# Simulating heat transfer for geothermal energy and heat storage in a flooded legacy coal mine in Liège (Belgium)

*In the framework of the GEOMINE project: « feasability study in the Liège basin in view of a pilote geothermal project in old coal mines » funded by SPW Wallonie Energie*

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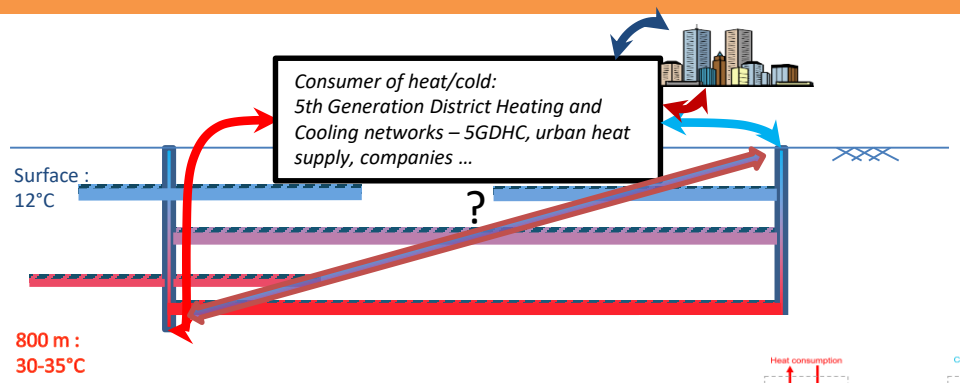
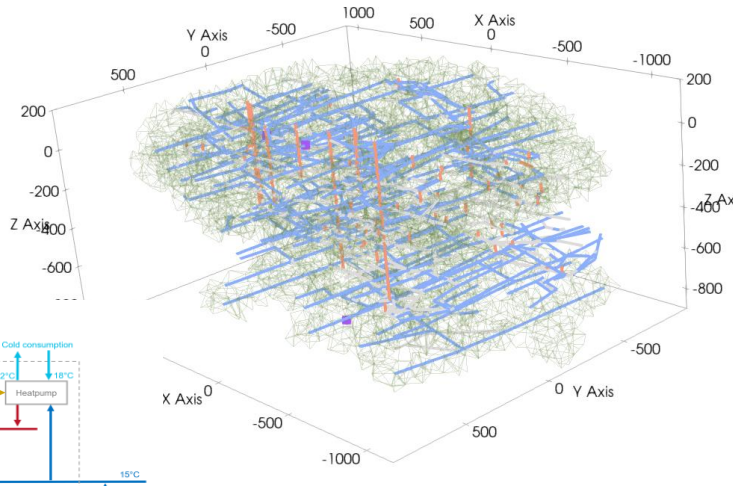
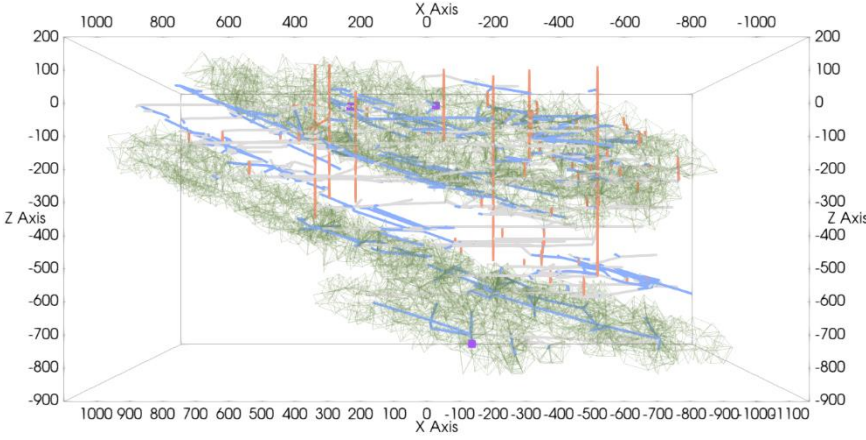
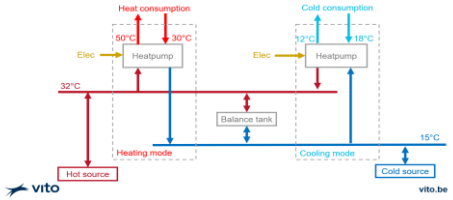


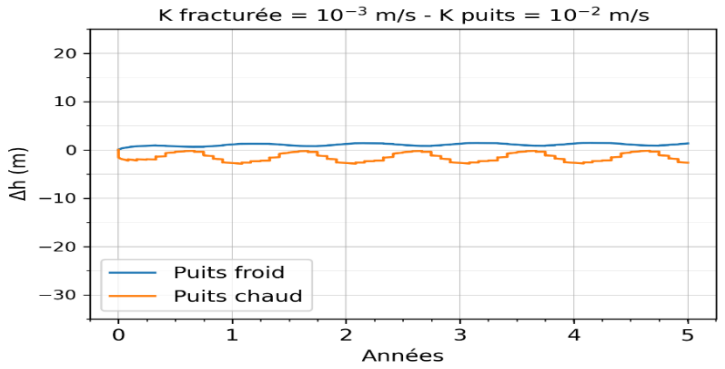




Feflow© simulations
- 1D discrete and 3D finite elements
- density/viscosity dependent groundwater flow coupled to heat transport
- sensitivity analysis to hydraulic conductivity of shafts, galleries, bed-rock, fractured old exploitation panels, …

Ready for next steps:
- field local hydrogeological data
- a full feasibility study




**Fractured zones $K$ = 1x10$^{-3}$m/s**

Galleries $K$ = 1x10$^{-1}$m/s

Shafts $K$ = 1x10$^{-2}$m/s

Bed-rock $K$ = 1x10$^{-6}$m/s