

## Statistical Analysis of Extreme Flow (Regions of Chlef)

**Authors :** Bouthiba Amina

**Abstract :** The estimation of the statistics bound to the precipitation represents a vast domain, which puts numerous challenges to meteorologists and hydrologists. Sometimes, it is necessary, to approach in value the extreme events for sites where there is little, or no datum, as well as their periods of return. The search for a model of the frequency of the heights of daily rains dresses a big importance in operational hydrology: It establishes a basis for predicting the frequency and intensity of floods by estimating the amount of precipitation in past years. The most known and the most common approach is the statistical approach, It consists in looking for a law of probability that fits best the values observed by the random variable " daily maximal rain " after a comparison of various laws of probability and methods of estimation by means of tests of adequacy. Therefore, a frequent analysis of the annual series of daily maximal rains was realized on the data of 54 pluviometric stations of the pond of high and average. This choice was concerned with five laws usually applied to the study and the analysis of frequent maximal daily rains. The chosen period is from 1970 to 2013. It was of use to the forecast of quantiles. The used laws are the law generalized by extremes to three components, those of the extreme values to two components (Gumbel and log-normal) in two parameters, the law Pearson typifies III and Log-Pearson III in three parameters. In Algeria, Gumbel's law has been used for a long time to estimate the quantiles of maximum flows. However, and we will check and choose the most reliable law.

**Keywords :** return period, extreme flow, statistics laws, Gumbel, estimation

**Conference Title :** ICABS 2023 : International Conference on Agricultural Biodiversity and Sustainability

**Conference Location :** Prague, Czechia

**Conference Dates :** September 04-05, 2023