Supplementary material

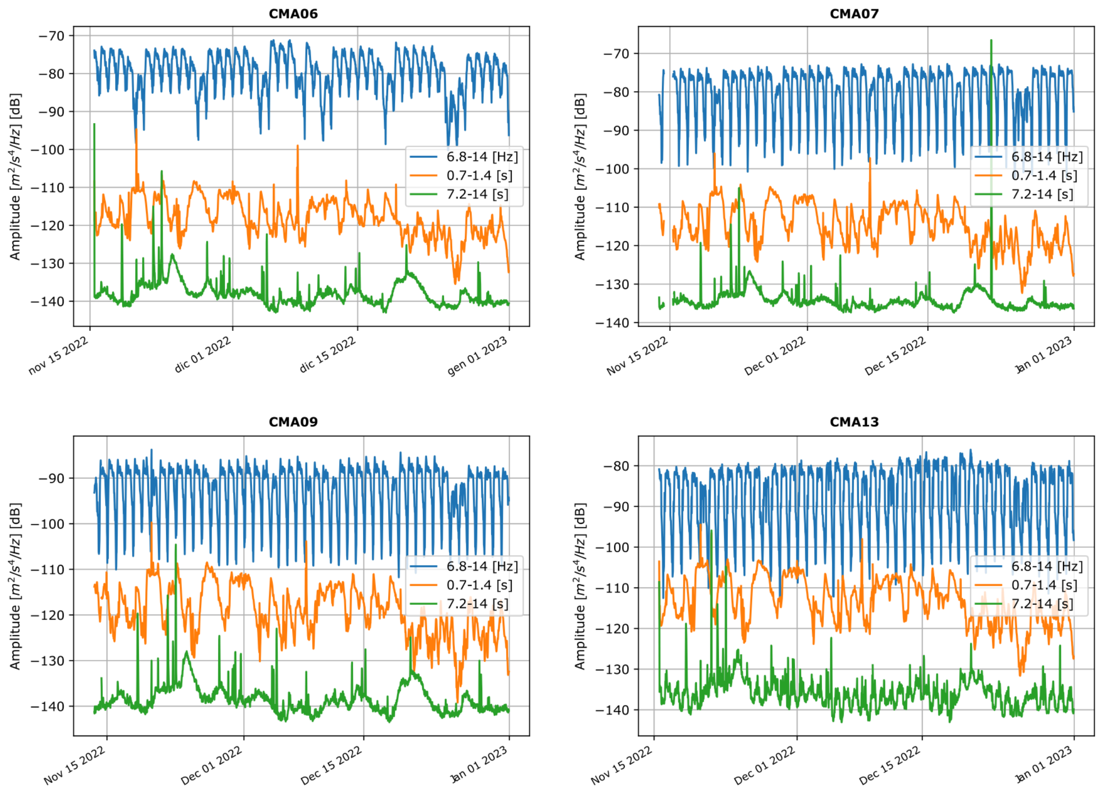

Figure S1a. Power Spectral Density results of data acquired by 4 stations of the 6N network selected as an example. Each box displays the time variability of the noise levels (PSD in dB) averaged in three different period bands (1.8 - 3.6 s; 0.7 - 1.4 s; 6.8 - 14 Hz).

