UNAM - SEG
Student Chapter

The UNAM SEG Student Chapter organized a 2-day field trip to west central Mexico, to know a hydrothermally active zone called Los Azufres. This geothermal field belongs to Comision Federal de Electricidad (CFE) a governmental industry, and they have installed currently 225 MW, amount which makes it the second largest geothermal source of electricity available in México.

This geothermal field is located in the Mexican State of Michoacán in a wooded mountainous area 200 km west of Mexico City. The geothermal electrical plant uses drilled wells that are productive between 650 to 3,500 meters, where the geothermal reservoir is located.

The productive rocks are part of the Trans-Mexican Volcanic belt (FVTM) and constitute a typical high-enthalpy hydrothermal system related to a volcanic caldera with intense fracturing. The Los Azufres geothermal field is classified as a low sulfidation system based on its geochemical and petrologic characteristics, the hydrothermal mineral alteration and the fluid composition, where S is mostly in the form of H_2S, González-Partida, et al., (2005) and references therein.

The volcanic rocks in Los Azufres are made up of a characteristic calc-alcaline suite composed of interbedded basalts, andesites, dacites and riolites that formed many composite and monogenetic volcanoes.

The main zones around thermal manifestations are pervasive altered. In this zones an advanced argillic mineral assemblage composed of caolinite, alunite, native sulfur, low temperature quartz and zeolites are well exposed. This mineral arrangement is related to the interaction between host rocks and acid solutions.

The study of the behavior of an active hydrothermal system is quite useful to understand a fossil hydrothermal system also known as epithermal deposits, which are the most abundant mineral deposits in Mexican territory. We would like to connect the knowledge learned in this field trip to a second stage field trip to Hidalgo State in central Mexico (currently planning for our fifth field trip to the second part of 2016). In our way to a world-class Mn deposit located in Molango, the visit to Pachuca-Real del Monte district fits very well within the route plans. This district has been active since XVI centuries, now owned by Real del Monte Mining Corp. and consists of several epithermal deposits with high grade gold and silver ores.

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Participants

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References

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