

HDS021-05

Room: Exhibition hall 7 subroom 3

Time: May 24 10:00-10:15

The distribution of slope topsoil and its role in shallow landslide

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A new simplified soil penetration test, Soil Strength Probe (SSP), was developed for measuring the depth and strength of topsoil. Soil depth distribution was measured by SSP at three hillslope sites composed of granitic rocks where each site has different recurrence of recent landslides, and compared with microtopography observed by field investigations and Aerial Laser Profiler (LP) measurements. As the result, soil depth distribution showed different pattern in small topography units such as ridge slope, hillside slope and valley-head slope. Furthermore, detailed measurement of topsoil on hillside slopes and valley-head slopes clarified that the depth of topsoil complicatedly changes every several to 10 meters, and it roughly corresponds to microtopography on slope movements such as traces of shallow landslides, soil creep, erosion sites and debris deposits. The above fact strongly suggests that the repetition of shallow slope movements forms the complicated soil distribution. On the viewpoint of hazard prevention, detailed topsoil distribution by SSP or microtopography by LP would be effective information to narrow instable slopes down to limited area from vast extent of slope.

Keywords: slope failure, shallow landslide