Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

HDS05-17 会場:415 時間:4 月 29 日 15:20-15:35

紀伊山地付加体における深層崩壊の前兆地形
Preceding topographic features of catastrophic landslides in an accretion complex in the Kii Mountains

千木良 雅弘 [1*] ; 松四 雄騎 [1] ; 鄒 青穎 [1] ; 平石 成美 [2]
CHIGIRA, Masahiro[1*] ; MATSUSHI, Yuki[1] ; TSOU, Ching-ying[1] ; HIRAISHI, Narumi[2]

[1] 京都大学防災研究所, [2] 元深田地質研究所
[1]Disaster Prevention Research Institute, Kyoto University, [2]previously Fukada Geological Institute

Slope movements is one of the major processes of denudation as well as erosion and transportation by rivers or glaciers, and many slope movements themselves are induced by river or glacier erosion. We investigated the linkage of river erosion, deep-seated gravitational slope deformation, and catastrophic landslides in the Kii Mountains Japan, where occurred tens of catastrophic large landslides during 1889 Totsukawa typhoon and 2011 typhoon Talas. The consequent fatalities were 168 and 56, respectively. The Kii Mountains is underlain by the Cretaceous to Neogene Shimanto accretional complex in large areas and has paleosurface remnants in higher elevations. The paleosurfaces have been newly incised by rivers, of which the Kumano River catchment occupies the central part of the Kii Mountains. The new incision of the Kumano River proceeded with the upstream propagation of knickpoints, which developed well-defined convex slope breaks on interfluve slopes. High-resolution DEMs clearly delineated deep-seated gravitational slope deformations, which are characterized by scarps, linear depressions, and bulges, aligned along the convex slope breaks, suggesting that they were induced by gravitational instability induced by the erosion undercutting. The catastrophic landslides during the 1889 Totsukawa typhoon and 2011 typhoon Talas occurred had been preceded by deep-seated gravitational slope deformation on newly incised inner valley slopes. Most of the landslides had sliding surfaces along undulating minor faults, probably thrusts, which might have made rock bridges when shearing along preferably oriented parts of the faults occurred. Catastrophic slop failure may occur when those rock bridges are finally fractured.

キーワード: 重力斜面変形, 地すべり, 付加体
Keywords: gravitational slope deformation, landslide, accretion complex