Geophysical Research Abstracts
Vol. 17, EGU2015-3127, 2015
EGU General Assembly 2015

Topographic Effect on the Internal Depositional Features of the Multiple Debris Flow Surges in Miocene Eoil Basin, SE Korea

Chang Woo Kwon
Korea, Republic Of (cwkwon@kigam.re.kr)

The resedimented volcaniclastic deposits intercalated within the shallow lacustrine to swamp deposits (unit I) in the northeastern corner of Miocene Eoil Basin are composed of five depositional units (units II to VI, in ascending order), and each unit has one to several facies subunits with vertical and lateral variability of the facies, interpreted as an incremental accretion from multiple debris flow surges and their flow transformations. The commonly observed vertical variations of the facies subunits in the units are massive conglomerates (facies A) either sharply overlain by graded conglomerates to stratified sandstones (facies B and C, respectively) or gradually decreased in clast size and content upwardly, which are interpreted as a typical depositional sequence that comprises a debris flow (facies A) and trailing hyperconcentrated flood flows (facies B & C). The channelized geometry of unit III further shows the lateral variability of the facies subunits, thick flow thickness with floating cobble- to boulder-sized clasts in the concave channel center laterally equivalent to thin flow thickness with granule- to pebble-sized clasts in the flat channel flank, and indicate thicker flow subunits with fast flow velocity and high transport capacity in the channel center but thin flow subunits with slow flow velocity and low transport capacity in the channel flank. These overall results show that the pre-depositional, discriminated topography plays a significant role in controlling the lateral and vertical variability of the physical properties of and depositional processes in multiple debris flow surges.