

SUPPLEMENTARY MATERIAL TO

PARAMETRIC TABLE OF RECORDINGS FOR SEISMOLOGICAL STUDIES AT MOUNT ETNA: IMPLICATIONS FOR SEISMIC MICROZONATION STUDIES

Gabriele Tarchini¹, Giulio Brunelli², Giovanni Lanzano²,
Giuseppina Tusa³, Chiara Felicetta², Tommaso Castelbarco²,
Daniela Famiani⁴, Salomon Hailemikael⁴, Giuliano Milana⁴,
Mario Paratore³, Daniele Spallarossa¹, Raffaele Azzaro³, Francesca Pacor²

¹ University of Genoa, Department of Earth, Environmental and Life Sciences, Genoa, Italy

² Istituto Nazionale di Geofisica e Vulcanologia (INGV), Sezione di Milano, Milan, Italy

³ Istituto Nazionale di Geofisica e Vulcanologia (INGV), Osservatorio Etneo, Catania, Italy

⁴ Istituto Nazionale di Geofisica e Vulcanologia (INGV), Sismologia e Tettonofisica, Rome, Italy

This section contains additional figures supporting the analyses described in the main text. In detail, the following are provided:

- Figure S1, showing the spatial distribution of all 147 recording stations across the study area, classified according to the EC8 site classes;
- Figure S2, showing the mean HVSr curves and associated uncertainty for station IT.CAT, computed from both ambient noise and earthquake recordings;
- Figures S3 and S4, showing the analysis of the vertical-to-horizontal (V/H) ratio for PGA and PGV respectively, including residual comparisons between vertical and horizontal components;
- Figure S5, showing the distribution of residuals after the consistency check for PGA and PGV.

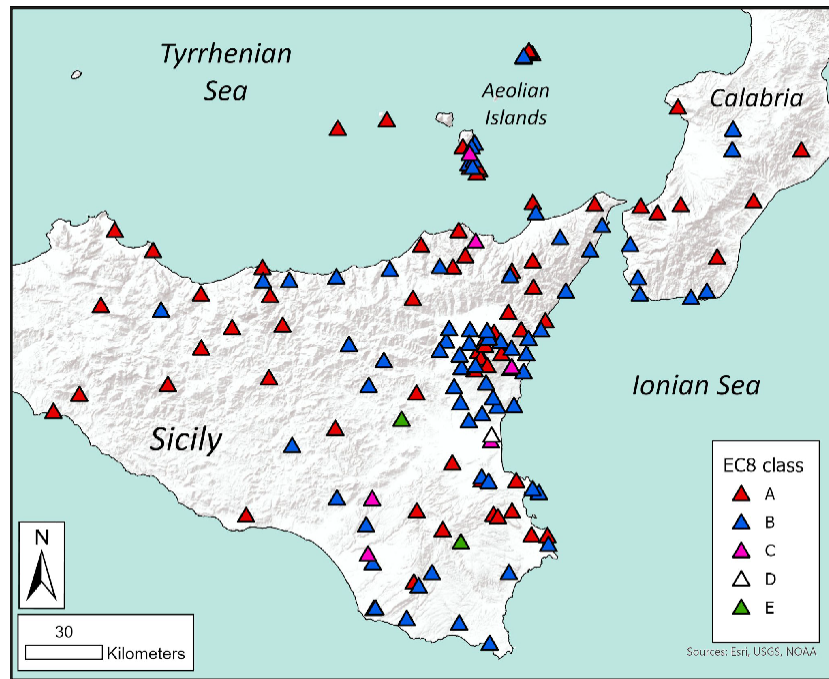


Figure S1. Spatial distribution of the 147 stations across the study area, classified according to the EC8 site classes.

