A MARKOV METHOD FOR SIMULATING NON-GAUSSIAN

WIND SPEED TIME SERIES[*]

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ABSTRACT

This paper details a method which can be used to construct a wind simulator capable of generating wind time series with any distribution of hourly averages, exponentially decaying autocorrelation function, and a Gaussian realization of the turbulence. The method is based on a Markov random walk for hourly averages, and an inverse inverse hourly transform of the power spectrum to produce short-term turbulence. The Markov process is discussed in the first section and the turbulence generator is covered in the second section. A description of the applications for which the model was developed follows.