

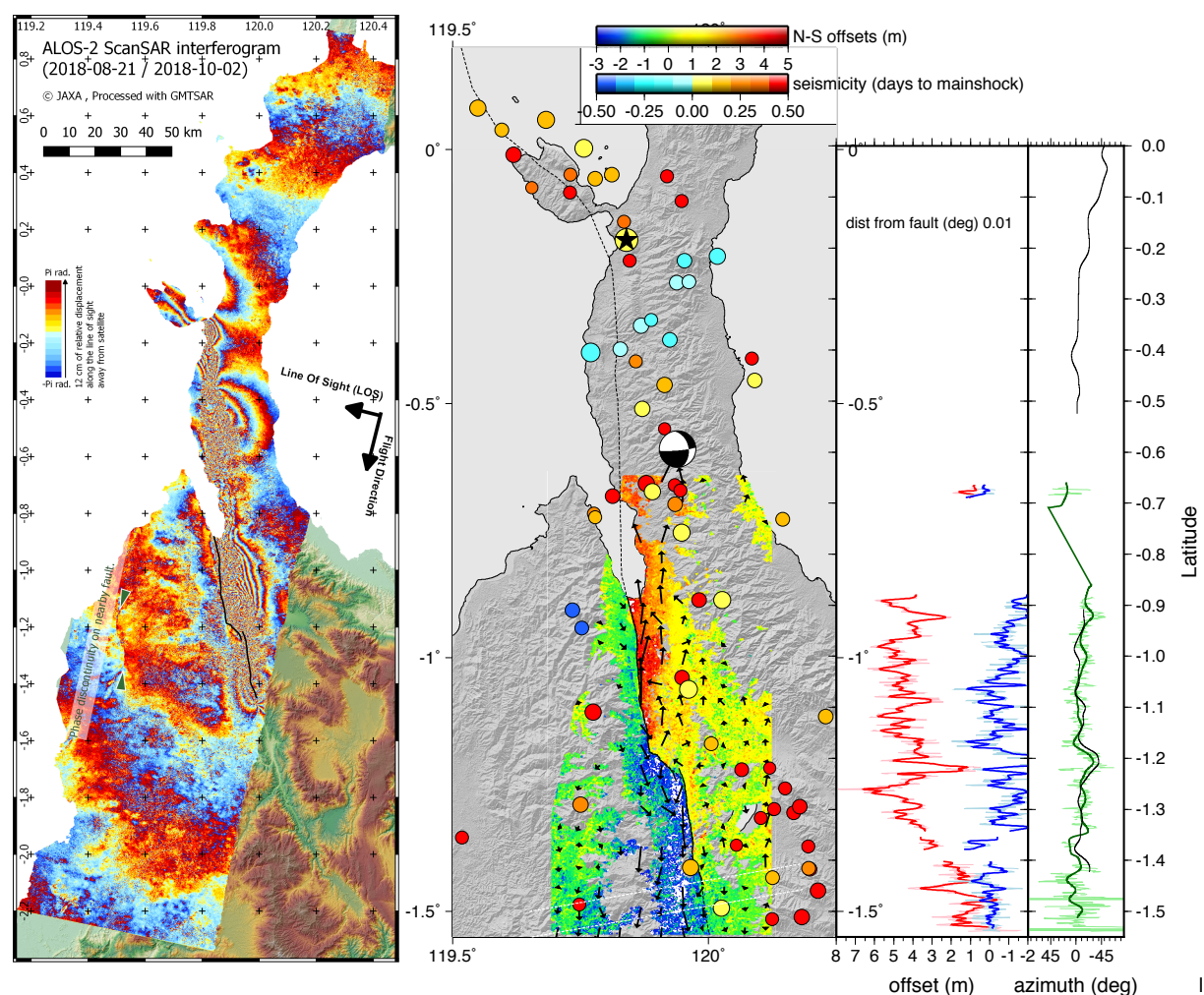
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Evidence of supershear during the 2018 magnitude 7.5 Palu earthquake from space geodesy

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Supplementary Information: This document contains supplementary figures and tables referred by the main text and Methods of the article.



FigS1: Left: Wrapped ALOS2 SAR interferogram, showing the details in near field and a secondary fault ~50km west of the main rupture. Right: Same as figure 1b for Landsat 8 offset field.

