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4.6 CARMA models for temperature and wind speed
4.6.1 A model for temperature; 4.6.2 A model for wind speed; 4.7 Speed of reversion to the mean: the half-life; 5. Pricing of forward contracts on temperature and wind speed; 5.1 Theory on pricing forwards; 5.1.1 Pricing by burn analysis; 5.2 A structure preserving class of measure changes; 5.3 Pricing temperature forwards; 5.4 Analysis of temperature futures prices; 5.4.1 Temperature futures prices and the states of temperature; 5.4.2 The theoretical risk premium of temperature; 5.4.3 The Samuelson effect; 5.5 Pricing wind speed forwards
6. Extensions of temperature and wind speed models
6.1 Stochastic temperature volatility; 6.2 Brownian semistationary processes; 6.3 Fractional models; 7. Options on temperature and wind; 7.1 Options on temperature futures; 7.2 Options on wind speed futures; 7.3 Geographical hedging; 7.3.1 A simple spatial-temporal model for temperature; 7.3.2 Computation of the optimal geographical hedge; 8. Precipitation derivatives; 8.1 A continuous-time model for precipitation; 8.1.1 A class of independent increment processes; 8.1.2 A stochastic model of precipitation
8.2 Pricing derivatives on precipitation

Sommario/riassunto

Weather derivatives provide a tool for weather risk management, and the markets for these exotic financial products are gradually emerging in size and importance. This unique monograph presents a unified approach to the modeling and analysis of such weather derivatives, including financial contracts on temperature, wind and rain. Based on a deep statistical analysis of weather factors, sophisticated stochastic processes are introduced modeling the time and space dynamics. Applying ideas from the modern theory of mathematical finance, weather derivatives are priced, and questions of hedging and
