

POSTER SESSION
Abstract

**Modeling water available for hydro-power production in a mountain catchment:
results and challenges**

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We present the operational application of a distributed hydrological model (GEOtop) to the simulation of water availability in a glaciated mountain catchment in North Western Alps (Aosta Valley, Italy) during the melting season (May-September).

The study area is 140 km² ranging from 1950 to 4150 m a.s.l., and is barred by a dam with a capacity of 110M m³ of water.

Meteorological forcings from 13 weather stations, located outside the modeling area, are spatially interpolated (meteoIO library) and used by the model to solve the ground surface energy balance. Modeled liquid and solid precipitation, snow melt and glacial melt are accounted to infer the total amount of water available in the catchment at each time-step.

In order to quantify the uncertainty of the simulations, the modeled volumes are compared with the total amount of water measured at hydro-power plant and the temporal evolution of modeled snow covered area is compared with observed snow covered area derived from the satellite images (Sentinel2 and Landsat8). First results and source of uncertainties are presented and discussed.