

## Fault geometry of the 2006 Yogyakarta earthquake: Insight from InSAR analysis

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On 27 May 2006, the Yogyakarta earthquake occurred with left-lateral strike-slip mechanism, and its mainshock magnitude was Mw 6.3 [USGS, 2006; Yagi, 2006; Yamanaka, 2006]. The epicenter is estimated ~25 km south of the Yogyakarta city, and the hypocenter is located ~10km below the sea bed [USGS, 2006]. The aftershock zone has a N50E strike with a total area of distribution of 20 km in length scattered over a width of 10 km, and the seismicity is mainly concentrated between 5 and 15 km at depths [Ando et al., 2007]. The 2006 earthquake was not directly associated with the subduction regime, but rather on shallower local faults that are stressed due to the deeper subduction mechanism [Elnashai et al., 2007]. Because the 2006 earthquake caused tremendous disasters at Yogyakarta, the near-surface fault system in this region must be characterized to mitigate next earthquake disasters.

Here we revealed surface deformation associated with the 2006 Yogyakarta earthquake via interferometric SAR (InSAR) analysis. To reveal the deformation due to the 2006 earthquake, we compared the SAR data acquired at pre-earthquake (29 April, 2006) and post-earthquake (14 June, 2006). The results demonstrated that the surface deformation was occurred at east of the Opak fault, and the estimated fault trace on the surface is just above the hypocenter of the 2006 events [USGS, 2006]. Furthermore, our study using SAR data revealed that the fault geometry was complicated.

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