

# How to turn a confidence curve for a change point into a test of a hypothesis about its presence

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## **Abstract**

While working on confidence curves for change points, the question arose whether or not a separate hypothesis test, like Pettitt, would be needed to simplify initial selection of time series that required closer inspection. Although a confidence curve provides much more information, in case of a large number of time series, it would be nice to automatically sort them into: definitely contains a change point; definitely does not contain a change point, and visual check needed. A number of possible measures were applied to a large set of confidence curves generated from synthetic data. The resulting type I and type II errors were compared. The time series are relatively short (40 to 100 points), because the application domain is the study of hydrological time series of yearly values, for example, minimum, mean, or maximum yearly discharge.