

1

11 SUPPLEMENTARY FIGURES

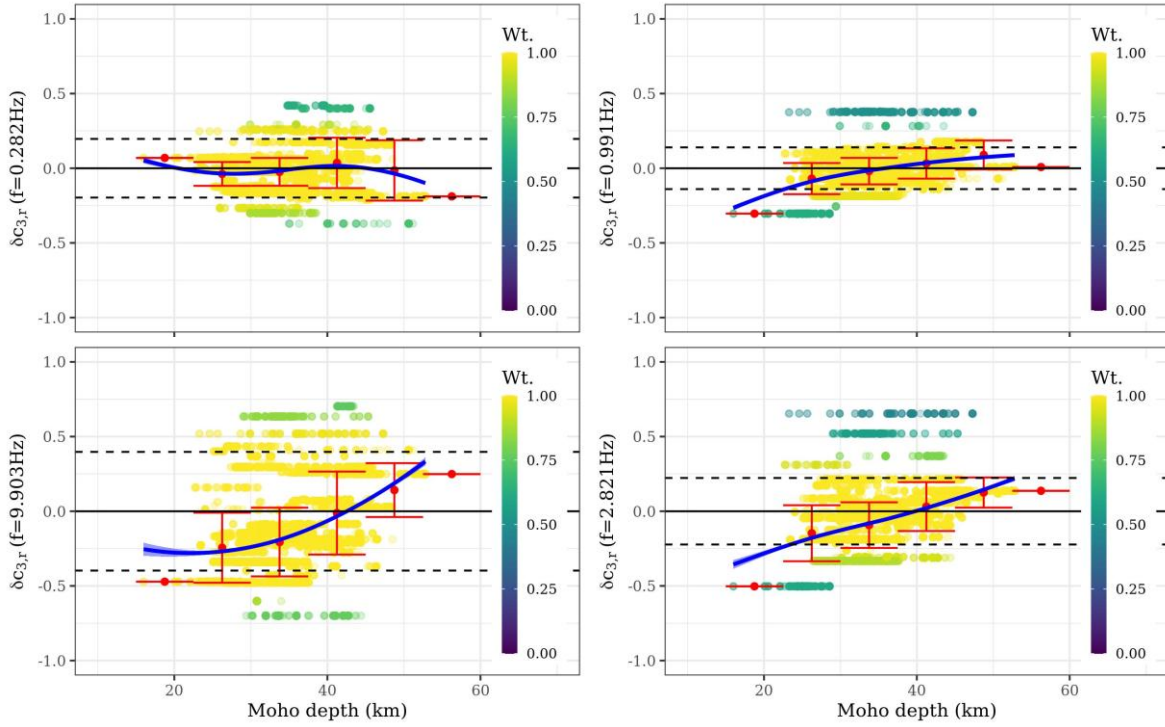


Fig.S1 $\delta c_{3,r}$ of regions versus Moho depth at site locations within regions covered by Grad et al (2009), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta c_{3,r}$ of each region in the rlmm regression

