

Kaser, G. & Ch. Georges (1997): Changes in the equilibrium line altitude in the tropical Cordillera Blanca (Perú) between 1930 and 1950 and their spatial variations. *Annals of Glaciology* 24, 344-349.

Abstract

As on all Peruvian Cordilleras, the glaciers on the eastern slopes of the Cordillera Blanca extend to generally lower elevations than those on the western slopes. The mountain range of Santa Cruz - Pucahirca possesses the largest E-W extension within the Cordillera Blanca. A significant retreat of the glaciers between two quasistationary situations around 1930 and around 1950 was reconstructed from air photographs. The derived ELAs as well as the (ELA(1930 - 1950)) show spatial diversities. The pattern of the ELAs is caused by differences in both accumulation and effective global radiation. The change in ELAs(1930-1950) is partly due to a spatially uniform increase in air temperature. The remaining rise of the equilibrium line, which varies within different parts of the investigation area, has to be related to changes in precipitation and effective global radiation. Both correspond to changes in air humidity which is suggested to be an important factor on tropical glacier fluctuations. A model of superposed typical tropical circulation patterns of different scales and ELA-climate model based approaches is presented.