



## **Breathing of magma reservoir beneath Nevado del Ruiz Volcano in Colombia inferred from repeated seismic tomography**

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The Nevado del Ruiz volcano in Colombia is one of the most hazardous volcanoes in the world, causing the death of 25,000 people in 1985. Using a new algorithm for repeated tomography, we detected a clear seismic anomaly beneath the volcano that changes amplitude and shape during the present unrest period, which started in 2010. We propose that this anomaly of high  $V_p/V_s$  ratio is associated with a significant amount of liquid fluid that was accumulated beneath the volcano prior to the eruption. In 2010, degassing of these fluids triggered the beginning of the volcanic unrest that continues until now. In 2011-2014, most of the fluids escaped through the crater that led to the emptying of the reservoir. In 2015-2016, a new inflation of the reservoir was accompanied by increase of volcanic activity. It is possible that recurrent “breathing” of the volcano reservoir is the main cause of the NRV eruptions.