

S1. Triggering During Times of Increasing Versus Decreasing Tidal Stress.

Microearthquakes occur preferentially near times of peak extension resulting from the combined effect of Earth tide and ocean tidal loading (shown in the rose diagrams of Figure 3b). The distribution of phase angles (θ), however, is not perfectly symmetrical. 1,763 out of a total of 3,425 microearthquakes in the full dataset occur during times of increasing extensional stress ($\theta < 0^\circ$). The significance of this asymmetry can be tested against a binomial distribution, where it is assumed that an earthquake has an equal probability of occurring during times of increasing stress ($-180^\circ < \theta < 0^\circ$) or decreasing stress ($0^\circ < \theta < 180^\circ$). This test shows that the probability of obtaining the observed result from a binomial model is only 4%. For the declustered dataset, 1,544 out of 2,897 events occur during times of increasing stress. The probability of obtaining this result from a binomial model is <1%. This suggests that earthquakes occurring during times of increasing tidal stress may serve to relax the overall level of stress within the system, reducing slightly the tendency of earthquake activity on the decreasing side of the tidal stress peak (0° phase).