
[EJ] Eveningポスター発表 | セッション記号 S (固体地球科学) | S-SS 地震学

[S-SS09] 地殻変動

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地球のダイナミクスに関する研究テーマには、地震・火山・プレート運動といった様々な時空間スケールのものがあるが、地殻変動の情報はどの研究テーマに対しても重要な役割を果たしている。本セッションでは現象の理解を進めることを目的として、地殻変動に関連のある話題を幅広く議論する。実際に観測された地殻変動の解釈や観測機器の開発といった観測面からの研究のみならず、解析手法の開発やシミュレーションなど理論面からの研究も歓迎する。

[SSS09-P16] Coseismic deformation of the 25 October 2010 Mentawai Earthquake Mw 7.8 revealed by ALOS PALSAR images

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キーワード: The 25 October 2010 Mentawai Earthquake, Coseismic deformation, ALOS PALSAR, GPS

The Mentawai earthquake with magnitude Mw 7.8 occurred on 25 October in the around of Sumatra subduction zone, Indonesia at 21:42 local time. This earthquake is one of the very shallow earthquakes but with a large magnitude that can generate measurable deformation. Large deformation generated from this earthquake can be known through Global positioning system (GPS) data. The GPS displacements time series are <22 cm horizontal and <4 cm subsidence (Hill *et al.* 2012). We aim to complement the GPS data by using ALOS PALSAR images because the spatial coverage of GPS data is not good enough to infer the source processes. Here, we used four the descending orbit L-band Synthetic Aperture Radar (SAR) images acquired by the Advanced Land Observing Satellites (ALOS) Phased Array L-band Synthetic Aperture Radar (PALSAR) data to estimate the earth surface displacements associated with this earthquake, based on shoreline changes in the PALSAR intensity images. We processed the raw SAR data from a level-1.0 product using a software package, GAMMA (Wegm¨uler and Werner, 1997). Based on the intensity image before and after the earthquake, we reported that in general the intensity of the image before the earthquake was greater than after the earthquake around the shoreline. This indicates that there has been a shrinkage in the region which means there is ground subsidence around the shoreline although the changes shown are not significant or small displacement and where this region has been observed by GPS data before. The measured vertical displacement with GPS data is 4 cm subsidence. Therefore, from here we can understand that there is a suitability between our measurement data and GPS data where ground displacement occur in the southern Pagai region.