
SPECIAL ISSUE PREFACE

“Groundwater Resources Management in Coastal Regions”

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PREFACE

Management of groundwater resources is a key issue for countries which are located within sensitive hydrologic or hydro-geologic basins, playing a vital -or central- role in sustainable development, as well as on the long-term geopolitical stability. Coastal countries and more specifically coastal aquifers are considered as such sensitive regions. The fact that groundwater is one of the most important freshwater resources on earth, with almost 90% of available freshwater quantities found in hydro-geologic systems, makes the management of groundwater resources an issue of paramount importance. With this special issue, we wish to initiate an open discussion or platform, which will contain different approaches for the management of groundwaters in such hydrologically sensitive regions. Sensitivity lies on both quantitative as well as qualitative characteristics of the region, including the majority of environmental water problems such as: groundwater contamination and pollution, aquifer overexploitation, seawater intrusion, groundwater-surface water interactions and management of water resources.

All papers provide a scientific sound approach to complex groundwater resources problems under the prism of climate as well as global changes, by taking into consideration indirect impacts or stresses on underground aquifers such as: global temperature increase, sea level rise, decrease in precipitation -therefore groundwater recharge-, overpopulation -therefore increase in water demand-, agricultural development, governmental policy approaches, scientific state of the art achievements and many others.

Soni and Pujari provide an extended analysis for proper management of coastal aquifers, by means of reviewing: the hydro-dynamic mechanisms which govern the phenomenon of seawater intrusion, the current practices for preventing further seawater encroachment towards the mainland and finally reporting all future challenges for the investigation of seawater intrusion phenomenon. *Gaaloul et al.*, present the results of groundwater simulation of coastal aquifers of Tunisia; a Mediterranean country subjected to overexploitation conditions due to intense agricultural activities. *Ismail et al.*, present the use of geological lineament detection, characterization and association with groundwater contamination in carbonate rocks of Musandam Peninsular using a Digital Elevation Model (DEM), in order to investigate freshwater-seawater interactions. *Ramani Bai*, investigates the level of contamination of groundwater by seawater intrusion as a result of overpumping in Kancong Darat -state of Selangor, West Malaysia- through the application of transient state groundwater modeling. *Hashemi et al.*, present the results from the simulation of groundwater flow under steady state conditions in an unconfined aquifer of the Gareh-Bygone Plain in Iran. *Gaaloul*, presents a thorough review of the water management of Tunisia -a Mediterranean country of N. Africa- with emphasis on both surface and groundwater resources and special reference to water scarcity and salinisation.

We would to acknowledge the efforts of the authors as well as the reviewers for their contribution to this special issue.

(The Guest Editors)

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