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## Forecasting eruptions after long repose intervals from accelerating rates of rock fracture: The June 1991 eruption of Mount Pinatubo, Philippines

Rosanna Smith (1) and Christopher Kilburn (2)

(1) Department of Earth and Environmental Sciences, LMU Munich, Germany (smith@min.uni-muenchen.de, (2) ABUHRC, UCL Earth Sciences, London, United Kingdom

Mount Pinatubo, Philippines erupted on 7<sup>th</sup> June 1991, after 500 years of repose and two months of detected seismic unrest. Accelerating volcano tectonic (VT) earthquake rates in the final days before this eruption have previously been used to develop eruption forecasting models based on extension and coalescence of fractures in the volcanic edifice forming a new pathway for magma ascent to the surface. We have re-analysed the precursory acceleration in VT earthquake rates using these forecasting models, in order to test their accuracy and sensitivity to how the VT earthquake data are gathered. Binning the data into fixed VT number intervals rather than fixed time intervals gave more precise forecasts. The eruption occurred 24 hours after the forecast time, and the interval was characterised by a sustained high rate of VT seismicity. We suggest that the difference between the forecast time is associated with completion of a new conduit, whereas the high rate of VT seismicity in the following 24 hours is attributed to the widening of the conduit and to friction between magma and country rock as the magma rose to the surface.