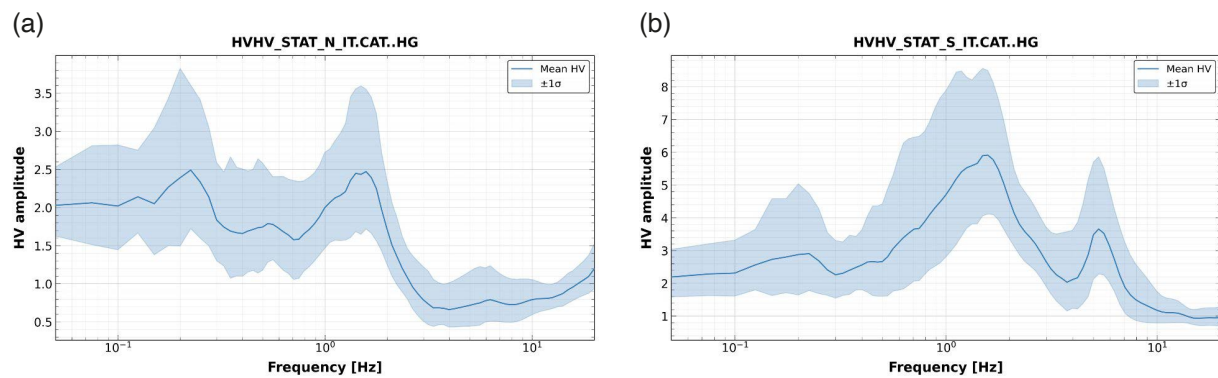


Figure S2. Mean HVSR curves (solid line) and $\pm 1\sigma$ uncertainty band (shaded area) for station IT.CAT (channel HG), computed following Tarchini et al. (2024): (a) N-HVSR from ambient noise recordings; (b) S-HVSR from S-wave windows of earthquake recordings.

