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Characterization of Atotonilco geothermal area, Veracruz, Mexico

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Geothermal high enthalpy resources can be an important potential source to satisfy Mexico's energy requirements ; nevertheless, low and moderate enthalpy resources may contribute through the direct uses to replace fossil fuels. In both cases, the exploitation of geothermal resources are an important factor inthe energy transition that the whole world strives to achieve. Furthermore, it has an important social impact in the communities, where the use of geothermal energy can bring considerable benefit. In this work, a geothermal characterization with a geographic approach is presented for the "Atotonilco" (hot water in native language) town in Calcahualco municipality of Veracruz state (eastern México). The surface manifestations in the area are calcium-carbonate warm springs with flows from 1 to 12 liters per second. The temperature at depth was estimated between 70°C and 74°C with the calcedony geothermometer, which corresponds to a low enthalpy resource. A preliminary conceptual model of the Atotonilco geothermal area, using all data and a list of the feasible direct uses applications are proposed. These proposals consider the social and economic characteristics of the study area that were observed during the field work. The recommended actions include dissemination of the results of this research, as an important contribution to the development of geothermal resources in Atotonilco town.

Keywords: Geothermal energy, environmental geography, renewable energy, direct use, geochemical exploration, geoscience dissemination.

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