2

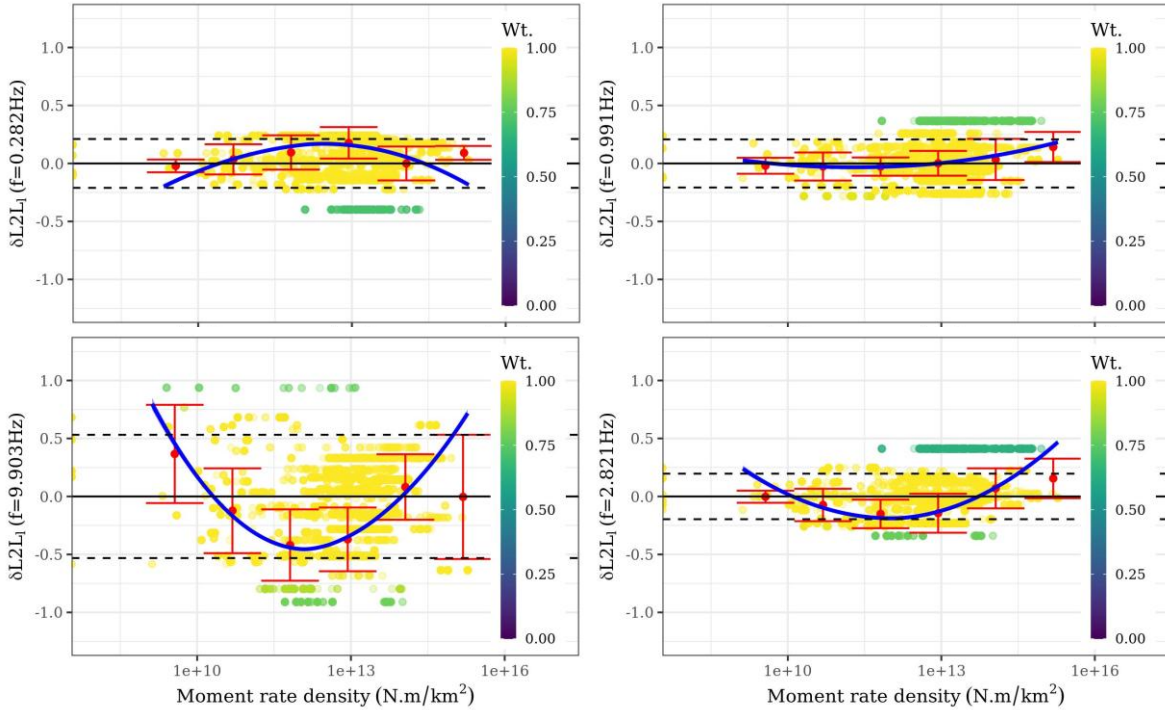


Fig.S2 $\delta L2L_l$ of tectonic localities versus seismic moment rate density at event locations within regions covered by Weatherill et al (2016), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta L2L_l$ of each tectonic locality in the rlmm regression

3

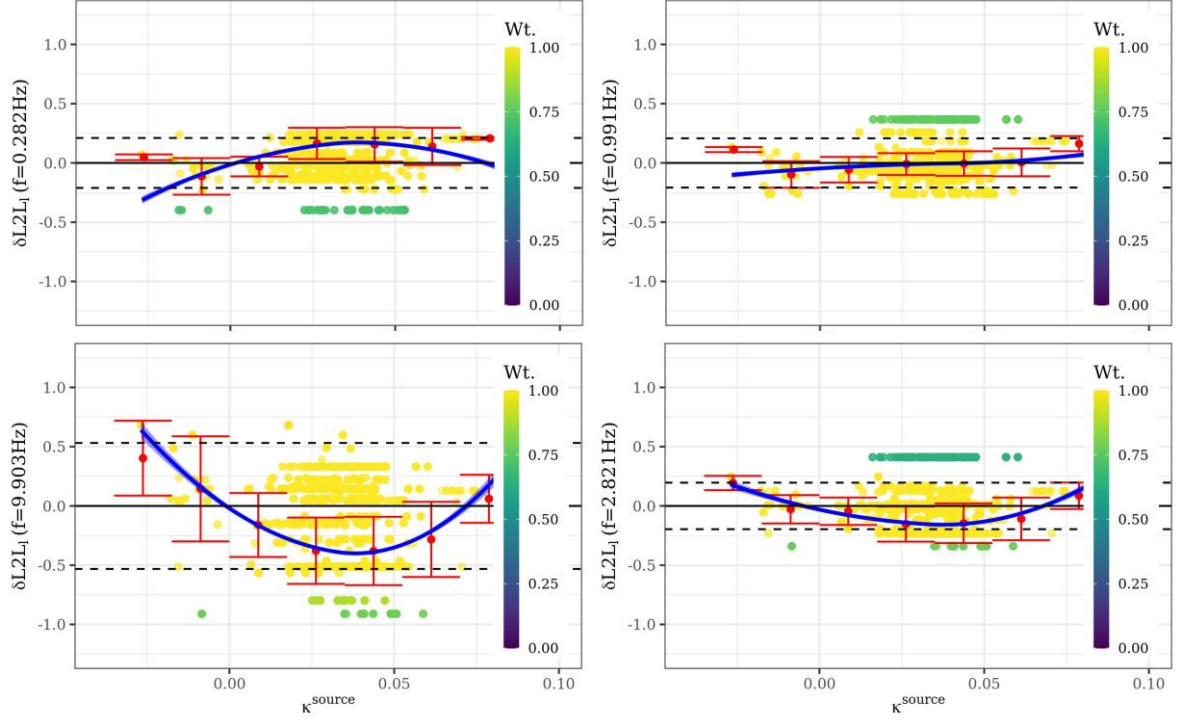


Fig.S3 $\delta L2L_1$ of tectonic localities versus high frequency attenuation parameter κ^{source} of events within the localities estimated by Bindi and Kotha (2020), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta L2L_1$ of each tectonic locality in the rlmm regression

