



Aggregation and stochastic features of high-frequency hydroclimatic time series

Susana Barbosa

University of Lisbon, IDL, Lisboa, Portugal (sabarbosa@fc.ul.pt)

Most time series of environmental measurements exhibit clear stochastic features, including long-range dependence. In a climate perspective, time series are traditionally analysed at temporal samplings of months to years, over long periods of several decades, while in a meteorological perspective typical samplings are sub-hourly, over shorter time periods (~weeks). However, with the current techniques and available computational power, there's no obvious reason for this separation and for not analysing very high-frequency hydroclimatic time series over periods of several decades. This work addresses the analysis of high-frequency (6-min) time series of water level, water temperature and atmospheric pressure measured over several years at the Cascais tide gauge, Portugal. The focus is on the description of stochastic features, in particular variability and persistence, and the quantification of their dependence on the level of aggregation taken for the data, from the original 6-minute sampling to monthly.