

## Supplementary Material

## 1 SUPPLEMENTARY DATA

## 2 SUPPLEMENTARY TABLES AND FIGURES

Table S1. Distances, (final) peak ground displacement, PGD, amplitudes, and slip, D, estimated from backprojection of PGD onto final FinDer line-source (Table 1) for all considered stations and earthquakes. Stations that backproject only the tips of the FinDer line-source (0 or the maximum FinDer length along line-source) are not used for slip recovery. We are showing PGD amplitudes for 2 definitions:  $PGD_1 = max(PGD_Z, PGD_E^2 + PGD_N^2)$  And  $PGD_2 = max\sqrt{E(t)^2 + N(t)^2 + Z(t)^2}$ 

Table S1a: Ridgecrest seismic, geodetic Table S1b: Kumamoto seismic, geodetic Table S1c: Wenchuan seismic

Attached separately.

## 2.1 Figures



**Figure S1.** Seismic displacements from the 2019 Ridgecrest earthquake. Each component is labeled. The data processing is described in section 3.2. All amplitudes are normalized.



Figure S2. GNSS displacements from the 2019 Ridgecrest earthquake. Each component is labeled.



Seismic Kumamoto Displacements

Figure S3. Seismic displacements from the 2016 Kumamoto earthquake. Each component is labeled.



Figure S4. GNSS displacements from the 2016 Kumamoto earthquake. Each component is labeled.

GNSS Kumamoto Displacements

Seismic Wenchuan Displacements



Figure S5. Seismic displacements from the 2009 Wenchuan earthquake. Each component is labeled.



**Figure S6.** Results from FinDer, FinDerS, and FinDerS+ with a 30 km cut-off for seismic stations from the FinDer line source for the Ridgecrest earthquake. All GNSS stations within a 100 km radius are included



**Figure S7.** Results from FinDer, FinDerS, and FinDerS+ with a 90 km cut-off for seismic stations from the FinDer line source for the Ridgecrest earthquake. All GNSS stations within a 100 km radius are included



**Figure S8.** Results from FinDer, FinDerS, and FinDerS+ with a 30 km cut-off for seismic stations from the FinDer line source for the Kumamoto earthquake. All GNSS stations within a 100 km radius are included



**Figure S9.** Results from FinDer, FinDerS, and FinDerS+ with a 90 km cut-off for seismic stations from the FinDer line source for the Kumamoto earthquake. All GNSS stations within a 100 km radius are included



**Figure S10.** Results from FinDer, FinDerS, and FinDerS+ with a 30 km cut-off for seismic stations from the FinDer line source for the Wenchuan earthquake.



**Figure S11.** Results from FinDer, FinDerS, and FinDerS+ with a 90 km cut-off for seismic stations from the FinDer line source for the Wenchuan earthquake.