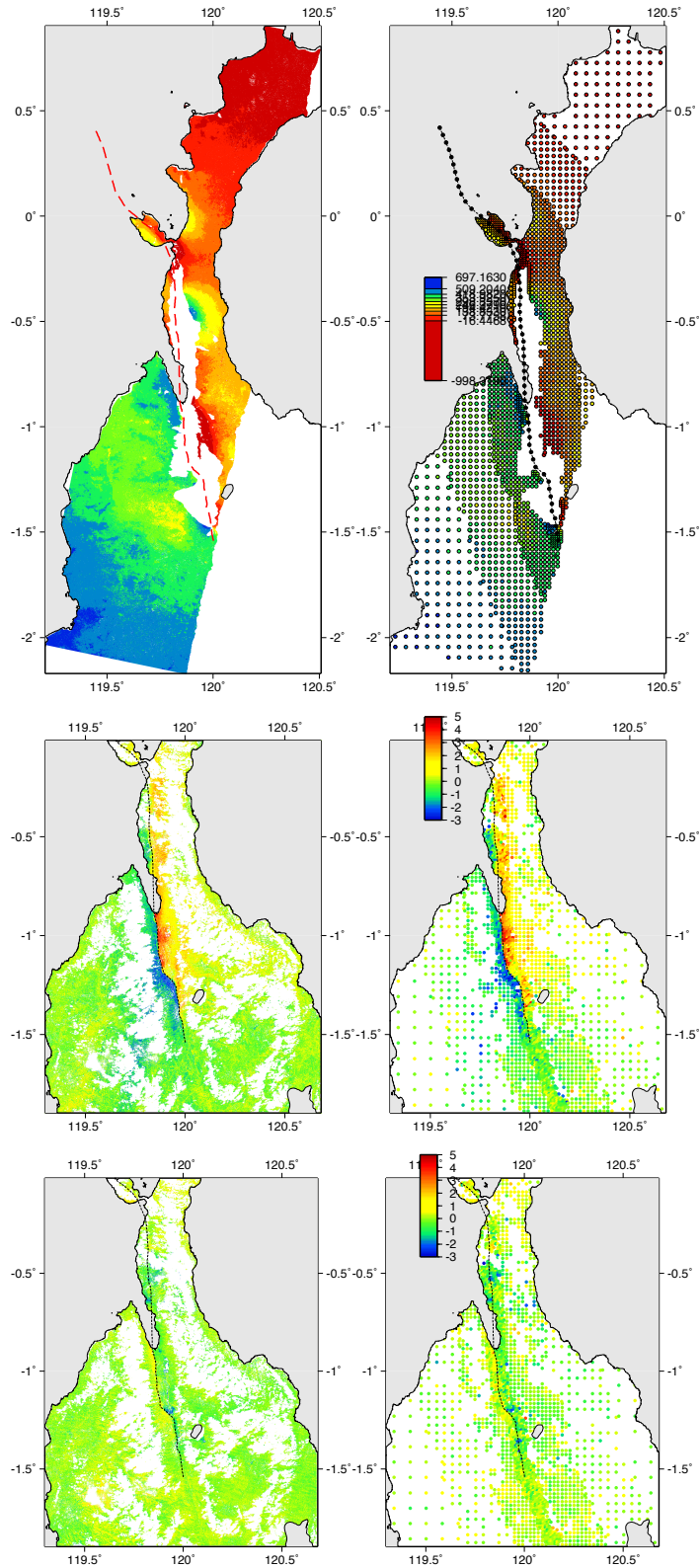


Fig S2: Subsampling of data for inversion. Left column show initial data right column shows subsampled data. Top row: Unwrapped Alos2 interferogram. Middle row: North-South Sentinel2 Offset field. Bottom row: East-West Sentinel2 Offset field

