



Fig. S2. Co-seismic slip distribution (left) and uplift and subsidence fields (right) for Models 1 and 4. Comparison of measured (purple vectors) co-seismic horizontal displacements from the far field GPS data with the modelled deformations (green vectors), are also shown in each left hand panel. The southern patch of slip in Model 1 is located between 4° N and 7° N, has values of order 20 m localized to a narrow zone at \sim 5° N. The zone affected by co-seismic displacement extends southward until 2–3° N; with slip of up to 7 m. The location of maximum slip and uplift and subsidence is about 1° farther north than inverted in other models. The northern patch of slip ($>$ 5 m) extends between 8° N and 12° N, with maximum slip centred at about 10° N. Note the zone of minimum slip at \sim 7–8° N. In Model 4 slip is located at \sim 2.5° N (15 m), \sim 4° N (25 m), \sim 5–6° N (25 m), 9° N (30 m), 11° N (10 m) and 13° N (10 m). In addition note the patch of weaker slip, between the maxima at 5–6° N and 9° N, a region where we also find reduced slip in Models 2 and 5. Model 4 creates five to six regions of large uplift and subsidence, centred at the locations of maximum slip. The largest difference between the modelled and observed co-seismic vectors is found for this inversion. The near field data force slip in the far south at 2° N, and far north at 14° N; neither source is reproduced by the far field co-seismic data alone.