

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

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| 1) | Location of aquifer (country, more specific location): | Chersonisos (Crete island) |
| 2) | Reported by: | K. VOUDOURIS, D. MANDILARAS and A. ANTONAKOS |
| 3) | Type of medium (karst, porous, fracture) | Karst aquifer |
| 4) | Type of aquifer (phreatic or confined) | Phreatic |
| 5) | Main lithology - (e.g. gravel, sand and clay) | Carbonate aquifer: Limestones, Dolomites and Calcareous dolomites |
| 6) | Hydrochemistry: fresh or saline | Fresh and saline |
| 7) | Saltwater intrusion: lateral from sea or lakes - upconing | Lateral from sea |
| 8) | Aquifer geometry: hydraulic characteristics | Transmissivity $T=1.1-3.6 \times 10^{-3} \text{ m}^2/\text{s}$ |
| 9) | Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually) | The mean annual rainfall in the coastal area is 450 mm;
The coefficient of infiltration in carbonate rocks is 52% of the annual rainfall |
| 10) | Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m | Water level 2-42 m above sea level |
| 11) | Major chemistry (anions - ?; Cations - ?): | $\text{Ca}^{2+}=69-154 \text{ mg/L}$, $\text{Na}^+=11-485 \text{ mg/L}$, $\text{Mg}^{2+}=12-96 \text{ mg/L}$
$\text{HCO}_3^- = 218-435 \text{ mg/L}$, $\text{SO}_4^{2-} = 20-256 \text{ mg/L}$;
The high K^+ and NO_3^- concentrations can be attributed to human activities |
| 12) | Major salinity sources: | Seawater is the principal pollutant and another important source is nitrate pollution (from by fertilizers) |
| 13) | Population: | This area is characterized by ongoing urbanization, tourism development and intensive agriculture |
| 14) | Aquifer status: special features - e.g. thermal springs, major faults,... | The area is characterized by the presense of faults |
| 15) | Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical), | EC, chemical analyses, temperature and pH |
| 16) | Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD) | Revelle index, Ionic strength, Durov diagram |
| 17) | Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal) | Twelve(12) groundwater samples were collected from the karst aquifer of Chersonisos area (April 2002) |
| 18) | Management methods: | Intensive exploitation, A dam was constructed in Aposelemis river |
| 19) | Aquifer management actions: | Reuse of treated waste water for irrigation purpose (olive trees) |
| 20) | Identification of existing or potential problems: | Water quality has been deteriorated as a consequence of seawater intrusion and not fully compatible with the uses of this area |
| 21) | Annexes: | |
| 22) | Observations: | |