



Extremely high river temperature for the next decades

C. Chaussin (1) and F. Huguet (2)

(1) University Paris-Sud 11, Paris, France (ch.chaussin@gmail.com), (2) Electricité de France, Chatou, France (frederic-p.huguet@edf.fr)

In this presentation, non stationary series of river temperature (X_t) are studied in order to predict very high water temperature in next decades. The non stationarity is explained here by climatic evolutions taking in account the global warming.

Two methods to estimate the return level for a return period of thirty year are compared. In the first one, shown in Huguet, Parey, Dacunha-Castelle and Malek et al. 2008, extremes are modelled through two approaches: the Generalized Extreme Value (GEV) theory and the Peaks Over Threshold (POT) method. The second one consists in a first estimation of the trends in the central field (mean m_t and variance s_t) of the series. Under the K hypothesis: the extreme models of $Y_t = \frac{X_t - m_t}{s_t}$ are stationary, the parameters of the extreme models of X_t are calculated using relationships shown in Nogaj et al. 2007, taking in account the central field estimators of X_t and the extreme parameters of Y_t .

In both methods, parametric and non parametric estimators are used and the confidence intervals for the return period of thirty years are obtained by a bootstrap method.