

Slip-partitioned surface ruptures for the Mw 7.0 2016 Kumamoto, Japan, earthquake

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An ENE-trending ~30-km-long significant surface ruptures emerged along the previously mapped Futagawa and northern Hinagu fault zones at the Mw 7.0 2016 Kumamoto earthquake (Kumahara et al., 2016, in this JpGU meeting). The rupture zone is mostly composed of right-lateral slip fault sections that has max. 2 m coseismic slip. But we also found ~6-km-long normal faulting rupture zone on the western foothill of Mt. Tawarayama, parallel to the right-lateral fault zone. The maximum amount of throw on the normal fault is about 2 m, which is equivalent to the one on the strike-slip fault. We suppose the simultaneous dip-slip and strike-slip motion on parallel faults occurred during the slip partitioning process near the surface from an NW-dipping oblique slip at seismogenic depth. The slip partitioning section may also correspond to the section relatively fewer aftershocks have been occurring. Understanding the slip partition on parallel faults leads to the proper fault grouping and identifying seismogenic fault zone.

Keywords: active fault, surface rupture, slip partition