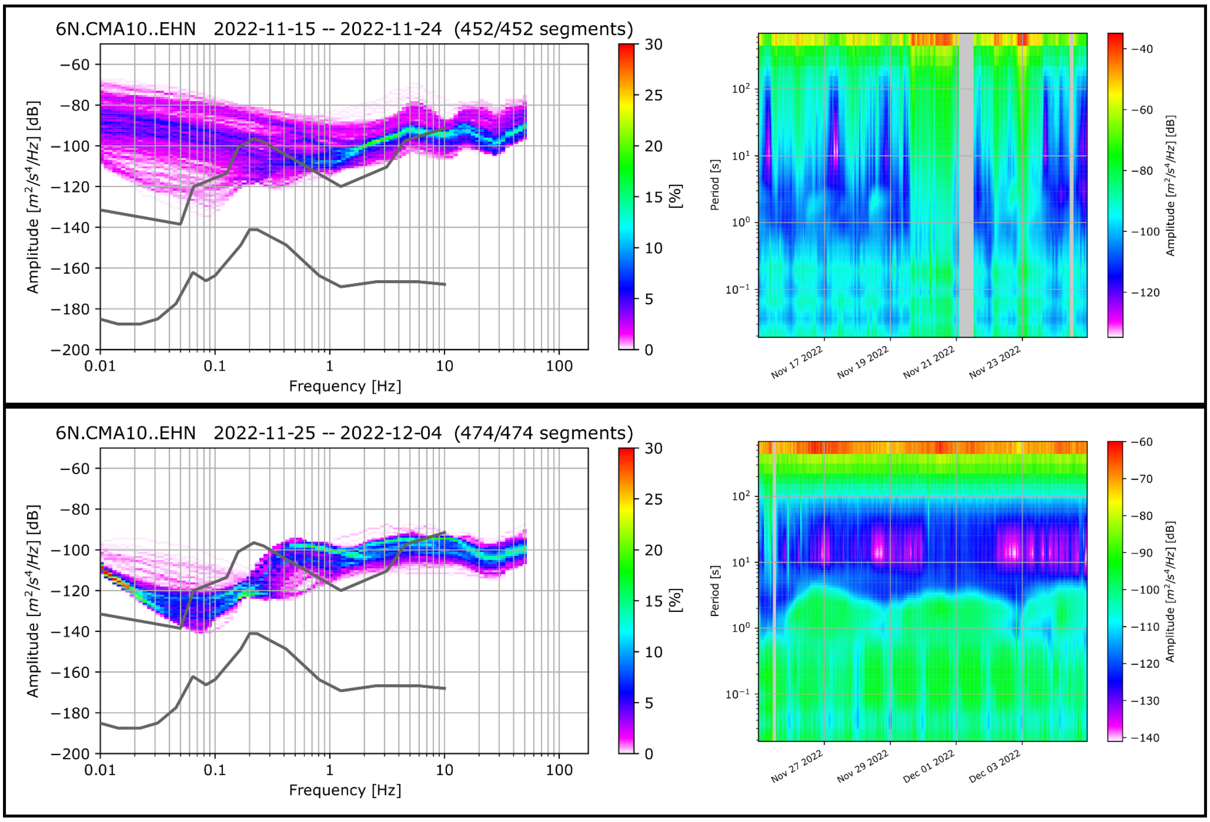

Figure S1b: Quality analysis for CMA10 station in the two chosen deployment sites.
Top panel: average PSD (left) and time variation of PSD (right) during the first period of working of CMA10 station (from 15 to 25 November 2022) when it was installed inside a shelter that hosted electronic devices in operation.Bottom panel: same graphs after shifting CMA10 station outside the shelter (after November 25).

Table S1: HVSR and polarization results in terms of frequency peaks and direction of maximum amplification. For the ground motion polarization, we apply the covariance matrix method in the time domain (Jurkevics, 1988)), in particular when directional peaks have been observed with the rotated HVSR. The method consists in: (1) bandpass filter in the frequency band corresponding to HVSR; (2) dividing the signals in time windows of a given length (6s for each event starting from the S-wave arrival); (3) calculating the eigenvalues and eigenvectors of the covariance matrix by solving the algebraic eigenvalue problem in time windows of a given length; (4) averaging the results over all the events. Eigenvalues and eigenvectors are considered as the major and minor axis of the polarization ellipsoid, respectively. To give a quantitative evaluation on how much elongated the polarization ellipsoid is, we follow the hierarchical criterion proposed by Pischiutta et al. (2012).

HVSR									Polarization covariance matrix		
Station	**N. peaks**	**#**	**f0 (Hz)**	**A0**	**max/ min**	**Direction max ampl. (degrees)**	**f min ampl.**	**f max ampl.**	**Freq filter (Hz)**	**Azimuth (degrees)**	**Weight**
CMA05	2	1	5.3	2.8	1.2	none	4.2	6.3			
		2	9.7	2.8	1.5	20	8	11.2	9-12	12	86%
CMA06	2	1	1.2	2.5	1.2	none	1	4.1			
		2	3.5	2.7	1.3	none	1	4.1			
CMA07	1	1	1.65	3	1.6	30	1.3	3	0.5-2	40	80%
CMA08	1	1	3.1	2.7	1.45	110	2.3	3.9	2-4	96	90%
CMA09	2	1	1.7	3.1	1.55	170	1.5	4.3	0.5-2	20	80%
	2	4.1	2.4	1.6	80	1.5	4.3	2	3-6	68	80%
CMA10	3	1	2.6	2.1	1.35	none	2.5	2.9			
		2	4.1	2.3	1.5	0	3.8	5.2	3-6	20	86%
		3	7.4	2.4	1.3	none	6.2	8.9			
CMA11	1	1	1.5	2.4	1.2	none	1.3	2.1			
CMA12	1	1	8.8	2.5	1.1	none	7.5	10.2			
CMA13	1	1	1.7	3	1.9	10	1.2	2.5	1-3	175	84%
CMA14	2	1	2.6	2.7	1.9	170	1.7	3.1	1-3	175	81%
		2	4.4	2.5	1.2	none	4.1	5.1			
CMA15	no peaks										

Table S2: HVNSR and polarization results in terms of frequency peaks and direction of maximum amplification applied to ambient noise. The method is similar to what proposed in Table S1 and consists in: (1) bandpass filter in the frequency band corresponding to HVNSR peaks; (2) dividing the signals in time windows of a given length (60s); (3) calculating the eigenvalues and eigenvectors of the covariance matrix by solving the algebraic eigenvalue problem in time windows of a given length; (4) averaging the results over all the windows.

