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):	Langeoog Island, Germany
2)	Reported by:	Georg J. Houben, Paul Koeniger and Jürgen Sültenfuß
3)	Type of medium (karst, porous, fracture)	Porous
4)	Type of aquifer (phreatic or confined)	Phreatic: Three freshwater lens are formed when lower density freshwater infiltrates to the subsurface and floats on top of denser saltwater forming a convex lens of freshwater below the surface
5)	Main lithology - (e.g. gravel, sand and clay)	Sand,peat and clay
6)	Hydrochemistry: fresh or saline	Fresh and Saline
7)	Saltwater intrusion: lateral from sea or lakes - upconing	Saline water and upconing
8)	Aquifer geometry: hydraulic characteristics	Marine deposits, glacial sediments and dune sands
9)	Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)	To prevent upconing of underlying saline water, extraction is distributed over 20 shallow wells (10 to 18 m depth) which pump intermittently at low rates of around 10 m^3/h. Annual Groundwater extraction(from data of 2011): 334,000 m^3/a
10)	Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m	Thickness of lens 10-35 m
11)	Major chemistry (anions - ?; Cations - ?):	CaHCO3 to NaHCO3 type
12)	Major salinity sources:	Up-coning of deep saline water,especially in the summer months when the pumping and water demand increase
13)	Population:	This small island is a popular tourist destination especially in the summer months
14)	Aquifer status: special features - e.g. thermal springs, major faults,…	none
15)	Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical),	Geophysical methods, helicopter electromagnetics (HEM) transient electromagnetic (TEM),nuclear magnetic resonance (NMR) methods, electrical resistivity tomography (ERT), water levels and salinity profiles
16)	Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD)	Hydrochemical and isotopes analysis, The age stratification of a freshwater lens was reconstructed through depth-specific sampling and groundwater dating using the tritium-helium method
17)	Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)	water level, EC
18)	Management methods:	none
19)	Aquifer management actions:	none
20)	Identification of existing or potential problems:	Excessive pumping to meet the water demand can favorite upconing of deep saline water and the salinization of the freshwater lens
21)	Annexes:	none
22)	Observations:	none