1

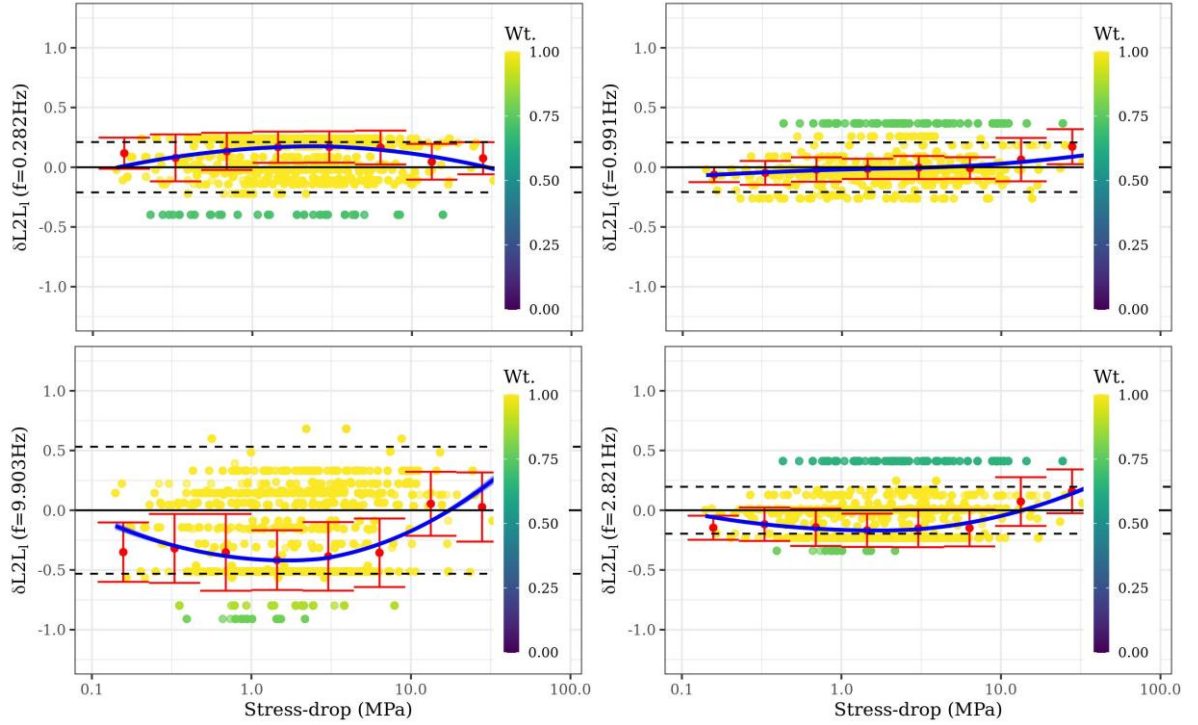


Fig.S4 $\delta L2L_1$ of tectonic localities versus stress-drop of events within the localities estimated by Bindi and Kotha (2020), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta L2L_1$ of each tectonic locality in the rlmm regression

