



## **Studying the energy balance and surface melt at the location of an automatic weather station on a glacier of the dry Andes: Juncal Norte Glacier, Central Chile**

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Results from a recent glacio-meteorological experiment on the Juncal Norte glacier, central Chile, are presented. The Dry Central Andes are characterised by a climatic setting different from that of the Alps and the subtropical Andes of Bolivia and Peru. Summers are very dry and stable, with precipitation close to zero and low relative humidity. Solar radiation is very intense, and plays a key role in the energy balance of snow covers and glaciers.

In this paper, we investigate the energy-balance and glacier-atmosphere interaction at one point on the Juncal Norte glacier, using the results of an extensive field campaign carried out during the ablation season 2005/2006. Meteorological measurements were recorded at one location on the glacier and at one location in the proglacial valley in the proximity of the glacier terminus. Comparison of meteorological variables on and outside the glacier is carried out, pointing to big discrepancies in temperature at the two stations. The observations at the automatic weather station on the glacier are used to assess the validity of parameterisations of the input variables that are commonly used as input to melt models and that are developed for the Alps (albedo, cloud cover). Both an energy-balance model and an enhanced temperature-index model are applied at the point scale, and their performance is compared and validated against measurements of surface ablation recorded at an ultrasonic gauge and ablation stakes.