



Geothermal and water resources in Ethiopia

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Countries located in the East African Rift System (EARS) have significant geothermal resources as a result of the specific geology of the region. This geothermal potential has long been recognised through reconnaissance surveys started as early as the 1950s although, as of today, Kenya is the only significant producer of geothermal energy within the EARS (ranked 9th in the world with an installed capacity of 676 MW representing about 46% of total produced electricity). Most of the EARS countries rely on hydropower and/or fossil fuels and now turn towards the development of their geothermal resources as a result of their vulnerability to climate change (frequent droughts) or oil and gas supply and prices.

The exploitation of geothermal reservoirs raised questions about the management and the sustainability of this resource within the wider context of water resources. To address this issue, all publicly available data regarding geothermal reservoirs in the EARS were compiled and fed into a database focussing on the hydrochemical characterisation (chemistry, isotopes, gases) of the geothermal fluids and local water resources.

In this presentation, an overview of the quality of geothermal fluids and water resources in Ethiopia will be given. We will then focus on specific geothermal areas to identify geothermal dynamics such as water mixing processes between geothermal fluids and water resources. We will discuss and conclude on the sustainability of geothermal exploitation and its potential impacts on other water resources in the country.

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