2

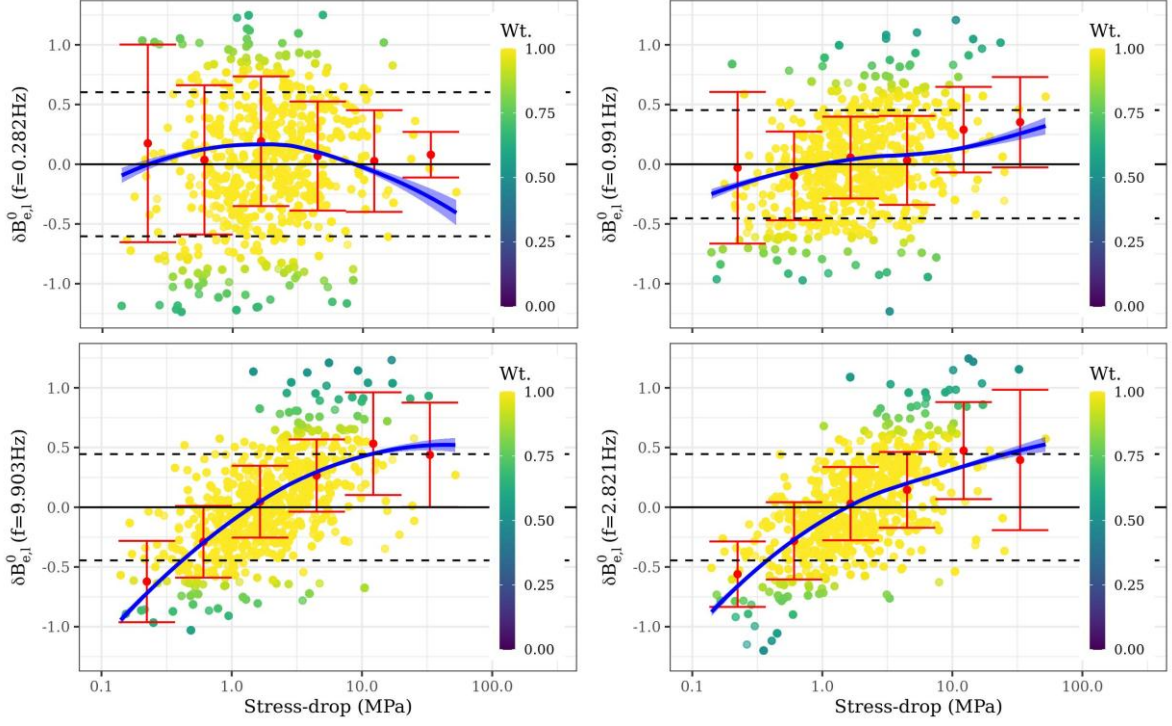


Fig.S5 $\delta B_{e,l}^0$ of events versus stress-drop estimated by Bindi and Kotha (2020), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta B_{e,l}^0$ of each event in the rlmm regression

1

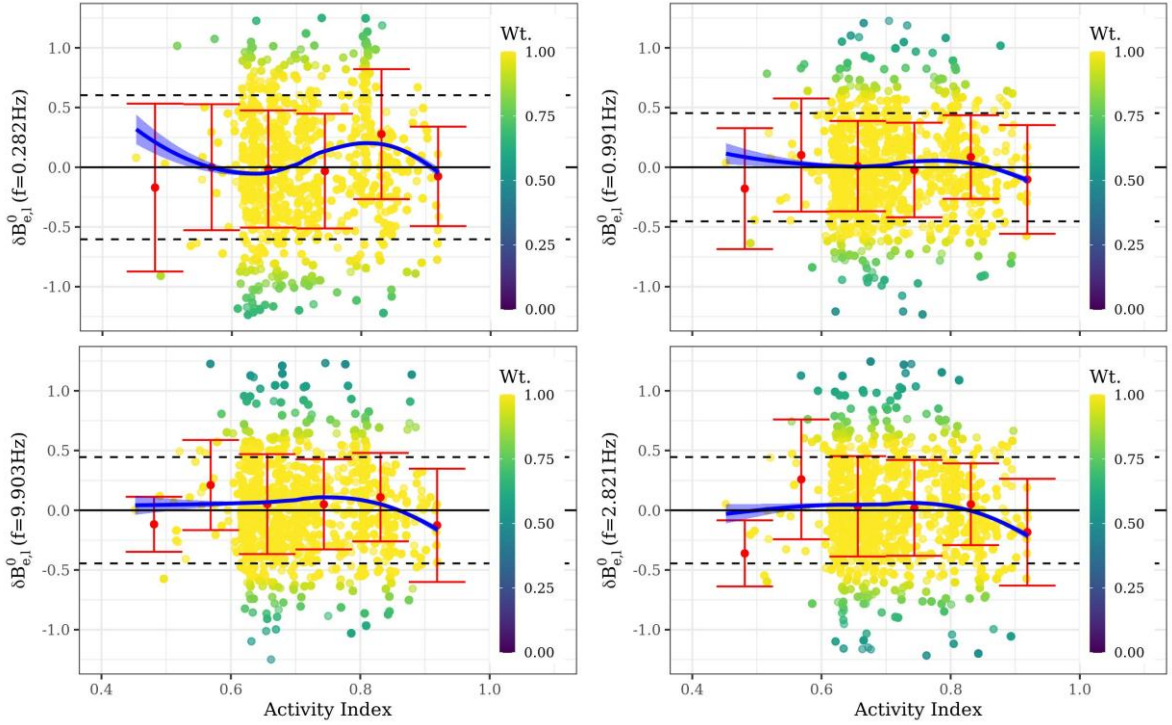


Fig.S6 $\delta B_{e,l}^0$ of events versus Activity Index at each event location provided in Chen et al. (2018), for $f \approx 0.3, 1, 3, 10\text{Hz}$ (clockwise from top-left to bottom-left). The blue lines are loess fits between the two parameters. Marker colors indicate the weight assigned to $\delta B_{e,l}^0$ of each event in the rlmm regression

2