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CONTEXT

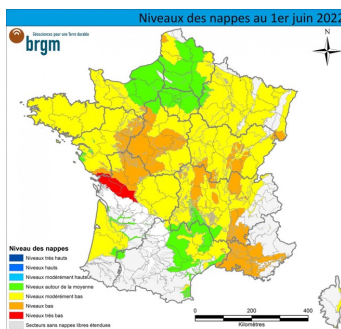
Climate change → Modification/decrease in groundwater recharge

Human activities → Increase in freshwater withdrawals from groundwater

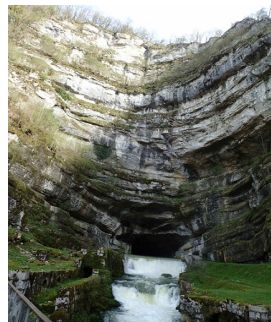
Numerical models to manage groundwater resources

Need for hydrodynamic parameters → possible from flow-rate at the spring

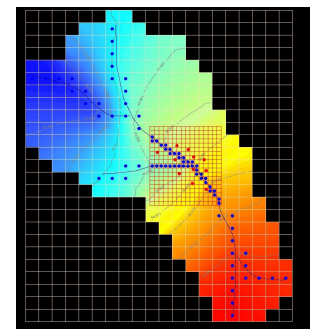
Groundwater constitutes
99%
of the earth's
liquid freshwater
reserves



Quantitative state of the aquifers



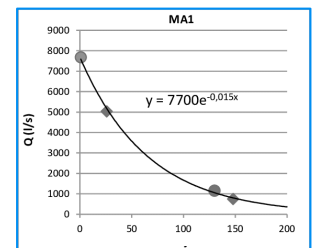
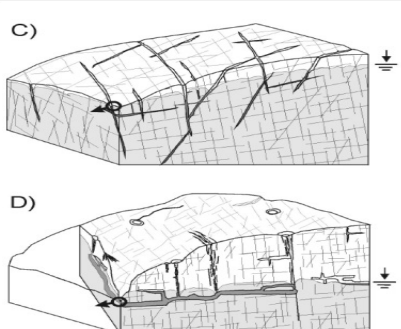
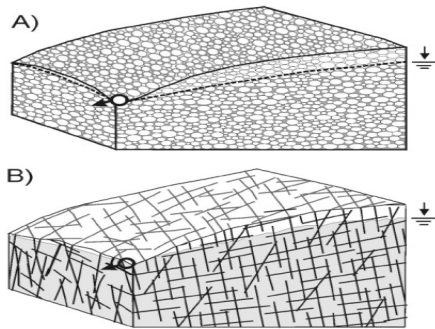
Loue spring



MODFLOW modeling

SCIENTIFIC CHALLENGE

Determine by a semi-analytical solution the porosity + permeability + internal structure elements of the heterogeneous aquifers from the flow data measured at the springs (hydrographs)



Exemple of hydrograph
(Q: flow-rate)

METHOD

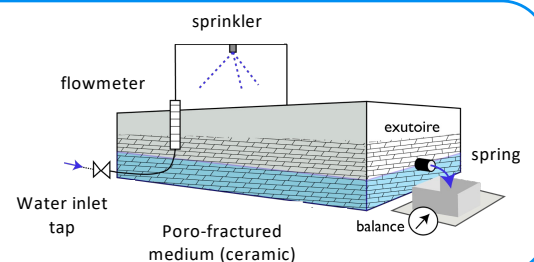
Data collection on springs in various hydrogeological contexts

Laboratory experiments on a reduced aquifer models

Resumption of the work of V. Hakoun's thesis (2013)

Establishment of a hydrograph typology

Development of a new hydrograph analysis model



OUTCOMES

Scientific publications

New practical works for L3 or M1 courses

Open-access tool for hydrogeologists and groundwater managers

