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):	Föhr,German North Sea
2)	Reported by:	Wolfgang Scheer, Bernd König and Broder Nommensen
3)	Type of medium (karst, porous, fracture)	Porous medium
4)	Type of aquifer (phreatic or confined)	Phreatic and confined
5)	Main lithology - (e.g. gravel, sand and clay)	The underground of the island shows a heterogeneous geological set-up with an alternating sequence of sandy and clayey sediments
6)	Hydrochemistry: fresh or saline	Fresh,salt and brackish water
7)	Saltwater intrusion: lateral from sea or lakes - upconing	Lateral intrusion from the sea and lagoon
8)	Aquifer geometry: hydraulic characteristics	Spatially distributed aquifers and covering layers, partly thrust faulted by glaciotectonics
9)	Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)	Precipitation is about 792,8 mm/yr ; Annual water pumping of drinking water 1.1 mio m^3/a; Drainage in the marsh area 17 mio m^3/a
10)	Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m	Water Level : 0,5 - 10 m below surface Acquifer Depht : 20 m - 110 m
11)	Major chemistry (anions - ?; Cations - ?):	Anions: hydrogencarbonate, chloride, sulfate,nitrate; Cations: calzium, sodium, magnesium, potassium
12)	Major salinity sources:	Sea water
13)	Population:	Föhr's population counts 8,592 (as of 1 December 2010) + 200.000 tourists / 2 Mio. guest-nights per annum (2012)
14)	Aquifer status: special features - e.g. thermal springs, major faults,…	Fresh water reservoirs in the Saalian moraine areas, salt water intrusion in the marsh areas
15)	Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical),	At 24 locations a combination of drillings, direct push conductivity and CPT measurements have been carried out, completed by sampling for chemical analyses in all relevant layers;Seismic surveys
16)	Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD)	The results of the investigations were merged in a geological 3D-model which was used as data base for a hydrogeological model with future climate scenarios as input parameter
17)	Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)	Periodic measurements of water level, chemical ground water status
18)	Management methods:	The island of Föhr was an area of the European INTERREG IVB project CliWat which was focussed on the development of adaptation strategies to meet the ground water situation in a future climate
19)	Aquifer management actions:	Monitoring of water levels and ground water chemistry
20)	Identification of existing or potential problems:	Due to a rising sea level and increasing ground water recharge in the North Sea region, significant changes of the fresh-salt water distribution are expected leading to the demand of a future adaptation of the management of ground and surface water in these areas
21)	Annexes:	
22)	Observations:	