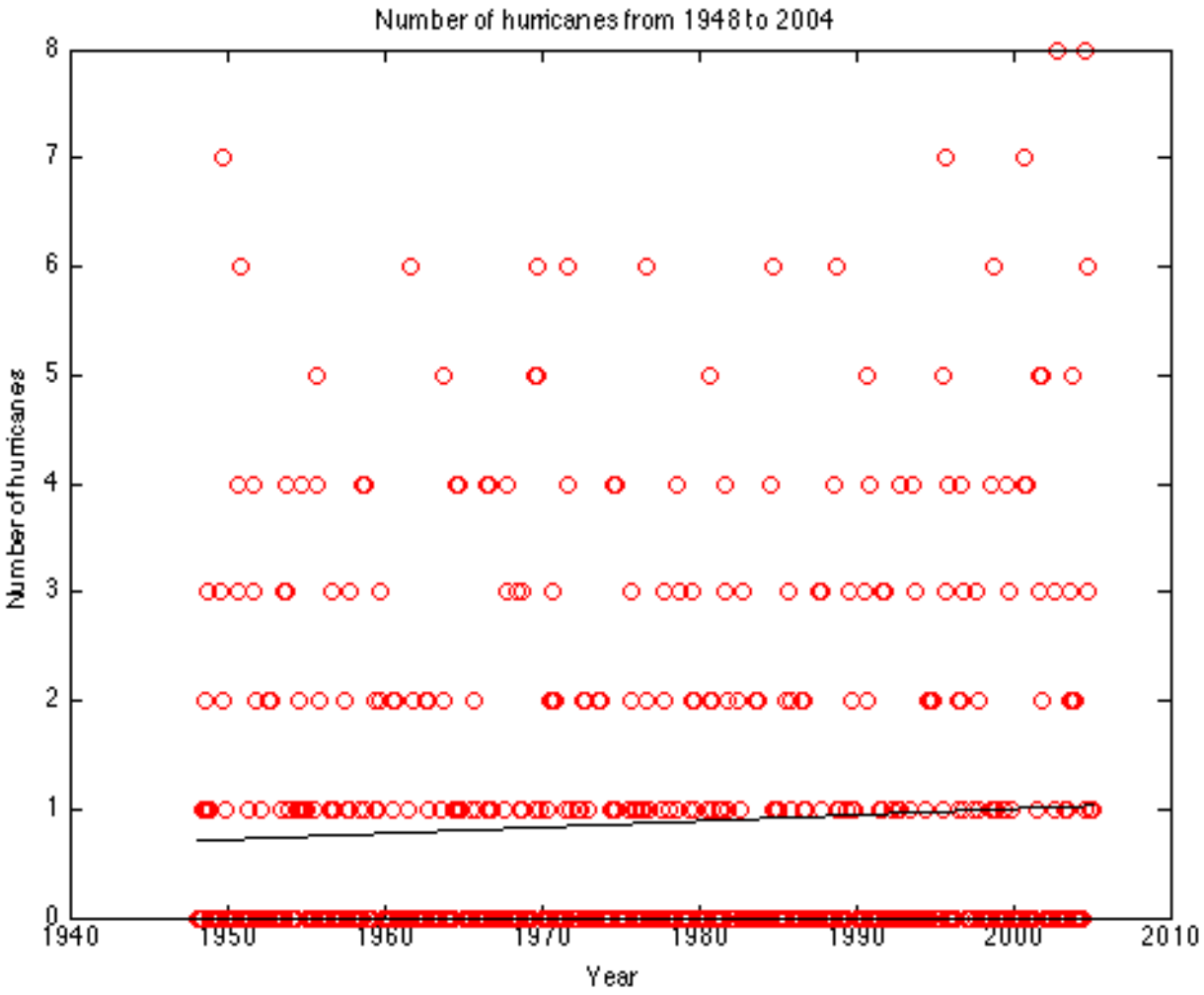
