DISCRETE-TIME TRAWL PROCESSES

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Long Range Dependence was first defined as the fact that stationary processes have nonsummable covariances. In 1961 Murray Rosenblatt exhibited the long memory properties of functions of a Gaussian process. Namely, the partial sums process renormalised by $n^H$, for $H > 1/2$, may converge to some non-Gaussian process.

The aim of the talk is to consider a new class of such models with possibly integer values. A special case of such trawl processes is easily proved to have long memory.

Various estimation techniques will be first discussed and then other issues will also be described.

We prove that both an fBm limit and a stable Lévy limit can be obtained as limits of the partial sums process in the current case. The latter Lévy limit is obtained for integer-valued models. A specific feature of the model is (see [1]) that Long Range Dependence may occur in the above sense of non-summable series of covariances; Short Range Dependence occurs in the sense of Herold Dehling which means that properly normalised partial sums processes converge to an $\alpha$-stable Lévy process. Moreover, with the normalisation corresponding to the $L^2$ behaviour, the partial sums process converges to 0 in probability, which means that, in order to derive a stable behaviour, one must multiply the process by some sequence converging to infinity.

References