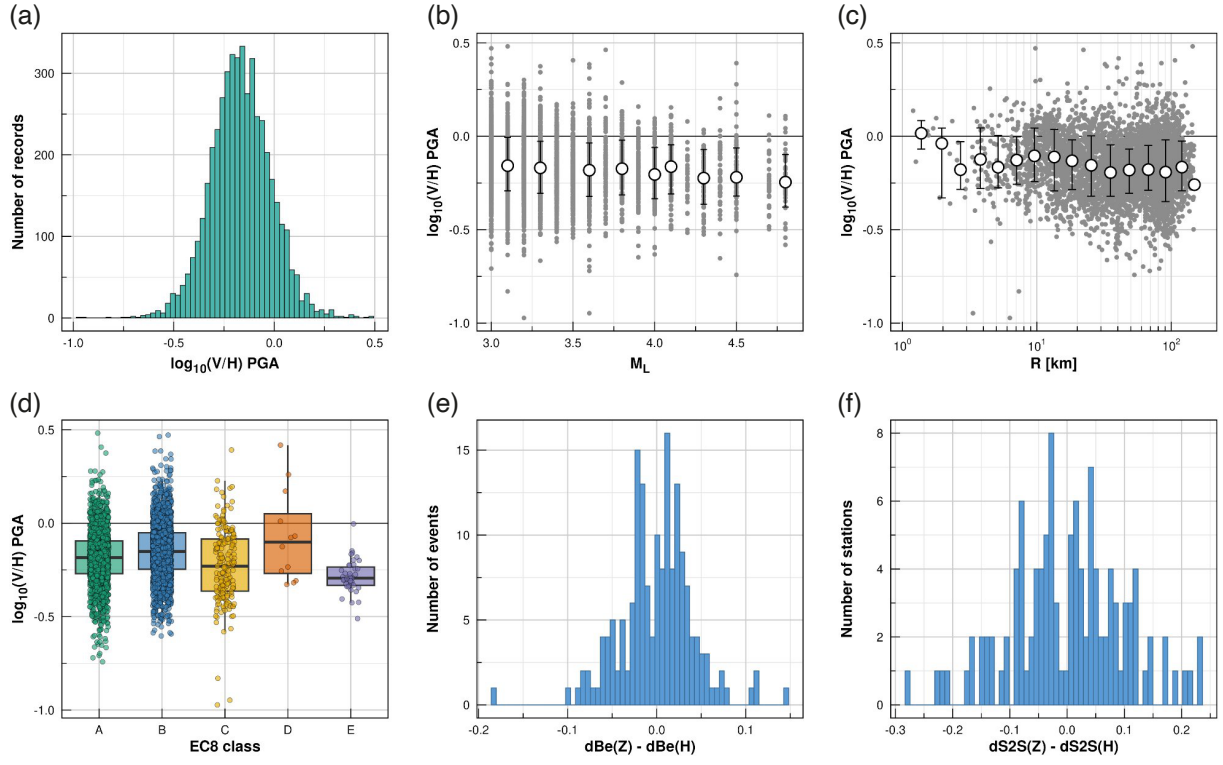


Figure S3. Analysis of the vertical-to-horizontal (V/H) PGA ratio: (a) distribution of $\log_{10}(\text{V/H})$ PGA across all recordings; $\log_{10}(\text{V/H})$ PGA as a function of (b) local magnitude, (c) epicentral distance, (d) EC8 site class; distribution of (e) $\delta B_e(Z) - \delta B_e(H)$ and (f) $\delta S2S_s(Z) - \delta S2S_s(H)$ between vertical and horizontal components.

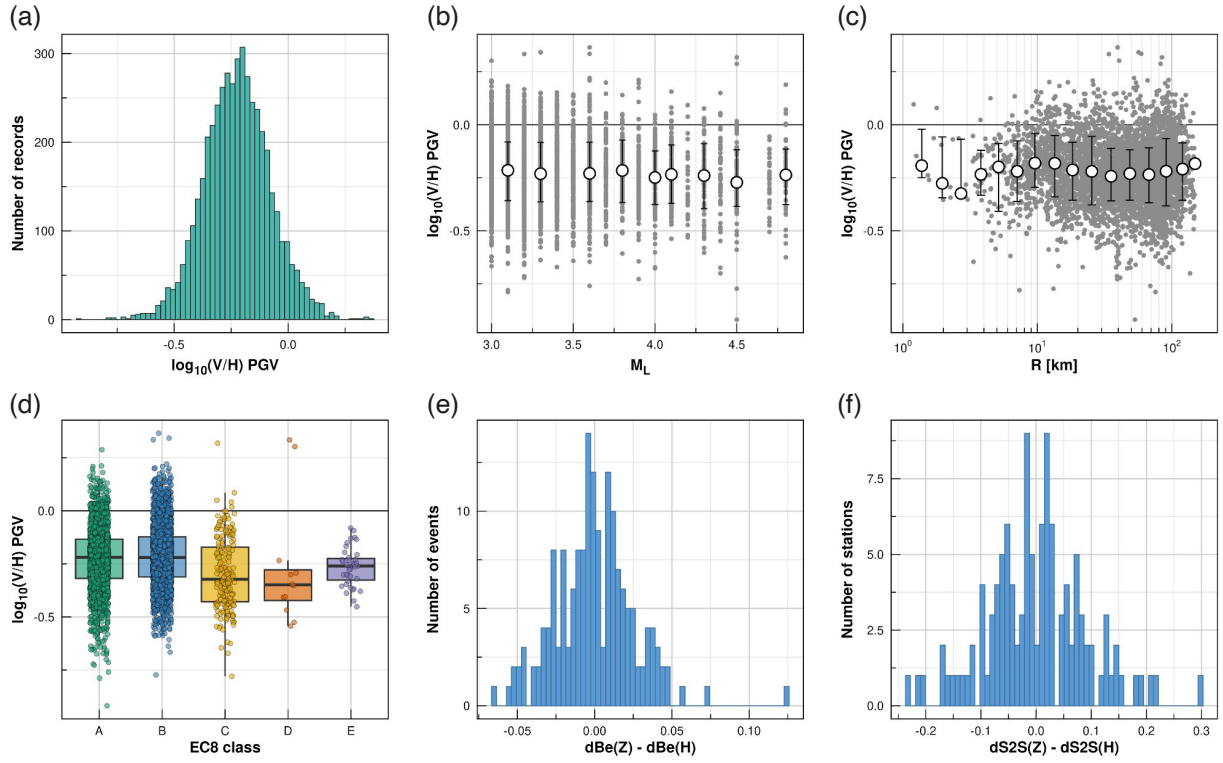


Figure S4. Same as Fig. S3 but for PGV.

