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Supporting Information for

Moho and LAB across the Western Alps (Europe) from P and S receiver function analysis

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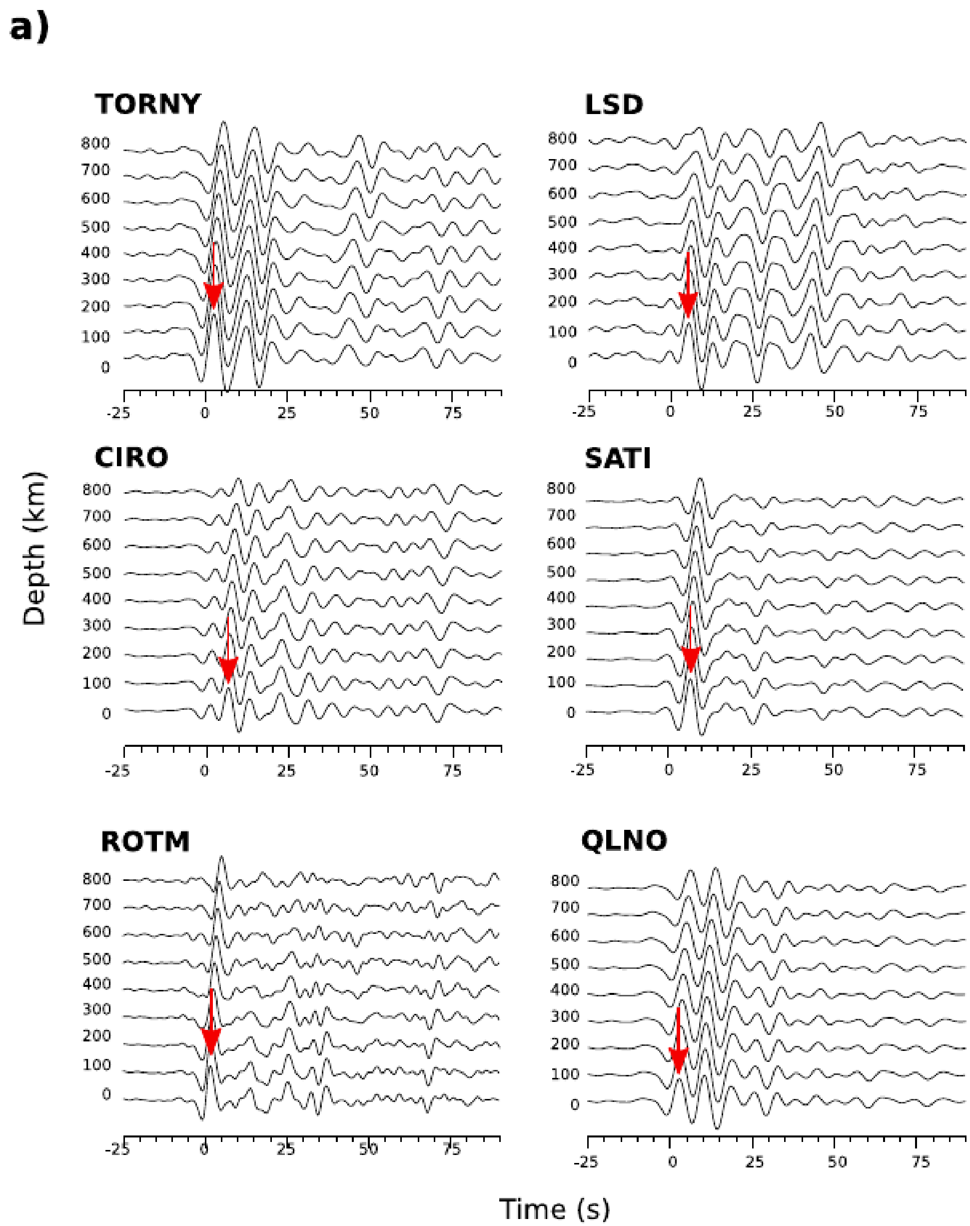
Introduction

This supporting information includes three figures and one table. Figure S1 shows examples of stacks of P and S receiver functions. Figure S2 shows an example plot of cross-correlation (fit function) vs. depth for the Moho and LAB. Figure S3 shows examples of heatplots for the synthetic tests explained in the main text and calculated in the same way as for Figure 3. Table S1 includes geographic coordinates and country of deployment of all analyzed stations.



