[Geophysical Research Letters]

Supporting Information for

[Slip model of the 2015 Mw 7.8 Gorkha (Nepal) earthquake from inversions of ALOS-2 and GPS DATA]

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Figure S7 shows the comparison of LOS displacements between Sentinel observation and model prediction.

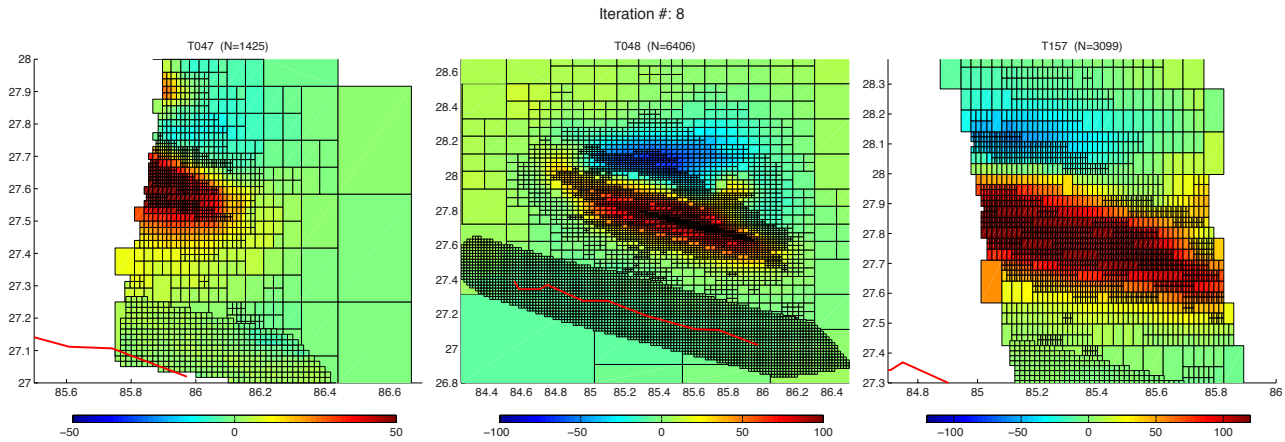

Figure S1. Down-sampling of InSAR measurements. Data are averaged in each bounding box (bin). The total number of points obtained after down-sampling is indicated in parentheses in the subtitles.

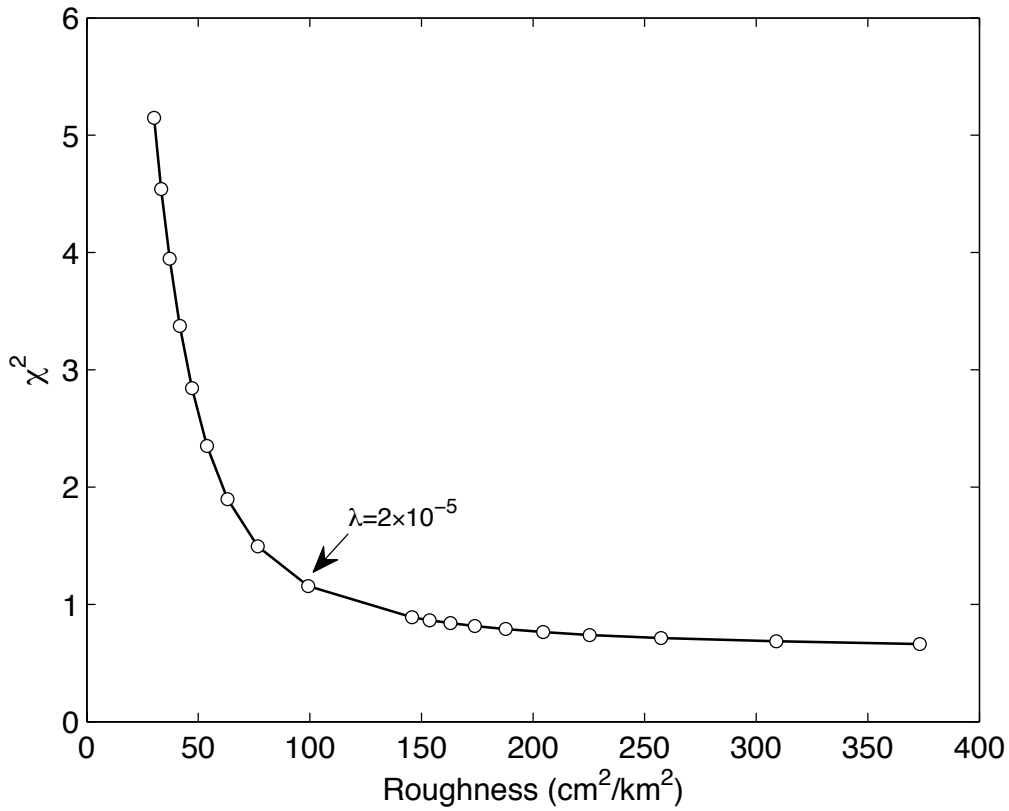

Figure S2. Trade-off curve of the model misfit versus the roughness of the model. The inversion is minimizing the objective function $F(m,\lambda)=||Gm-d||+\lambda||Hm||$, where m is the vector of unknown (slip) components, d is the data vector, G is the matrix of

