

Supplement to: Effects of geometry on the seismic wavefield of Alpine glaciers

Lukas E. Preiswerk, Clotaire Michel, Fabian Walter & Donat Fäh

Correspondence: Lukas E. Preiswerk <preiswerk@vaw.baug.ethz.ch>

1 Supplemental Table S1

Table 1: Coordinates of the stations used. All stations have the network code *4D* (<https://doi.org/10.12686/sed/networks/4d>) and are archived at the Swiss Seismological Service. Coordinates are given in the *CH1903* coordinate system and are in meters. As all glaciers are moving and therefore also the stations, the coordinates should only be used relative to each other.

The data we used was recorded on 30 May 2016 (Aletschgletscher), 18 April 2016 and 16 August 2016 (Eiger-Westflanke), and 29 July 2016 (Glacier de la Plaine Morte).

Station	Easting	Northing	Elevation	borehole	start date	end date
AG01	649267	145207	2343	yes	11.02.15	15.08.16
AG02	649165	145542	2371	yes	11.02.15	01.07.16
AG03	648967	145279	2356	yes	11.02.15	15.08.16
AG04	649161	144156	2295	no	20.05.16	05.06.16
AG05	649264	144701	2322	no	20.05.16	06.06.16
AG06	649001	144627	2319	no	20.05.16	03.06.16
AG07	648636	144755	2329	no	20.05.16	06.06.16
AG08	648663	144284	2294	yes	20.05.16	05.06.16
AG09	648933	144048	2290	yes	20.05.16	06.06.16
EIG1	642715	158139	3310	no	14.04.16	05.06.16
EIG2	642699	158146	3305	no	14.04.16	31.08.16
EIG3	642684	158150	3299	no	14.04.16	31.08.16
EIG4	642678	158139	3298	no	11.08.16	31.08.16
PM01	606875	137097	2755	yes	29.04.16	08.09.16
PM02	606873	136843	2756	yes	29.04.16	08.09.16
PM03	607127	136841	2765	yes	29.04.16	08.09.16
PM04	607128	137097	2766	yes	29.04.16	08.09.16
PM05	606999	136971	2760	yes	29.04.16	08.09.16

