



innovationmeetings
meet the construction experts

21 june 14h > 18h
geothermal energy

VUB – HYDR

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Vrije
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innoviris.brussels
empowering research

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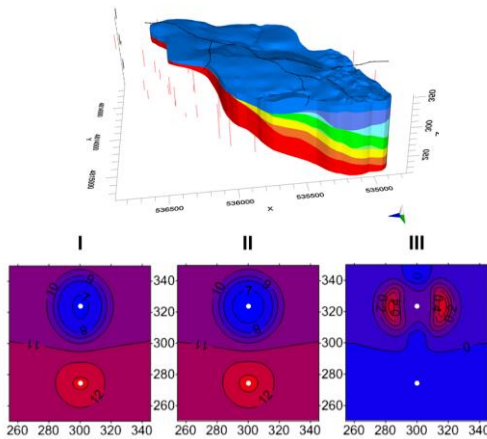
HYDR

Competencies => GROUNDWATER



■ Numerical modelling

■ Field measurements

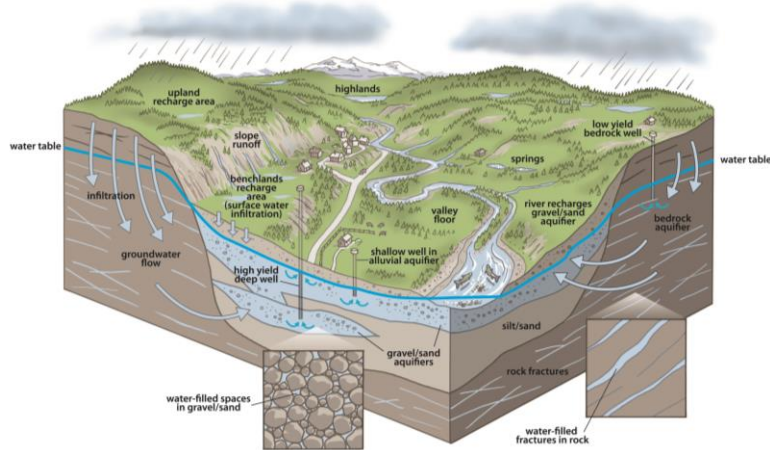


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Competencies => GROUNDWATER => ATES

■ Aquifer Thermal Energy Storage (ATES)

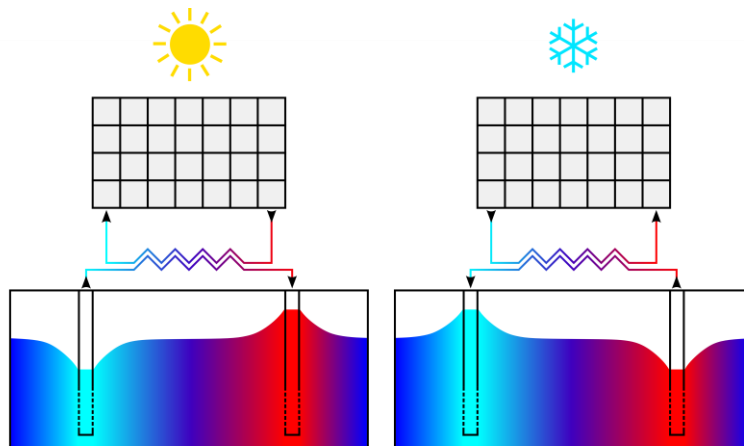


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Competencies => GROUNDWATER => ATES

■ Aquifer Thermal Energy Storage (ATES)



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Competencies => GROUNDWATER => ATEs

■ Aquifer Thermal Energy Storage (ATES) research

- What?
 - Feasibility studies
 - Environmental impact
 - Optimal planning and management
- How?
 - Field measurements
 - Numerical modelling
 - Groundwater flow modeling (MODFLOW)
 - Heat transport modelling (MT3DMS)
 - Contaminant transport modelling (MT3DMS)
 - Reactive transport modelling (Phreeqc and PHT3D)

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Competencies => GROUNDWATER => ATEs

