

ABSTRACT SUBMISSION CONTROL PANEL

Abstract ID#:

257041

Date Started: 2017-08-01

17:46:00

Last Modified: 2017-08-01

18:25:52

Primary Section/Focus
Group: Hydrology (H)

8 Steps to submit an Abstract:

- ✓ 1. [Session](#)
- ✓ 2. [Abstract Details](#)
- ✓ 3. [Author\(s\)](#)
- ✓ 4. [Abstract Text](#)
- ✓ 5. [Plain-Language Summary \(Optional\)](#)
- ✓ 6. [Special Programs](#)
- ✓ 7. [Payment](#)
- ✓ 8. [Submit Abstract](#)

Options:

- [-View Submission](#)
- [-Abstract Viewer](#)
- [-User Portal](#)
- [-Withdraw](#)
- [-Letter of Invitation](#)
- [-Sign out](#)

Help:

[Report a Technical Issue](#)

Abstract #257041

A future climate assessment on the quality and quantity of CrVI contaminated groundwater in the eastern Mediterranean

Maria Hatzaki, National and Kapodistrian University of Athens, Department of Geology and Geoenvironment, Athens, Greece, Ariadne Argyraki, National and Kapodistrian University of Athens, Department of Geology and Geoenvironment, Athens, Greece, Irene Gkiouleka, National and Kapodistrian University of Athens, Department of Geology and Geoenvironment, Athens, Greece, Michele Paternoster, Università degli Studi della Basilicata, Potenza, Italy, Zubeyde Hatipoglu Bagci, University of Mersin, Department of Geological Engineering, Mersin, Turkey, Maisa'a Shammout, University of Jordan, Water, Energy and Environment Center, Amman, Jordan, Daniel Moraetis, Sultan Qaboos University, Muscat, Oman and Dimitris Dermatas, National Technical University of Athens (NTUA), School of Civil Engineering, Athens, Greece

Abstract Text:

The shortage of water and the water quality problems in Mediterranean countries appear more severe under climate change due to the intensive agricultural activities and the urban and industrial development that require reforms in the water policy approach. The ERANETMED CrITERIA project aims to assist water management organizations and water users in decision making when coping with water scarcity, climate extremes and contaminated water. Case areas of Mediterranean countries (Italy, Greece, Turkey, Cyprus, Jordan) with Cr(VI) contaminated waters are used as an example of a specific water pressure problem that has to be tackled through integrated water resources management. Moreover, Oman represents the arid-end member in identifying the different pathways of Cr(VI) contamination in surface and groundwater due to arid conditions. Thus, areas of similar geology can be used as analogs of areas passing from semi-arid to arid conditions.

From a climate change perspective, it is important to investigate the impacts of changing precipitation patterns and, thus, assess the vulnerability of the aquifers. Thus, a high spatial resolution analysis is performed with observational data and climate model simulations on several time-scales drought and extreme precipitation, providing a concise picture of drought and flooding events for the present and the future climate. We use CORDEX experiment simulations under RCPs 4.5 and 8.5, further downscaled over the case study areas providing high spatial resolution information.

The case studies inter-comparison stresses the diverse needs on water management along the Mediterranean and at the same time identifies common messages related to the future changes on water resources. RCP 4.5 shows a mild decrease in precipitation that becomes more severe towards the end of the century, though under the RCP 8.5 intense decrease is explicit in most timescales. The significant increase of precipitation variability and short and long-term drought are likely to affect freshwater systems and water quality by intensifying surface runoff, aiding in the erosion of ophiolitic occurrences present in the studied areas, elevating and even inflicting changes in the groundwater table.

Acknowledgment: The ERANETMED CrITERIA project (T3ERA-00004) is co-funded by Greece and the European Union

Session Selection:

Groundwater Response to Climate Change and Variability