



## **Static slip model of the 2017 Mw 5.4 Pohang, South Korea, earthquake, constrained by InSAR data**

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A moderate-sized Mw 5.4 earthquake occurred in the city of Pohang, the southeastern part of the Korean Peninsula, on 15 November 2017. It is a moderate-sized crustal event, but triggered big attention from the public in the country because strong shakings were felt over the whole country and it has been just a year since the Mw 5.5 Gyeongju earthquake, the largest recorded event in the Korean Peninsula, occurred in the close location ( $\sim 40$  km). The Pohang earthquake provides a unique opportunity to constrain the static slip distribution on the fault plane, using surface InSAR observations, since the focal depth is relatively shallow ( $\sim 5$  km) and surface displacement fields were obtained by both descending and ascending orbits. We performed a linear slip inversion using the InSAR data. Given a slip model on the fault plane, surface displacements were computed using the Okada method, assuming a homogeneous half-space. We determined the location and geometry of the fault plane, based on the results of the moment tensor inversion. Our slip model reveals that a major slip of the event occurred in the northeastern part of the hypocenter rather than in the southwestern part. And its rupture dimension and mean slip are 4 km by 6 km and 15 cm, respectively. The InSAR data also show that no significant post-seismic deformation was present after the event. This is the first study to constrain the co-seismic slip model of an earthquake, using the InSAR data, in the Korean Peninsula.