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# Estimation of dynamic friction of the Akatani landslide based on the waveform inversion and numerical simulation

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We performed numerical simulations of the 2011 deep-seated Akatani landslide in central Japan to understand the dynamic friction process of the landslide. By comparing the forces obtained from the numerical simulation and seismic waveform inversion, the most probable friction model was estimated.

Based on the numerical simulation, dynamic coefficient of friction was well constrained as 0.3 and a rapid increase of the velocity and the associated drop of the coefficient of friction were observed right after the onset of sliding.

The friction law that controls landslide dynamics is velocity-weakening with sudden drop after the initiation of sliding, which accelerates the deep-seated landslide. The friction model calibrated here using seismic data helps to understand the dynamics of the landslide and provide the basic property of the shearing resistance of the slip plane.

Keywords: deep-seated landslide, dynamic friction, seismic waveform, numerical simulation, granular material