Chapter 4. Spectral Analysis and Filtering

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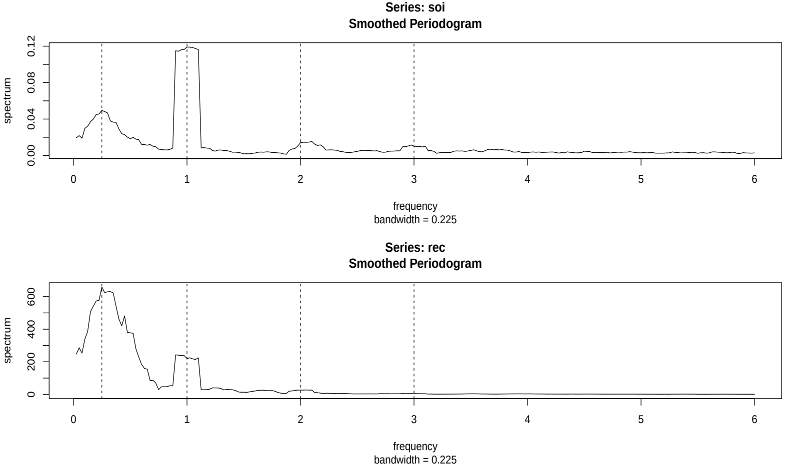
Cyclic Behavior and Periodicity

- Many processes are driven by periodic components (e.g., SOI data, J&J data, etc.), particularly the dominant ones.

- Chapter 4 deals with identifying those cyclic behavior for prediction. For example, it is of interest to identify the return period of the El Niño phenomenon or the next global recession. Chapter 4 also deals with correlating two series.

Nonparametric Spectral Estimation

- Use `mvspec` in R.



- For Recruitment it is $\omega = (1/4)(1/12) = 1/48$ that is dominant; For SOI, it is yearly. El Niño cycles are every 4 years or every year (irregular).