Bolzano (Italy). Enrico nicely summarized the difficult situation that we are facing and gave the best possible start to this fulfilling two-day event.

During the first day, mainly lectures with topics ranging from vegetation traits retrieval, over time-series analysis and detection of stress were held. These included presentations from Katja Berger (Ludwig-Maximilians-University of Munich), Shari van Wittenberghe (University of Valencia, Spain), Clement Atzberger (BOKU, Vienna, Austria), Helge Aasen (ETH Zurich, Switzerland), Miriam Machwitz and Martin Schlerf (Luxembourg Institute of Science and Technology, Luxembourg), and Stefan Paulus (University of Goettingen, Germany) on the following topics:

- Retrieval methods for vegetation traits and application to imaging spectroscopy
- Measuring and interpreting dynamical photosynthesis-related traits: PRIU and solar-induced fluorescence
- Introduction to time series analysis of vegetation data & phenocams for field-phenotyping
- Vegetation stress detection: How to interpret thermal, hyperspectral and 3D & structure from motion remote sensing data, with examples for stress detection: Water stress on different crops, diseases in viticulture, greenhouse experiments on ray and sugar beet

The second day was more focussing on practical applications, with lectures and tutorials about spectroradiometric measurements and selected remote-sensing toolboxes, provided by Andreas Hueni, Simon Trim and Carmen Meiller from UZH Zurich, Matthias Wocher from Ludwig-Maximilians-University of Munich, and Jochem Verrelst and Santiago Belda from the University of Valencia:

- The basics of Spectroradiometers: How Spectrometers work. Calibration. Sources of instrument uncertainty
- Field Spectroscopy: sources of operator and protocol related uncertainties
- EnMAP-Box Agri-tools
- ARTMO: Use of RTMs and retrieval toolboxes
- Tutorial DATimeS Time Series toolbox

The trainees also had the opportunity to take the floor during the event. They briefly introduced themselves and their recent or planned research topics and activities.

At the end of both days a vital discussion session nicely rounded up the presented topics and everyone had the opportunity to comment, raise questions and establish connections with lecturers and other participants.

All in all, despite the difficult situation related to the online form of the event, the summer school was considered a success. It was also the kick-off of a new movement within the action: the Young-SENSECO community, aiming at stronger interplay between young scientists, which is so strongly limited due to the pandemic situation.

All teaching material was made available to the participants via password-protected space on the SENSECO homepage. Furthermore, the tutorials were recorded (EnMAP-Box, ARTMO, DATimeS) and will be made available via the SENSECO YouTube channel.

We hope to see you soon.
Stay healthy!