2 Supplemental Figure S1

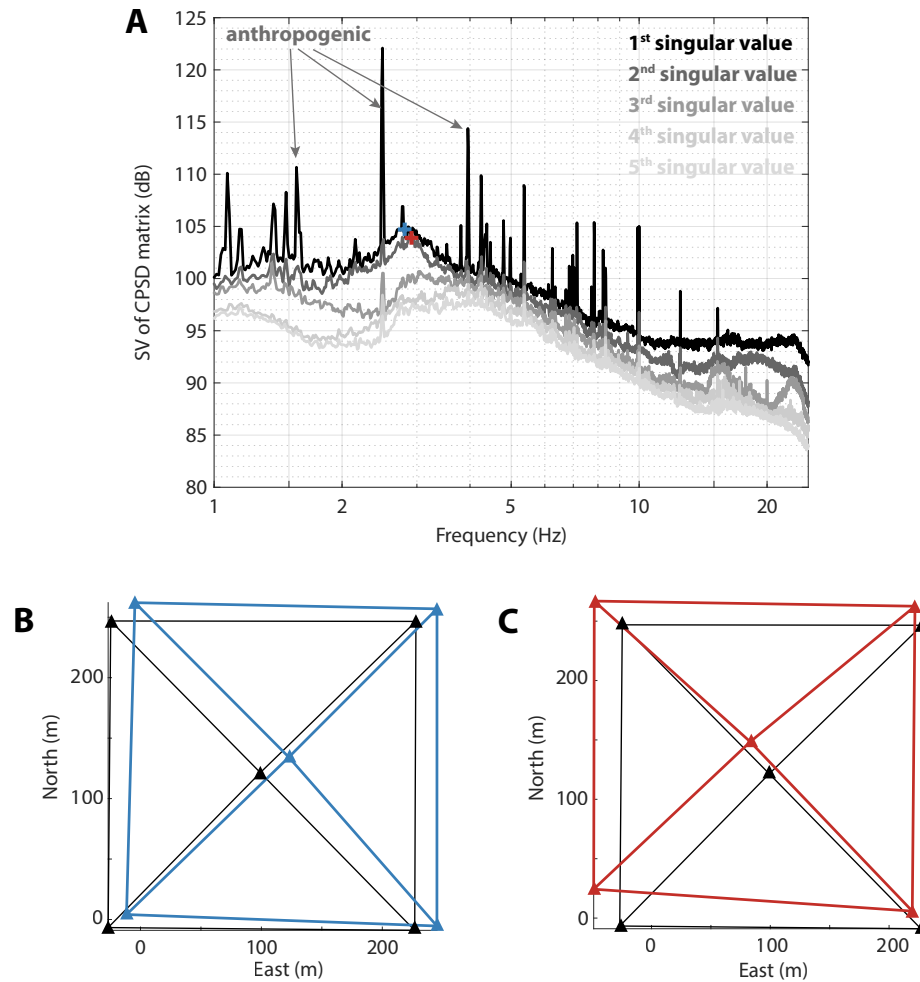


Figure 1: A) The singular values of the cross power spectral density (CPSD) matrix of the seismic signal from Glacier de la Plaine Morte. The two main observable modes are marked with crosses. B) Corresponding modal shape (first singular vector at the picked frequency) exhibiting a rigid body translation to the northeast (black is the original array geometry, blue the deflected array). The amplitude of motion is relative. C) same as B), but for the second singular vector, and a translation to the northwest, orthogonal to B).

3 Supplemental Figure S2

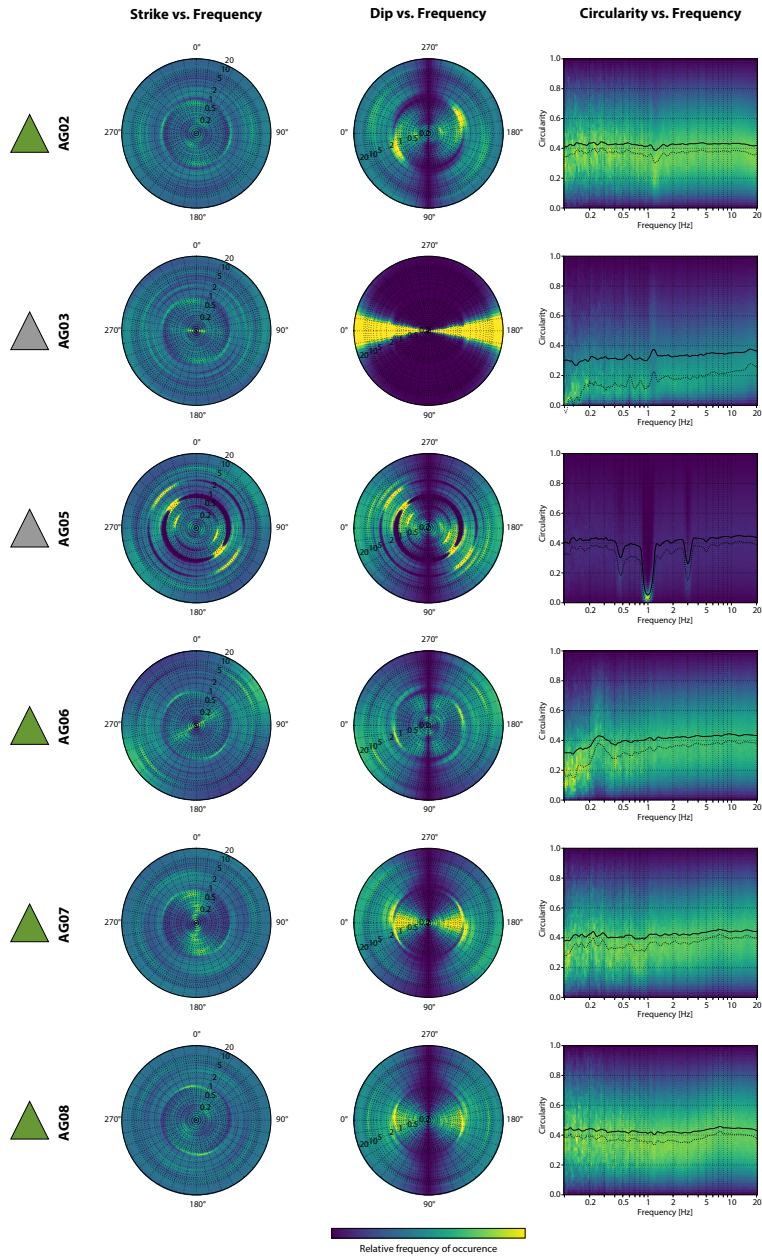


Figure 2: Time-frequency-dependent polarization analysis (TFPA) of the stations on Aletschgletscher not shown in Fig. 10.