

Oral

Tectonic Interpretation of Active Fault Extending in Myanmar, Laos and China by Relief Map of Aster GDEM and Harmonized Geological Map

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In 24 March 2011, an earthquake at the scale of Mw 6.8 occurred at the west end of the Nam Ma fault which is 215 km long crossing Myanmar, Laos and China. The rupture occurred on a 30 km long segment in Myanmar. Since strike-slip faults commonly terminate in zones of ductile deformation to accommodate a large amount of stress accumulated in a continued fault, a long fault is usually segmented. The earthquake of the Nam Ma fault was the one limited to individual segments limiting magnitude and influencing inter-event recurrence times. The ASTER GDEM of 30 m spatial resolution derived from the ASTER data has been archived and is accessible from a download site at no charge. Its relief map illustrates linear features. Those reflect fault scarps, step-overs, pull-apart areas and bends associated with tectonic deformation. A harmonized geological map which is continuous over the cross-border areas was compiled in and around the study area. The map reveals not only lithologies and ages of formation but also continuous displacement lines crossing countries and exotic terranes associated with horizontal tectonic movements. Intensive field surveys for segmentation were conducted in Myanmar and provided information on tectonics while in the Laos side few surveys have not been conducted and more information on tectonics is required. The ASTER GDEM data and the harmonized geological maps were used to support mapping of entire segmentation of the Nam Ma fault. The mapped Nam Ma fault consists of 5 segments. Estimated slip-plane areas and magnitudes of possible earthquakes of the respective segments indicate that the greatest magnitude is 7.5 in case of the rupture of 100 km long segment which crosses Myanmar and Laos.