ABSTRACT SUBMISSION

Automated remote sensing mapping of vulnerable archaeological soilscapes in the Lebanese Bekka Valleya geoarchaeological approach

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Abstract

This paper presents the scopes of the project SIGNATURE working in the Mediterranean landscapes of the Levant, with a particular focus on the Bekaa Valley of Lebanon. This ongoing Marie Sk?odowska-Curie fellowship integrates multi-source geospatial datasets in a two-fold remote approach: 1) Historical morphodynamics, to reveal past hydro-geomorphological landforms and short to long-term land use and land cover trends and 2) Automated site detection methods using machine-learning implementations. We combine archaeological and geospatial legacy data (i.e. from grey literature to historical satellite photographs) and multispectral and radar satellite data from distinct Earth Observation data missions (Sentinel series, Planet, TanDEM-X).

Through millennia, the Bekaa has been attractive to past populations that benefited from several of its valley orography, the alternate of pasture and agricultural lands and the availability of water sources. Valley margins have traditionally met the borderlands of distinct territorial and political entities ranging from the Roman and Ottoman empires to the colonial powers. Instability in the region has severely transformed this landscape. This paper shows results from our desk-based assessment on how the Bekaa Valley offers an optimal scenario to investigate endangered cultural soilscapes through accurate detection, mapping, and prediction of the location of vulnerable archaeological mounds and landforms.

Keywords

Levant, Bekaa Valley, remote sensing, machine learning, legacy data

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