



Comparison of change-point detection methods in the mean of Gaussian processes

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Preliminary results from HOME COST Action are given on the topic of change-point detection in the mean of Gaussian processes. It appears that climate scientists and biologists share common problems, and that procedures developed in the context of DNA segmentation by several authors (including Picard, Lebarbier, Robin and Lavielle) may be of valuable use for climate homogenization procedures.

We focus here on the multiple change-point detection problems. Several competing methods are compared by means of systematic experiments: Student and Fisher tests, modified Fisher tests, various penalized likelihood and contrast criteria, Bayesian methods, non-parametric methods.

The influence of optimization procedure is also studied: dynamic programming, step-wise (CART), binary splitting.

Power and level of procedures are assessed, along with robustness to skewness, auto-correlation.