

Deformasi Coseismic Gempa Lombok 5 dan 19 Agustus 2018 Berdasarkan Relokasi Gempa dan Differential Interferometric Synthetic Aperture Radar = Coseismic Deformation of 5 and 19 August 2018 Lombok Earthquake Based On Earthquake Relocation and Differential Interferometric Synthetic Aperture Radar

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Abstrak

Gempa tanggal 5 dan 19 Agustus 2018 di wilayah Lombok, Nusa Tenggara Barat, terjadi akibat aktivitas patahan aktif di utara Pulau Lombok. Deformasi coseismic akibat gempa diteliti menggunakan metode DInSAR dan pemodelan Okada. DInSAR digunakan untuk mencari nilai deformasi berdasarkan interferogram dari citra Sentinel 1 A dan metode Okada digunakan untuk menentukan besaran deformasi yang dihasilkan berdasarkan forward modeling dari parameter gempa. Hasil DInSAR menunjukkan gempa 5 dan 19 Agustus menyebabkan deformasi vertikal naik masing – masing sebesar 0,178 m dan 0,058 m serta deformasi vertikal turun 0,324 m dan 0,092 m. Model deformasi Okada berdasarkan nilai relokasi untuk gempa 5 dan 19 Agustus masing – masing menghasilkan deformasi vertikal naik sebesar 0,174 m dan 0,054 m serta deformasi vertikal turun sebesar ,071 m dan 0,085 m. Deformasi hasil pemodelan dan deformasi hasil DInSAR, keduanya memperlihatkan sebaran deformasi yang sama namun hasil model dengan relokasi lebih sesuai dengan pengukuran DInSAR

.....The earthquakes that occurred on August 5th and 19th, 2018 in the Lombok region, West Nusa Tenggara due to active fault activity in the northern part of Lombok Island have caused co-seismic deformation in the earth's crust. Differential Interferometric Synthetic Aperture Radar (DInSAR) elaborate with elastic deformation by Okada was applied to investigate the co-seismic deformation based on the unwrapped interferogram from Sentinel 1 A dan earthquake parameters. The DInSAR processing results show that the August 5th and 19th earthquake has caused uplift up to 0,178 m and 0,058 m, respectively, and subsidence to 0,324 m and 0,092 m. The Okada deformation model based on the relocation values indicates that the August 5th and 19th earthquakes, resulted in uplift up to 0,174 m and 0,054 m, and subsidence about 0,071 m and 0,085 m respectively. The result of the modeling deformation and the DInSAR, show the same deformation distribution. Still, the model results with relocation are more in line with the DInSAR measurements