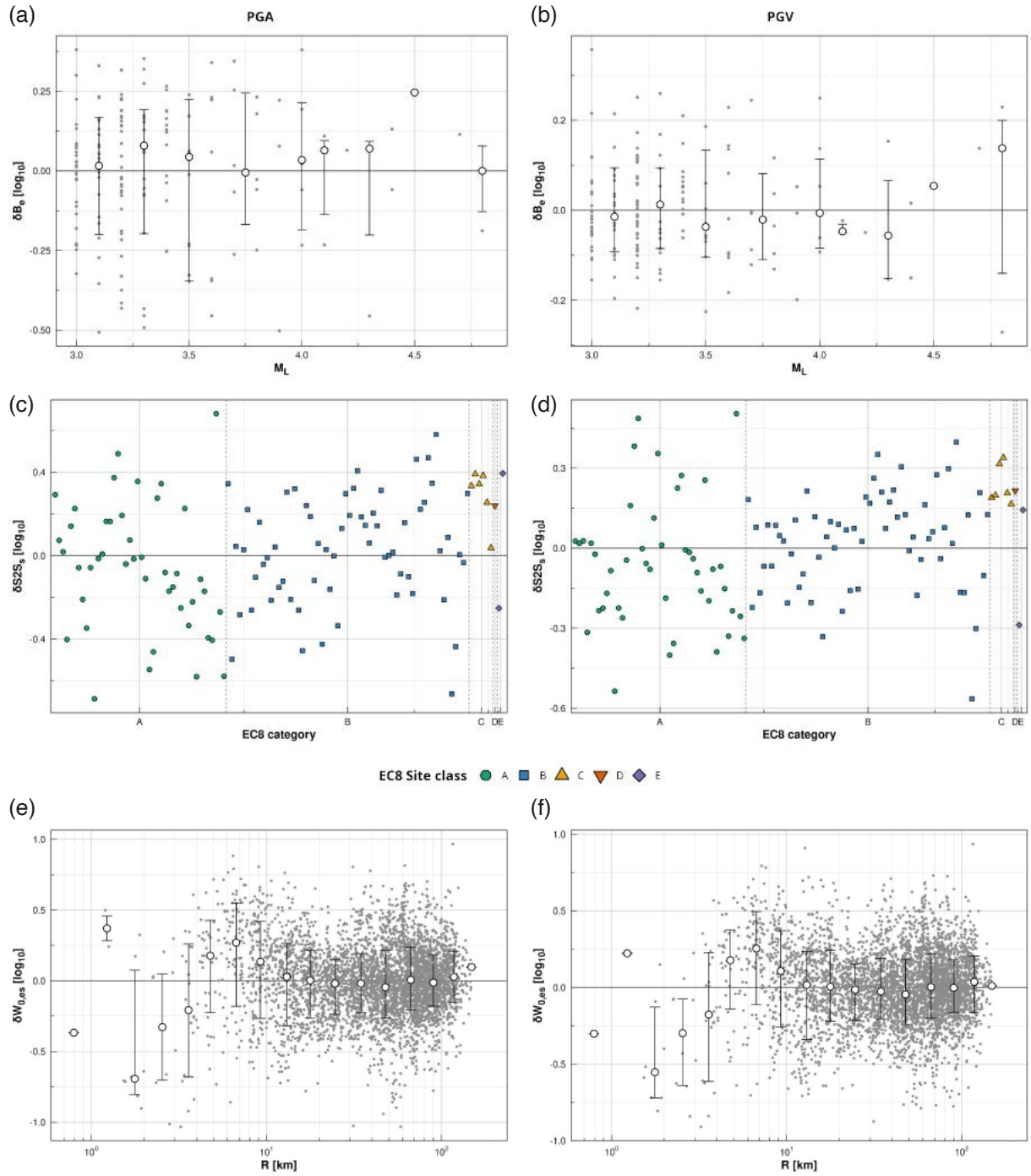


Figure S5. Distribution of residuals after the consistency check: (a),(b) δB_e vs. local magnitude; (c),(d) $\delta S2S_s$ vs. EC8 soil categories; (e),(f) $\delta W_{0,es}$ vs. epicentral distance. (a),(c),(e) PGA; (b),(d),(f) PGV.