a)
TORNY
LSD
CIRO
SATI
ROTM
QLNO
800
700
600
500
400
300
200
100
0
-25
0
25
50
75
Depth (km)
Time (s)

b)

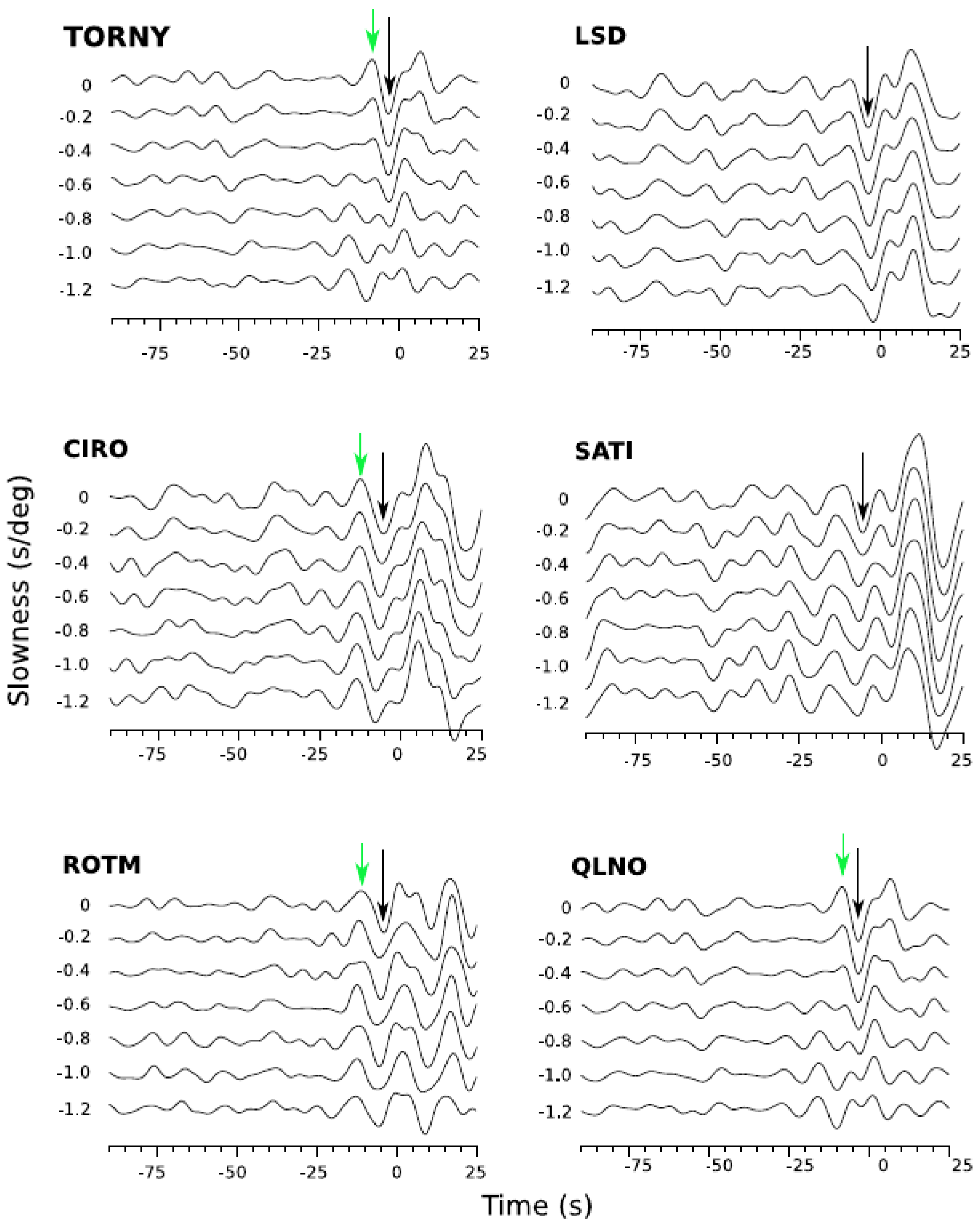


Figure S1. Example of a) PRF, red arrow marks the Moho signal and b) SRF stacks for six stations, black arrow marks the Moho signal and green the inferred LAB signal.

