

Supporting Information for “Long-wavelength topography and multi-scale velocity heterogeneities at the core-mantle boundary”

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Table S1. Table of hyperprior scales used to in the inversion.

Figure S1. Relative scale of the G kernel matrix elements shows the sensitivity of different degrees to different rays. Elements are plotted on a symmetric log scale, other than between ± 0.03 which is on a linear scale. The V_P and CMB radius kernels are separately normalized to the maximum amplitude value of \mathbf{G}_{δ_s} and \mathbf{G}_{δ_r} , respectively. The vertical axis ticks show the edges of harmonic degree l , which are ordered from $m = -l$ to $m = l$ from bottom to top.

Figure S2. Travel time residuals for the 3 datasets used in this study. a) PcP-P, b) PKPab-PKPbc, c) P4KP-PcP Black histograms show the initial distribution of residuals, and green histograms show the deciles of remaining residual distributions after inversion.

Hyperprior scale	Value (Unit)
$\nu_{\delta r}$	5 (km)
$\nu_{\delta s}$	5 (s/Mm)
ν_{PcP-P}	2 (s)
$\nu_{PKPab-PKPbc}$	2 (s)
$\nu_{P4KP-PcP}$	2 (s)

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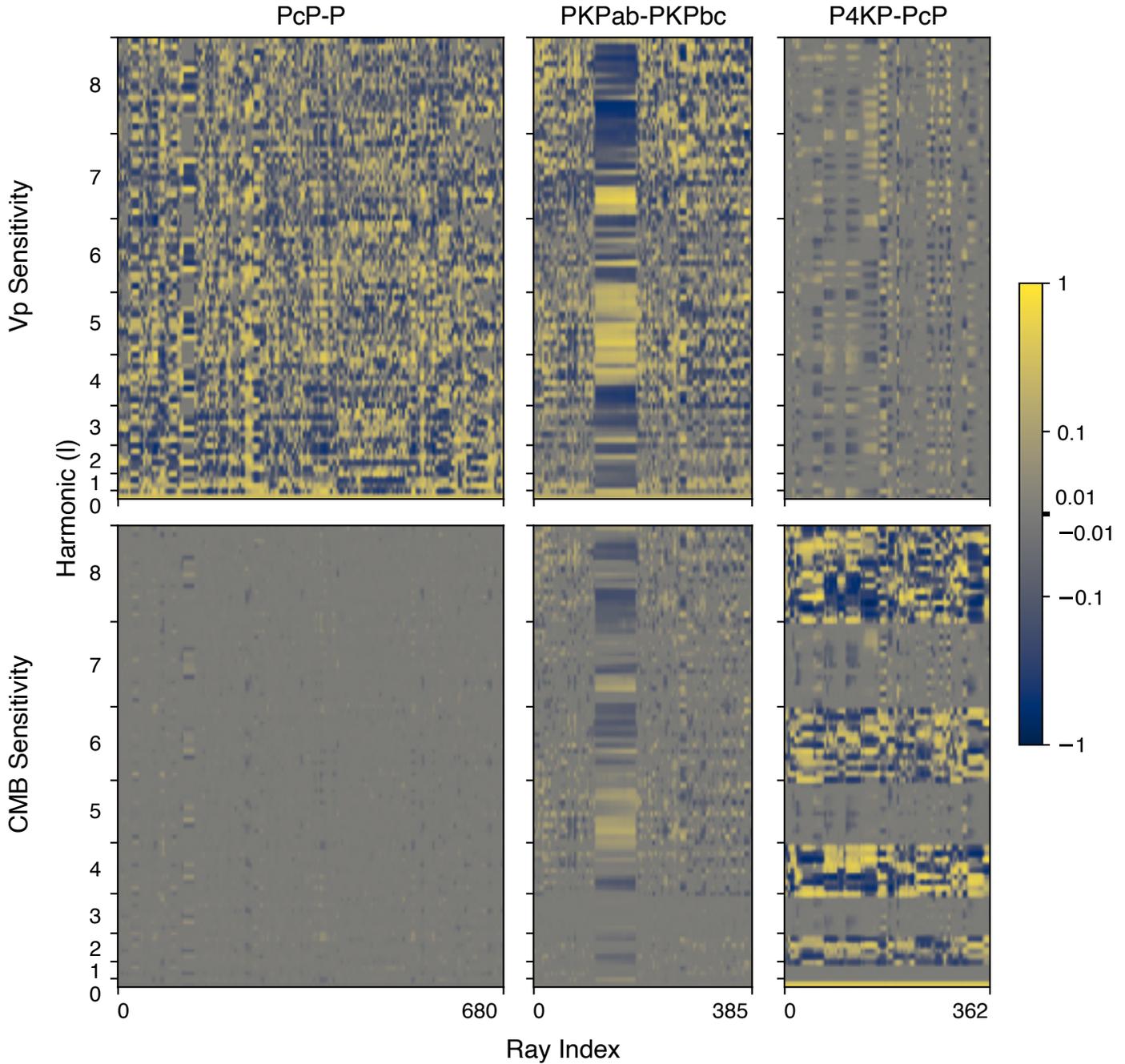


