



Energy and water fluxes measurements and modeling in a partially snow covered hillslope with phreatic permanent coupling

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The objective of the work is to analyse the mass and energy fluxes after a snowfall in a alpine hillslope. It has water sources with water flowing all the year. Also, it faces south-east, therefore it has very fast snowmelt and heating dynamics.

Latent and sensible heat fluxes have been measured with a closed path Eddy Covariance station. Photos have been taken for visual quantification of the snow cover. Net radiation, albedo, surface temperature, soil heat fluxes and soil moisture have also been monitored.

The interest lies in the fact that most of similar studies have been performed in colder areas (often in the Artic or Antarctic), where the surface and subsurface water is frozen.

In the studied hillslope, instead, the water flows all the year long and it was used until 80 years ago for drinking, directly from the source. The vegetation is composed by sparse shrubs and herbaceous plants.

The variation in time of the closure of the Energy Balance, and the friction velocity values are in agreement with the theory.