



Conceptual hydrogeological model of a coastal hydrosystem in the Mediterranean

Anastasios Mitropapas¹, Christos Pouliaris², Georgios Apostolopoulos¹, Eleni Vasileiou¹, Christoph Schüth², Thomas Vienken³, Peter Dietrich³, and Andreas Kallioras¹

¹National Technical University of Athens, School of Mining Engineering and Metallurgy, Athens, Greece

²Technical University of Darmstadt, Institute of Applied Geosciences, Darmstadt, Germany

³Helmholtz Centre for Environmental Research- UFZ, Department Monitoring- und Exploration Technologies

FREEWAT is an HORIZON 2020 project financed by the EU Commission under the call WATER INNOVATION: BOOSTING ITS VALUE FOR EUROPE. FREEWAT aims at promoting water resources management by simplifying the application of the Water Framework Directive and other EU water related Directives by means of innovative GIS integrated open source and public domain ICT simulation tools (the FREEWAT platform).

Groundwater resources management in the Mediterranean basin is an issue of paramount importance that becomes a necessity in the case of the coastal hydrosystems. Coastal aquifers are considered very sensitive ecosystems that are subject to several stresses being of natural or anthropogenic origin. The coastal hydrosystem of Lavrion can be used as a reference site that incorporates multi-disciplinary environmental problems, which are typical for Circum-Mediterranean.

This study presents the synthesis of a wide range of field activities within the area of Lavrion including the monitoring of water resources within all hydrologic zones (surface, unsaturated and saturated) and geophysical (invasive and non-invasive) surveys. Different monitoring approaches -targeting to the collection of hydrochemical, geophysical, geological, hydrological data- were applied, that proved to provide a sound characterization of the groundwater flows within the coastal karstic system in connection to the surrounding water bodies of the study area.

The above are used as input parameters process during the development of the conceptual model of the coastal hydrosystem of Lavrion.

Key-words: Coastal hydrosystems, Mediterranean basin, seawater intrusion

Acknowledgements: This paper is presented within the framework of the project FREEWAT, which has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement n. 642224. This poster content reflects only the authors' views and the European Union is not liable for any use that may be made of the information contained therein.

<http://www.freewat.eu>