Supporting Online Material

High resolution surface wave tomography from ambient seismic noise

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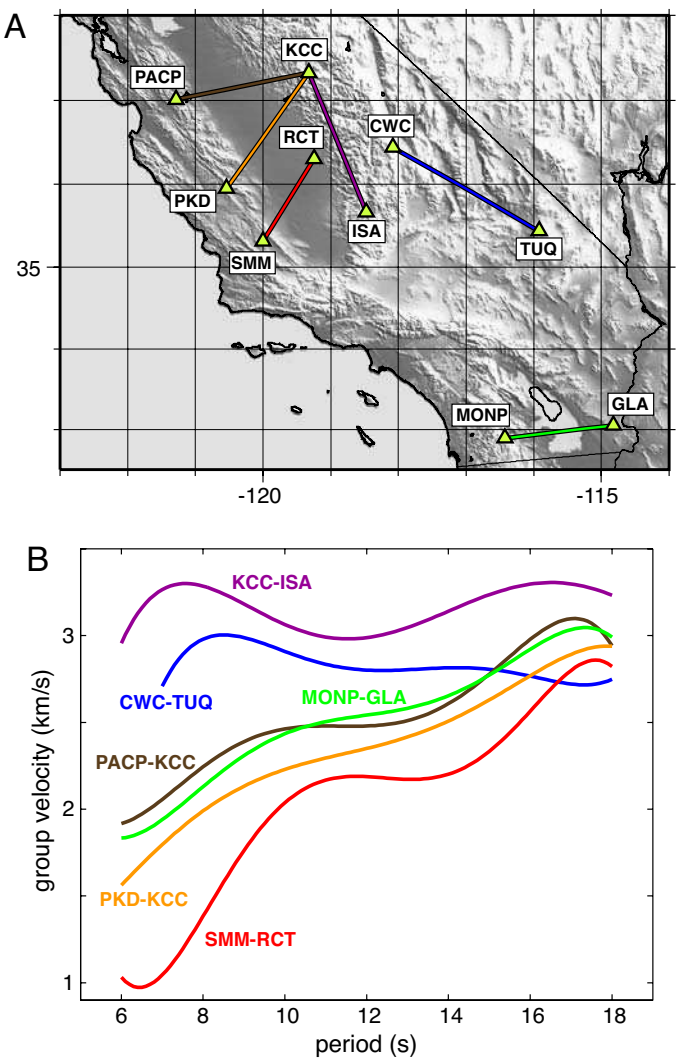

Fig. S1. Group speed curves measured in various parts of California by cross-correlating 30 days of ambient noise between USArray stations. (A) Map showing the station locations and inter-station paths. (B) Group speed dispersion curves between periods of 6 s and 18 s.

