[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-GI General Geosciences, Information Geosciences & Simulations

[M-GI25]Environmental changes in mountainous area

convener:Keisuke Suzuki(Department of Environmental Sciences, Faculty of Science, Shinshu University), Yoshihiko Kariya(Department of Environmental Geography, Senshu University), Chiyuki Narama(新潟大学理学部理学科, 共同), Akihiko SASAKI(Department of Geography and Environmental Studies, Kokushikan University)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Mountainous areas provide water resources to the populated downstream areas, protecting the diversity of ecosystem and providing tourism attraction. To access the mountain environment changes and mitigate the impacts of global warming influences, a cross-cutting session is proposed to share the scientific knowledge among various fields; such as climatology, hydrology, geography, glaciology, water/carbon/material cycle, eco-diversity, etc.

[MGI25-P04]Extraction of past shallow landslides by using Improved Minimum Eroded Value Method - An application on Houfu Area in Yamaguchi Prefecture western Japan -

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Keywords:shallow landslide, DEM, GIS, Minimum Eroded Value, summit level

Recognition of landslide landform provides important fundamental information for predicting future sediment disasters in mountain area. Shallow landslides occasionally produce characteristic small depressions on mountain slope. Mapping of these landforms by human interpretation requires a huge amount of effort, automatic mapping from airbone LiDAR DEM will be an important subject. This study made an improvement on the Minimum Eroded Value Method by Cooley (2015) and applied the new method to Houfu area in Yamaguchi Prefecture where many shallow landslides occurred in 2009.
Minimum Eroded Value Method (Cooley, 2015) is used to evaluate eroded volume of a watershed by calculating difference between capping surface (summit level) and the original DEM. In the original method by Cooley (2015), capping surface is constructed by connecting a set of points located along the divide. This method is difficult to apply to volume calculation of small landslides, because the ridge lines are usually obscure for the small catchments. We selected the points with positive curvature value and used them to generate TIN surface as the capping surface. This method can visualize landslide scarps with different size by changing the grid size in the curvature calculation. The 2m grid will be probably most appropriate size for detection of shallow landslides induced by 2009 rainstorm in Houfu area.

Reference Cited
Cooley, S.W., 2015, GIS4Geomorphology: http://www.gis4geomorphology.com (Accessed February, 2018)