■ Aquifer Thermal Energy Storage (ATES) projects

- **2014-2017: Innoviris Anticipate project:** “Model-based assessment of the potential of seasonal aquifer thermal energy storage and recovery as a groundwater ecosystem service for the Brussels-Capital Region”
- **2016-2020: FEDER project “BruGeoTherMap”**

Innoviris Anticipate project “Model-based assesment of ATES potential”

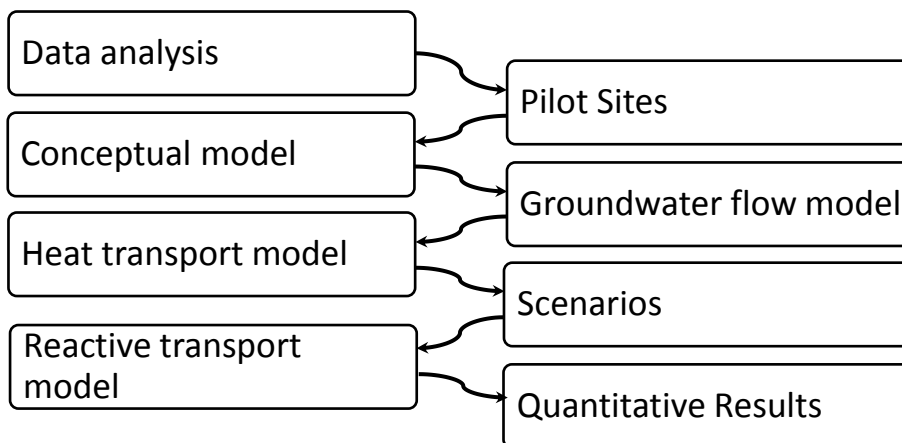
Goals

- Assessing **potential** for ATES in BCR
 - Delineation of **suitable sites** for ATES in BCR
 - Assessing **environmental impacts**
 - Assessing potential **energy savings**
 - Developing practical **guidelines**
- Using 3D numerical groundwater flow, heat transport and reactive transport modelling

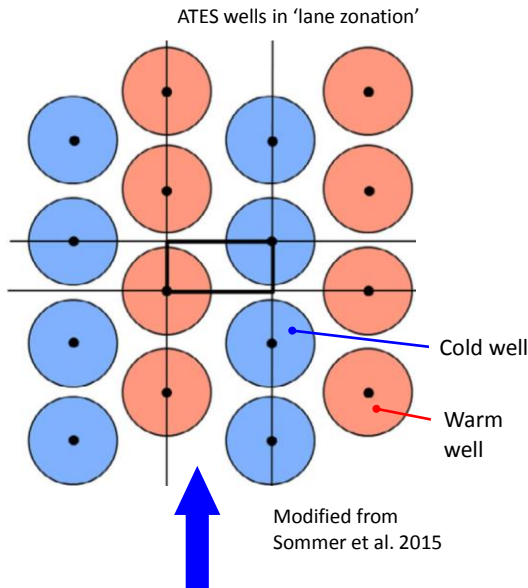
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Innoviris Anticipate project “Model-based assesment of ATES potential”

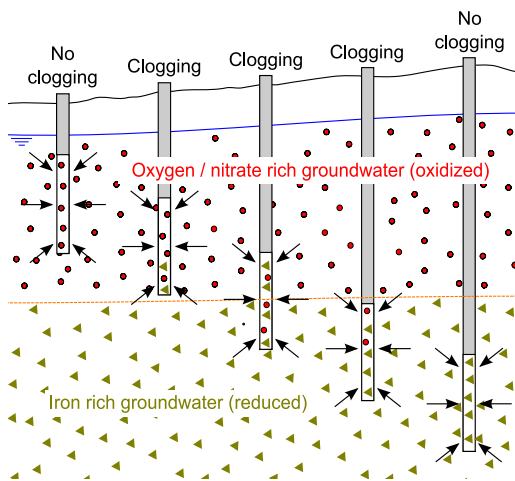
Methodology



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optimal
management of the
subsurface



Modified from Possemiers et al. 2016

ATES wells in
phreatic aquifers
can suffer from iron
(hydr)oxide
precipitation



HYDR



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