Green functions, H is the finite difference approximation of the Laplacian operator used to smooth the model. We defined the roughness of model as $r=||Hm||^2/S$, where S is the total area of the fault model. $\lambda=2\cdot10^{-5}$ was chosen as the optimal value in the inversion.

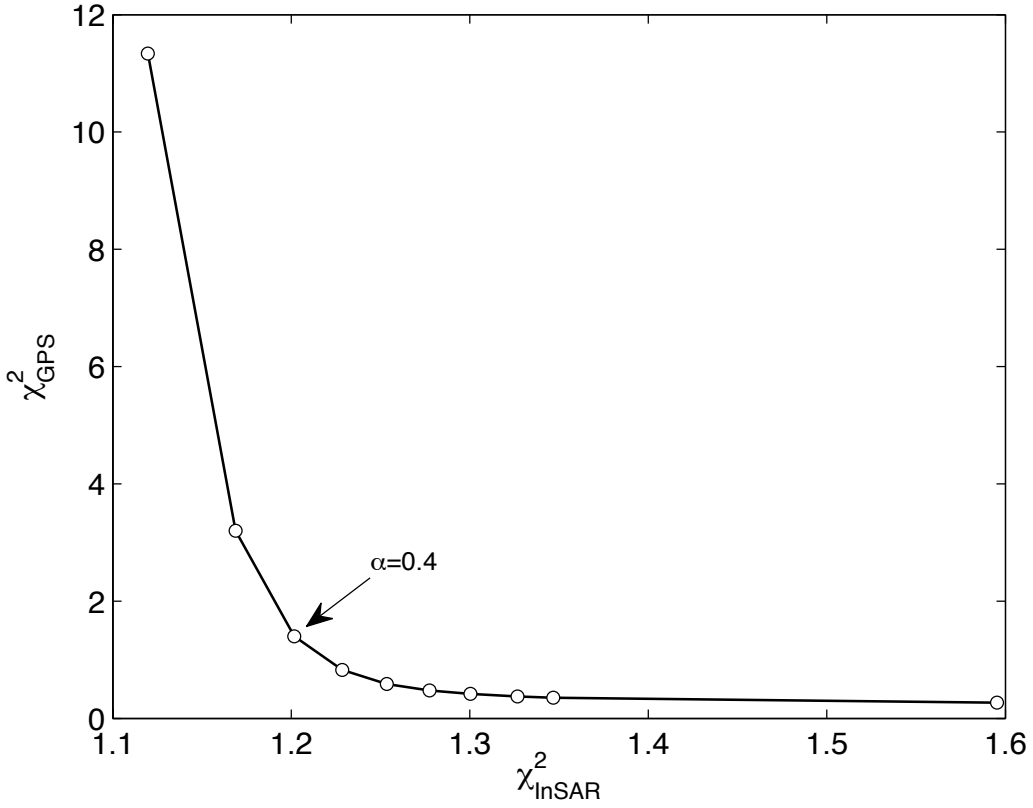

Figure S3. Trade-off curve of the GPS misfit χ^2_{GPS} versus InSAR misfit χ^2_{InSAR}. The ratio of relative weighting of GPS data to that of InSAR data α was chosen such that the χ^2_{GPS} is close to one (i.e. average misfit of the model is commensurate with the measurement uncertainty), while χ^2_{InSAR} is smallest. $\alpha=0.4$ was chosen as the optimal value in the inversion.

