Universität Basel

Research Project

Vertrag Hydro-CH2018 Grundwassertemperatur

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Organisation / Research unit
Departement Umweltwissenschaften / Applied Geology (Huggenberger)
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”Current-State and Temperature Development of Swiss Unconsolidated Rock Aquifers”

Quantitative and qualitative climate change impacts on groundwater regimes will differ for different aquifer settings according to the dominating processes which contribute to groundwater recharge (areal, linear) and the location (rural, urban).
For the understanding of the relevant processes and site-specific factors, it is necessary to capture the transient character of direct (cooling / heating) as well as indirect (climatic changes) hydraulic and thermal boundary conditions. These basics are essential for understanding groundwater reactions to anthropogenic changes and influences of climate change. The aim of this project module is to establish a differentiated view of the influences that determine the groundwater renewal and temperatures in unconsolidated rock aquifers by means if two main topics.
Topic (A) covers the assessment of intrinsic characteristics of groundwater systems, including the evaluation of hydraulic and thermal groundwater regimes by means of deriving a “current state” of individual aquifers and the derivation of key parameters (renewal rates, dwell times, storage properties, ...).
Topic (B) involves a comparison of actual as well as scenarios characteristic for hydraulic and thermal boundary conditions of selected Swiss groundwater systems as the basis for the derivation of the transferability to Swiss groundwater resources in general.
A selection of climate projections developed within the framework of Hydro-CH2018 should make it possible to identify those key parameters which have the greatest influence on groundwater resources. This knowledge makes it possible to derive and optimize cantonal monitoring concepts.

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