Abry, Patrice; **Flandrin, Patrick**; **Taqqu, Murad S.**; **Veitch, Darryl**

Self-similarity and long-range dependence through the wavelet lens. (English) Zbl 1029.60028

Doukhan, Paul (ed.) et al., Theory and applications of long-range dependence. Boston, MA: Birkhäuser. 527-556 (2003).

Thanks to their built-in multiresolution structure, wavelet transforms are natural tools for revealing scale invariance in random processes. The wavelet coefficients of self-similar and long-range dependent processes share the same fundamental properties: (i) stationarity at fixed scale, (ii) short-range statistical dependence, and (iii) reproduction in the wavelet domain of the power laws. The authors describe how to analyze scale invariance phenomena using the wavelet transform and give numerical examples to show the quality of the wavelet-based estimator and how it compares with alternative ones.

For the entire collection see [Zbl 1005.00017].

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MSC:

60G18 Self-similar stochastic processes
62G05 Nonparametric estimation
62G07 Density estimation

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