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Interval Analysis as a tool to reliably find the global Maximum of the Log Likelihood

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One of the methods of parameter estimation used for cumulative probability distributions is the Maximum Likelihood method. In this context interval analysis is a method that can be used to search for global maxima. Its main advantage is its high reliability. It will either provide the location of the global maximum to within the desired tolerance or signal that no such maximum exists or explain why it cannot give a clear answer.
It already has been applied for this purpose outside the field of hydrology, for instance to find parameters for the Weibull distribution. In this presentation interval analysis will be examined as a means to find global maxima for several distributions. The method will be applied to several series of annual discharge maxima.