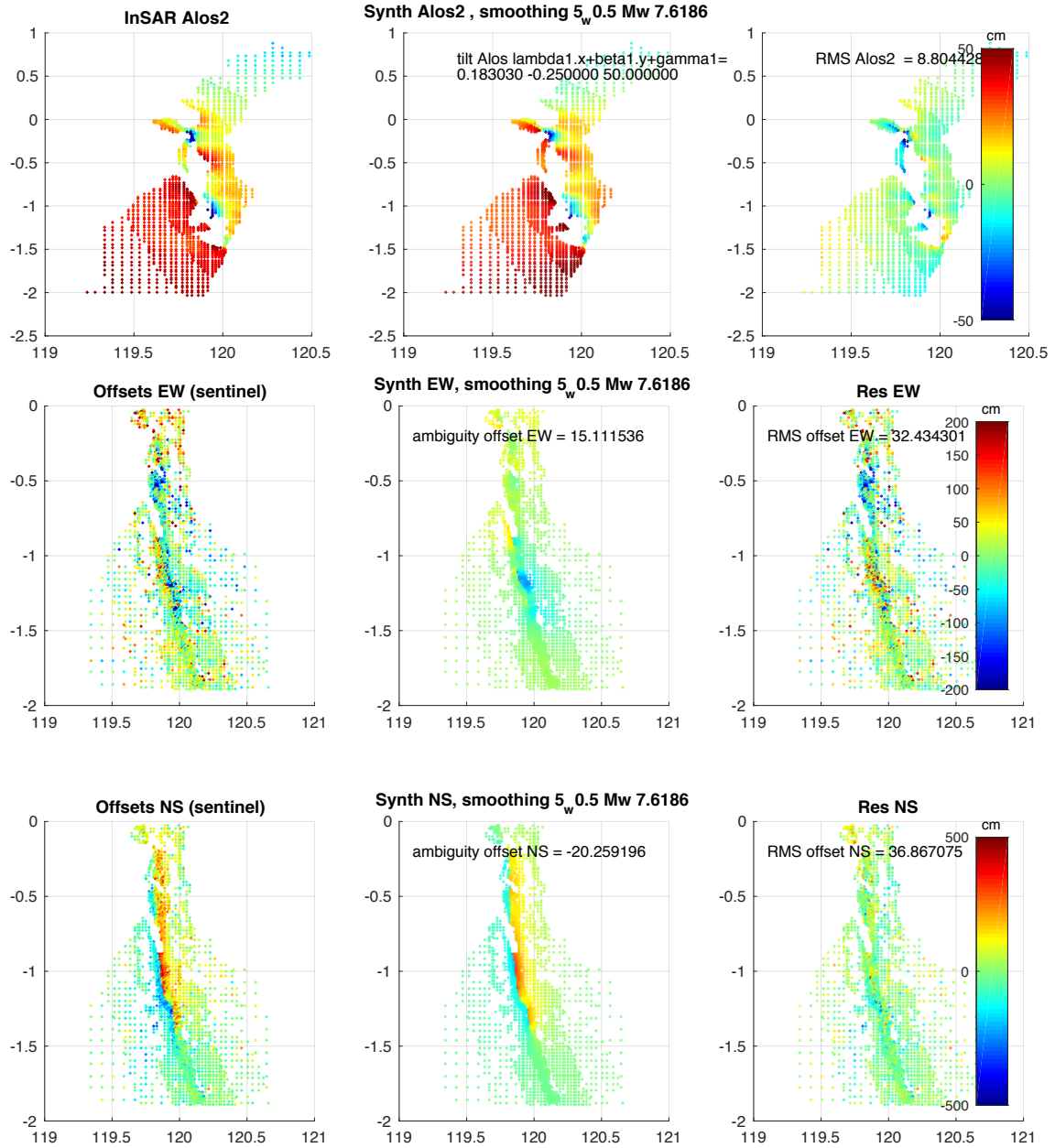


Fig. S3 : Co-seismic displacements (observed: left, synthetic: center, residuals: right). Top row shows Alos subsampled data, Middle row shows sentinel2 EW subsampled offsets, bottom row shows sentinel2 subsampled NS offsets. For each data set the data – model misfit (RMS), as well as the values of tilts and ambiguities estimated during inversion are indicated.

