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# Geo-databases for the assessment of groundwater degradation risks of a coastal plain (southern Italy)

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The risk characterisation of quality and availability degradation of groundwater resources has been pursued for a wide coastal plain (Metaponto plain, Italy), an area covering 40 km along the Ionian Sea and 10 km inland. The quality degradation is due two phenomena: pollution due to discharge of waste water (coming from urban areas) and due to salt pollution, related to seawater intrusion but not only. The availability decrease is due to overexploitation but also due to drought effects. Data of 1,130 wells have been collected. Wells, homogenously distributed in the area, were the source of geological, stratigraphical, hydrogeological, geochemical data. In order to manage space-related information via a GIS, a database system has been devised to encompass all the surveyed wells and the body of information available per well. Geo-databases were designed to comprise the tree types of data collected: a database including geological and hydrogeological data (HDB), a database devoted to chemical and physical data on groundwater (CDB), and a database including the geotechnical parameters (GDB). The record pertaining to each well is identified in these databases by the progressive number of the well itself. Every database is designed as follows: a) the HDB contains 1,158 records, 28 of and 31 fields, mainly describing the geometry of the well and of the stratigraphy; b) the CDB encompasses data about 157 wells, based on which the chemical and physical analyses of groundwater have been carried out. More than one record has been associated with thes 157 wells, due to periodic monitoring and analysis; c) the GDB covers 61 wells to which the geotechnical parameters are referred. Each well is ascribed a set of geotechnical data which have been yielded by soil samples taken at various depths. Based on geo-databases, the geostatistical processing of data has permitted to characterise the degradation risk of groundwater resources of a wide coastal aquifer.