Geophysical Research Abstracts
Vol. 19, EGU2017-17311, 2017
EGU General Assembly 2017

Impact of glaciers retreat on highland Andean wetlands and communities: lessons from the upper Cachi catchment (Ayacucho, Peru)

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The vulnerability of water resources under climate change scenarios in Peru is generally regarded to be connected to a diminished availability of water due to retreating glaciers. However, the impact of glacier retreat goes much beyond a decline of glacial water reserves. This article argues that another important impact is the extreme erosion in areas where glaciers have recently melted, as well as the accumulation of erosion material in highland wetlands located downslope. As a direct consequence of these changes highland Andean communities which depend on these ecosystems are affected in socio-economic terms as they find themselves forced to alter ancestral dynamics and traditional practices of land and water use. This quickly leads to a vicious cycle of risks and threats. In such a context a possibility to adapt to glacial retreat should be to protect areas affected by glacial melt in order to enable a rapid development of protective vegetation cover. In the upper catchment of the Cachi River interesting experiences of protection and water harvesting exist that could be extended to other high vulnerability areas for the benefit of highland populations as well as downstream water users, such as the irrigation system of Cachi and the city of Ayacucho.