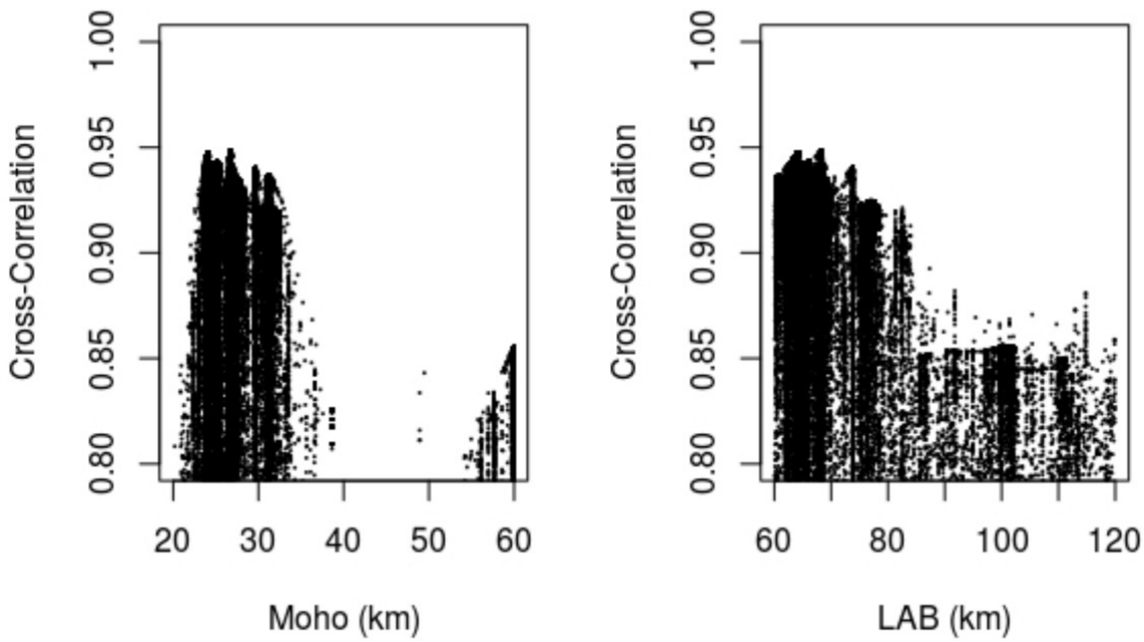


Figure S2. Scatter plot for the cross-correlation vs. Moho (left) and LAB (right) depth of station GIMEL. This data is used for the calculation of the gaussian fit from which we determine the depth values (mean) and its associated vertical error (1.5 times the variance).

