Table S1. Model parameters

<table>
<thead>
<tr>
<th>Crustal layer</th>
<th>Thickness (km)</th>
<th>Vs (km/s)</th>
<th>Density (g/cm$^3$)</th>
<th>Vp/Vs ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper crust 1</td>
<td>3</td>
<td>2.5 (1.5-4.2)</td>
<td>2.3 (1.5-3.5)</td>
<td>1.83 (1.7-2.5)</td>
</tr>
<tr>
<td>Upper crust 2</td>
<td>8</td>
<td>2.7 (1.5-4.2)</td>
<td>2.5 (1.8-3.5)</td>
<td>1.8 (1.7-2.5)</td>
</tr>
<tr>
<td>Middle crust</td>
<td>(Moho-11)/2</td>
<td>3.2 (1.5-4.2)</td>
<td>2.7</td>
<td>1.77</td>
</tr>
<tr>
<td>Lower crust</td>
<td>(Moho-11)/2</td>
<td>3.2 (1.5-4.2)</td>
<td>2.7</td>
<td>1.77</td>
</tr>
<tr>
<td>Mantle</td>
<td>—</td>
<td>4.3 (3.5-5)</td>
<td>3.38</td>
<td>1.77</td>
</tr>
</tbody>
</table>

Moho depth is taken from a recent receiver function study (Gilbert, 2012). The Vs, density, and Vp/Vs parameters are corresponding to the reference model where the perturbation ranges are shown within parentheses.


Figure S1. (a) The distribution of 30 sec H/V ratio measurements at a USArray station D23A near the example location shown in Fig. 1a. The dashed line denotes the 2$\sigma$ range. (b) Same as (a) but for 60 sec H/V ratio.