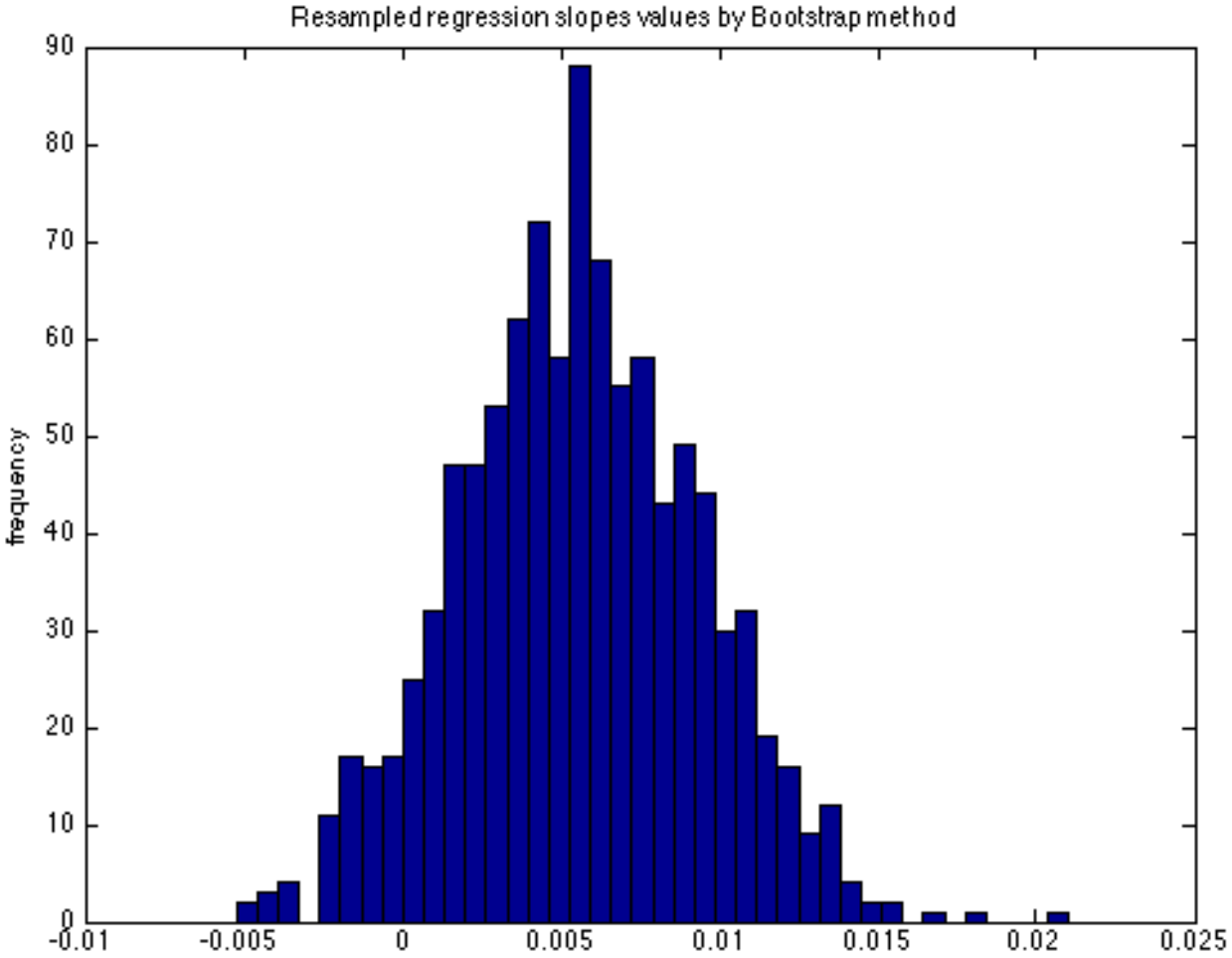
Namrata Kolla
Homework 9

