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Volcanic fluxes over the last millennium as recorded in the GV7 ice core (Northern Victoria Land, Antarctica)

Rita Traversi¹, Silvia Becagli¹, Mirko Severi¹, Raffaello Nardin¹, Laura Caiazzo², Alessandra Amore¹, Massimo Frezzotti³, and Barbara Stenni⁴

¹University of Florence, Chemistry Dept., Sesto F.no (Florence), Italy (rita.traversi@unifi.it)

²National Institute of Nuclear Physics (INFN), Florence section, Florence, Italy.

³Department of Sciences, Università degli Studi Roma Tre, Rome, Italy.

⁴Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Italy.

Explosive volcanic eruptions are able to affect significantly the atmosphere for 2–3 years. During this time, volcanic products (mainly H₂SO₄) with high residence time are stored in the stratosphere/troposphere, and eventually deposited onto polar ice caps; snow layers may thus record signals providing a history of past volcanic events. A high resolution sulphate concentration profile along a 197 m long ice core drilled at GV7 (Northern Victoria Land) was obtained by Ion Chromatography. The relatively high accumulation rate (241±13 mm we yr⁻¹) and the 5 cm resolution allowed a preliminary counted age scale. The obtained stratigraphy covers roughly the last millennium and 24 major volcanic eruptions were identified, dated and ascribed to a source volcano. The deposition flux of volcanic sulfate was calculated and the results were compared with data from other Antarctic ice cores at regional and continental scale. Our results show that the regional variability is of the same order of magnitude of the continental scale.