

IAH network on “Coastal aquifer dynamics and coastal zone management” QUESTIONNAIRE

IAH national committees, IAH members and non members from all around the world involved in SWI and SGD research and management are kindly asked to fill in the questionnaire in this page with as many details as possible.

A world database will be set up and made available, with basic coastal aquifer main characteristics.

We expect to gather standard and comparable information on the knowledge level and hopefully the state of the art of the research on SWI and SGD, and coastal aquifer management methods adopted around the world

| | | |
|-----|---|---|
| 1) | Location of aquifer (country, more specific location): | Oued Laya coastal aquifer,Sousse region (Tunisia) |
| 2) | Reported by: | T. Cruz, M. C. Cabrera and J. Heredia |
| 3) | Type of medium (karst, porous, fracture) | Porous |
| 4) | Type of aquifer (phreatic or confined) | Two aquifers: an unconfined and a deeper confined aquifer(more salty) |
| 5) | Main lithology - (e.g. gravel, sand and clay) | Shallow aquifer is mainly formed by Mio-Pliocene sediments (with gypsum lenses dispersed within the geological formations), and a deep aquifer is located in the Miocene sandstone formations |
| 6) | Hydrochemistry: fresh or saline | Fresh and saline |
| 7) | Saltwater intrusion: lateral from sea or lakes - upconing | Seawater intrusion and mixing of fresh groundwater |
| 8) | Aquifer geometry: hydraulic characteristics | Synclinal structure; preferential flowpath direction SW-NE |
| 9) | Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually) | The climate is semi arid and Mediterranean type, Average annual rainfall is about 320 mm/year; Annual average groundwater recharge estimated at 2,7×106 m3 |
| 10) | Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m | Shallow aquifer: depth: about 60 m Deep aquifer: depth: between 100 and 250 m |
| 11) | Major chemistry (anions - ?; Cations - ?): | Na ⁺ , Cl ⁻ , SO ₄ ²⁻ , Ca ²⁺ , Mg ²⁺ and Br ⁻ |
| 12) | Major salinity sources: | Seawater,Dissolution of minerals in the aquifer system, especially halite and gypsum and ion exchange processesAlso play an important role |
| 13) | Population: | Located 140 kilometres south of the capital Tunis,the city has 271428 |
| 14) | Aquifer status: special features - e.g. thermal springs, major faults,... | |
| 15) | Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical), | EC,TDEM,Stable isotopes, 3H data and geochemical analysis Water level measurements |
| 16) | Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD) | Chemical and isotopic methods |
| 17) | Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal) | First monitoring network set up in this area in the 1980s by the Departmental of water resources of the Ministry of Agriculture. A transient electromagnetic (TDEM) campaign was performed in December 2009 on 29 points in the study area. Another sampling campaign was performed, during 2009 and 2010, on thirty points (dug wells and boreholes) |
| 18) | Management methods: | |
| 19) | Aquifer management actions: | |
| 20) | Identification of existing or potential problems: | This water reservoir is mainly characterized for presenting bad quality groundwater resources with high salinity content in comparison with the neighbour's aquifers and this grounwater is not compatible for domestic and agricultural use |
| 21) | Annexes: | |
| 22) | Observations: | |