

APPENDIX E. UNIFORM SLIP MODEL: COMPARISON BETWEEN SEVERAL PROPOSED GEOMETRIES, UNCERTAINTIES AND RESIDUALS

Figure E1. Comparison between several fault interfaces proposed in the region of the 2007 Tocopilla earthquake (ANCORP Working Group 2003; Pritchard *et al.* 2002; Chlieh *et al.* 2004; Pritchard & Simons 2006; Hayes & Wald 2009; Hayes *et al.* 2009; Peyrat *et al.* 2010). The planes are projected in a cross section perpendicular to the fault strike (5°) at latitude -23.0° . Density plots of our 100 best-fitting fault planes for the 2007 main shock from (a) GPS data inversion and (b) InSAR data inversion are also shown (same as in Fig. 4). Black crosses correspond to aftershocks epicenters located by the DGF and black circles correspond to epicenters located by Oncken *et al.* 2006. Conventions are the same as in Fig. 4.

Figure E2. Histograms to depict the distribution of the model parameters for the 100 best-fitting models of each data set. (a) Histograms for inversions using GPS data and (b) histograms for inversions using InSAR data (both tracks equally weighted). Fault strike is held fixed at 5° in all inversions.

Figure E3. Preferred model and residuals for uniform slip inversions for 2007 earthquake. (a) Preferred model (see parameters in last row of Table 1) projected in the LOS direction (color scale and contours) and in the horizontal and vertical direction for each GPS position. Horizontal and vertical GPS displacements are shown as red and blue arrows, respectively. Positive vertical displacements are arrows towards the North and negative vertical displacements are arrows towards the South. The modeled fault plane is shown as a black rectangle. (b) GPS residuals. Same color conventions as in figure a for arrows but different scale. (c) Track 368 interferogram residuals and (d) track 96 interferogram residuals. Colors and contours (2 cm interval) show magnitude of InSAR residuals. Red represent positive InSAR residuals and blue represents negative InSAR residuals. RMS values for (b), (c) and (d) are indicated. The trench is shown by the black barbed line