

**Kaser, G., I. Juen, C. Georges, J. Gomez, and W. Tamayo (2003):** The impact of glaciers on the runoff and the reconstruction of mass balance history from hydrological data in the tropical Cordillera Blanca, Perú. *Journal of Hydrology*, 282, 130-144.

### **Abstract**

A 41 years series of runoff and precipitation data from the Peruvian Cordillera Blanca demonstrates the high hygric seasonality in this tropical high mountain range. In this area, glaciers have a crucial impact on runoff which is of essential importance for the highly populated and cultivated valley of the Callejon de Huaylas particularly during the dry season. Whereas in the mid latitudes glacier melt amplifies the seasonal variation of runoff the effect of glaciers in the low latitudes is a smoothing one. It decreases clearly with the decreasing degree of glaciation. In addition, particular circumstances of this tropical environment allow the reconstruction of a glacier mass balance history from the hydrological data for the second half of the twentieth century. It shows a high synchronicity with the global trend of periods with mass loss and gain. Comparison with length variations of three individual glaciers indicate a rather fast reaction of the glaciers to changes in mass balance. Although the mass balance variations show some differences among the individual catchment basins, the over all trend is uniform. A general positive correlation of mass balance variations with SOI is obvious but not regular.