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Geophysical Constraints on Calbuco April 2015 Eruption

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The eruptive cycle of Calbuco volcano on April, 2015 had the characteristic that the "usual" precursors signals only was recorded few hours before the onset of the eruption. This cycle was composed by two main pulses separated within 7 hours between the having VEI 3-4, with eruptive columns 15-17 km height respectively and a third smaller pulse on April 30. Petrological data analyzed on collected deposits from the eruption products did not show evidence on process of mixing of magmas nor hydrothermal activity which could triggering this eruption. We propose a second boiling process as a possible mechanism explaining the pre-eruptive behavior.
Although monitoring network at that moment was poor in quantity of stations, this network allow us to make a timeline with the evolution of the eruption with the identification of different stages on the eruptive process, showing the rapid migration of VT seismicity from SW of the crater to below it, as well as the rapid evolution from this kind of seismicity to the occurrence of hybrid and LP events prior the eruptions with reduced displacement > 15000 cm2.