



Can we define the Impact of Climate Change on Ljubljansko polje Aquifer

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Climate change is our reality and we are certain that it's taking place at global level, but how can we be aware of changes on the regional and local level. Increasing of global average temperature induce modifications in weather patterns also on regional level. In the last decade we have measured more extreme weather events, such as heat waves, extreme rain and intensive storms. Measurements from the last fifty years show us the changes in precipitation intensity, quantity and type. When the source for drinking water is the unconfined porous aquifer all extreme events and changes in the weather and the climate influence on groundwater recharge. If climate change is projected to decrease the water sources of a country or region, we can consider climate change as a "new sector of water consumption", and be aware of that is important for sustainability of drinking water sources and planning the future drinking water supply.

The Ljubljana polje aquifer, of length more than 16 km, 6 km wide and about 100 m deep, is one of the biggest unconfined porous aquifer in Slovenia. The dynamic capacity of groundwater flow is 3-4 m³/s and it's very important drinking source for more than 270000 inhabitants of Ljubljana and vicinity. More than half of aquifer area lies below the city and for decades we can observe the changes in groundwater quality and quantity. For sustainability of natural drinking water supply is very important that we can distinguish the influence of anthropological activities and urbanisation from influence of climate change on groundwater quality and quantity. The impact of climate change on water resources depends on system, how to management of the systems evolves, and what adaptations to climate change are implemented.

The meteorological data, hydrological data and groundwater level measurements will be analysed on one side and "anthropological" elements, such as groundwater consumption and changes in land use on the other side. We will try to find out and define the "natural" and "anthropological" Climate Change patterns.