

Assessment of shallow geothermal potential using numerical modelling (Ljubljana case study)

Mitja Janža (1) and Dejan Šram (2)

(1) Geological Survey of Slovenia, Slovenia (mitja.janza@geo-zs.si), (2) Geological Survey of Slovenia, Slovenia (dejan.sram@geo-zs.si)

Management of the subsurface in urban areas plays an important role in ensuring sustainable development of the cities. In the City of Ljubljana the groundwater beneath the city is the main resource of drinking water for the inhabitants. At the same time the subsurface represents important source of renewable energy. Use of this shallow geothermal energy with heat pump systems can provide benefits in terms of reduction of fossil fuel consumption and emissions that are hazardous to climate and air quality. In this study numerical modelling of hydraulic and geothermal conditions in the area of the City of Ljubljana is presented. The modelling provides information which are part of the workflows and tools developed within the project GeoPLASMA-CE (<https://portal.geoplasma-ce.eu/>) which enable quantification of the shallow geothermal potential as well as constraints for its use and support planning of sustainable use of shallow geothermal energy in the City of Ljubljana.