



Multi-scale input data assessment for harmonized index-based aquifer vulnerability evaluations across Europe

Stefan Broda¹ and the HOVER WP7 Team*

¹Federal Institute for Geosciences and Natural Resources, Berlin, Germany (stefan.broda@bgr.de)

*A full list of authors appears at the end of the abstract

Work package 7 of the GeoERA HOVER project deals with groundwater vulnerability assessment to pollution of the shallow upper aquifer. We present vulnerability assessments across Europe applying the DRASTIC method in 11 pilot areas and the COP method for karst systems in 5 pilot areas. The presented assessments are carried out at multiple scales (between 1:1K and 1:250K), pilot areas sizes (catchment to national scale; 15 to 338 000 km²) and hydro-climatic contexts (ranging from extremely high and steady recharge to very low and seasonal recharge). The core item of this presentation is a detailed investigation and statistical assessment on respective data availability, data density and methodologies applied to retrieve input parameters for the assessment (e.g., groundwater recharge) and how this affects the final vulnerability assessments. We also focus on the definition (numerical ranges) of the individual vulnerability classes, which are valid across all pilots.

In an attempt to generate information summarizing affected aquifer volumes, a method based on a lumped index and 2D conceptual cross-sections is proposed. It was originally designed for sea-water intrusion assessments, and has been adapted and applied in some pilot areas to estimate aquifer volumes of each individual vulnerability class.

HOVER WP7 Team: Duscher, K., Günther, A., Reichling, J. (Federal Institute for Geosciences and Natural Resources, BGR); Schomburgk, S. (Bureau de Recherches Géologiques et Minières, BRGM); Schubert, G., Uhmann, A., Bottig, M., Elster, D., Berka, R. (Geologische Bundesanstalt Österreich, GBA); Cerar, S. (Geološki Zavod Slovenije, GeoZS); Voutchkova, D., Schullehner, J., Hansen, B. (De Nationale Geologiske Undersøgelser for Danmark og Grønland, GEUS); Hickey, C., Hunter Williams, T., Bishop, H. (Geological Survey of Ireland, GSI); Luoma, S., Ikonen, J. (Geologian Tutkimuskeskus, GTK); Kontodimos, K., Lappas, I. (Hellenic Survey of Geology & Mineral Exploration, HSGME); Arnó, G., Conesa, A., Herms, J.I. (Institut Cartogràfic i Geològic de Catalunya, ICGC); Ruiz, L.B., Velazquez, D.P. (Instituto Geológico y Minero de España, IGME); Persa, D., Mercan, A. (Institutul Geologic al României, IGR); Janetz, S. (Landesamt für Bergbau, Geologie und Rohstoffe Brandenburg, LBGR); Arustienė, J. (Lietuvos Geologijos Tarnyba prie Aplinkos Ministerijos, LGT), Gál, N.E. (Magyar Bányászati és Földtani Szolgálat, MBFSZ); Nidental, M., Jarmułowicz-Siekiera, M. (Państwowy Instytut Geologiczny - Państwowy Instytut Badawczy, PIG-PIB), Witthoef, M. (LBEG)