



Use of the European Geological Data Infrastructure for safeguarding Europe's groundwater resources and dependent ecosystems

Klaus Hinsby (1), Laurence Gourcy (2), Hans Peter Broers (3), Anker Lajer Højberg (1), and Sian Loveless (4)
(1) Geological Survey of Denmark and Greenland (GEUS), Hydrology, Copenhagen, Denmark (khi@geus.dk), (2) Bureau de Recherches Géologiques et Minières, Orleans, France (l.gourcy@brgm.fr), (3) TNO, Utrecht, The Netherlands (hans-peter.broers@tno.nl), (4) BGS, Wallingford, United Kingdom (sian@bgs.ac.uk)

Changes in the quantity and quality of groundwater and water in the hydrological cycle in general have important implications for the evolution of water resources, the built environment, and terrestrial and aquatic ecosystems, globally. Exploitation of groundwater and other subsurface resources may lead to e.g. land subsidence, salt water intrusion, loss of important terrestrial and aquatic ecosystems and hence biodiversity. Together with biogeochemical flows of nitrogen and phosphorus and changes in the land-system and climate, these are currently considered the main environmental problems of the planet, which are breaching or close to breaching planetary boundaries. Changes in the hydrological cycle including groundwater is closely related to and affecting these changes. It is the ambition of the four GeoERA groundwater projects studying aspects of groundwater quantity and quality issues related to natural processes and human activities to further develop the European Geological Data Infrastructure as a leading information platform for groundwater data in Europe and one of the leading platforms, globally. Here we briefly present the contents and objectives of the four groundwater projects: HOVER - Hydrogeological processes and geological settings over Europe controlling dissolved geogenic and anthropogenic elements in groundwater of relevance to human health and the status of dependent ecosystems; RESOURCE - Resources of groundwater, harmonized at cross-border and Pan-European Scale; TACTIC – Tools for assessment of climate change impact on groundwater and adaptation strategies and VoGERA - Vulnerability of shallow groundwater resources to deep sub-surface energy-related activities. The four projects will deliver “FAIR” (Findable, Accessible, Interoperable and Reusable) data and information via the European Geological Data Infrastructure easily accessible for all relevant endusers. This will improve our understanding of the subsurface and support common efforts for developing geoethical uses of the subsurface.