



Spectral Analysis of the Daily Maximum Precipitation Time Series over Iran

f. taghavi

university of Tehran, Geophysics Institute, Space Physics, Tehran, Islamic Republic Of Iran (ftaghavi@ut.ac.ir, +982188009560)

A method of estimating the spectral density of random components of precipitation time series is presented. Precipitation time series consist of periodic components (such as normal annual variation) and random or nondeterministic components which are the deviations from the normal. In this paper, Fourier analysis technique is used to study the daily maximum precipitation data to identify the 24-hour extreme precipitation frequency and to evaluate the risk of flooding over Iran. Time series data from 40 stations are used in the period 1960-2007. As in most analyses, in time series analysis, it is assumed that the data consist of a systematic pattern and random noise which usually makes the pattern difficult to identify. This paper discusses the problem of estimating the spectral density of random components in order to obtain an estimate of predicting future values of the precipitation time series.