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Hydrogeochemical processes in groundwater from the Salar of Pipanaco (Catamarca, NW Argentina)

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ABSTRACT

The hydrological basin of the Salar of Pipanaco is mainly located in the South of Catamarca Province (NW Argentina). It is a typical and large (17,200 km²) endorheic basin of tectonic origin situated in the Eastern Andes that has been dissected in the South by the Colorado River during the Plio-Quaternary. Climate is arid and the recharge is by the precipitation in the high surrounding mountains (El Manchao, 4,552 m.a.s.l.). Thermal artesian wells as well as new perforations exploited by new agricultural initiatives have been sampled in the western margin of the Salar of Pipanaco. New wells show the extents of several tens of kilometers to the north of the geothermal field. Hydrochemical results (major ions and 57 trace elements) allow to us fingerprint the origin of the groundwater and its path by the eastern margin of the Salar which is very affected by the real tectonics (it is a very active seismic area). Groundwater quality is excellent but must be managed carefully to avoid the overexploitation because of the low recharge.