ECOLE LEMANIQUE DES SCIENCES DE LA TERRE
DES UNIVERSITES DE GENEVE ET DE LAUSANNE

Master ès Sciences in Earth sciences

Investigation of the Domo San Pedro geothermal field, Mexico, with passive seismic methods.

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Context

The Domo San Pedro Geothermal field, Mexico, is a high-enthalpy geothermal system with an installed capacity of 35 MW. 9 wells ranging from about 1500 m to 3000 m depth are already operative in the area and the operator exploiting the geothermal field is planning to expand its production with the drilling of two additional wells. For these wells, at least two soft stimulations are planned. This porject proposes to analyse the seismicity recorded by a seismic network composed of 20 stations deployed in the region and investigate the spatio-temporal relationship between stimulation and seismicity. This study is part of the REPIC-funded project called DOS PEGAS. The student will use the data recorded by the network to monitor the seismic activity during stimulation and develop tomographic models to understand the velocity structure of the geothermal field. The project is jointly carried on in collaboration with the Universidad Nacional Autonoma de Mexico (UNAM).

Objectives and Methods

Methods:

- *Accurate earthquake relocations*
- *Local earthquake tomography.*

Objectives:

- *Monitor the seismic activity promoted by geothermal stimulation*
- *Use passive seismi methods to prospect geothermal systems*

Literature

- Orozco, Violeta Mirthala REYES, et al. "Preliminary Conceptual Model of the Domo San Pedro Geothermal Field-Western Sector of Trans-Mexican Volcanic Belt, Nayarit, Mexico." *Stanford Geothermal Workshop*. 2019.
- Rodriguez, Esteban, et al. "Preliminary Geochemical Model of the Domo San Pedro Geothermal Field in San Pedro Lagunillas, Mexico." *Stanford Geothermal Workshop*. 2019.

WEB sites

https://www.geofisica.unam.mx/
https://www.thinkgeoenergy.com/tag/grupo-dragon/

Choice of orientation : (supprimer les orientations qui ne conviendraient pas)

1) Sedimentary, Environmental and Reservoir Geology **/** 2) Geochemistry, Alpine tectonics, Ore Deposits **/ 3**) Geological Risks