

EVOLUCIÓN GLACIARA FINALES DEL HOLOCENO EN GLACIARES DE LA CUENCA PARÓN (CORDILLERA BLANCA – ANCASH)

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Abstract

This research shows the results of the Equilibrium Line Altitudes (ELA) calculation in the glaciers of the Parón basin, in the Cordillera Blanca, western Andes of northern Peru. Based on a detailed mapping of 1962, 2016 and Little Ice Age (LIA) glaciers, the method (Area x Altitude Balance Ratio - AABR), proposed by (Osmaston, 1975; Furbish and Andrews, 1984) was applied using an ArcGIS tool that was coded in Python by (Pellitero et al., 2015), which automates the computation of ELAs and paleo-ELAs. The ELA₂₀₁₆=5164m, ELA₁₉₆₂=5114m and ELA_{PEH}=5058m, shows a difference of 106m in the period (PEH-2016) and 50m in the period (1962-2016). The instrumental ELA obtained from the Artesonraju glacier in the period 2013-2014 (Autoridad Nacional del Agua, 2014) was 5049m, 115m below the ELA obtained from this work. This large difference is mainly related to the shape and location of the Artesonraju glacier is considerably lower than the rest of glaciers in the Parón Basin, so that the ELA obtained is not representative for other glaciers of the basin, and also that the method used in this research, shows averages the ELA of 44 glaciers unlike instrumental ELA that analyzes a single glacial mass. However, the *Balance Ratio* obtained from the Artesonraju glacier was extrapolated to the other glaciers of the basin, both spatially and temporally. The results of the present research are consistent with respect to the others in areas of the Peruvian Andes, which have been studied by INGEMMET, using the same methods. So, we can validate the equations provisionally, pending further studies in new areas of the Central Andes.

Keywords: *Glaciares, Cambio Climático, ELA, AABR, Parón, PEH.*