

CaSEs seminars

***Transdisciplinary approaches to human culture***

Tuesday, April 28th

17.00-18.00

Room 24.S14

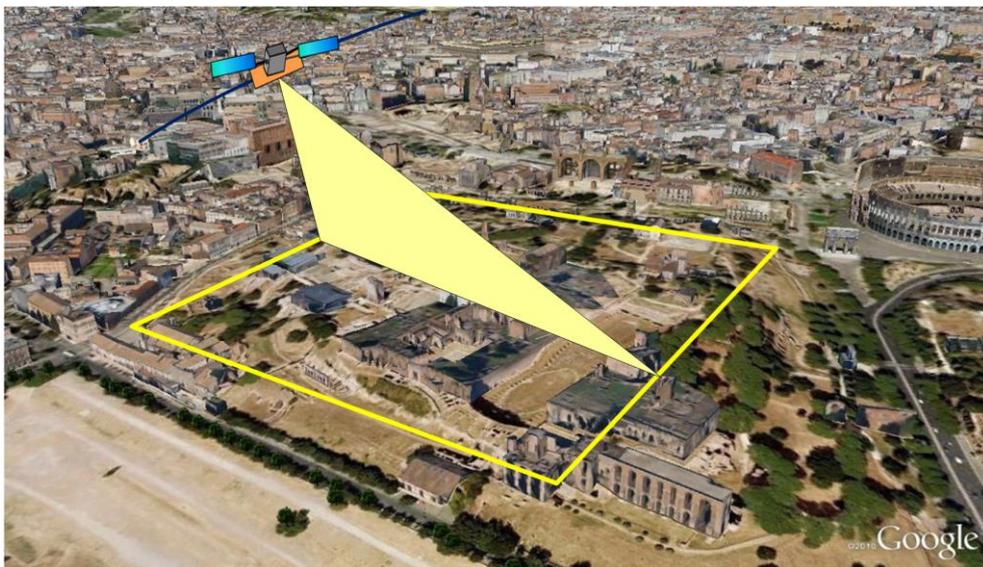
Building Mercè Rodoreda 24

Pompeu Fabra University (Ciutadella Campus)

***SAR and InSAR to prospect and preserve cultural landscapes and heritage sites***

Deodato Tapete

*University of Durham*



The earliest experiences of archaeological and paleoenvironmental research using Synthetic Aperture Radar (SAR) imagery date back to 1980s, and proved the great potential of this branch of remote sensing for archaeology. Since then significant improvements and discoveries have been done using SAR and, later, Interferometric SAR (InSAR) techniques, i.e. via multi-temporal and multi-interferogram analysis of SAR time series exploiting the phase content of each image pixel. This process was mainly led by the increasing availability of SAR space missions acquiring routinely over the Earth's surface, alongside the development of algorithms and processing chains that provide useful outputs to underpin bespoke activities of prospection and monitoring.

This talk starts with a retrospective look at the history of SAR and InSAR applied to archaeology, and provides a comprehensive overview of the properties of radar that explain the benefits achievable if this imagery is used together and complementarily to optical and multi-spectral satellite technologies, as well as jointly with ground investigations.

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Demonstration of how SAR works and can be used in archaeology and heritage preservation is provided via the presentation of impact case studies from archaeological research and applications carried out in the last years in: Southern Peru, over the Nasca Civilization region; the central archaeological area, historic centre and suburban aqueduct systems of the city of Rome in Italy; and Syrian sites in areas of conflict.

The above case studies will give a representation of the variety of advantages and shortcomings of SAR and InSAR applied to archaeology and heritage conservation, and will provide context to look at the perspectives we have in the current era of high resolution SAR missions (e.g., TerraSAR-X and COSMO-SkyMed) and Sentinels constellation.

This series of seminars is organised by **CaSEs** (Complexity and Socio-Ecological Dynamics), a research group of the Department of Humanities, University Pompeu Fabra, Barcelona, Spain

<http://cases.upf.edu>