



Supplementary material: Extensional forearc structures at the transition from Alaska to Aleutian Subduction Zone: slip partitioning, terranes and large earthquakes

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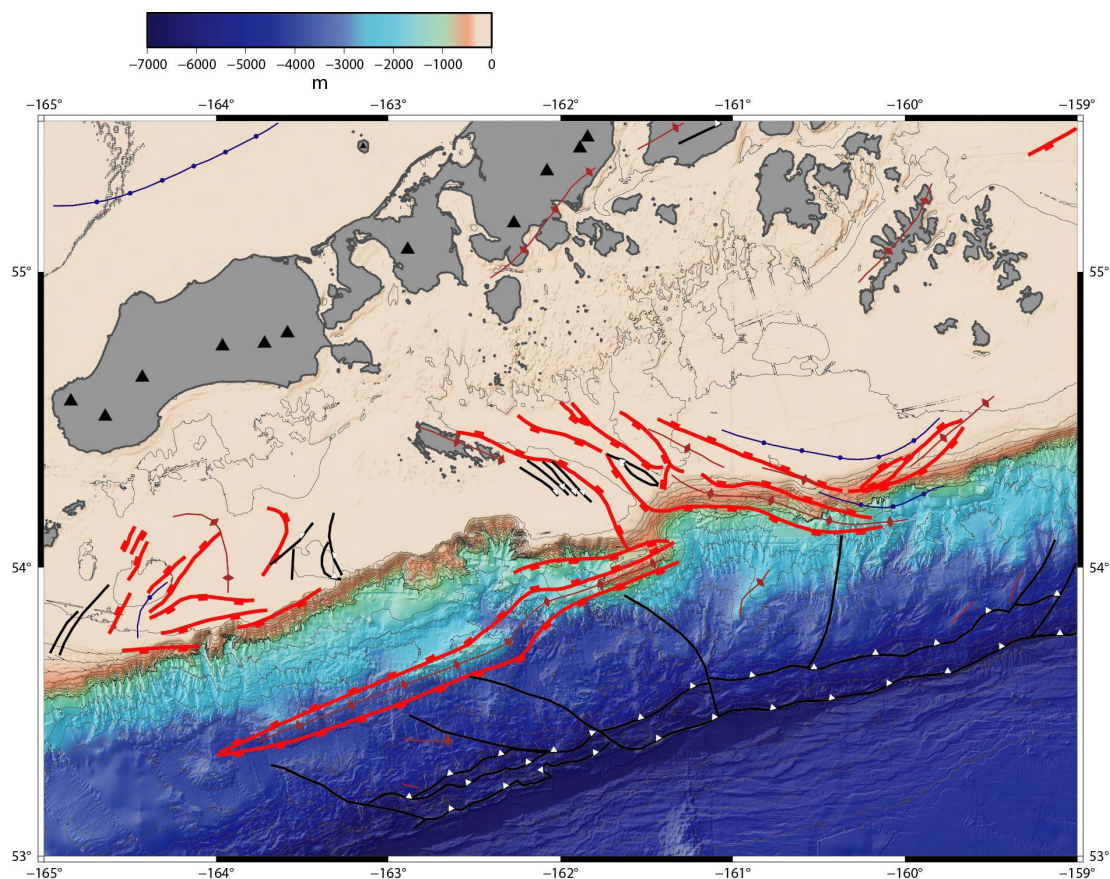
