



The questioning of stationarity or not about a discharge data set on a small basin

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INRA Thonon-les-Bains has instrumented a small tributary basin of Lake Geneva over the past fifteen years, the Mercube river.

The purpose of the instrumentation of this small 3 km² basin is understanding about the transfer of agricultural pollutants.

Hydrometric data collected include the water level at a 30 minutes time step , and rainfall at the station of INRA (10 km of the basin) at a one hour time step time.

One problem to be solved on this set of data was to consolidate a flows data set, with a station that was moved in 2003. Uncertainty still post on the choice of height water-flows curves and the validity of registrations heights of water.

The statistical tools used to validate or not the data set were on average (at monthly and daily time steps) stationarity tests and extreme values (on average two largest floods per year) a flow-duration frequency, using the method and the tools of Cemagref Lyon

The results showed for the monthly and daily averages values the non stationarity of the data set before and after 2003. However, a similar study on two other near rivers (the Foron and Redon) ones show that they do not have no more a stationary on the data set over the same periods. As 2003 was a particularly dry water balance we can not at this stage to involve the change in station for non stationarity of the flow data set.

For the study against flow duration frequency on the values of flood shows a sampling of stationarity and could be completed.

The two approaches to the average values and extreme allowed despite the change of station to choose a good water height-discharge curves and secondly to validate the flows data sets for use later for the study transfers of pollutants. The question of a regional non-stationarity before and after 2003 remains open and deserves further investigations over many rivers in the region.