

STARTED ON: 29/09/2020

NAME OF THE PROJECT: MULTIPARAMETRIC MICROSENSOR MONITORING PLATFORM OF THE ENCELADUS HELLENIC SUPERSITE

SHORT NAME: PROION

PROGRAM: EPANEK 2014-2020, OPERATIONAL PROGRAM COMPETITIVENESS – ENTREPRENEURSHIP – INNOVATION- Action Special Managing and Implementation Service in the areas of Research, Technological Development and Innovation (RTDI)

DURATION: 33 MONTHS

ALL ABOUT THE PROJECT: <https://proion-hellas.eu/>

SUMMARY: The purpose of the **PROION project** is the development of a platform for the **continuous monitoring of high-priority infrastructures** (public infrastructure, dams, bridges, etc.) which are located in a particularly active area in terms of tectonics and seismicity. Monitoring the aforementioned infrastructures is based on the combination of in-situ and remote sensing measurements, fuzzy logic network methods, and machine learning algorithms to generate an innovative decision-making and decision-support tool. More specifically, the measurements deriving from **three-axis accelerometers**, **Global Navigation Satellite System (GNSS) receivers** and **Persistent Scatterer Interferometry** are imported into the platform. The measurements will be validated using high-accuracy reference representations arising from data acquired by Terrestrial Laser Scanning (TLS) surveys and Unmanned Aerial Vehicles (UAV) campaigns and subsequently, deformation maps will be generated. Intelligent data analysis methods will contribute to making decisions on the current as well as the future state of the infrastructure.

Geosystems Hellas [GSH] is responsible for developing and commercializing the results arising from the Persistent Scatterer Interferometry. Radar corner reflectors for interferometric processing with thermal expansion/contraction control are installed in specific areas of interest within the “Enceladus” supersite. The (trihedral) radar corner reflector is made of aluminum and consists of three flat surfaces that reflect waves directly toward the source, receiving InSAR data from the different satellite SAR missions. The targeted methodology aims at change detection monitoring of critical infrastructure and the development of a Web-GIS platform. GSH contributes to the generation of a modern decision-making tool that will systemically provide information before a disaster.

*The project has received funding from the **European Regional Development Fund** of the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship, and Innovation, under the call **RESEARCH – CREATE – INNOVATE**, with project code: **T2EDK-02396**.*

CONSORTIUM:



ES Systems – Coordinator



Geosystems Hellas



UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

Seismology Laboratory-Department of Geology-University of Patras



National Observatory Athens

 European Union European Regional Development Fund	 HELLENIC REPUBLIC MINISTRY OF DEVELOPMENT AND INVESTMENTS SPECIAL SECRETARIAT FOR ERDF & CF PROGRAMMES <small>MANAGING AUTHORITY OF THE OPERATIONAL PROGRAMME</small>	 EPANEK 2014-2020 OPERATIONAL PROGRAMME COMPETITIVENESS ENTREPRENEURSHIP INNOVATION	 ΕΣΠΑ 2014-2020 ανάπτυξη - εργασία - αλληλεγγύη Partnership Agreement 2014 - 2020
Co-financed by Greece and the European Union			