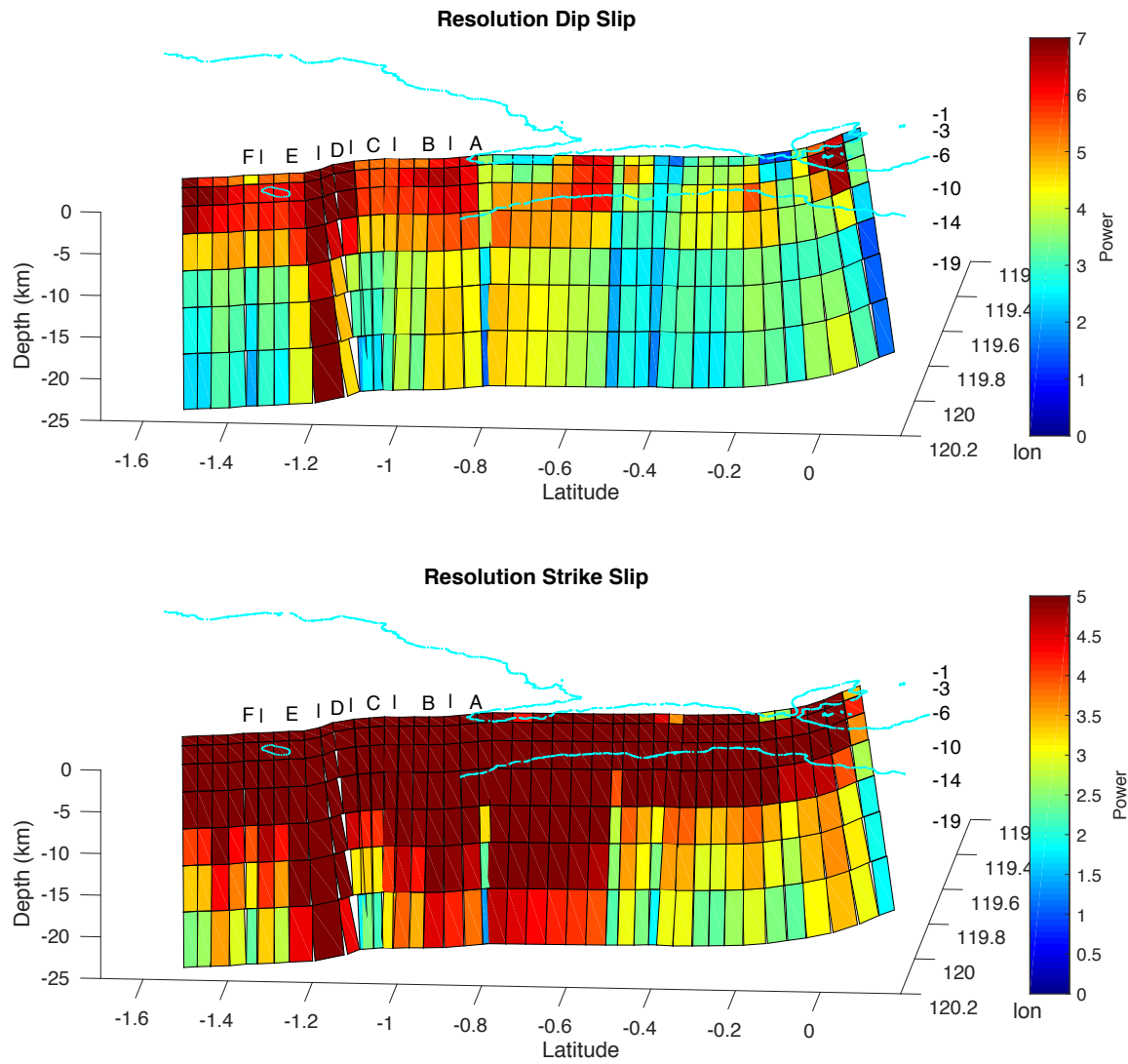


Fig S4: Power of data to constrain fault interface behavior (i.e., sum of the partial derivatives relating surface displacement to unit slip, Loveless & Meade, 2011). Top shows dip-slip resolution, bottom shows strike-slip resolution. Note that the power of data to constrain the fault interface behavior depends on the size of the patches, on the number of data available, and on the distance between the patches and the data points.

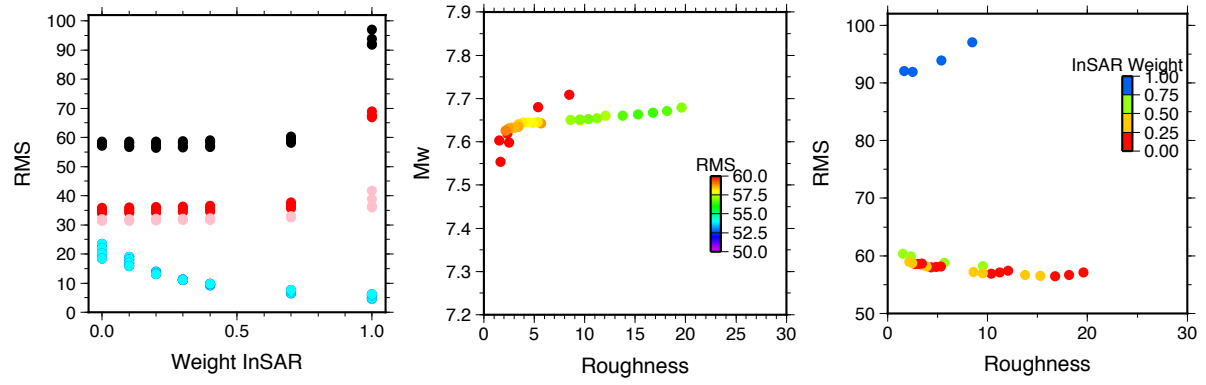


Fig. S5: Left: Model – data misfit (RMS) as a function of the weight on InSAR data. Total RMS is in black, InSAR RMS is in blue (South interferogram: dark blue, North interferogram: cyan), offset RMS are in red (NS offsets: red, EW offsets: pink). Center: Geodetic moment as a function of the model roughness, color-coded by the value of total RMS. Right: Total RMS as a function of the model roughness. Dots are color-coded by the weight of InSAR data. The preferred model is chosen as a compromise between smoothness, weight and RMS.