

EGU2020-22449

<https://doi.org/10.5194/egusphere-egu2020-22449>

EGU General Assembly 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



Magma Degassing as a Source of Long-Term Seismicity at Volcanoes: The Ischia Island (Italy) Case

Mauro Di Vito¹, Elisa Trasatti¹, Valerio Acocella², Carlo Del Gaudio¹, Gregor Weber³, Ida Aquino¹, Stefano Caliro¹, Giovanni Chiodini¹, Sandro de Vita¹, Ciro Ricco¹, and Luca Caricchi³

¹Istituto Nazionale Geofisica e Vulcanologia, INGV, Roma, Italy

²Università Roma Tre, Roma, Italy

³University of Geneva, Geneva, Switzerland

Transient seismicity at active volcanoes poses a significant risk in addition to eruptive activity. This risk is powered by the common belief that volcanic seismicity cannot be forecast, even on a long term. Here we investigate the nature of volcanic seismicity to try to improve our forecasting capacity. To this aim, we consider Ischia volcano (Italy), which suffered similar earthquakes along its uplifted resurgent block. We show that this seismicity marks an acceleration of decades-long subsidence of the resurgent block, driven by degassing of magma that previously produced the uplift, a process not observed at other volcanoes. Degassing will continue for hundreds to thousands of years, causing protracted seismicity and will likely be accompanied by moderate and damaging earthquakes. The possibility to constrain the future duration of seismicity at Ischia indicates that our capacity to forecast earthquakes might be enhanced when seismic activity results from long-term magmatic processes, such as degassing.