HVNSR									Polarization covariance matrix		
Station	N. peaks	#	f0 (Hz)	A0	max/ min	Direction max ampl. (degrees)	f min ampl.	f max ampl.	Freq filter (Hz)	Azimuth (degrees)	Weight
CMA05	1	1	5.1	4.1	2.3	30	4.6	6.2	3-6	36	84%
CMA06	1	1	1.3	2.4	<1.5	none	1.1	1.6			
CMA07	1	1	2.1	2.3	1.45	40	1.8	2.7	1-3	59	77%
CMA08	1	1	3.9	2.3	1.7	90	3	4	2-4	80	67%
CMA09	1	1	2.4	2.1	<1.5	none	2	2.4			
CMA10	1	1	7.5	2.8	1.6	30	5	15	4-8	10	91%
CMA11	1	1	1.4	2.1	<1.5	none	1.3	1.5			
CMA12	1	1	9.6	2.8	1.5	100	6.5	10.7	4-8	67	72%
CMA13	2	2	2.3	2.1	<1.5	none	1.1	2.6			
CMA14	1	1	3.1	2.2	1.9	160	2.1	3.1	0.5-3	142	88%
CMA15	no peaks										

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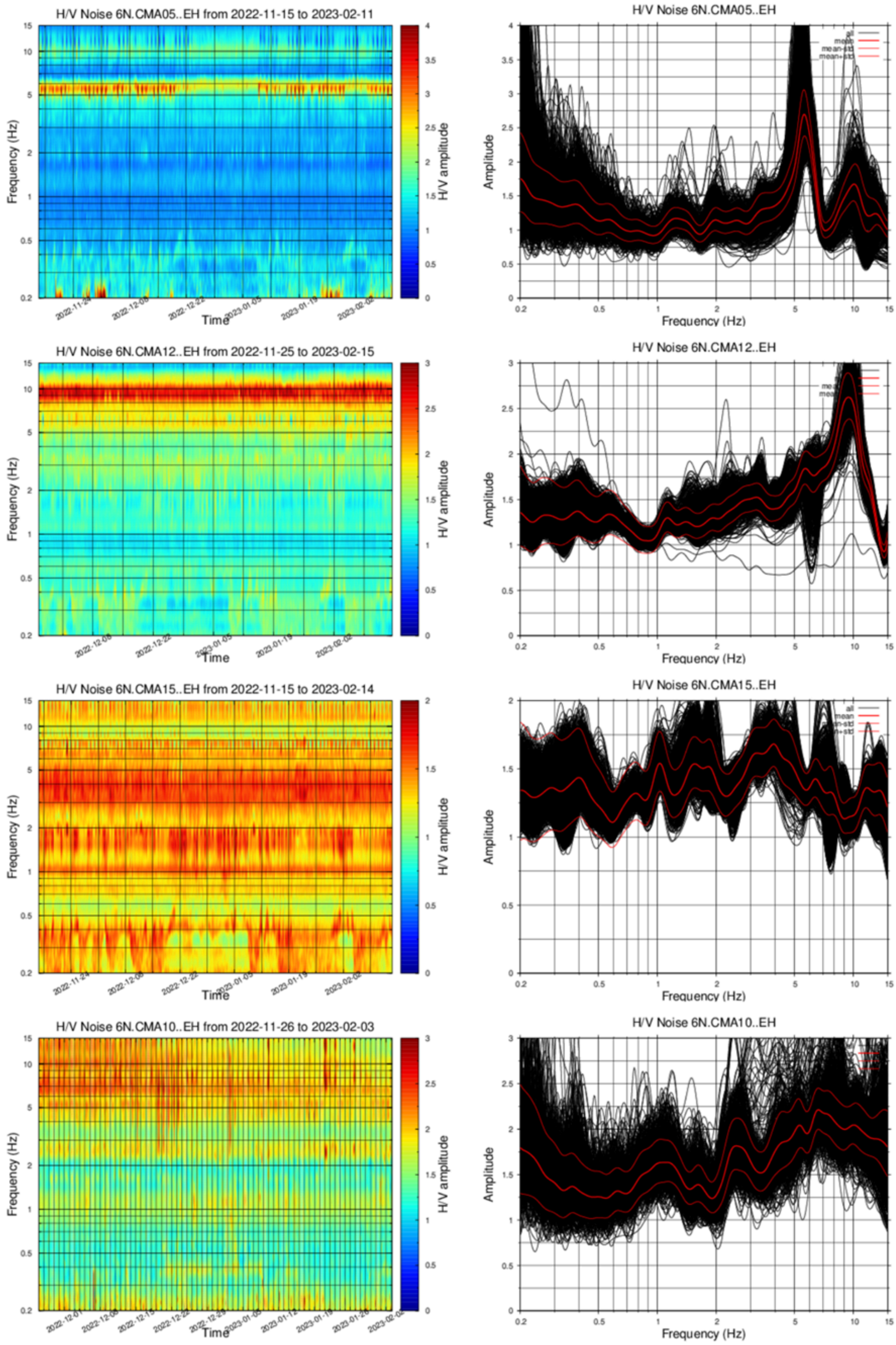

Figure S2. Contour plot (on the left side) of the hourly spectral ratios (HV) amplitude as a function of time and frequency, and (on the right side) hourly HV curves (in black) together with the overall average ± 1 standard deviation (in red). The spectral ratios are computed using all the available data acquired by CMA05, CMA12, CMA15, CMA10.