

## 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):                                                                                                  | Glafkos plain aquifer, Southwestern part of Greece (Peloponnesus)                                                                                                                             |
| 2)  | Reported by:                                                                                                                                            | K. VOUDOURIS, D. MANDILARAS and A. ANTONAKOS                                                                                                                                                  |
| 3)  | Type of medium (karst, porous, fracture)                                                                                                                | Porous medium                                                                                                                                                                                 |
| 4)  | Type of aquifer (phreatic or confined)                                                                                                                  | Phreatic                                                                                                                                                                                      |
| 5)  | Main lithology - (e.g. gravel, sand and clay)                                                                                                           | Alluvial deposits (sands, gravel, silts and clays)                                                                                                                                            |
| 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                                                                                                             | Storage coefficient S=4.5%-12.6 %, Transmissivity T=400-1700 m <sup>2</sup> /day                                                                                                              |
| 9)  | Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)                                                        | The mean annual rainfall in the coastal area is 695 mm;<br>Infiltration from rainfall=2.85x10 <sup>6</sup> m <sup>3</sup> /year<br>Seepage from river=13x10 <sup>6</sup> m <sup>3</sup> /year |
| 10) | Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m                                                               | Max Dept of aquifer =120 m<br>Water level: In coastal area 15 m below sea level, Inland: 15-45 m above sea level                                                                              |
| 11) | Major chemistry (anions - ?; Cations - ?):                                                                                                              | Ca <sup>2+</sup> =33-190 mg/L, Na <sup>+</sup> =2-880 mg/L, Mg <sup>2+</sup> =3.7-65 mg/L,<br>HCO <sub>3</sub> <sup>-</sup> = 171-305 mg/L, SO <sub>4</sub> <sup>2-</sup> =2-216 mg/L;        |
| 12) | Major salinity sources:                                                                                                                                 | Seawater intrusion, as a result of the intensified exploitation                                                                                                                               |
| 13) | Population:                                                                                                                                             | The main urban center of the area is the city of Patras with 163,500 inhabitants                                                                                                              |
| 14) | Aquifer status: special features - e.g. thermal springs, major faults,...                                                                               | There are not thermal springs                                                                                                                                                                 |
| 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)                                    | Sixtyone(61) groundwater samples were collected from the Glafkos plain aquifer (May 2001)                                                                                                     |
| 18) | Management methods:                                                                                                                                     |                                                                                                                                                                                               |
| 19) | Aquifer management actions:                                                                                                                             | Pumping for domestic supply stopped from coastal area                                                                                                                                         |
| 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:                                                                                                                                           |                                                                                                                                                                                               |