



The geomorphology of Patagonian ice dammed lake basins: Insights from remote sensing of a modern lake and reconstruction of a Late Quaternary lake drainage event

Varyl Thorndycraft

Royal Holloway University of London, Geography, Egham, United Kingdom (varyl.thorndycraft@rhul.ac.uk)

The geomorphology of ice dammed lake basins can be complex due to geomorphic responses to multiple base level changes from repeated filling and emptying, as well as the potential for catastrophic drainage events. Refining landscape models of Quaternary ice dammed palaeolake systems has the potential to improve our understanding of glacier and meltwater dynamics during deglaciation phases. In this poster two case studies are presented to shed light on the range of geomorphic processes exhibited within ice dammed lake basins. Using Google Earth Pro and repeat LANDSAT imagery the geomorphology resulting from multiple base level changes of an ice dammed lake of the Viedma Glacier (Southern Patagonia Icefield) is presented. The LANDSAT imagery shows transgressive lake phases inundating already formed delta and terrace surfaces, whilst the high resolution Google Earth Pro images reveal a complex suite of incised terrace levels developed on the valley floor following lake drainage events. Secondly, the impact of catastrophic drainage of the Late Pleistocene Palaeolake Cochrane (Northern Patagonia Icefield) is investigated through geomorphological mapping. Here an outburst flood and rapid lowering of the lake has led to large scale eddy scouring of glacio-lacustrine sediments, with scarp slopes of ca. 30-40 m in height, and the formation of boulder bars during the final stages of lake fall. The implications of the mapping for interpretations of Late Quaternary palaeolake sediment-landform assemblages and rates of landscape change are discussed.