Performance evaluation and interdependence of parameter estimators of the Hurst-Kolmogorov stochastic process

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We investigate three methods for simultaneous estimation of the Hurst parameter (H) and the standard deviation (σ) for a Hurst-Kolmogorov stochastic process, namely the maximum likelihood method and two methods based on the variation of the standard deviation or of the variance with time scale. We show that the simultaneous estimation of the two parameters is important, albeit not given appropriate attention in the literature, because of the interdependence of the two parameter estimators. In addition, we test the performance of the three methods for a range of sample sizes and H values, through a simulation study and we compare it with other known results for other estimators of the literature.