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CHALLENGES FOR THE DEVELOPMENT OF EU-SCALE THEMATIC MAPS SUPPORTING THE MANAGEMENT OF GROUNDWATER QUALITY IN EUROPE

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Groundwater quantity and quality is of great importance for the economic development in Europe as it is the most important resource for drinking water, irrigation and industrial uses. Groundwater as such and as locally the main contributor to surface water is also a pillar to the ecosystem health. The quality of groundwater is linked to physico-chemical parameters such as temperature, pH, redox potential and the presence of dissolved elements from geogenic (natural) or anthropogenic origin. Initiated in July 2018, the Geoera project HOVER (horizon H2020, grant agreement N°731166) intends to link geological settings and hydrogeological processes to the natural quality of groundwater and the risk of transfer of anthropogenic dissolved elements to aquifers.

Project findings are meant to increase political and public awareness and improve groundwater management at EU scale. Thus, information and communication technologies involved will allow producing thematic maps and web service tools at regional to pan-European scale that will be made available for a large public audience through the European Geological Data Infrastructure (http://www.europe-geology.eu/).

The project is built around 6 main topics related to groundwater quality; high-concentration of dissolved elements of geogenic origin, microbial ecology in groundwater-surface water transition zones, nitrate and pesticide transfer, groundwater age distribution, vulnerability and emerging contaminants. Thirty partners from 27 countries are sharing their databases and are discussing appropriate data treatment procedures in order to develop products that may support water management in Europe.

Various challenges have to be faced in order to build these EU-scale products. The first of them being the heterogeneity of data available in each country, including heterogeneity in density and frequency of molecules analyzed, in data formats used and additional but necessary information (metadata such as geological context, depth of wells…).

Another important activity is to propose web services and maps at large scale (EU-based) that can be used not only at EU level, but also can be useful at regional and national scale. Downscaling the information has to be handled carefully considering the heterogeneity of the data used. HOVER encompass most European geological surveys guaranteeing the highest level of expertise and knowledge for the fulfillment of the aim.

The project will mainly use already existing data for development of thematic products to be used directly by a large range of publics. The paper will discuss the main challenges faced in producing such EU-scaled products and give examples from the HOVER project.

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