

## **Origin and Timing of Barite Mineralization at the La Popa salt weld, NE Mexico**

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Traditionally, barite is thought to form late in the history of structures in association with hydrothermal fluids. Cold seep barite forms early in the salt structures history and therefore barite distribution may be controlled by the halokinetic sequence stratigraphy at the salt-sediment interface.

La Popa salt basin is located in the foreland of the Sierra Madre Oriental fold belt. The basin contains Cretaceous to Eocene shallow marine to fluvial siliciclastic strata deformed by both diapirism and the Laramide age shortening. Within the basin is a 25km long sub-vertical salt weld, a surface formerly occupied by salt. Barite mineralization is restricted to the weld area and the margins of several other salt stocks within the basin. Detailed mapping of the barite deposits will document the distribution along the length of the weld and indicate if there is any association of barite with a particular stratal unit or structural style. Geochemical analysis of fluid inclusions in the barite and associated carbonate minerals, along with oxygen, sulfur, and carbon isotopes will provide information on the chemistry and temperature of the mineralizing fluids.

Though welds have been widely documented in seismic data sets from many salt basins around the world they have not been widely studied in regard to how they form and evolve through time. Determination of what type, when, and how fluids migrated through the La Popa weld will provide important new information on the character weld systems and their capacity to act as seals or fluid migration pathways.