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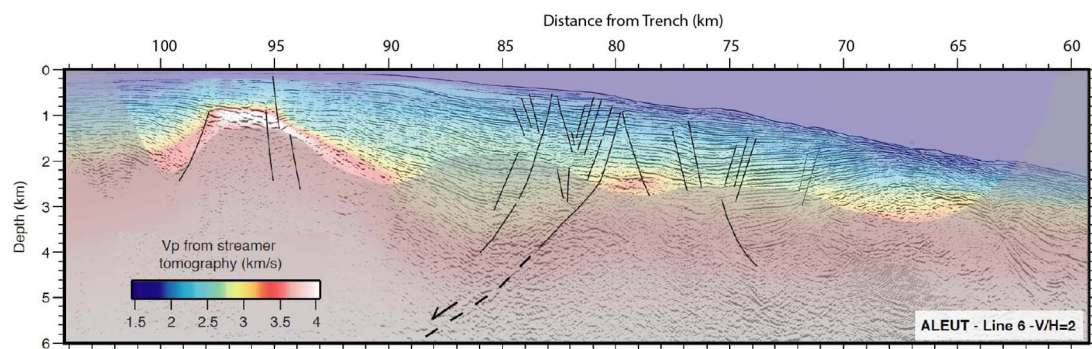
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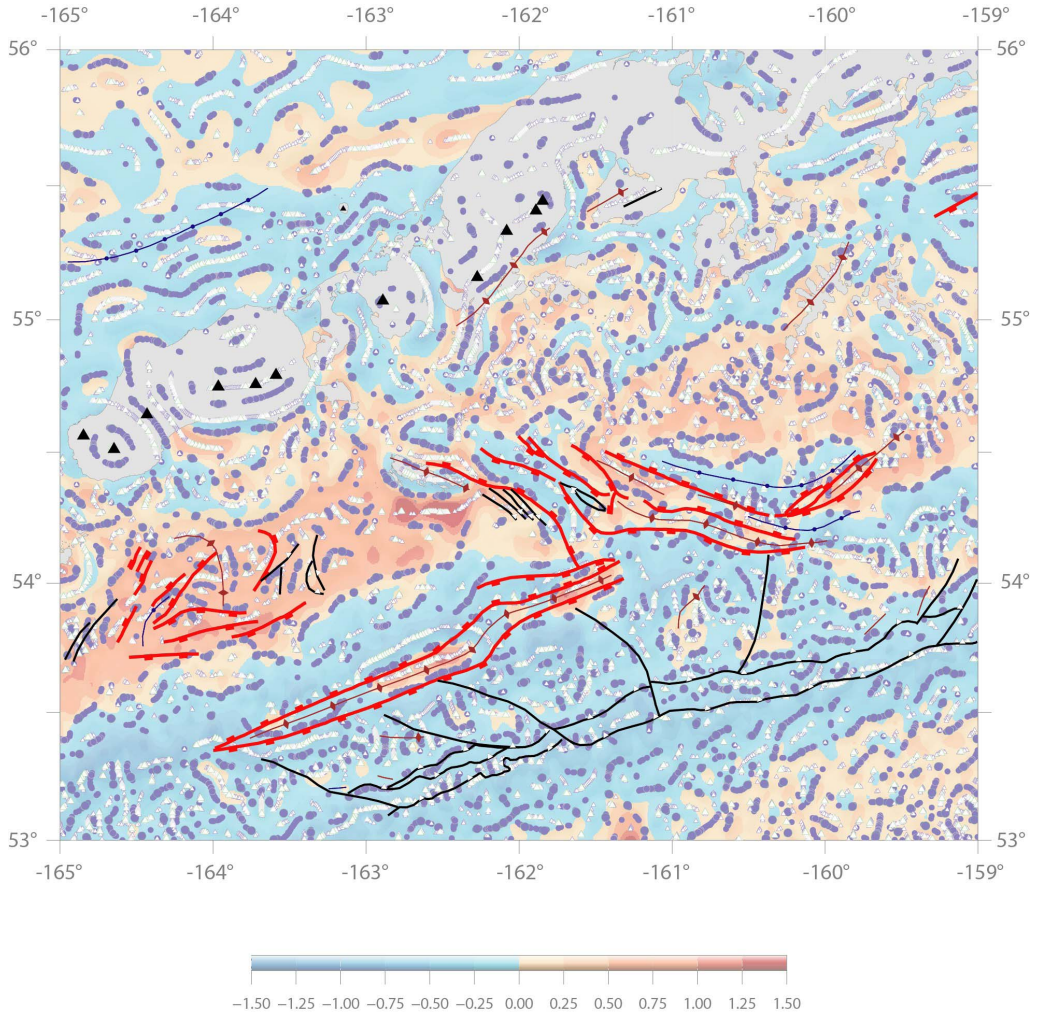
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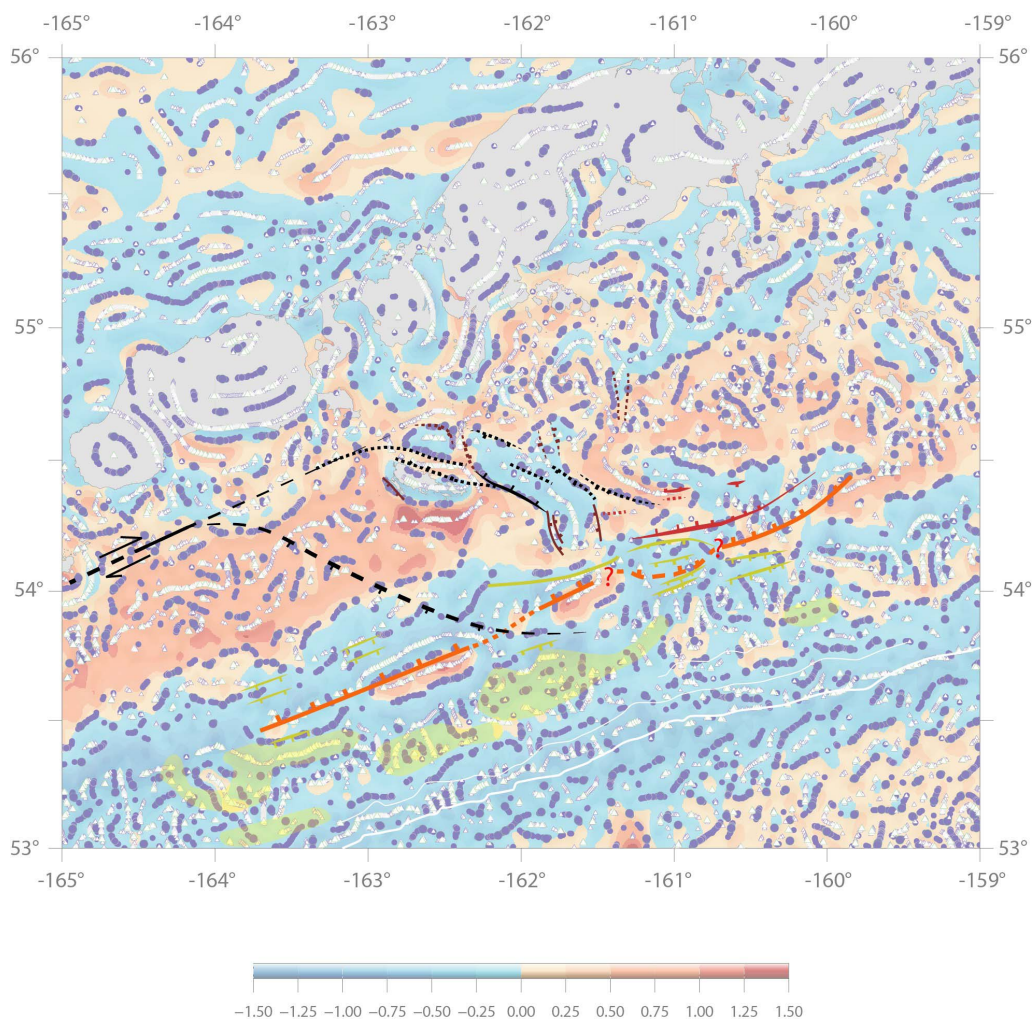
Supplementary Figure S1. Structural map of Horowitz et al. [1989] (unprojected from the original polyconic projection and re-projected to Mercator). Blue lines are synclines and brown lines are anticlines. Red faults are normal faults while black ones with white symbols are thrusts.



