

Intensity of strong ground motion of 2015 Ranau quake

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Abstract: Strong ground motion with magnitude 6.0 ML jolted Ranau on 5 June 2015. Based on longitude and latitude location, the earthquake epicenter was located just at the left side which towards west of prominent Lobou-Lobou fault that runs through NNE-SSW in Kundasang area. The ground motion shaking causing substantial damage to building in Ranau such as SJK Pai Wen, mosque in Ranau town, SMK Agama Ranau teacher's quarters flat building and a block of classroom building, Hospital Ranau flat building, Ranau Police quarters building, SK Kundasang teacher's quarters flat building, SMK Agama Mohamad Ali Teacher's quarters, SK Ratau teacher's houses and a unit of villa in Dreamworld resort Kundasang. Strong ground wave also causing severe cracks on prominent building such as Ranau Millimewa shopping mall, Perkasa Hotel building, SMK Agama Mohamad Ali building, SMK Ranau building, Ranau Police building, Hospital Ranau building, mosque in Ranau town building, SJK Pai Wen Building, Ranau shoptlot building and most of the houses in Kundasang and Ranau has suffered moderate to severe crack. Glass wall in Ranau BSN and Maybank were also shattered. The quake ground motion causing 18 peoples died, injured 22 people and causing mega landslide in Mount Kinabalu. The severe effects of this strong ground motion was due to strong intensity of VII and intensity of VIII which located between 1 km to 20 km from the earthquake epicenter. Those houses and building that was attenuated to intensity of VI and below did not suffer any damage except moderate to severe crack on concrete wall due to seismic wave amplification particularly those concrete houses and buildings that sitting on loose geological layer such as alluvium, terrace deposit, peat area and uncompacted man made fill slope. Those houses that sitting on alluvium area in Ranau has suffered moderate to severe crack caused by seismic wave ground motion amplification of the loose geological strata.

Keywords: Ground motion shaking, Lobou-Lobou Fault, intensity, earthquake, ground amplification