

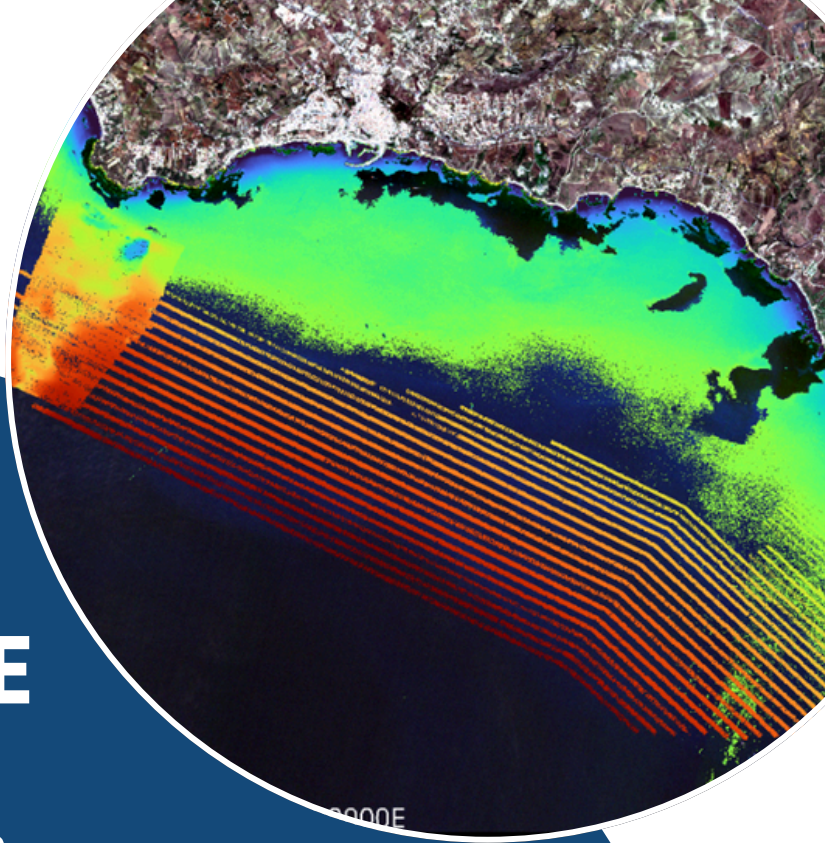


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Dipartimento di
Ingegneria Civile
e Ambientale

INDICEE

**International Doctorate in
Civil and Environmental Engineering**



SEMINAR

OBSERVING THE EVOLVING ENVIRONMENT: REMOTE SENSING AND EARTH SURFACE PROCESSES

Antonino Maltese

University of Palermo



THURSDAY

04 JUNE 2026



TIME

9.30 am - 1.30pm



LOCATION

Room 173 S.Marta



For info

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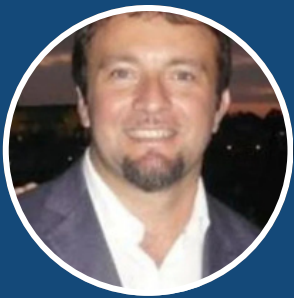
The seminar “Observing the Evolving Environment: Remote Sensing and Earth Surface Processes” explores the contribution of Earth Observation techniques to the study of dynamic processes shaping terrestrial and coastal environments, highlighting the integration of multispectral optical and radar data.

The first part introduces the principles of spectroradiometry, the physical foundation of remote sensing, with particular emphasis on the interaction between electromagnetic radiation and natural surfaces. Through examples of in situ measurements and the spectral signatures of water, soil, and vegetation, the seminar provides the interpretative basis for the analysis of satellite data.

The seminar then focuses on the marine–coastal domain, where shoreline evolution processes are analyzed using time series of satellite imagery, demonstrating how spatial and temporal patterns of erosion and accretion can be quantified over multi-decadal timescales. In this context, advanced applications are presented, including satellite-derived bathymetry, which enables the reconstruction of shallow-water seafloor morphology, and the classification of submerged vegetation, which supports coastal habitat monitoring through multivariate approaches.

Finally, within the terrestrial domain, the seminar addresses gravitational processes, with particular attention to landslide dating through the integrated analysis of time series of vegetation indices (e.g., NDVI) and radar backscattering (SAR) signals. It is shown how anomalies in temporal trends can be used to detect and constrain disturbance events, providing quantitative support for geomorphological monitoring.

Overall, the seminar highlights how an integrated approach, grounded in physical principles and based on the combined use of optical and radar data, enables the observation and interpretation of the evolution of Earth surface processes.



Antonino Maltese
University of Palermo

Antonino Maltese received his Ph.D. in Hydraulic and Environmental Engineering from the University of Palermo (Italy) in 2008, where he is currently an Assistant Professor of Remote Sensing and Geographic Information Systems (scientific disciplinary sector: Geomatics). He has served as Conference Chair and Editor of the Proceedings of the “Remote Sensing for Agriculture, Ecosystems, and Hydrology” Conference since 2009. In 2015, he received the Tison Award from IAHS for the paper “Critical Analysis of Thermal Inertia Approaches for Surface Soil.