The method consists in the calibration of the model (both at hourly and daily time scales). The study presented here is a project for the “Azienda Elettrica Ticinese” (AET) aimed at improving the existing model in order to be reproduced via regionalized hydrological models, provided that climatological observations series are available. With the regionalization we have obtained parameters that can be used to estimate run-off in neighbouring non-monitored basins. From a hydroclimatological and physiogeographical point of view, hydrographs can be reproduced via regionalized hydrological models, provided that climatological observation series are available. With the regionalization we have obtained parameters that can be used to estimate run-off in neighbouring non-monitored basins.

The validation of the regionalization was performed using the AET data, coming from three neighbouring catchments to correlate the model parameters to physiographical features of the sub-basins. In regionalization, regions are homogeneous from a hydroclimatological and physiogeographical point of view. Hydrographs can be reproduced via regionalized hydrological models, provided that climatological observation series are available. With the regionalization we have obtained parameters that can be used to estimate run-off in neighbouring non-monitored basins.

The model has 3 only parameters (which have to be calibrated using discharge records):

- the base flow recession coefficient \( k \);
- the soil maximum water level \( A \);
- the antecedent moisture content \( S \).

For the calibration of the 3 parameters we need concurrent time series of discharge, temperature and the modular structure. Moreover, we are trying to improve the quality of the input, with the installation of 5 new rain and temperature stations, and the quality of the simulations available from the only 2 calibrated subasins is not sufficient.

The next step is to derive the parameters to characterize the hydrological response in every captation. Moreover, we are trying to improve the quality of the input, with the installation of 5 new rain and temperature stations, and the quality of the simulations available from the only 2 calibrated subasins is not sufficient. The calibration technique can be summarized as follows:

1. Determining the best relationship between the 2 parameters governing the base flow recession \( A \) and \( k \). The parameters of the power functions are determined so that the base flow component of the model best reproduces the reference base flow (calculated from the observed discharge series with a numerical algorithm for hydrograph separation).
2. Determining the best parameters \( A \) and \( \beta \) for the total flow with the least square minimization function.

The next step is to develop the model to work in real-time, so that it is possible to have a provision of the discharge in every captation. Moreover, we are trying to improve the quality of the input, with the installation of 5 new rain and temperature stations, and the quality of the simulations available from the only 2 calibrated subasins is not sufficient. The calibration technique can be summarized as follows:

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The next step is to derive the parameters to characterize the hydrological response of all the 15 catchments in the Leventina valley. The search for a regression to link the 3 parameters of the model to the morphometric features of the subbasins, leads to add the information coming from outside the Leventina valley. In fact the information available from the only 2 calibrated subbasins is not sufficient. We use the information coming from a previous INTERREG project (2006), where we were able to calibrate 3 catchments in southern Switzerland (Maggia-Bavana, Maggia-Lavizzara and Verzasca) with the SOCONT model.

We were calibrating the 2 catchments, AET installed water level gauging stations in nearby all the other calibrated subbasins. This short term forecast is very important because of the limited capacity of storage of the installation hydropower model and the modular structure.

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The model calibration for the calibration of the 3 parameters we need concurrent time series of discharge, storage, temperature, potential evapotranspiration and rainfall. The model has to be calibrated in natural condition; therefore, for the Leventina basin, we choose the only 2 measured time series with long water flow time series available. The former idea was to calibrate 3 catchments, but the calibration in the third selected basin was not possible because of the low accuracy of the measured water flow series.

The validation of the regionalization was performed using the AET data, coming from three neighbouring catchments to correlate the model parameters to physiographical features of the sub-basins. In regionalization, regions are homogeneous from a hydroclimatological and physiogeographical point of view. Hydrographs can be reproduced via regionalized hydrological models, provided that climatological observation series are available. With the regionalization we have obtained parameters that can be used to estimate run-off in neighbouring non-monitored basins.

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