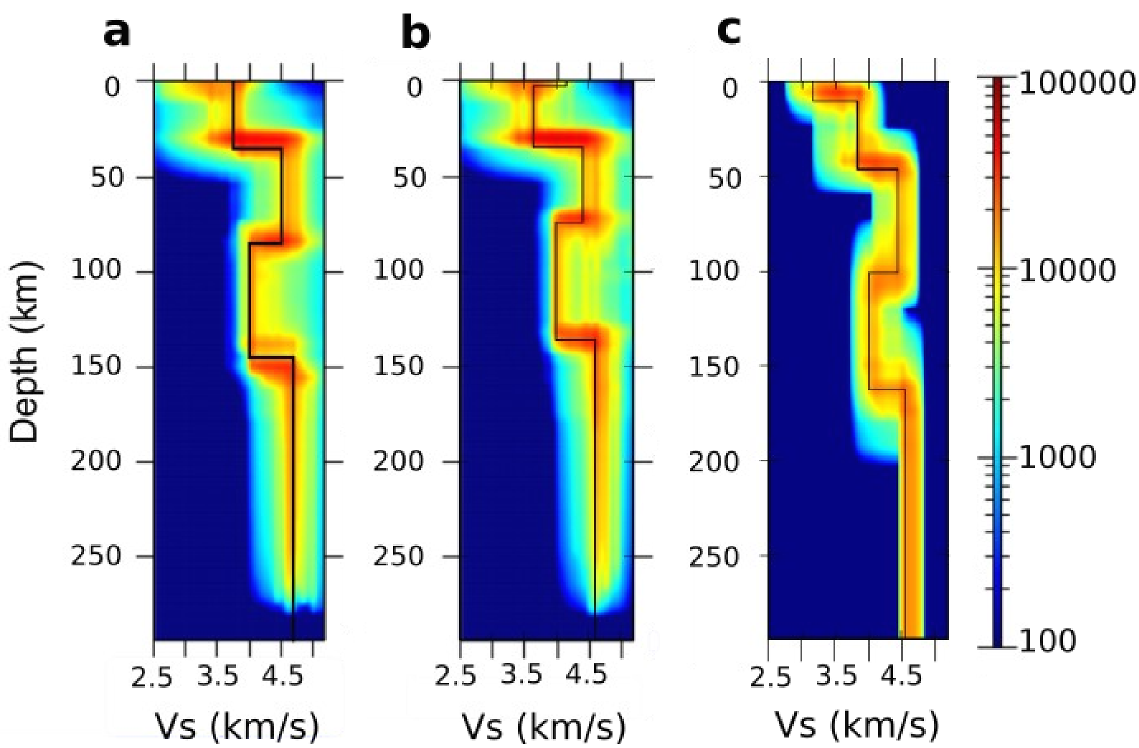


Figure S3. Examples of synthetic test reconstruction of: a) 4 layered model with Moho at 35 km depth, LAB at 85 km depth and bottom of the asthenosphere at 145 km depth. b) 4 layered model with Moho at 35 km depth, LAB at 75 km depth and bottom of the asthenosphere at 135 km. c) 5 layered model with upper-crust discontinuity at 10 km depth, Moho at 45 km depth, LAB at 100 km depth and bottom of the asthenosphere at 160 km depth. Processing is the same that is applied to the real data with low pass filtering at 8s. The black line represents the average best fitting model.

Station	LAT	LON	Elevation (m)	Country of deployment
A062A	46.181	9.113	1783	CH
A173A	46.329	6.680	1030	FR
A181A	45.380	6.302	1305	FR
A193A	44.371	5.148	390	FR
A194A	44.393	6.502	1255	FR
A215A	45.431	5.232	450	FR
A216A	44.429	5.550	1245	FR
A217A	44.370	6.073	1087	FR
A280A	44.539	7.909	288	IT
A281A	44.853	7.701	292	IT
A282A	45.255	7.613	428	IT
A283B	45.238	8.288	195	IT
A284A	45.137	9.384	99	IT
A285A	44.894	9.901	152	IT
A286A	45.366	8.834	170	IT
A287A	45.623	8.361	423	IT
A288A	46.008	8.482	1306	IT
A289A	46.047	9.761	1780	IT
A312A	45.107	10.481	30	IT
A313A	45.313	10.662	64	IT
AIGLE	46.342	6.953	775	CH
BHB	44.835	7.263	585	IT
BNI	45.052	6.678	1395	IT
CANO	44.208	8.237	638	IT
CIRO	45.602	7.568	2516	IT
DIX	46.080	7.408	2410	CH
EMBD	46.216	7.832	1180	CH
FUSIO	46.455	8.663	1460	IT
GBOS	44.242	7.840	897	IT
GIMEL	46.534	6.265	1094	CH
GRN	45.241	5.744	1100	FR
LKBD2	46.375	7.644	2128	CH
LSD	45.460	7.134	2285	IT

MABI	46.055	10.514	1853	IT
MAGA	45.775	10.629	1265	IT
MDI	45.769	9.716	954	IT
MGRO	44.042	7.808	1689	IT
MILN	45.480	9.232	125	IT
MMK	46.051	7.964	2210	CH
MONC	45.074	7.927	480	IT
MRGE	45.770	7.061	1660	IT
MUGIO	45.920	9.040	830	CH
OG02	46.154	6.220	606	IT
ORZI	45.406	9.931	83	IT
PCP	44.541	8.545	770	IT
PRMA	44.764	10.313	78	IT
PZZ	44.507	7.116	1430	IT
QLNO	44.324	8.346	547	IT
RORO	44.112	8.066	260	IT
ROTM	44.849	8.353	221	IT
RSP	45.148	7.265	1285	IT
SARZ	44.867	8.914	266	IT
SATI	45.875	7.868	3005	IT
SENIN	46.363	7.299	2035	CH
SIMPL	46.240	8.019	1930	CH
STV	44.245	7.326	930	GU
TORNY	46.774	6.959	710	IT
TRAV	45.513	7.747	990	IT
TUE	46.472	9.347	1924	IT
VANNI	46.210	7.597	1520	CH
VARE	45.868	8.770	1219	GU
ZONE	45.764	10.117	691	IT

Table S1. Integrates Table 1. Data for all analyzed stations (also the excluded ones).