Problem 1. Hurricane trend and periodicity over the North Atlantic

(1) Slope = 0.0057; y-intercept = -10.3887



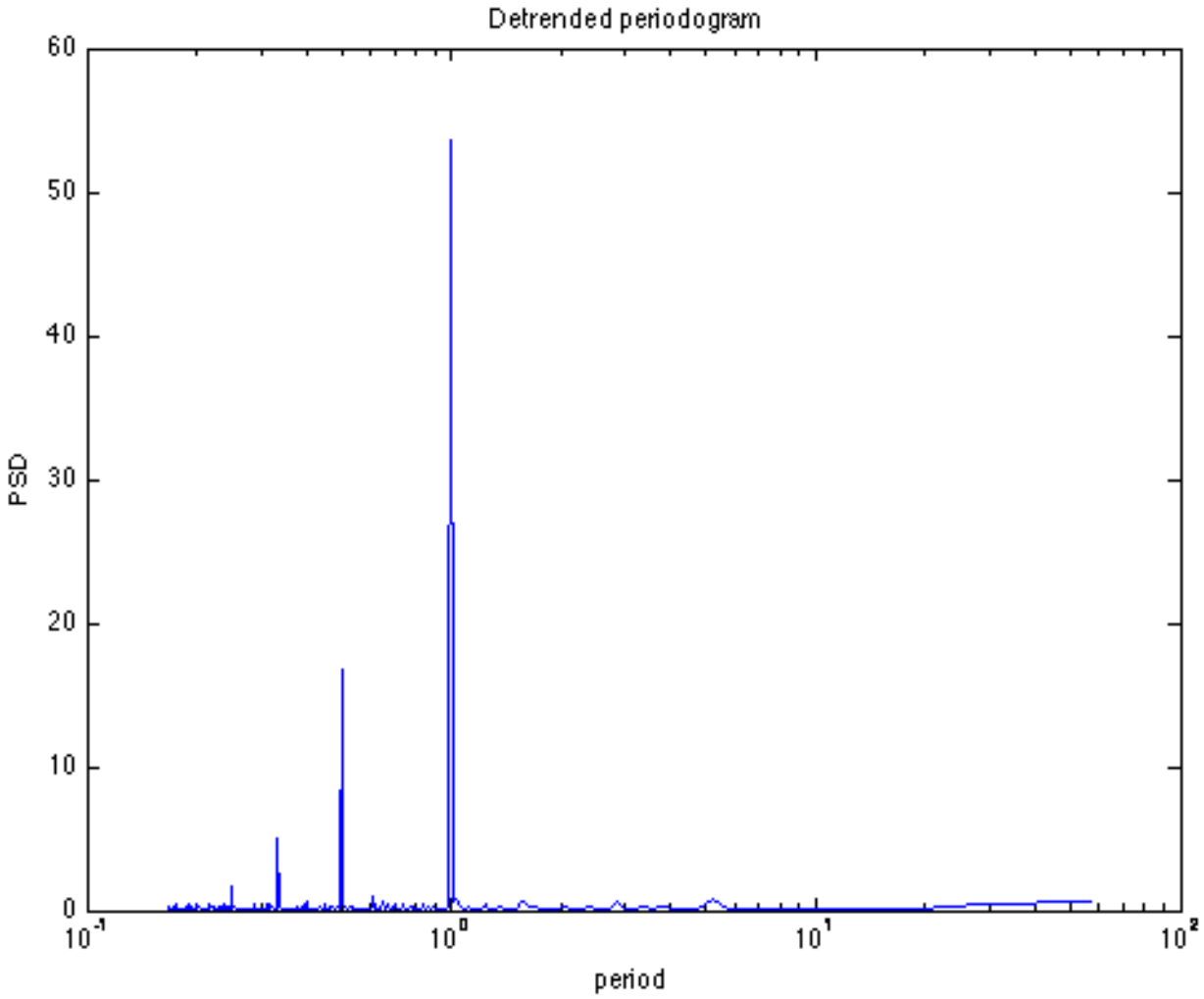
(2) Bins = 40



(3)
Mean = 0.0056
Standard deviation = 0.0038

95% confidence interval: [-0.0020 0.0131]

