



Newsletter
Issue N° 1, September 2019

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



MEDSAL Project

Salinization of critical groundwater reserves in coastal Mediterranean areas: Identification, risk assessment and sustainable management with the use of integrated modelling and smart ICT tools

PRIMA Program

PRIMA (Partnership for Research and Innovation in the Mediterranean Area) consists of European Union Member States, Horizon 2020 Associated Countries and Mediterranean Partner and aims to build research and innovation capacities and developing knowledge and common innovative solutions for integrated water provision and management in the Mediterranean area

The MEDSAL Project

A new international research project on groundwater salinization in the Mediterranean has started on 1/9/2019 within the PRIMA program. This project of 1,390,000 € budget, with a duration of 36 months, is a joint program to be undertaken in the frame of Euro-Mediterranean cooperation network of funding organizations from members of Mediterranean countries and associated states of the EU, with national funding.

Main Goal

MEDSAL aims at developing innovative methods to identify various sources and processes of salinization and at providing an integrated set of modelling tools that capture the dynamics and risks of salinization MEDSAL, and thereby aims to secure availability and quality of groundwater reserves in Mediterranean coastal areas, which are amongst the most vulnerable regions in the world to water scarcity and quality degradation.



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Principal Objectives

- Secure availability and quality of groundwater reserves in Mediterranean coastal areas, which are amongst the most vulnerable regions in the world to water scarcity and quality degradation.
- Deliver new tools for the identification of complex salinization sources and processes.
- Exploit the potential of Artificial intelligence and Deep Learning methods to improve detection of patterns in multi-dimensional hydrogeochemical and isotope data.
- Elaborate tailor-made risk assessment and management plans by coupling salinization forecasts with climate change impacts and future scenarios.
- Develop a public domain web-GIS Observatory for monitoring, alerting, decision support and management of coastal groundwater reserves around Mediterranean.

Expected Impact

MEDSAL is expected to have significant impact on water resources availability and quality by improving the identification and definition of adequate strategies and measures for the protection and management of salinization in coastal aquifers

In this context, MEDSAL will provide a classification of groundwater salinization types for Mediterranean coasts and innovative methods to detect these types, also in complex karstic and data-scarce environments. These outcomes will be reached by a better integration of hydrogeochemical and environmental isotope data with physical-based groundwater flow and transport models and advance geostatistics.

Artificial intelligence and deep learning methods will be also used to improve detection of patterns in multi-dimensional hydrogeochemical and isotope data.



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Partnership

The partnership involves eight academic partners from seven countries, covering a wide range of academic experts in various scientific fields (e.g. hydrogeology, hydrogeochemistry, environmental isotopes, modelling, hydro-informatics, geostatistics, machine learning)

1. Soil and Water Resources Institute, Hellenic Agricultural Organization (SWRI) (Coordinator) 
2. Center for Research and Technology -HELLAS, Information Technologies Institute (CERTH) 
3. Mobilisation and Water Resources Management Laboratory, Batna 2 University (MGRE) 
4. Technische Hochschule Lübeck, Architecture and Civil Engineering (THL) 
5. Cyprus University of Technology, Department of Civil Engineering and Geomatics (CUT) 
6. Polytechnic University of Bari, DICATECh Dept (POLIBA) 
7. Faculty of Science of Tunis, Department of Geology (FST) 
8. Mersin University, Faculty of Engineering (MEU) 



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Test sites

The test sites are located in: Rhodope, Greece, (ii) Samos Island, Greece, (iii) Salento, Italy, (iv) Tarsus, Turkey, (v) Boufichia, Tunisia, and (vi) Bouteldja, Algeria



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