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Integration of space-geodetic and seismological data to derive source parameters of the 14 November, 2007 Mw=7.7 Tocopilla (northern Chile) earthquake

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Distributed slip models of large earthquakes are critical to understand the earthquake cycle and provide important insights into modelling of stress changes and assessment of seismic hazard. The purpose of this paper is to examine in detail the spatio-temporal distribution of fault slip during the 14 November, 2007 Tocopilla (northern Chile) earthquake. We shall use InSAR data in wide swath and image modes to derive detailed maps of the coseismic displacement field; invert these observations using a grid of rectangular dislocations in an elastic half-space for the distributed slip model; analyze teleseismic and aftershock data to derive temporal evolution of slip and compare the results. Finally, we conclude with an assessment of the potential of the Iquique seismic gap in northern Chile to generate another large earthquake