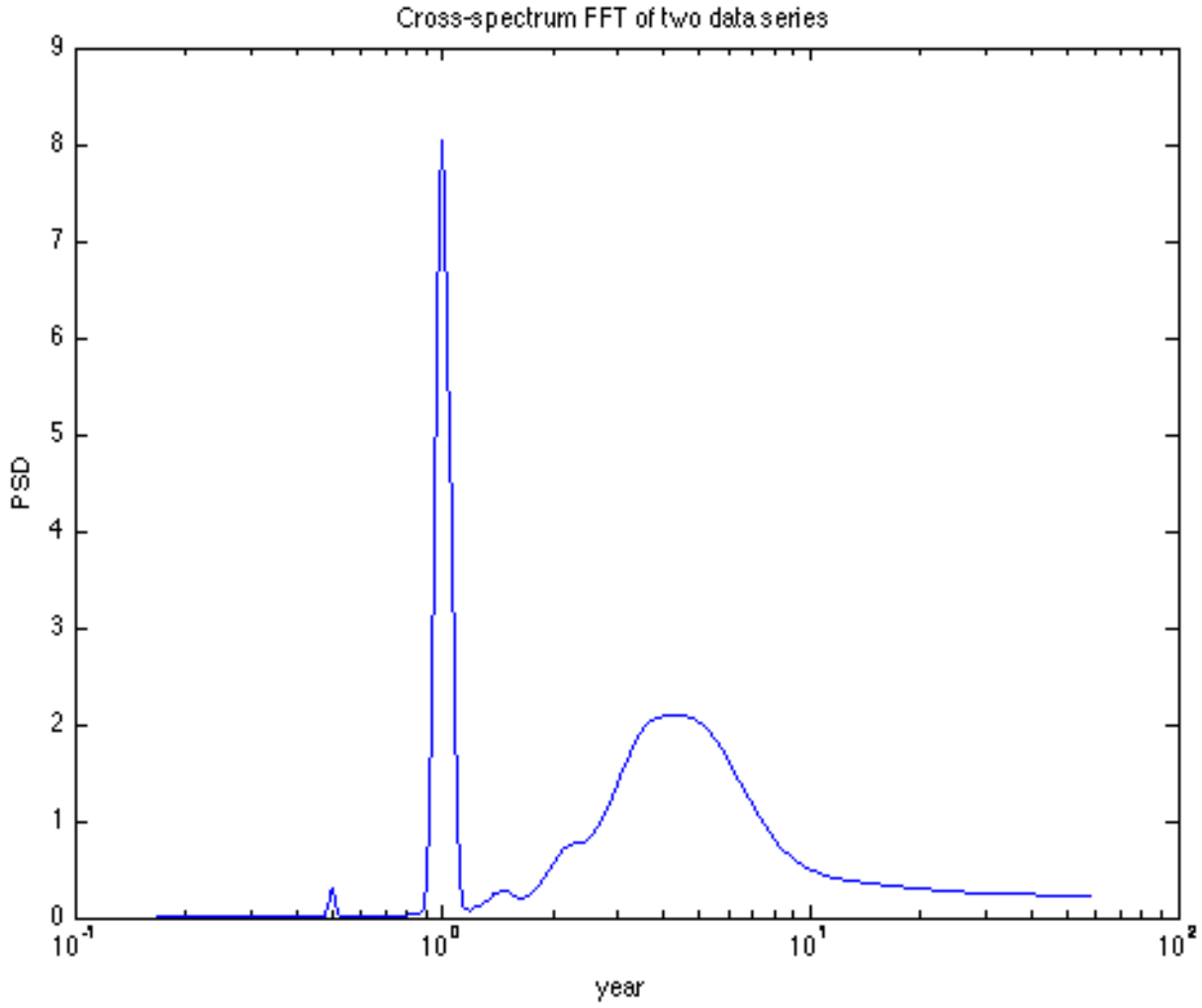
(4)



(5) **The periodicity suggests that hurricanes happen most often every 1 year.** There is also potential (less significant trend) for a pattern every 2 months and a lesser potential (practically insignificant trend) for a pattern every 3-4 months. An annual frequency makes sense because that is approximately how often major hurricanes hit our coasts.

