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"CLIMA" – Cultural Landscape risk Identification, Management and Assessment: An integrated approach in the Eastern Mediterranean Region by the ERATOSTHENES Research Centre

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This paper presents the CLIMA project, which is co-funded by JPI. The project's consortium is coordinated by the University of Tuscia from Italy and consists of the University of Stirling from United Kingdom, Cyprus University of Technology from Cyprus, ALMA Sistemi SAS from Italy and University of Copenhagen from Denmark.

CLIMA promotes highly interdisciplinary research, based on a soil-oriented approach, to develop effective tools for the authorities responsible for cultural landscape preservation. The main aim of the project is the development and the implementation of a WebGIS based multi-task platform that integrates data processing chains using various Earth Observation methods (optical, multispectral, SAR) with ground-based remote sensing data (magnetometry, GPR, mobile gamma spectrometry). The integration of such technologies can ensure, on a spatial scale, the mapping, diagnostic and monitoring purpose of archaeological Cultural Heritage, for the identification of changes due to climate and environmental changes as well as anthropogenic pressures.

In the framework of CLIMA project, the ERATOSTHENES Research Centre developed processing chains for monitoring soil erosion and land movements, phenomena affecting significantly Cultural Heritage in Cyprus and the Eastern Mediterranean region. The case study selected in Cyprus is the Greek-Roman town of Nea Paphos and the historical center of Paphos, in the dry East Mediterranean area, both listed as UNESCO World Heritage sites. The processing chain for soil erosion detection includes the application of RUSLE/USLE methodology for the evaluation of risks by soil erosion caused by water through the estimation of the volume of soil loss per year. For monitoring land movements and deformations, InSAR techniques are applied, using Sentinel-1 SAR acquisitions that can allow us to detect the evolution of lateral and vertical surface land movements over time.