



Weekly cycles in rainfall

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No natural phenomenon is likely to produce a signature at the weekly time scale and thus the presence of weekly cycles in rainfall regimes has recently attracted much attention as a symptom of strong anthropogenic effects on local climate.

However, results in the literature lead to contrasting conclusions, largely because it is not obvious whether observed departures from a homogenous frequency of occurrence during the week should be considered as significant. Here, a simple statistical test for significance of the departure from a homogenous occurrence in time of ordinary and extreme rainfall events is derived and applied to several long rainfall time series, sampling different rainfall regimes and different local conditions. The results show that indeed some of the time series analyzed exhibit the signs of significant departures (at the 95.5% level) from homogeneity, thus confirming that it is possible to objectively quantify the effects of human activities on local climate and to identify when such influence has become a major climate determinant.