



Source process of the 2010 Yushu, China, earthquake in the eastern Tibetan plateau

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We examined the source process of the 2010 Yushu, China, earthquake, which occurred in the eastern Tibetan plateau. Based on the results of centroid location grid searches and the aftershock distribution, we first constructed a left-lateral strike-slip fault model. We then carried out source process inversions of teleseismic waveform data using various rupture front velocities. We obtained the optimum source model with a seismic moment of 1.9×10^{19} Nm (M_w 6.8), where the rupture velocity was found to be faster than the shear wave velocity of the crust in this region. This supershear rupture velocity resulted in severe damage in and around the county seat of Yushu, which is located in the forward rupture direction of the source model. The model is also consistent with the features of tectonic activity in the eastern Tibetan plateau. The obtained maximum dislocation suggests the recurrence interval of the Yushu earthquake to be approximately 300 years.