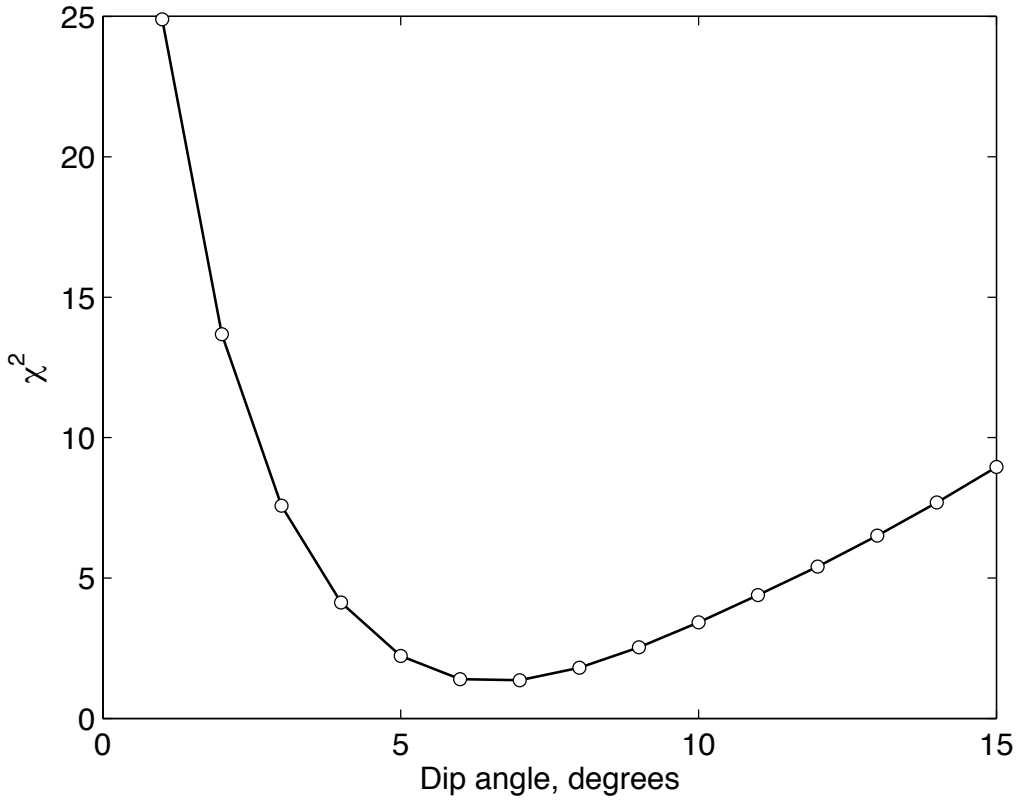

Figure S4. Model misfit as a function of the dip angle of a planar fault that intersects the surface at the trace of MFT.

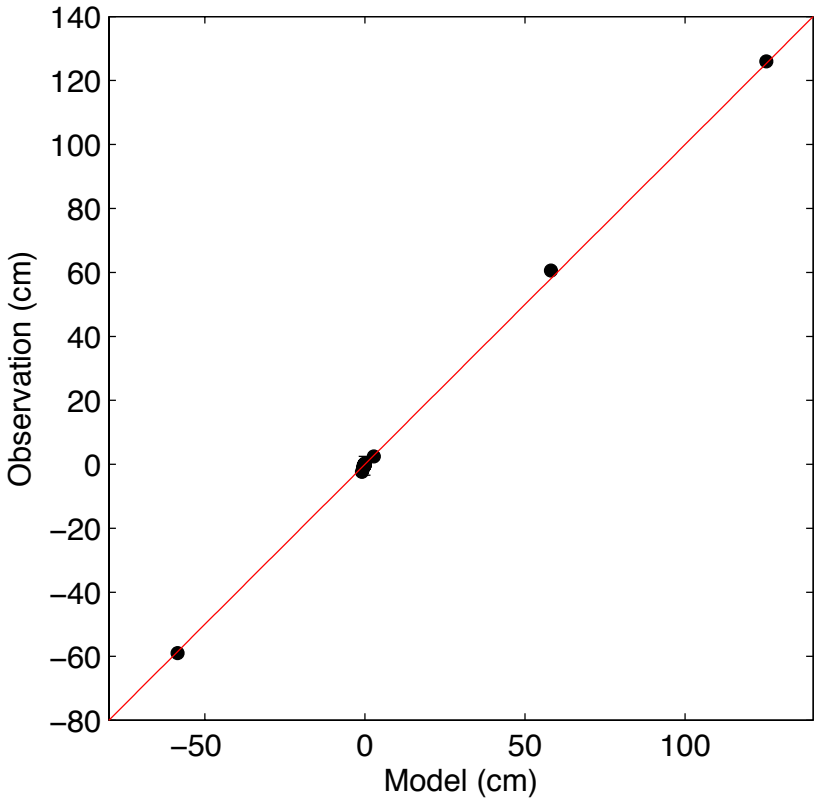

Figure S5. Comparison of GPS vertical components between model predictions and observations. Red line has a slope of unity.

