



0.1 Seawater intrusion in karstic Apulian aquifers: spatial and time trend

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The quality of groundwater of karstic Apulian aquifers is severely affected by salt contamination due to seawater intrusion. Due the scarcity of surface water resources, the characterisations of quality degradation risks of groundwater and of its spatial and temporal trend are particularly important in the region.

A multidisciplinary approach to determine the evolution of seawater intrusion in karstic Apulian aquifer is proposed:

- a spatial analyses considering a simple salinity threshold approach, based on the determination of a single value dividing fresh groundwater from seawater contaminated groundwater;
- time series of monthly chlorine concentration, a parameter which can highlight the seawater contamination effects, compared with rainfall and temperature time series.

The spatial trend of 0.5 g/l, threshold value, salinity contour line in the period 1981-2003 is characterised. Along the areas close to the Adriatic and Ionian shoreline groundwater saline contamination is resulted to be a long-standing phenomenon. Only the Murgia interior and a restricted strip in the middle of the Salentine Peninsula have not been contaminated so far.

The salt contamination is also characterised considering 17 time series of monthly chlorine concentration. Data from 1968 to 2001 are considered and compared with rainfall and temperature time series. The increased saline contamination is closely

related to droughty years and to the increasing discharge by wells. The phenomenon became apparent in the late 80s after some dry years that result in a reduced recharge of aquifers and increased groundwater withdrawals.

It is confirmed the existence of areas considerable protected from the seawater intrusion, of areas exhibited in serious manner to the salt pollution and, finally, of an immense portion of territory in which the quality of the groundwater depends exclusively from our capacity to manage the water resources.