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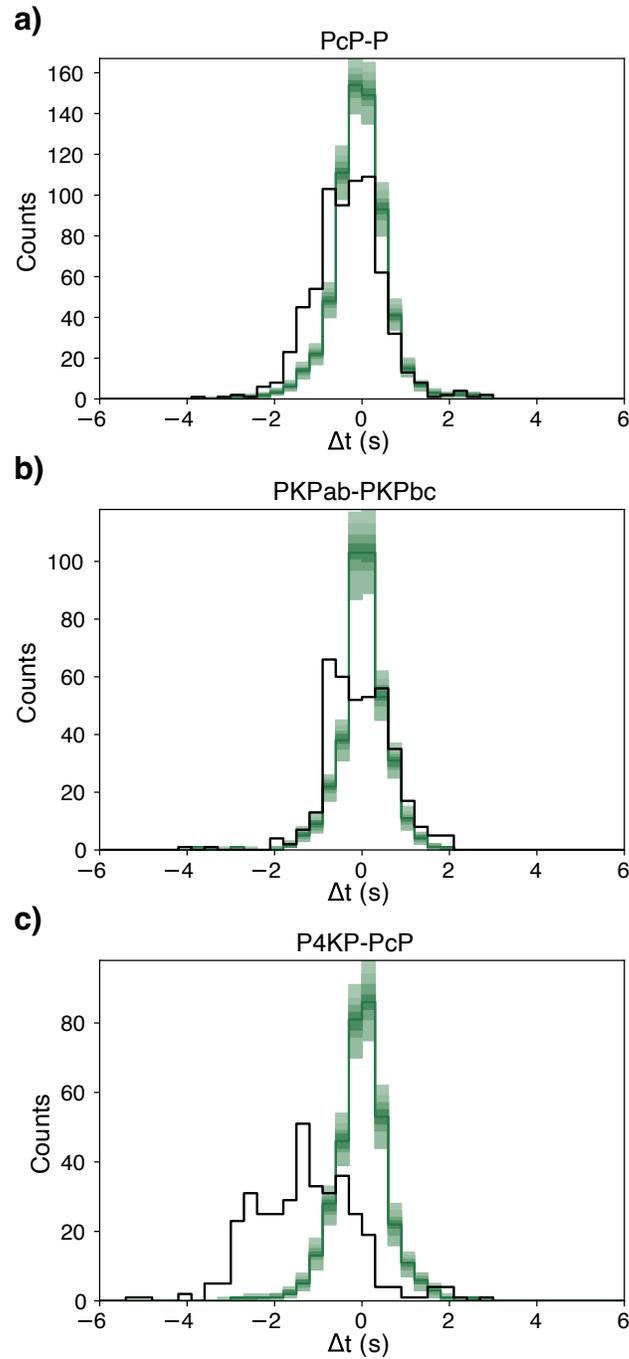


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