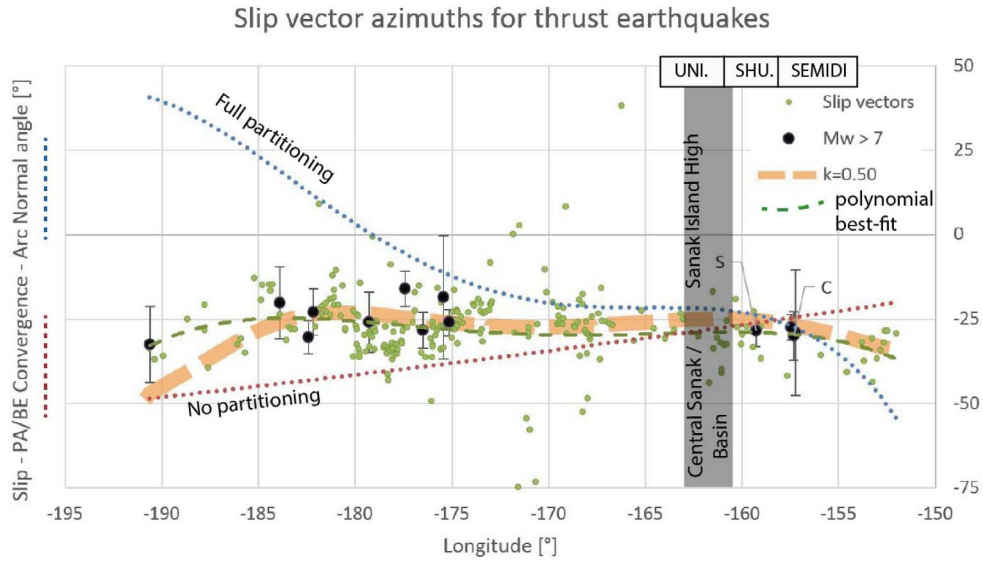
Supplementary Figure S2. Prestack depth migration and streamer tomography along a section of ALEUT line 6 framed in Figure 6, from Bécél et al. [2017].



Supplementary Figure S3. Horowitz et al. [1989] faults map superimposed onto the vertical gradient of satellite derived E.A.A. gravity [DTU13 model, Andersen et al. 2016]. Blue dots represent the gravity analytic signal maxima (possible faults) and white symbols the extrema of the vertical gradient (ridges and basins).



Supplementary Figure S4. Structural map from this study (see Figure 8 for legend) superimposed onto the vertical gravity gradient (detailed legend in Supplementary Figure S3).



Supplementary Figure S5. An alternative Figure 9 with a Pacific/Bering motion: Azimuth plot of $M_w > 5.8$ thrust earthquake slip vectors extracted from the GCMT catalog [Dziewonski et al., 1981, Ekström et al., 2012] for the 1976–2022 period (hypocenter depth < 50 km and plunge tension axis > 45°). Black points are $M_w > 7$ with uncertainties from moment tensor errors. The 2021 $M_w 8.2$ Chignik and the 2020 $M_w 7.8$ Simeonof megathrusts are quoted C and S respectively. Blue line is the arc-normal azimuth while the red line is the Pacific (PA)/Bering (PE) convergence direction from GSRMv2 [Kreemer et al., 2014], corresponding to full partitioning and zero partitioning, respectively. The thick orange dashed line is the predicted slip vector azimuth in the half-partitioned case [transcurrent rate equal to half the full-partitioning rate, or $k = 0.50$; see text and Cross and Freymueller 2008]. The grey shaded area indicates the longitude of the Central Sanak horsetail structure and the Sanak Island High (see Figure 8).