Geophysical Research Abstracts
Vol. 14, EGU2012-6082, 2012
EGU General Assembly 2012

Reinterpretation of the formation of the "crooked moraine" of the debris-covered Hatunraju Glacier (Cordillera Blanca, Perú)

L. Iturrizaga

Departamento de Geología, Universidad de Chile, Santiago, Chile and Insitute of Goettingen, University of Goettingen, Germany (liturri@gwdg.de)

The Hatunraju Glacier (9°00'S/70°40'W) is located in the Parón valley in the northern part of the Cordillera Blanca. The almost 4 km long and steeply inclined glacier flows down from the Huandoy-N-Side (6395 m) into the Parón valley to an elevation of 4250 m a.s.l.. The extremely narrow glacier is in its entire ablation area heavily debris-covered. It is one of the few glaciers, which dam with its debris-mantled glacier tongue a main river in this mountain range. In this case the Hatunraju glacier produces the largest glacier-dammed lake in the Cordillera Blanca, the Laguna Parón. In some other aspects, this glacier proves to be distinct from the majority of the glaciers in the Cordillera Blanca: It is flowing on an almost up to 250 m high moraine pedestal ("moraine-dammed raised bed glacier") and the glacier makes a bend of almost 90° when entering into the main valley. The present paper focuses in particular on the last point: the formation of the so called "crooked moraine". It has been explained by Lliboutry (1977) as a result of a glacier lake outburst and the subsequent destruction of the latero-frontal moraine. The later process supposed to be the trigger of the abrupt change in the flow direction of the lower part of the glacier. Recent investigations suggest an alternative genesis of the crooked moraine considering the distinct phases of the glaciation history of the Parón valley. The here proposed formation pattern is also paradigmatic for other crooked debris-covered glaciers, especially in High Asia. Comparative examples will be provided from the Karakoram and Himalayas. The research work on the Hatunraju Glacier is part of a project on the glacial geomorphology in the Tropical Andes financed by the Alexander von Humboldt-Foundation.