

NAME OF THE PROJECT: REMOTE SENSING TECHNIQUES FOR ARCHAEOLOGY

SHORT NAME: RESEARCH

PROGRAM: EXCELLENT SCIENCE - MARIE SKŁODOWSKA-CURIE ACTIONS

STARTED AT: 01/11/2008

DURATION: 5 YEARS

ALL ABOUT THE PROJECT: <https://www.re-se-arch.eu/>



SUMMARY:

Europe has rich and diverse cultural heritage resources, which include urban and rural landscapes, comprising standing monuments and archaeological deposits. Nowadays **Europe's Cultural Heritage (CH)** is at risk, endangered by environmental processes and anthropogenic pressures, that, together with intense human activities and climate change, can amplify the natural deterioration of materials and reduce the ability of soil to preserve CH. The project RESEARCH (REmote SENSing techniques for ARCHaeology) **will test new risk assessment methodology**, by examining soil erosion, land movement, and land use change threatening archaeological sites. The project uses an integrated system of documentation and research in the fields of archaeology and environmental studies, combining advanced remote sensing technologies with GIS applications for the mapping and long-term monitoring of archaeological heritage. The project addresses the **design and development of a multi-task thematic platform**, that will be a new affordable tool for authorities in charge of CH preservation, to monitor the degradation process, enable preventive maintenance, and reduce restoration costs.

Within the framework of the **RESEARCH** project, **Geosystems Hellas (GSH)** is responsible for **the identification and monitoring of land and structural movements** in Cultural Heritage sites by the processing of medium to high-resolution **Synthetic Aperture Radar (SAR)** satellite images, by applying the interferometric technique and combining existing and newly developed modules. The generation of **differential interferograms**, the **calculation of deformation maps** through specific algorithms, and the **generation of surface velocity maps** are achieved, enhancing the monitoring status of CH sites. The RESEARCH project approach utilizes the produced land deformation hazard maps and effectively transforms them into qualitative useful information through a dedicated risk assessment methodology, applied via the Thematic Platform. The overall solution will offer a complete and easily accessible digital tool capable of providing/offering valuable information to stakeholders on different CH sites at risk, thus increasing the possibility to assess and prevent risk.

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CONSORTIUM:



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