



Wind Control of Storm Triggered Shallow Landslides

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Heavy rainstorms are a major control of shallow landsliding in mountainous areas. The influence of 3D variability of precipitation is analyzed by coupling a fine resolution atmospheric model (RAMS) with a fine resolution topographic model (DEM) to represent the three-dimensional precipitation flux generating the catastrophic flood occurred in Versilia, Central Ital, on June 19, 1996. Matching of this flux with the observed scars and debris shows that 92% of the mass movements occurred where the normalized precipitation flux exceeds 0.80, and less than 2% where this is null. This results give an insight of the detected role of exposure in explaining the spatial variability of observed landslides as emerging from multivariate statistical analysis. The interaction of wind driven precipitation field with topography can play a fundamental role in controlling shallow landslides triggered by convective storms in upland catchments.