

First year of magnetotelluric observations at Villarrica volcano, Southern Andes.

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SUMMARY

Since January 2023, a broad-band magnetotelluric station was installed at Villarrica volcano, one of the most active volcanoes of the Southern Volcanic Zone of the Andes, through a collaborative project to enhance the monitoring efforts to observe the current activity of this volcano and test the capabilities of broad-band magnetotellurics in order to identify changes in the electrical resistivity structure of a particular part of Villarrica.

As a first order approach, apparent resistivity and phase curves were obtained for 24-48 hours' time frames, for all the measured data during 2023 and beginning of 2024. Important changes were observed for these parameters, in different moments of the analyzed time, in particular when an enhance in the seismicity close to the MT monitoring station were reported during January 2024.

Magnetotelluric data of the monitoring station will be presented in different ways, and analyzed together with other monitoring data for Villarrica volcano, as seismological and DOAS (Differential Optical Absorption Spectroscopy) data, to discuss an idea of the possible changes in the electrical structure below Villarrica volcano, to explain the monitoring observations related to the current activity state of this area.

Keywords: Magnetotellurics, Volcanology, Monitoring
