IWRM2018-19
8th International Water Resources Management Conference of ICWRS

Multi-scale fluctuation of precipitation in Beijing revealed by ESMD analysis

Jiqing Li and Zhipeng Duan
Renewable Energy School,North China Electric Power University, Beijing,China (jqli6688@163.com)

Abstract: With the global climate change intensified, Chinese regional water resources shortage is becoming increasingly serious, Using adequate method to study the varied pattern on precipitation is particularly important for water resources planning and management. Based on the time series of precipitation in Beijing from 1951 to 2015, the multi-scale characteristics of precipitation changes and the abrupt changes at different time scales were analyzed by using extreme-point symmetric mode decomposition (ESMD) method, and the future trend of precipitation was judged. The results show that the precipitation sequence in Beijing has 2.6 years and 4.3 years of annual cycle, and the 14 years and 21.7 years of decadal cycle, and the time of mutation in different time scales is also different. The variance contribution rates of each modal components proved that the inter-annual change had a strong influence on the overall precipitation change in Beijing. The forecast shows that the precipitation in Beijing will continue to decrease in short term.
Key words: precipitation; extreme-point symmetric mode decomposition; multi-scale analysis; Beijing City