

Part 2: Study for Regional scale to be assessed for Long-term Groundwater Flow

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In the study on regional and long-term groundwater flow system for safety assessment on geologic disposal, it is necessary to examine a reasonable range of an analytical object considering various factors such as seismic activity, volcanic activity, sea-level change, Erosion and sedimentation, etc. This study is conducted to develop methodologies of regional scale to be assessed for long-term groundwater flow systems. Geographic Information System, GIS, was applied using available topographic, geologic and hydrologic data for an area of interest. Data used in this study cover topographic sheets, digital elevation model, satellite imagery, geologic maps, topographic classification maps, soil distribution maps and land-use maps. Through the GIS technique, this study is being advanced.

As the application case, at crystalline rock distribution area 3 examples and sedimentary rock distribution area 1 example, this study was executed respectively. In regard to latter 1 example, concerning the analytical object range when future topographical sea level change is considered it examined. As a result, concerning the analytical range for the underground water flow analysis presently for topography, what can set the analytical territory in the rational range making use of the GIS analytical result was found. In addition, it was found that supposition of the time scale is important concerning the analytical range which considers future topographical change and sea level change.