



Shallow aquifer diagnostics across Europe at the overview scale

Andreas Günther (1), Maxi Paulina Bretthauer (1,2), Stefan Broda (1), Patrick Clos (1), and Jörg Reichling (1)

(1) Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), B 2.2, Hannover, Germany (andreas.guenther@bgr.de), (2) Leibniz Universität Hannover, Institut für Bodenkunde

The “International Hydrogeological Map of Europe” (IHME1500) provides harmonized spatial information on first-order shallow aquifer characteristics over Europe at scale 1 : 1.5 Mil. These are related to material compositions, general productivity and flow regime of uppermost potential aquifer (or non-aquifer) assemblages. Additionally, IHME1500 displays contour line-based information on groundwater depths for some major European aquifer basins, the location of groundwater springs, aquifer thicknesses, etc., on selected map sheets. The digital availability of IHME1500 data allows the integration of such basic spatial hydrogeological information with pan-European data on soil properties from the European Soil Database.

In this contribution, we present the application of simple well-established weighting/scoring schemes for the combination of spatial environmental variables related to hydrogeology, soil properties and climatology for the continental-level estimation of general shallow aquifer properties like recharge- and pollution potentials, or the estimation of their vulnerability to climate change. Using selected global climate model data, scenario-based evaluations using climate projections that are used in the Fifth Assessment IPCC report can be performed and European “hot spots” of shallow aquifer systems under potential environmental stress due to climate change can be identified, characterized and compared.