

CaSEs seminars Transdisciplinary approaches to human culture

Tuesday, March 17th 17.00-18.00 Seminar Room, 1st floor Institución Milá y Fontanals (IMF-CSIC) C/Egipciaques, 15, Barcelona 08001

Integration of remote sensing methods for the palaeo-environmental study of alluvial plains



Andrea Ninfo University of Padua

Alluvial plains have always attracted humans mainly for the richness of soils and the availability of water. From a geomorphological perspective, these environments are characterized by complex polycyclic deposits and low-relief landforms. Alluvial plain landscapes are commonly built over a long period of time via repeated depositional processes over large areas. These 'conservative' contexts often present specific interpretative difficulties, linked to their very low relief that is often visually undetectable and difficult to map. Furthermore, processes such as agriculture or development may further mask topographic or soil variability, further complicating the interpretation of these landscapes. To circumvent these difficulties, remote sensing methodologies can play an important part in reconstructing alluvial paleo-landscapes thanks to synoptic vision and the ability to measure reflectivity beyond the visible spectrum.

Two key studies will be presented: one from Central Asia and one from Italy. The first focuses on the geomorphology of the Murghab terminal fan in Turkmenistan in relation to ancient settlement distribution; the second on the paleo-environmental reconstruction of the lower margin of the Venentian-Friulian plain that borders the Northern Adriatic coast. Remote sensing methodologies include the integration of optical images and DEMs, the acquisition of aerial images for detecting crop-marks, and multispectral high resolution and dense LiDAR datasets centered on the city of Padua and surrounding plain. The efficacy of different spatial and spectral resolution data will be discussed in relation to the obtained results.

This series of seminars is organised by **CaSEs** (Complexity and Socio-Ecological Dynamics – www.cases.upf.edu) a research group of the Department of Humanities, University Pompeu Fabra, and the Institución Milá y Fontanals (IMF-CSIC) Barcelona, Spain