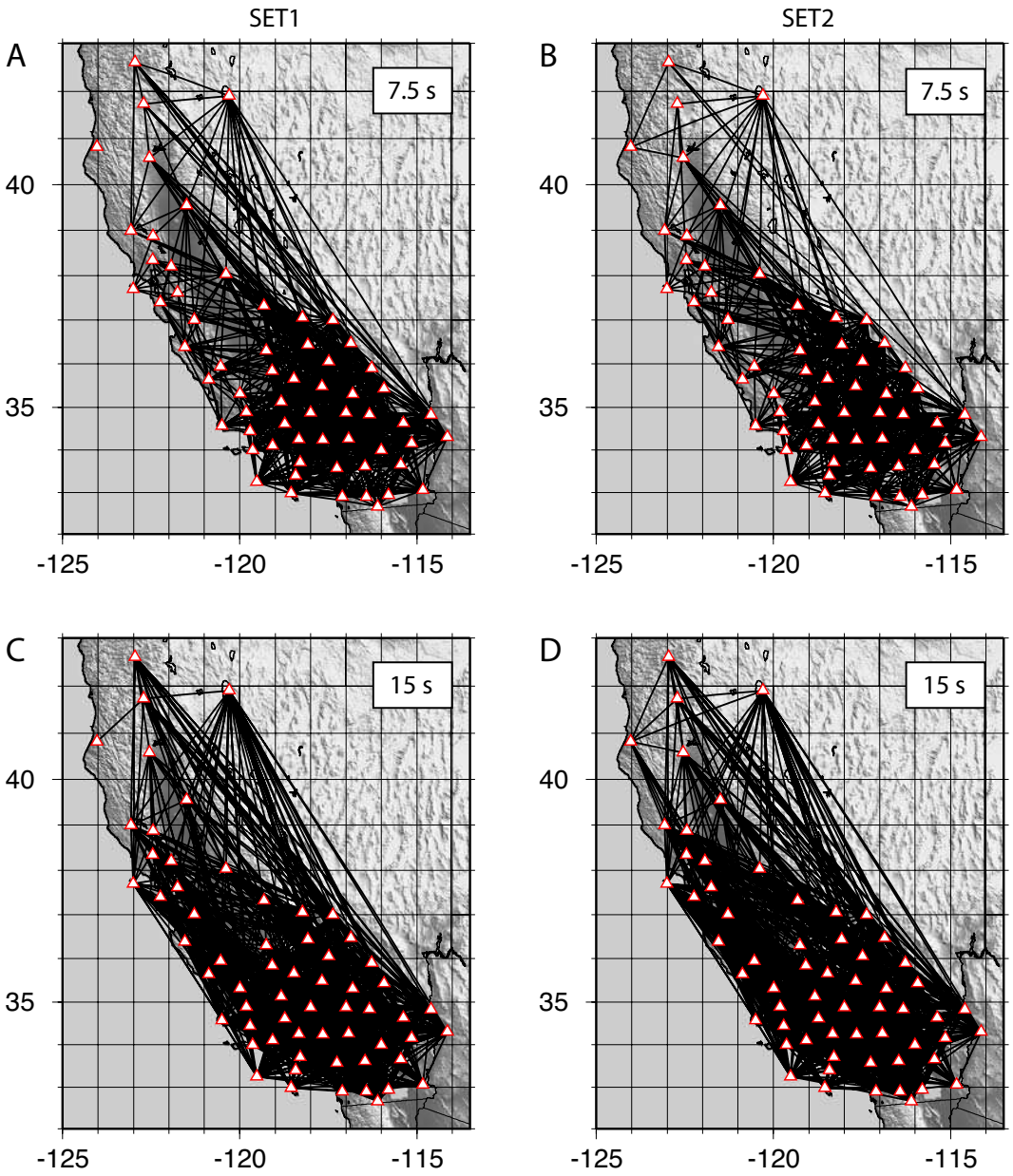

Fig. S2. Paths where Rayleigh wave group speed measurements were obtained from cross-correlations of ambient seismic noise. Cross-correlations were computed from two different 30-day periods. The first of these periods (SET1) was used to construct the Rayleigh wave group speed tomographic maps shown in Fig. 2 of the text. (A) and (B) 7.5 s period Rayleigh wave maps from SET1 and SET2. (C) and (D) 15 s period Rayleigh wave maps from SET1 and SET2. White triangles show locations of USArray stations used in this study.

