EGU24-21533, updated on 06 Dec 2024
https://doi.org/10.5194/egusphere-egu24-21533
EGU General Assembly 2024

Thermal management of urban groundwater resources - climate change, thermal potentials and opportunities

Jannis Epting
Applied and Environmental Geology, Hydrogeology, Department of Environmental Sciences, University of Basel, Switzerland (jannis.epting@unibas.ch)

In urban areas, increased thermal use of the subsurface, including infrastructure development (e.g., tunnels and underground car parks) and adaptation strategies (e.g., more frequent thermal use of aquifers for "cooling" purposes or increased implementation of the sponge city concept), associated with global warming will inevitably increase urban groundwater temperatures. Likewise, anthropogenic adaptation strategies could have a greater impact than climate change itself.

In scope of the presentation strategies for the thermal management of urban groundwater resources in northwestern Switzerland are presented by discussing climate change, thermal potentials, and opportunities for adaptation measures. In particular, there are opportunities related to unused anthropogenic waste heat, especially in the subsurface of urban areas, and the energy potential that could be tapped through suitable construction measures.