ABSTRACT

In recent years, there has been great interest in applications of long-range dependence processes, in particular fractional Brownian motion (fBm) with Hurst index $H > 1/2$. Motivated by the research in applications of fractional Brownian motion, this paper gives a brief introduction to fBm and its incremental process, the fractional Gaussian noise. Based on the properties, two simulation methods are described. Then, as an application of fBm, the fractional Ornstein-Uhlenbeck process is studied, which includes the simulation of the process provided that we have known how to simulate fBm.