



web-GIS Observatory



PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



MEETINGS AND CONFERENCES

Meetings reserved to periodic evaluation of MEDSAL outcomes are programmed in the Project Management Plan (PMP).

The first (Kick off meeting) has been held in Thessaloniki (Greece) in 2019, September 22 and 23, at the starting up of the project;

The second Meeting for the Executive Board (ExBo) will be held in Tunisia, in September 2020;

The third ExBo is planned in Germany in 2021

The final conference during which the final results of the project will be discussed and diffused exposed the final results of the project will be held in Algiers, in May 2022.



**Politecnico
di Bari**



COORDINATOR

MEDSAL Project Coordinator

Dr. Evangelos Tziritis

Hellenic Agricultural Organization

Soil & Water Resources Institute

Thessaloniki, Sindos 57 400

Greece

www.lri.swri.gr

Responsible for contents:

Civil Engineering, TH Lübeck

Photos: Unless stated otherwise: © TH Lübeck



GROUNDWATER SALINIZATION

Salinization of critical
groundwater reserves in
coastal Mediterranean areas

Water resources availability
and quality within catchments
and aquifers



PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



MEDSAL project kick off meeting - Thessaloniki (Greece) - September 22-23, 2019.

Groundwater salinization

The study of groundwater salinization is a complex process often related to multiple causes such as lack of internal drainage, seawater intrusion, increased evaporation of water-logged areas, upconing of salt waters or deep-brines by over-abstraction, geogenic factors (e.g. evaporite dissolution, etc) and pollution.

In most of the populated and productive coastal areas of the Mediterranean, which are amongst the most vulnerable regions in the world to water scarcity and quality degradation, current climate change and the rapidly changing socio-economic contexts favour groundwater salinization and limits the availability of groundwater resources.

Objectives

The MEDSAL Project aims, by its expected results, to contribute to secure availability and quality of groundwater reserves in Mediterranean coastal areas.

This will be addressed by providing a novel holistic approach, towards the sustainable management of coastal aquifers, by developing innovative methods for identifying sources and processes of salinization and providing an integrated set of modelling tools that capture the dynamics and risks of salinization.

To facilitate the accurate identification, simulation and forecasting of groundwater salinization, MEDSAL will better integrate hydrogeochemical and environmental

Key facts

Thematic area: Water Management

Budget: 1.390.000,00 €

Duration: 36 months

Coordinating institution: Soil and Water Resources Institute, Hellenic Agricultural Organization (SWRI), Greece

Scientific Coordinator: TZIRITIS, Evangelos (SWRI) - e.tziritis@swri.gr

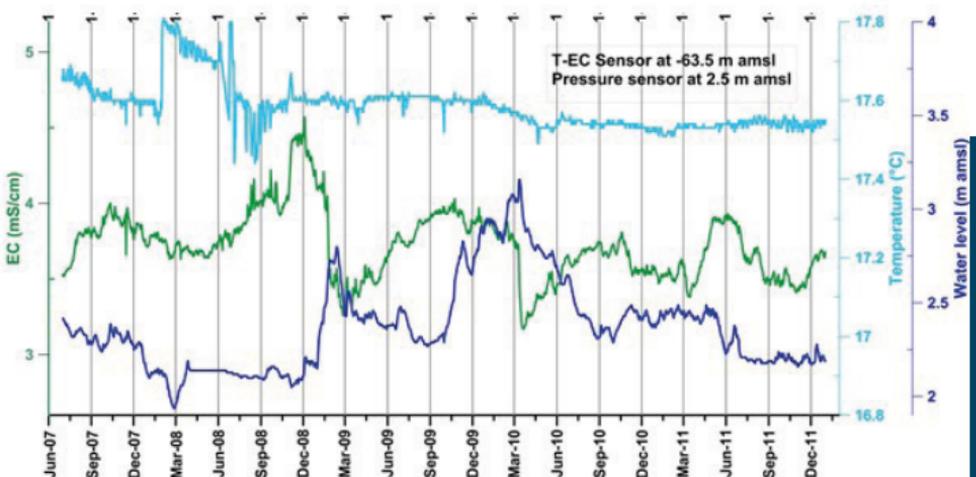
Participating countries: 7

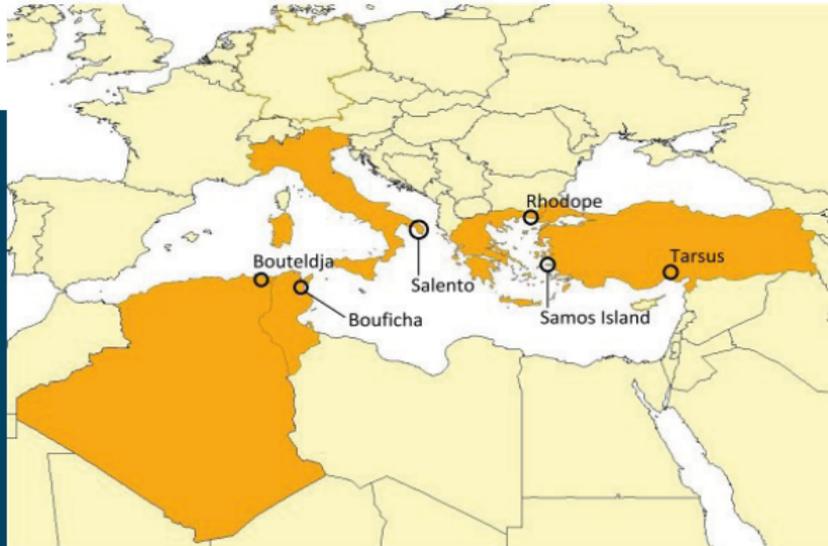
Research units: 9

isotope data with physical-based groundwater flow and transport models and advance geostatistics use. Artificial intelligence (AI) and deep learning methods will be also used to improve detection of patterns in multi-dimensional hydrogeochemical and isotope data.

In this context, MEDSAL will provide a classification of groundwater salinization types for Mediterranean coasts and innovative methods to detect these types, also in data-scarce and complex karstic environments. In addition, the project foresees the development of the MEDSAL Observatory (MOB), a web-based GIS application for monitoring and alerting on groundwater salinization. Based on continuous registrations carried out in selected pilot sites by telemetric multisensors, MOB will actively support stakeholders and the scientific community to for the integrated monitoring and management of Mediterranean aquifers subjected to increased salinization risk.

Historical continuous registration of Electrical conductivity (EC), temperature (T) and water level (well PS17LE, Salento test-site)





Location of the MEDSAL test sites

Expected impacts

All the demonstration activities of MEDSAL Project will be carried out in 6 selected test sites.

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.

Specific objectives of the project

- Deliver new tools for the identification of variable (multi-induced) and often cascading salinization sources and processes.
- Identify new patterns and develop new proxies for monitoring, assessment and forecasting of groundwater salinization in areas with scarce data and/or limited financial and human resources.
- 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.
- Arising awareness of end users and capacity building of stakeholders in the aim to involve them in the water management of these threatened zones.