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The outcome of statistical change-point detection in the light of the historical

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Information on the causes of past change points in regional hydrological behaviour may not always be available. While change points τ in hydrological time series are often the consequence of human activities such as urbanization, deforestation, change on land-use and the construction of large water-related projects, not every potential cause has an effect and not every cause may have been properly recorded. It is therefore interesting to take data series where potential causes are known, apply different methods for change point detection, and analyse the results in light of the historical data. For such an analysis an estimate of the uncertainty in the location of the change point would be very helpful. In this research, confidence distribution techniques are used to find τ and express the uncertainty about the position of τ. The results are compared to those of several commonly used tests: a Cramér von Mises statistic-based test, Pettitt's test, and the Lee-Heighinian test. All methods will be applied to four discharge series from different measurement stations on the Yangtze River in China.