

Analysis of the volcanic threat by destabilization and removal of epivolcaniclastic deposits in the Colombian Tropical Andes and their comparison with the occurrence of these events in the South American Southern Andes

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Volcanic threat, despite its low frequency, generates loss of lives, goods and services. Every volcanic deposit enters into a morphoclimatic environment rather different compared to what they come from. Atmospheric conditions proper of a given geographic region interact with those materials, and thus soil is produced.

This study analyses the different climatic conditions in the Colombian Andes and their interaction with the epivolcaniclastic deposits generated both at Nevado del Ruiz volcano (mostly andesitic in composition) and Cerro Machín volcano (mostly dacitic). The same procedure was done at the cretacic rift of Salta, northwestern Argentina, where the volcanism is mostly basic.

Here both climate and weather effects on the stability of volcanic deposits are discussed in order to weight up their implications on epivolcaniclastic mass flows, which can be either concentrated or hyperconcentrated. This is relevant because human settlements have been raised over some of those deposits.

Results emphasize the relevance of a technical support of these kinds of geologic phenomena, in a way that trajectories, intensities and frequencies are better estimated, leading towards better decision-making strategies.