

➤ **Title of the workshop:** *Applications of Optical Remote Sensing: from Data to Information*

➤ **Names, affiliations, contact information and short biographies of the workshop organizers:**

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Enrico, Borgogno-Mondino

Full professor in Geomatics and Remote Sensing at the Department of Agricultural, Forest and Food Sciences (DISAFA), GEO4Agri DISAFA Lab, Università degli Studi di Torino, Largo Paolo Braccini 2, 10095 Grugliasco, Italy; <https://orcid.org/0000-0003-4570-8013>
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Short Bio

Since 2023 Full Professor in Geomatics at the Dept. of Agricultural, Forest and Food Sciences (DISAFA) - University of Torino. 1996 Master Degree in Environmental Engineering by Politecnico di Torino (Italy); in 2004 Ph.D. in Geodesy and Geomatics by Politecnico di Milano (Italy).

Since 2002 lecturer in BSc, MS, post-graduate masters and PhD courses. Main research topics are related to agro-forestry application of Geomatics, included optical and SAR remote sensing, digital photogrammetry, LiDAR, GIS and survey. Author of more than 150 papers in National and International Scientific Proceedings, Journals and Books. Editorial board member in MDPI Remote Sensing, MDPI Agronomy, MDPI Geomatics, Frontiers in Forests, Frontiers in Agronomy, ASITA Conference Proceedings (CCIS Springer collection).

Guest editor of Special Issues: MDPI Land, MDPI Remote Sensing, Frontiers in Forests and Global Change.

President of the Italian Society of Remote Sensing since 2023.

President of the ASITA Scientific Council and Vice-president of the ASITA Board since 2022. Scientific Responsible of various research projects since 2007 and tutor of more than 40 BS, MS and PhD theses since 2010.

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Riccardo Orusa

Director in Chief S.C. Valle d'Aosta and CeRMAS (National Reference Centre Wildlife Diseases), Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Localita' Amerique 7 G, 11020 Quart, Italy <https://orcid.org/0000-0002-9027-164>

Short Bio

Since 2000, Senior Veterinary Officer and Head of National Reference Center Wildlife Diseases, Director of S.C. Aosta Valley Laboratory of Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta with management and scientific responsibilities, including coordination of activities, responsibility of human resources, structures and global research management.

Lecturer by several Italian Universities like Parma, Milano, Padova, Teramo and Venezia Ca' Foscari teaching topics related to wildlife diseases.

He got several courses of specialization and masters in Veterinary Medicine and One Health matter at the Torino University.

Author of more than 150 papers in Journals, Proceedings and Reports. Presenter of more than 100 contributions in National and International Projects and Conferences.

Member of various International and National Scientific Societies, reviewer for different International Journals and participant in international Working Groups dealing with Wild Animal Diseases and One Health.

➤ **Outline the workshop purpose, goals, and expected results**

The workshop is aimed at presenting ordinary approaches to optical Earth Observation (EO) data processing for: (i) mapping in the space and time domain climate change effects on vegetation; (ii) landscape zoning with respect to environmental predictors mostly (but not only) derived from EO data; (iii) designing and representing space dependent functions possibly related to suitability/risk requirements by combining EO data with ground observations.

To analyse vegetation response to climate change an overview will be offered about the interpretation of temporal profiles from time series of spectral indices maps (e.g. NDVI, NBR, etc.), included phenological metrics extraction and trend analysis.

Zonation will be majorly considered with reference to unsupervised classification approaches (clustering), highlighting the potentialities of the joint adoption of EO-derived predictors and auxiliary ones from other sources (e.g. DTM, prevalence, meteorological data, etc.).

As far as spatially varying (wall-to-wall) functions useful for mapping suitability/risk instances some basic approaches to function design and data integration will be considered.

All topics will be exemplified with reference to EO data and/or Products from open/free global archives, with special concerns about EU Copernicus Products/Services and USGS MODIS and Landsat archives. All theoretical concepts will be exemplified with reference to open software (SNAP, SAGA GIS, QGIS, RStudio).

➤ **Specify the background and skills that attendees should have to attend the workshop**

It is warmly suggested for people having a basic knowledge of optical remote sensing in terms of spectral indices, image time series, raster data processing and image classification.

➤ **Prior history of this workshop, if any, including venues, dates, and approximate attendance number**

This workshop was never offered before in the veterinary sector.

Workshop specification

- **Conference preference: pre or post conference:** Pre conference
- **Proposed workshop duration (days):** 1 day
- **Number of attendees (minimum and maximum):** 10-45
- **Suggested fee for the participants:**
 - **Regular:** 80 €/person
 - **Students:** 50 €/person
- **Schedule**

Slot	18th or 23rd September 2023	Lecturer
9-11	<ul style="list-style-type: none">✚ Exploring vegetation phenology – METRICS✚ Mapping climate change effects through remote sensing – Time Series Analysis and trend modelling	Prof. Enrico Borgogno-Mondino, Ph.D. (University of Torino)
11-13	<ul style="list-style-type: none">✚ Landscape Zonation (in the space and time domain)	Dott. Tommaso Orusa (University of Torino)
14-16	<ul style="list-style-type: none">✚ Spatially Distributed Functions (suitability, risk, etc.)	Prof. Enrico Borgogno-Mondino, Ph.D. (University of Torino)
16-18	<ul style="list-style-type: none">✚ Remote Sensing Applied Cases in Veterinary: Evidences and Perspective towards a One Health	dott. Annalisa Viani e dott. Riccardo Orusa (National Reference Center for Wildlife Diseases and IZS PLV SC Aosta)

Materials provided by the facilitators

Participants will be provided with a pre-workshop checklist of OPEN/FREE software to download and install on their laptops.

Participants will receive the slides used to accomplish the theoretical issues. All example operated by software will be recorded and videos made available as tutorials some days after the course.

Example data will be provided by lecturers.

NOTES: the date of workshop can be set up depending on organizers needs.