
[P26] Post-Glacial Landslides in the Central Andes of Argentina

Pilar Jeanneret*^{†1}, Stella Moreiras^{1,2}, Silke Merchel^{3,4}, Maria Orgeira⁵, Georges Aumaître⁶, Didier Boulrès⁶, and Karim Keddadouche⁶

¹IANIGLA – Argentina

²University of Cuyo – Argentina

³HZDR – Germany

⁴University of Vienna – Austria

⁵University of Buenos Aires [Argentina] – Argentina

⁶Centre européen de recherche et d'enseignement des géosciences de l'environnement – Aix Marseille
Université : UM34 – France

Abstract

Glacial landscapes in active tectonic environments around the world had been proven to be subject of the paraglacial effect, recording landslides and massive rock slope failures immediately or some time after the deglaciation. Nevertheless, very few studies have been performed in the Central Andes of Argentina, which has the highest mountain peaks of South America and was heavily glaciated during the Pleistocene, with the exception of the Aconcagua National Park. The active tectonic environment adds an extra difficulty in assuming the pre-conditioning and triggering factors of such events, as the seismic forcings are coupled with climatic forcings. This is the reason why establishing the timing of such events helps to elucidate their intrinsic and external mechanisms, and thereby to assess the hazard in high mountain environments affected by past glaciations. Age determinations in such environments are extremely difficult, as these are highly dynamic and only few techniques are suitable, such as exposure dating which takes into account several correction factors associated to altitude, snow cover and topography shielding. On this note, so far there are no exposure ages on any landslide or slope failure recorded around the Mercedario Peak in the Central Andes of the San Juan province, Argentina. During this study, three landslides in the Rio Blanco basin were dated with cosmogenic Be-10 and Al-26, representing the first exposure ages from surficial boulders on landslides recorded in the area. After a detailed geomorphological and chronostratigraphical study, these landslides were dated to 20.9 ± 1.4 , 12.8 ± 0.9 ka and 10.8 ± 0.7 , getting older with lower stratigraphical position. These ages are a first approach to link the deglaciation process to a readjustment of the slopes via large landslide events.

Keywords: Landslides, CRN dating, Central Andes

*Speaker

[†]Corresponding author: pjeanneret@mendoza-conicet.gob.ar