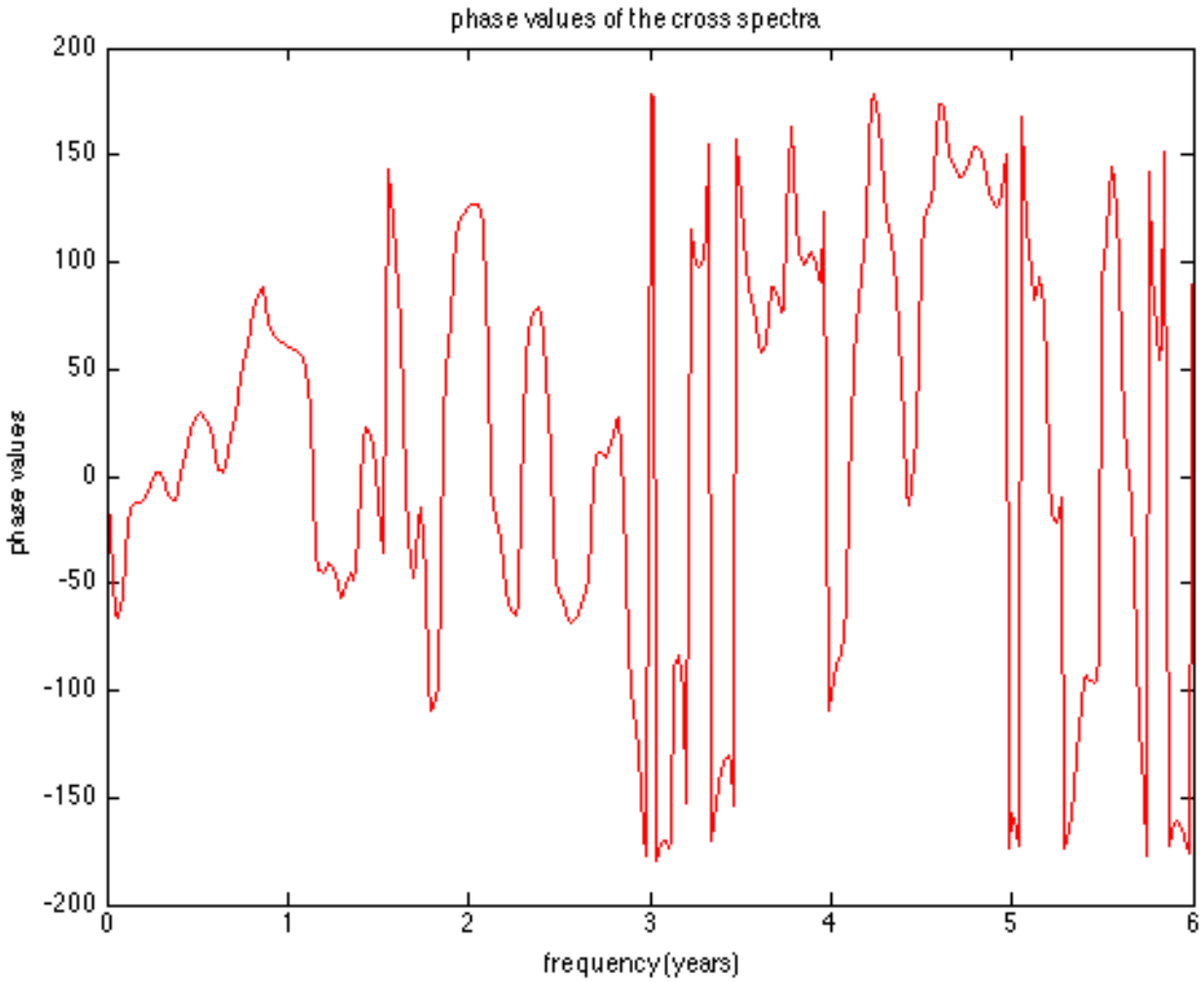
Problem 2. Cross-correlation analysis of ENSO indices

(1)



