

# Detecting a gradual change in an open-end setting

Hella Timmermann

A lot of research in change point analysis focuses on the detection of an abrupt change, whereas in the case of gradual changes fewer results are known. We develop a monitoring procedure for detecting such a gradual change in the drift parameter of a general stochastic process (satisfying some weak invariance principle) in an open-end setting. We will look at the asymptotic distribution of the detector under the null hypothesis, the consistency of the test and the asymptotic distribution of the stopping time under the alternative. It turns out, that different weight functions are needed, depending on whether we have known (in control) or unknown parameters. The finite sample behavior is investigated in a small simulation study.