Geophysical Research Abstracts, Vol. 9, 01175, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01175


# Hydrology, extreme events estimation, rivers regimes predictions, data dependency and persistence

P. Givone

CEMAGREF, Direction Scientifique, Parc de Tourvoie - BP44 - 92163 Antony cedex, France (pierrick.givone@cemagref.fr)

For many years hydrologists have developed methodologies to estimate extreme events (floods, low flows, Ĕ) from datasets, and also (other) methodologies to provide professionals with rainfalls and discharges previsions. In the second case, regarding discharges in rivers for example, there is a strong dependency among the discharges data sets which is used together with stationarity (regularity ?) assumptions to compute the previsions Ĕ to certain extend, which is a predictability limit due to the strong non-linearities within the global process. In the first case, all our efforts in samples manipulations are made, due to the poor statistical methods used, to meet data independency. We have design a lot of methodologies (POT - Peak Over Threshold, annual (or period) maximum, n annual (period) maximum, ... and more) to compute new datasets to get rid of the original sin of dependency. In this respect, our data sets are never big enough to make consistent evaluations of appropriate return periods extremes events, such as one hundred, several hundreds, or one thousand years. So, a lot of efforts (in fact most of our efforts) are put in direction of increasing the size of the data sets (regionalization, aggregation, ...), together with the appropriate data manipulations to keep the hole system consistent with always the same statistical laws fittings (Gumbel, GEV, ...). Even the (new ?) Bayesians approaches need "big" samples to do well. Of course, we can also just wait for 300 more years to get big samples ... Another possibility is to learn more from the time dependency of the data across scales (fractal approaches or any others) to estimate extreme values, even from small samples. There is great stakes in developing such approaches, even if they are not very popular in the hydrology academic community.