

The Impact of Westward Extension of Flores Back-Arc and The Inclusion of an Active Crustal Fault in Southeastern Bali to Bali Seismic Hazard Map (Preliminary Results)

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Recent study utilising Global Positioning System (GPS) measurements of surface deformation conducted in western area of Lesser Sunda Islands, show the westward extension of Flores Back-Arc for 300 km onshore into East Java. Another recent study, utilising geology, geophysics and geodetic methods reveal indication of an active crustal fault in southeastern Bali which pass Denpasar, the capital city of Bali Province and the most dense city in its province. The Implications of these findings are the increasing hazard and risk levels in Northern and Southeastern parts of Bali. Seismic hazard analyses (deterministic and probabilistic) using OpenQuake show increasing hazard levels compared to the previous seismic hazard map of Bali. The direct impacts are the number of people and buildings affected by the inclusion of these seismic sources increase significantly. The preliminary results show the need for a careful evaluation of the infrastructures and contingency plan within areas which affected by these seismic sources in order to ensure the safety of the people and to reduce loss of infrastructures.

Keywords: Back-Arc, Active crustal Fault, Seismic Hazard Analyses, OpenQuake