



Coseismic and Postseismic Models of Altai 27.09.2003 Earthquake Constrained by DInSAR, GPS, Seismology and Field Data

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To investigate coseismic and postseismic displacement fields in the area of Altai (Chuya) 27.09.2003 earthquake we employed ENVISAT ASAR images and regional GPS data. Good correlation of ASAR images was obtained only in flat not-forest-covered parts of the epicenter area. In this case repeated GPS, seismology and seismotectonic field data are especially important to stabilize the process of data inversion. Position of ruptures corresponding to the main shock and three largest aftershocks (6.7, 6.6 and 6.2) which occurred during four consequent days was found in result of joint inversion of DInSAR and GPS data. Parameters of the fault-plane model were varied within limits provided by seismology and by field data on position of rupture at the surface of sedimentary cover. The model obtained fits well both interferometry and geodesy. Being constrained by GPS data, it differs from models of Nissen et al. (2007) and Barbot et al. (2008) in strike and dip of the rupture planes as well as in magnitude and direction of the slip vectors. The main difference is in magnitude of displacement at the rupture surface, which corresponds better to the magnitudes of the seismic events.

In our presentation we discuss also possibility to estimate postseismic slip and stability of inverse problem solution based on space and surface data.