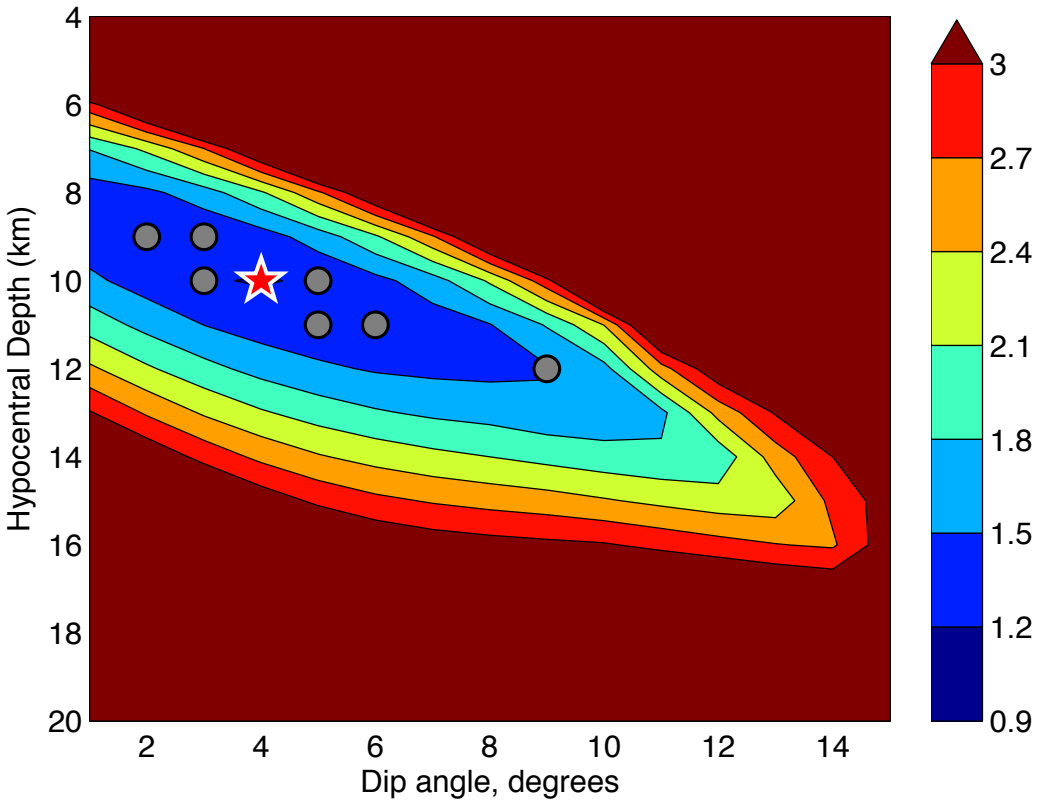

Figure S6. Model misfit as a function of 'hypocentral' depth and dip angle. The fault strike was fixed at 285 degree, and the fault was required to go through assumed hypocenter, which was allowed vary between 4 and 20 km. The fault dip was allowed between 1 to 15 degrees.

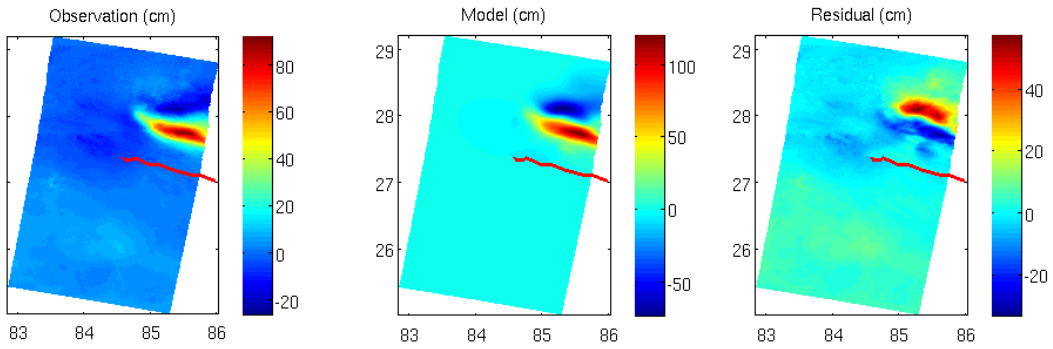

Figure S7. Comparison of LOS displacements between Sentinel observation and model prediction. The slip model assumes a planar fault with dip angle of 7 degrees that intersects the surface at MFT. The Sentinel interferogram is made using acquisitions on April 17th 2015 and April 29th (http://insarap.org). Red line represents the surface trace of the MFT. There is a large area of decorrelation north of latitude ~28 deg. N which has been interpolated over, so a comparison in meaninglful only for the positive LOS displacement signal to the north of the fault trace.