## 7th European Geothermal Workshop - Characterization of Deep Geothermal Systems



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## Local earthquake tomography of Los Humeros geothermal field

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Los Humeros volcanic complex hosts one of Mexico's main geothermal fields, which is operated by the Federal Electric Comission (CFE, by its Spanish acronym). It is located at the eastern edge of the Trans Mexican Volcanic Belt (TMVB) forming the northern boundary of the Serdán-Oriental basin. The shallow subsurface has been studied extensively, but knowledge of the geothermal system at depths greater than ~2.4 km is still rather sparse. For this reason, in the framework of the European H2020 and Mexican CONACyT-SENER project GEMex, various geophysical, geological, and geochemical surveys have been carried out to better understand the structure and behaviour of the geothermal reservoir, and to investigate future development areas.

Between September 2017 and September 2018, a seismic network consisting of 23 broadband and 20 short period stations, was deployed to monitor and study the currently exploited Los Humeros geothermal field. In this study, we use the retrieved local micro-seismic events (Gaucher et al 2019) to derive a minimum 1D velocity model, which we later employ as starting model to obtain 3D velocity variations and seismicity relocations. We will present results of the derived P-wave velocity and Vp/Vs models highlighting new information of the geothermal field, along with an initial interpretation of main velocity anomalies and structures and compare them to previous geological and geophysical data.

## References

Emmanuel Gaucher, Tania Toledo, Malte Metz, Angel G. Figueroa-Soto and Marco Calò. 2019. One year of passive seismic monitoring of the Los Humeros (Mexico) geothermal field. In European Geothermal Congress

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