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## Hydrothermal system of the Lastarria volcano, imaged by 3-D modeling of magnetotelluric data

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(Lazufre volcanic complex, located in the central Andes, is recently undergoing an episode of uplift, conforming one of the most extensive deforming volcanic systems worldwide. Recent works have focused on the subsurface of this volcanic system at different scales, using surface deformation data, seismic noise tomography and magnetotellurics. Here we image the electrical resistivity structure using the magnetotelluric method in the surroundings of the Lastarria volcano, one of the most important features in the Lazufre area, considering data measured in two field campaigns carried out during 2013 and 2015. Results from 3-D modeling show a conductive zone at 6 km depth south of the Lastarria volcano interpreted as a magmatic heat source, which is connected to a shallower conductive area beneath the volcanic edifice and its close vicinity. This shallow highly conductive zone fits with geochemical analysis results of thermal fluid discharges shown in Aguilera et al. (2012), related to fumaroles present in this area, in terms of depth extent and possible temperatures of fluids, and presents also a good correlation with seismic tomography results obtained by Spica et al. (2015). The horizontal extension of this shallow conductive zone, related to the hydrothermal system of Lastarria, suggests that it has been draining one of the lagoons in the area (Laguna Azufrera), forming a sulfur rich area which can be observed at the southern edge of this lagoon.