Stochastic forecasting of the Standardized Precipitation Index at multiple time scales

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Meteorological drought is a complex climate event that can occured in many areas of the world (Wilhite, 2000). To monitor meteorological drought conditions, Standardized Precipitation Index (SPI) at different time scales is widely used (McKee et al., 1993). In this work, time series of SPI at four time scales (1, 3, 6 and 12 months) will be calculated using monthly precipitation data on 4 grids from gridded monthly precipitation data set for period from January 1900 to December 1998 (Hulme, CRU-University of East Anglia). Stochastic process is a probabilistic model describing the sequential relationship between terms in a series (time or spatial). It is possible to identify the model generating a particular time series because each type of model generates series with a characteristics pattern of autocorrelation (Richards, 1979). That means, that by analyzing time series of SPI at different time scales it is possible to find different autoregression models that can can be used as a forecasting tool. The results of modelled SPI values from January 1991 to December 1998 will be shown and compared with the observed values.

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