



## Temporal evolution of local seismicity in the island of Vulcano, Italy, in 1988 (TESV\_1988)

### About this dataset

The dataset covers the time span from January 1 to December 31, 1988. It encompasses three classes of seismic events recorded on the island of Vulcano, in Italy. Here the local seismicity has varying origins and characteristics, from seismic events related to fluid dynamics to brittle-failure earthquakes (Falsaperla and Neri, 1986). The dataset sheds light on three classes of signals with increasing seismic energy release, which were recorded before, during, and after a period of volcanic unrest in August 1988 (e.g., Chiodini et al., 1992; Falsaperla, 2021). For the first class, the dataset provides the hourly occurrence frequency of the local seismic events (mostly microshocks of volcanic origin) that exceeded an amplitude threshold (20 mm) on the paper seismograms of a reference station. The reference station for the counting (named VCR) was close to a large fumarole field. For the second class, the dataset gives the hourly occurrence frequency of seismic events with origin within about 10 km around La Fossa crater on the island of Vulcano. These events were recorded at at least three stations of the permanent seismic network of the Aeolian Islands. For the interested reader, Falsaperla (2021) provides a catalogue of the hypocenter location for the local earthquakes with magnitude between 1.8 and 2.5, recorded from July to September 1988. Many of these earthquakes were related to the aforementioned volcanic unrest. For the third class of events, the dataset lists the earthquakes with magnitude greater than 2.5, located within a radius of 15 km from the VCR station. For each earthquake the catalogue provides the hypocentral parameters (UTC origin time, latitude, longitude, and depth in kilometers), duration magnitude, energy (using the magnitude–energy relationship computed for Italian earthquakes by Di Filippo and Marcelli, 1950), and strain release.

### Acknowledgments

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### Citation

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### Download data



[-TESV\\_1988.xlsx](#)

### Description of methods

The hypocentral parameters were calculated by means of the Equivalent Velocity Method by Caccamo and Neri (1984); the local velocity model applied for this calculation was obtained by Falsaperla et al. (1985) by using deep seismic sounding data recorded in the Aeolian Islands.

### Technical description

The area of interest is centered in the island of Vulcano, Italy. The reference station for the counting of the local events is VCR (coordinates N38.41°, E14.96°). For the earthquakes with magnitude > 2.5, the epicentral map has the following coordinates: latitude from N38.265° to 38.54°, longitude from E14.78° to 15.13°. The seismic records were continuously acquired by stations belonging to the permanent seismic network of the Aeolian Islands (e.g., Chiodini et al., 1992). The network encompassed short period (1s) seismometers, and was run by Istituto Nazionale di Vulcanologia of the Italian CNR.

### References

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