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Hydrological and meteorological measurements in a pre-alpine catchment: past and future

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The Rietholzbach Catchment is a small, hilly pre-alpine basin in the north-eastern part of Switzerland. Its area is 3.18 km^2 and it covers an altitude range between 682 and 950 m, with a mean of $\sim$800 m. The area is only sparsely populated and primarily used as pasture land (67 %). On steep slopes the land use is forest (25 %). A hydrological specialty is the congruence of surface and sub-surface catchment area.

On this account more than 30 years ago measurements started to determine and understand the water balance and its processes. By water gauges, TDRs, tipping buckets and a lysimeter the runoff, precipitation, soil moisture, infiltration and evapotranspiration are continuously acquired. Additionally, measurements of meteorological parameters like temperature, radiation, wind and humidity are carried out.

These long-term measurements are continued and will be enhanced. Eddy covariance measurements will be started, sap-flow instruments will be installed and the measurements of soil moisture will be intensified. These data will also be a good basis for small scale SVAT models.

This contribution presents the hydrological and meteorological characteristics of the catchment and the concept of future activities. The aim is to get information about water, energy and carbon balances, their processes and interactions on local and catchment scale.