1092-60-101 **Herold G Dehling*** (herold.dehling@rub.de), Department of Mathematics, Ruhr-University Bochum, NA 3/33, 44780 Bochum, Germany, and **Aeneas Rooch** and **Murad S Taqqu**.

Asymptotic distribution of nonparametric change-point tests for long-range dependent data.

We investigate nonparametric tests for change-points in long-range dependent time series. We consider observations

$$X_i = \mu + \Delta\, 1_{i>\tau} + \epsilon_i,$$

where μ, Δ, τ are unknown parameters, and where $(\epsilon_i)_{i\geq 1}$ is a long-range dependent stationary process with mean zero, subordinated to a Gaussian process. Based on the observations $X_1, \ldots, X_n$, we test the hypothesis $H : \tau \geq n$ that there is no change in the means against the alternative that there is a level shift, i.e. $\tau < n$. We study test statistics of the type

$$T_n = \max_{k=1,\ldots,n} \left| \sum_{i=1}^{k} \sum_{j=k+1}^{n} h(X_i, X_j) \right|,$$

where $h : \mathbb{R}^2 \to \mathbb{R}$ is a given kernel function. For the kernels $h(x, y) = y - x$ and $h(x, y) = 1_{\{x<y\}}$, we obtain the CUSUM test and the Wilcoxon change-point test, respectively. We investigate the asymptotic distribution of these test statistics, both under the null hypothesis as well as under local alternatives. Our results allow us to compute the asymptotic relative efficiency of the CUSUM and the Wilcoxon change-point test. (Received August 02, 2013)