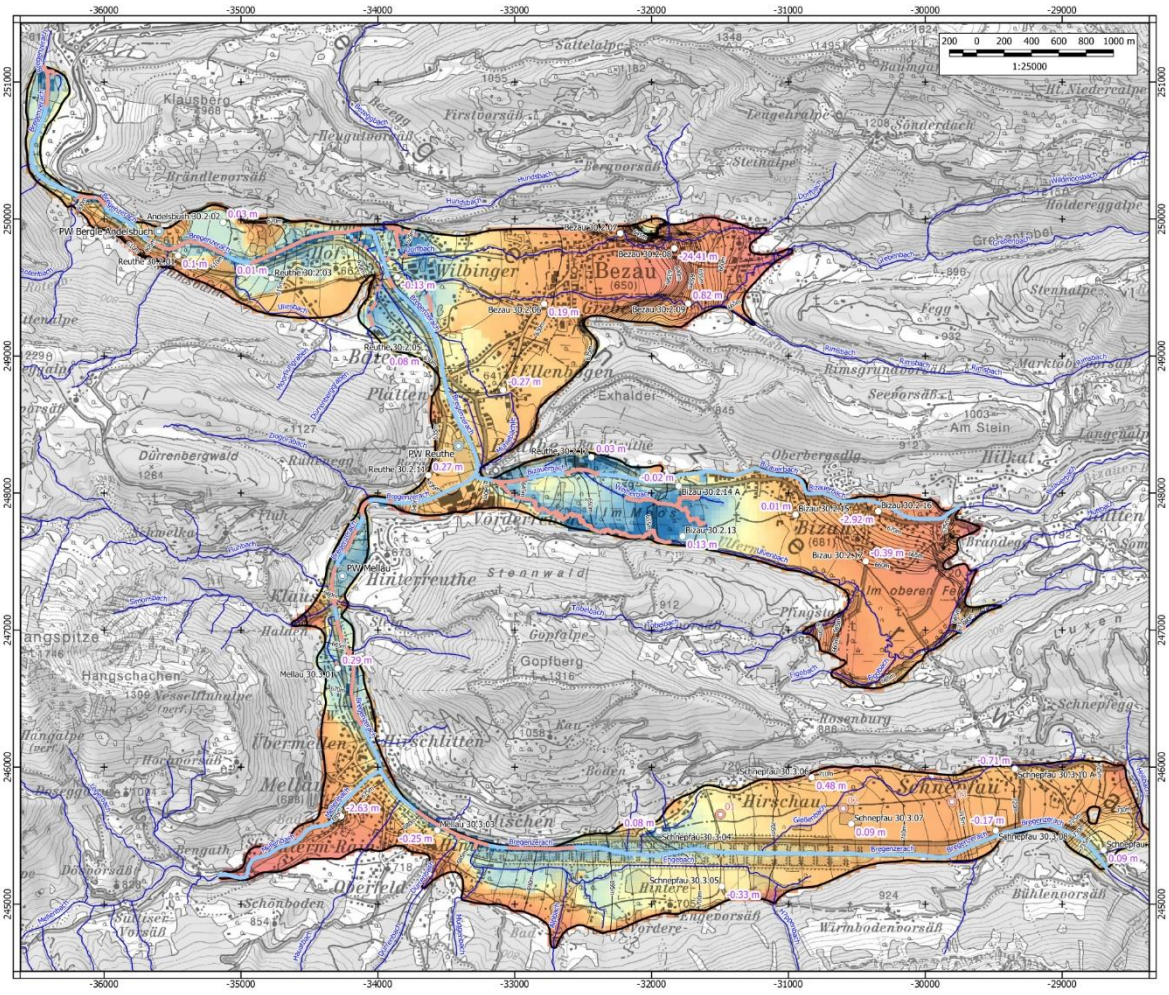
GROUNDWATERMODEL BREGENZERWALD

3G Gruppe Geotechnik Graz ZT GmbH



PROJECT DESCRIPTION

The project area of Schwarzenberg, Stiegeln and Schnepfau in the Bregenzerwald has an area of approx. 11.4 km², the corresponding regional drainage bassins approx. 30.7 km². A numerical groundwater model was developed for this area.

The main target is to model and analyse the current groundwater regime. Furthermore, the potential groundwater extraction of existing wells as well as the potential of additional groundwater extraction is to be evaluated.

In addition, the impacts on the groundwater regime of currently planned project and measures respectively are to be evaluated.

UNDERGROUND

The porous aquifer of the groundwatermodel is situates in quaternary beck filling material.

The underground is constituted of fluvial deposits (as Bregenzer Ach gravel), talus material, rockfall material, moraine and partly moor.

The aquiclude of the porous aquifer consists of unit of the Helvetikums of Vorarlberg (Amdener formation, Seewer Kalk-formation, Garschella-formation, Schrattenkalk-formation und Drusbergformation).

