AIMS Research Methods for Climate Science Course

EXAMINATION: 2021

Section B [1hr 10 mins; 50 marks]
INSTRUCTIONS:
- **Books, notes, or other aids may be used in this section, but no interaction with other students (e.g., e-mail, phone) is allowed.**

1. The aim of this task is to use spectral analysis and wavelet analysis to study the characteristics of annual precipitation over a city in Africa. Collect the data from your tutor and perform the following task:
    i. Remove the trend in data (only if necessary).
    ii. Perform spectral analysis on the de-trended PF score (time-series) and study the periodogram.
    iii. Perform wavelet analysis on the de-trended, using the Morlet option.
    iv. Study the differences and similarities the results from wavelet analysis and the spectral analysis.
    Write a scientific report to discuss your finding and give physical interpretations of your results.