

Hydrogeologic characterisation of the Rio de Janeiro State, Brazil, using Geographical Information System techniques

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The Rio de Janeiro State is composed mostly by crystalline metamorphic rocks, that cover for approximately 80% of its area. The sedimentary terrains, with a good hydrogeological potential, are almost restricted to the basins of Campos and Resende and the alluvial plains of some major rivers. Therefore, the hydrogeological characterization of the State consisted mainly of identifying areas with good aquifer potential in crystalline fractured media, using parameters like fracture density, drainage density, slope angle, morphostructure, permeability of unconsolidated superficial deposits, lithological constitution and vegetation. A multi-criteria analysis was carried out using Geographical Information System techniques to combine the different parameters, resulting in an aquifer potential map in 1:250.000 scale.

A water well inventory was generated and will be part of the SIAGAS-hydrogeological data base, an institutional program of the Geological Survey of Brazil that makes water well data available to all society through the Internet.