

Learning a Disaster from Earthquake Cycle Deformation (Case Study Jogjakarta Earthquake with the LUSI Eruption 2006)

Heri Andreas, Dina Sarsito, Hasanuddin Zaenal Abidin and Irwan Meilano (Indonesia)

Key words: Deformation measurement; Engineering survey; GNSS/GPS; disaster evaluation

SUMMARY

Base on empirical data it is no doubt that earthquake can be re-occur form the past, it called earthquake cycle. In between the cycle we have known the interseismic, preseismic, coseismic, and postseismic events. One best way to see the events is through deformation measurements. From these measurements, particularly on coseismic and postseismic events we may calculate stress transfer that would be useful for next hazard evaluation as well as mitigation. We did the measurements over Jogjakarta earthquake coseismic event in 2006 using the GPS, and calculate static and dynamic stress produce by this earthquake. Two days followed the event there was mud volcano (LUSI) eruption 250 km east away. The eruption suggested derived from interseismic end event of Watakosek fault (crossed the eruption vent) entered the coseismic event triggered by Jogjakarta earthquake. As coincidence we measure GPS repeatedly around the LUSI area as well as Jogjakarta as mentioned earlier, so in this case we can see clearly both deformations pattern and magnitude, and how the two disasters may related. We can learn from them for sure for hazard evaluation and mitigation.

Learning a Disaster from Earthquake Cycle Deformation (Case Study Jogjakarta Earthquake with the LUSI Eruption 2006) (8194)

Heri Andreas, Dina Sarsito, Hasanuddin Zaenal Abidin and Irwan Meilano (Indonesia)

FIG Working Week 2016

Recovery from Disaster

Christchurch, New Zealand, May 2–6, 2016