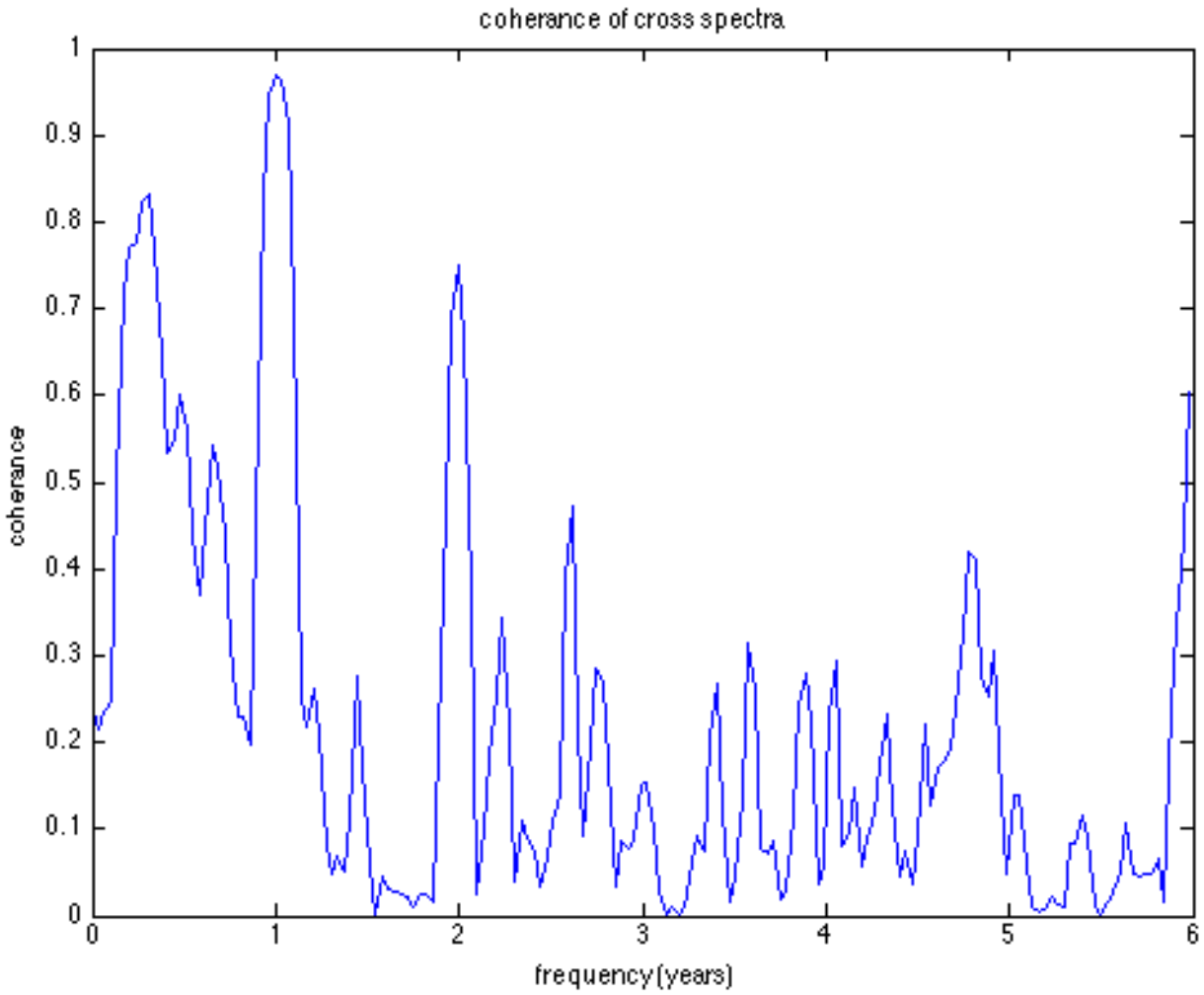
The major periodicity is at 1 year. A minor periodicity is at 2 years.

(2)



The phase lag at the frequency corresponding to the largest PSD (1 yr) is 0.1687 years

(3)



The coherence at the frequency corresponding to the largest PSD (1 yr) is 0.9696, which is very high