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Origin and evolution of hotsprings near Villarrica volcano

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Villarrica volcano is one of the most active volcanoes of the Southern Andes Volcanic Zone (SVZ) and has several thermal manifestations in its surroundings. In this study we showed preliminary results measured in field in 2015 -2016 (post-eruption) and compared them with those obtained before eruption (March, 2015). Most hotsprings located close to Villarrica volcano, between Pucón and Curarrehue were sampled between years 2012–2016. These manifestations emerge directly from granitoids as well as volcanoclastic, pyroclastic and fluvial deposits. Physicochemical parameters such as temperature, pH, and total dissolved solids (TDS) were measured in-situ. Results show that the temperature range between 29–87°C, being most common mesothermal waters. The pH allow to classify this fluid as neutral to alkaline waters (pH =7.0 to 9.7). The hotsprings present a low-moderate concentration of ions (TDS = 76 to 656 mg/L). Moreover, water and dissolved gas were sampled in order to analyze major elements, traces and isotopes (¹⁸O – D). Chemical analyzes are currently being performed, in order to identify the chemical composition that affect the geochemical process and to propose a geochemical model that explain their origin and nature, and how it contributes to volcanic activity and magmatic process.