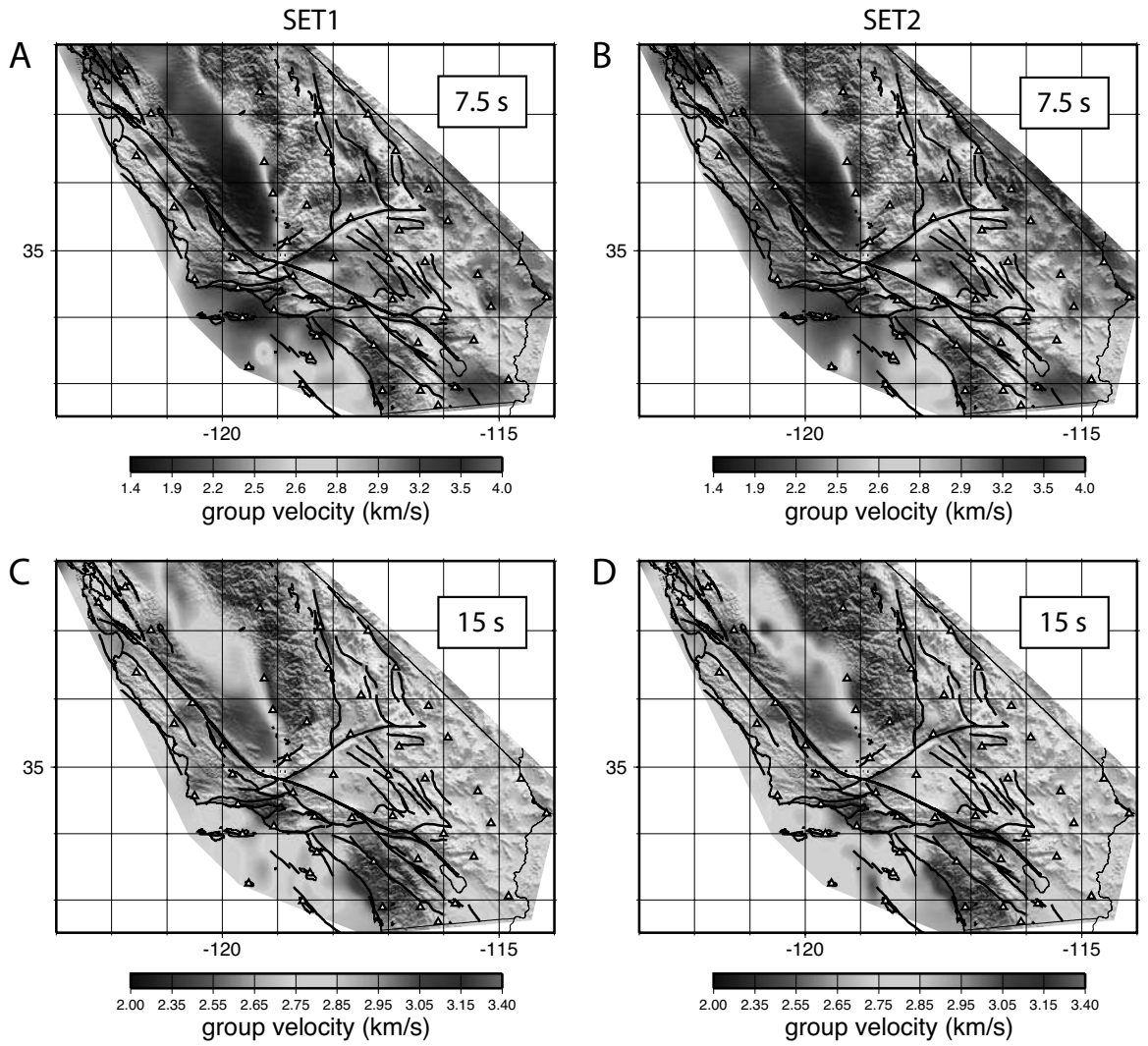

Fig. S3. Group speed maps constructed by cross-correlating two different 30-day periods of ambient noise between USArray stations. (A) and (B) 7.5 s period Rayleigh waves. (C) and (D) 15 s period Rayleigh waves. (A) and (C) Results obtained with SET1, the first data set (shown in the text). (B) and (D) Results obtained with the SET2, the second data set. Black solid lines are active faults. White triangles are locations of USArray stations used in this study.

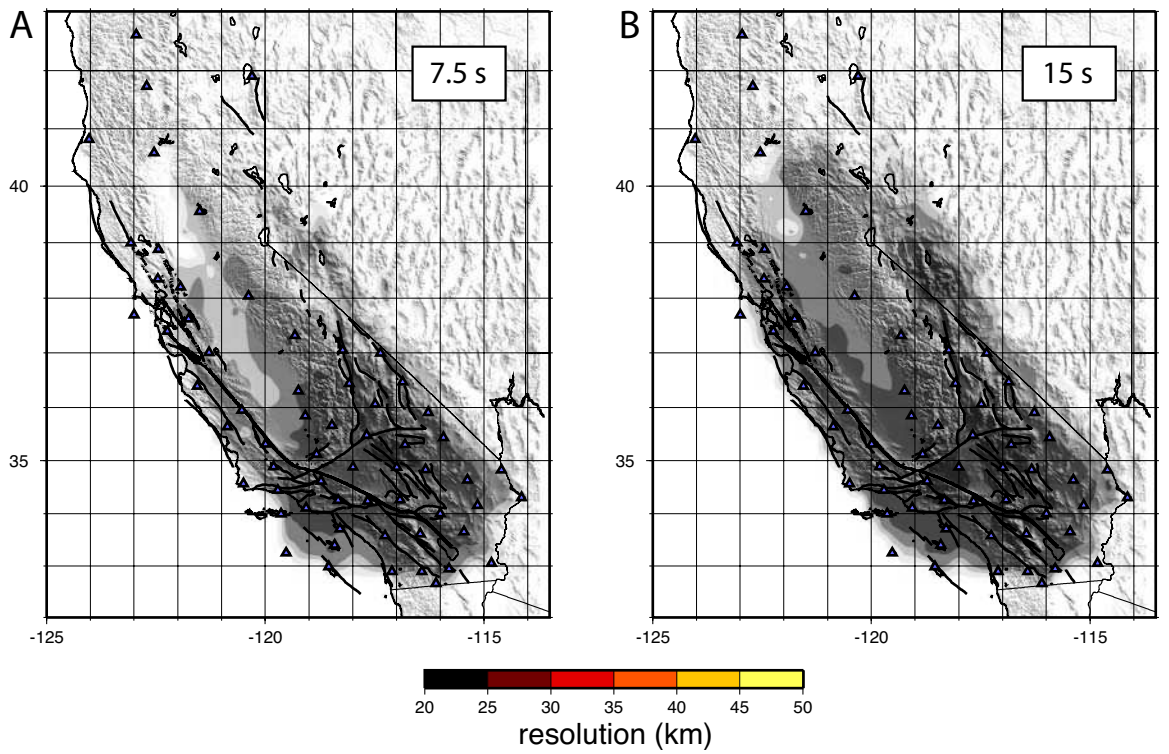

Fig. S4. Resolution of group speed maps obtained with the first data set, SET1 (shown in the text). Resolution worse than 50 km is denoted with the white coloration. (A) 7.5 s period Rayleigh waves. (B) 15 s period Rayleigh waves. Black solid lines are known active faults. Blue triangles are locations of the USArray stations used in this study. The resolution was estimated with the method of Barmin et al. (2001). This method does not account for finite-frequency diffraction effects nor for off-great circle propagation and, therefore, provides rather optimistic estimates of the resolution. To obtain more realistic and conservative estimates the values shown here should be multiplied by about a factor of 2.