
[EJ] Evening Poster | H (Human Geosciences) | H-CG Complex & General

[H-CG24]Earth surface processes related to deposition, erosion and sediment transport

convener:Koji Seike(Geological Survey of Japan, AIST), Naofumi Yamaguchi(Center for Water Environment Studies, Ibaraki University), Hajime Naruse(京都大学大学院理学研究科, 共同), Hideko Takayanagi(Institute of Geology and Paleontology, Graduate School of Science, Tohoku University)

Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

To understand landscape evolution and dynamics of erosion, transport and sedimentation of earth-surface materials, the latest results of multiple research fields including engineering and earth sciences will be presented. As well as any researches of sedimentology and sedimentary petrology, interaction between fluid, sediments and geomorphology is focused. Interdisciplinary discussions of science, disaster prevention and resource exploration will be expected.

[HCG24-P03]The Effect of Dam Removal upon Sediment Dynamics: Experiments of a Scale Model of Landao Creek Check Dam in Central Taiwan

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Keywords:Dam removal, Laboratory experiment, Sediment Dynamics

Compared with a lot of conceptions and models established for dam removals in the United States, there are only a few cases about dam removals in Taiwan. Streams in Taiwan are characterized by steep slopes (3 to 7 degree) and very high discharge during rainfall season. Frequent earthquakes generate loose sediment on hillslopes. Abundant sediment from hillslopes and river banks enter into channels during typhoon events, resulting in full of sediment upstream of check dams. It is considered removing check dams because of losing their function of storing sediment. An open-type check dam located in Landao Creek which is a tributary of Beigang River in Central Taiwan was chosen as the model of the dam removal experiments. We built a scale model (1:50) of the dam in the laboratory. Bed materials were composed of three different sizes of particles (0.8, 0.5 and 0.1cm) with different combinations. Different types of removals were applied to discover the dam removal effect on extent of upstream erosion, changes of channel slope and particle sizes downstream the dam under the conditions of different discharges. After removing a part of the dam, the upstream sediment coarsened while the downstream deposits were fine and moderate sediment. The extent of reservoir erosion was closed related to the height of removals.