



Influence of Unusual Climatic Conditions on the Rapid Rising of Water Level of the Palcacocha Lake and Its Connection with the Emergency Situation in the Cordillera Blanca, Perú.

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The climate alterations in 2016 have led to important issues within the Cordillera Blanca. These unusual climate events were evidenced by the rising temperature and the dropping relative humidity between December 2015 and January 2016 this was mainly influenced by the Niño phenomenon (ENSO), as well as subsequent events, like the one that occurred in november 2016, which had no presence of the ENSO, but was more severe, and has had direct influence on accelerated glacier fusion, this resulted the sudden growth of the water flow of the glacier basins of the Cordillera Blanca.

Palcacocha was declared a dangerous lake due to its historical growth records. Currently, a partial monitoring to the water level of this lake is performed, and records are registered on a daily basis, with a methodology that includes analysis, quality control and the elaboration of a daily time line of the lake levels (december 2015 – december 2016). Subsequently, by using an area-volume curve, the levels are converted into volume, which can finally be inferred as water flows of net contribution to the lake.

The accelerated increase of the level of the lake corresponds to the water flow contributed by glacier fusion, as that period (November 2016) did not record precipitation. The record observed has shown maximum thrust sheets of 22 mm (06/11/2016) and 30mm (27/11/2016).

This sudden increase of water flows in all the sub-basins with glaciers has caused concern and alarmed the population since the general perception in november pointed to a “drought”, the most critical case being, the one that occurred in Jancapampa, where the river flows reached historic maximum levels, with no rainfall.