[EE] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

[H-DS07]Landslides and related phenomena

convener:Masahiro Chigira(Disaster Prevention Research Institute, Kyoto University), Gonghui Wang(Disaster Prevention Research Institute, Kyoto University), Fumitoshi Imaizumi(静岡大学農学部)
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Mass movements, such as landslides, rockfalls, and debris flows, have been occurring extensively in a large number of countries, causing heavy damage. In order to understand them and mitigate induced disasters, we would like to discuss on various issues. We invite contributions that report and discuss on mass movements and related phenomena, focussing on improved understanding of their characteristics; new insights into landslide mechanisms; the development of new approaches to monitoring; novel approaches to behaviour forecasting and prediction; studies of successful landslide management; and the development of methods for hazard and risk evaluation.

[HDS07-P05]Detecting recent creeping landslide activity in central Taiwan by PSInSAR technique with Sentinel-1 radar images

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The main objective of this study is to present the progress and state-of-the-approaches of PSInSAR with Sentinel-1 radar images to detect the creeping activity of the potential large landslides revealed by LiDAR in the mountainous area of the slate belt in central Taiwan. We choose Qingjing and Lushan area to process the Multi-Temporal InSAR (MTI) to capture the signals the creeping activity associated with the heavy rainfall events. First, we carry out the feasibility analysis to predict whether the MTI analysis is suitable for detecting the potential persistent scatterers (PS) and test the sensitivity with the effect of layover and shadowing resulted from mountainous topography in central Taiwan. In addition, we also take the effect of land cover on PS distributions into account. Second, we set a threshold of LOS (line of sight) velocity of creeping activity to assess the state of activity. Then we make a Vslope for projection of the LOS velocity along the down-slope direction for steep slope located in the potential landslide area. Furthermore, both the ascending and descending orbits are used to get two LOS velocities which allows us to resolve the E–W and vertical velocity components in order to compare with the tectonic motion due to the mountain building process in slate belt. Finally, the analysis in time series of PSInSAR is carried out for the evolution of creeping events in study area. In this study, we also want to improve the efficiency of remote sensing products for operational monitoring with integration of SAR/InSAR products with numerical and analytical geotechnical models for stability analysis of large potential landslide area detected by geomorphological features from LiDAR-derived DEM.