



## **Evidence of seismic triggering from bubble textures at Cordón Caulle volcano, Chile**

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It is now established that earthquakes can trigger volcanic eruptions, yet, the underlying mechanisms remain elusive. Here, we investigate the hypothesis that seismically-triggered eruption deposits exhibit significant textural differences, that can lead to insights into eruption triggering mechanisms. The 1960 eruption of Cordón Caulle, Chile occurred only 38 hours after the M9.5 Great Chile earthquake, indicating a possible seismic trigger. The previous eruption in 1921, was not preceded by any large earthquake. We thus compare the bubble texture of pumice lapilli from the 1921 and 1960 eruptions using both Scanning Electron Microscope and X-ray computed microtomography images. The two eruptions are similar in style, size and composition but the 1960 clasts are consistently denser. We assess whether textural differences result from the earthquake or arise from inherent natural variability. Finally, we perform a similar analysis on the most recent 2011 eruption, which trailed the 2010 M8.8 Maule earthquake by 16 months and consider the possibility that this eruption was seismically triggered too.