

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):	Recife coastal plain (Pernambuco, Brazil)
2)	Reported by:	Suzana M.G.L. Montenegro, Anderson L.R. de Paiva, Jaime J.J.S.P Cabral Giancarlo L. Cavalcanti and Eduardo Scalia
3)	Type of medium (karst, porous, fracture)	Fractured (Cabo aquifer) and Porous (Boa Viagem aquifer)
4)	Type of aquifer (phreatic or confined)	Semi-confined (Cabo aquifer) and unconfined formation (Boa Viagem aquifer, is upper and the most vulnerable formation in terms of water quality). Boa Viagem and Cabo aquifers are separated by a discontinuous aquitard
5)	Main lithology - (e.g. gravel, sand and clay)	Cabo aquifer: sandstones, siltstones and mudstones Boa Viagem aquifer: sand, silt and clay
6)	Hydrochemistry: fresh or saline	Fresh and saltwater
7)	Saltwater intrusion: lateral from sea or lakes - upconing	Seawater Intrusion
8)	Aquifer geometry: hydraulic characteristics	Cabo aquifer: average thickness of 90m; hydraulic conductivity (m/s) of 4.0×10^{-5} ; Boa Viagem aquifer: average thickness of 40m; hydraulic conductivity (m/s) of 9.0×10^{-4}
9)	Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)	The precipitation reaches 2458 mm/year; The specific storage is of 2.0×10^{-6} m ⁻¹ , the effective porosity of 0.1 and the storage coefficient of 0.1.
10)	Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m	
11)	Major chemistry (anions - ?; Cations - ?):	
12)	Major salinity sources:	Seawater
13)	Population:	Recife city has over than 1,5 millions of inhabitants
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),	Hydrogeological and hydrochemical measurements
16)	Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD)	Ionic ratios and mathematical modeling of flow and salt transport with Modflow combined with the Seawat software
17)	Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)	The geophysical and geological parameters were obtained from surveys conducted in 2000 and 2002; The evaluation of ionic ratios considered 107 wells scattered throughout the region
18)	Management methods:	Government agencies started controlling the drilling and exploitation of groundwater by private wells
19)	Aquifer management actions:	
20)	Identification of existing or potential problems:	The over-exploitation of groundwater in the last years and the difficulties in recharging the aquifers in the highly urbanized areas of the Recife Metropolitan Region has severely depleted the potentiometric levels of the aquifers in the last 20 years and increased their vulnerability to seawater intrusion
21)	Annexes:	
22)	Observations:	