3G WORK AREAS

- Development of numerical, regional groundwater model with software ‘Spring’.
- Acquisition and analyses of geological-geohydrological-hydrological data of regional drainage bassins and definition of characteristic, dry and wet year.

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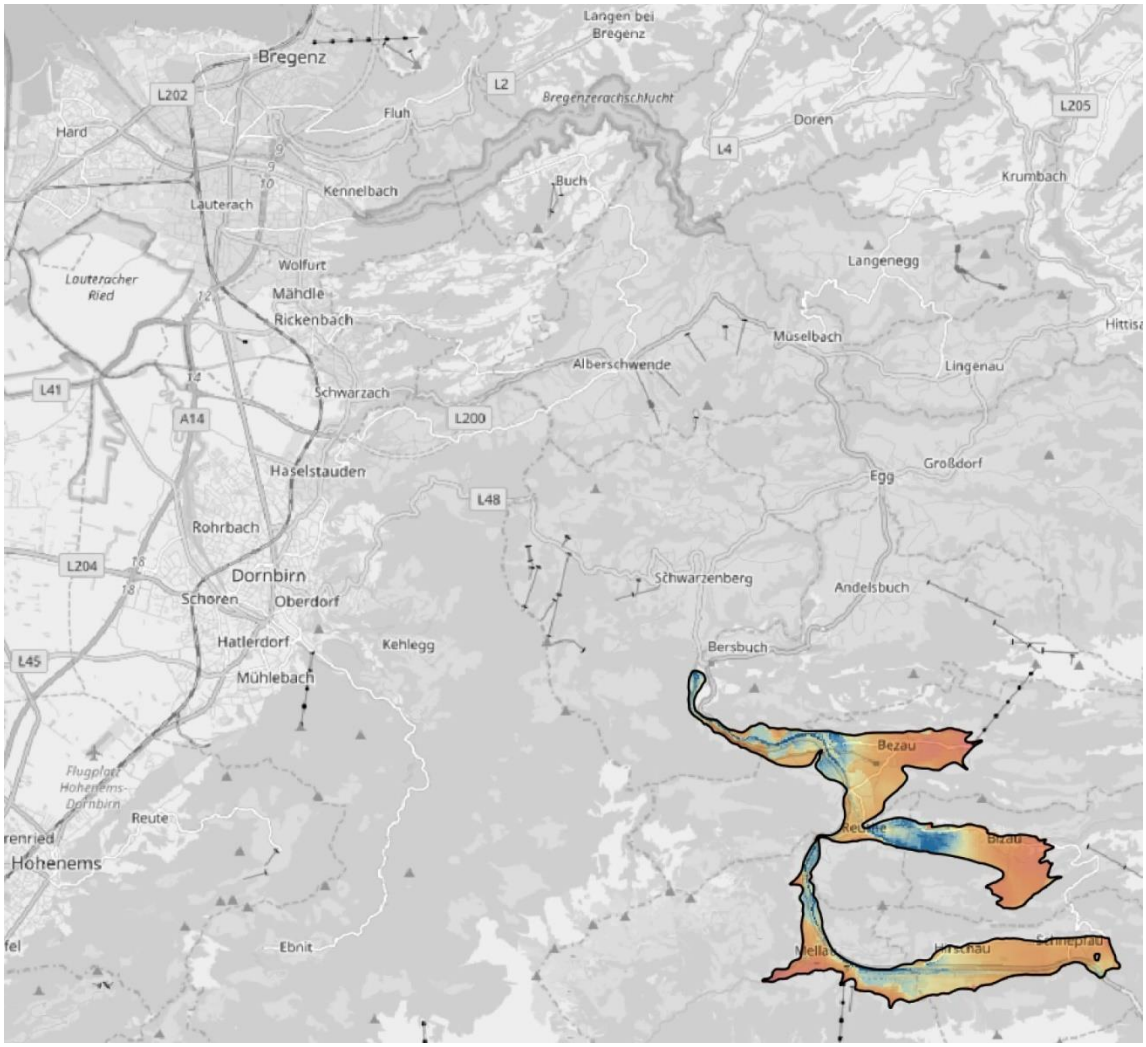

- Steady-state and transient calibration of numerical groundwater model for a characteristic, wet and dry year.
- Simulation of discrete issues, i.a. evaluation of the sedimentation effect in the river Bregenzerach on the groundwater, evaluation of potential pumping rates in existing pumping wells for drinking water supply, evaluation of the existing protective area around the pumping wells, evaluation of pumping rates of potential pumping wells for drinking water supply as well as the evaluation of the protective area with different pumping rates.

SUMMARY

PROJECT:
Groundwater modelling Bregenzerwald, Schwarzenberg Stiegeln – Schnepfau, Vorarlberg, Austria

TYPE OF PROJECT:
Numerical groundwater modelling

LOCATION:
Bregenzerwald, Vorarlberg, Austria

PROCEEDING PERIOD:
January 2017 – March 2019

CLIENT:
Land Vorarlberg, Amt der Vorarlberger Landesregierung, Abteilung Wasserwirtschaft

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