

Research Project

Integrated methods for stochastic ensemble aquifer modelling

Third-party funded project

Project title Integrated methods for stochastic ensemble aquifer modelling

Principal Investigator(s) [Huggenberger, Peter](#) ;

Project Members [Huber, Emanuel](#) ;

Organisation / Research unit

Departement Umweltwissenschaften / Applied Geology (Huggenberger)

Department

Project start 01.03.2011

Probable end 28.02.2014

Status Completed

The state of the art in modeling groundwater systems is related to developments in geology, physics, geophysics, hydrogeology, and mathematics. Too often, the research in these areas is pursued independently by different teams and is therefore not integrated around a unique vision. The aim of the ENSEMBLE project is therefore to integrate the recent developments in quantitative geology, hydrology, numerical, and stochastic modeling to increase our ability to understand and predict complex hydrological systems. The teams involved in the ENSEMBLE project (ETH Zürich, Stanford University, Universities of Basel, Bern, Neuchâtel and Lausanne) will focus their research on developing new integrated methods (multiple point statistics, joint hydrogeological and geophysical inversion, fast methods for uncertainty analysis, etc.) for the characterization of the heterogeneity of alluvial systems and for the efficient stochastic ensemble simulation of groundwater flow and solute transport in those systems. Four common field sites corresponding to different alluvial systems (Tagliamento, Thur, Birs, Herten) will be used to illustrate and test the concepts and methods developed in the project.

Keywords geostatistics, Geophysics, Numerical modeling, ensemble modelling, model simplification, Uncertainty, Alluvial system, Multiple-point statistics, Geology, kriging, numerical modelling, inverse methods, optimization, hydrogeophysics, Hydrogeology, alluvial

Financed by

Swiss National Science Foundation (SNSF)

Add publication

Add documents

Specify cooperation partners

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
557547	Huggenberger, Peter	Renard, Philippe, Professor	University of Neuchâtel	01.03.2011	28.02.2015

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
557552	Huggenberger, Peter	Bayer, Peter, Dr.	ETH Zürich	01.03.2011	28.02.2015
557554	Huggenberger, Peter	Caers, Jef	Stanford University	01.03.2011	28.02.2015
557558	Huggenberger, Peter	Ginsbourger, David	University of Berne	01.03.2011	28.02.2014
557563	Huggenberger, Peter	Linde, Niklas, Professor	University of Lausanne	01.03.2011	28.02.2015
557565	Huggenberger, Peter	Lunati, Ivan, Professor	University of Lausanne	01.03.2011	28.02.2015