PS: Linear Algebra

July 19, 2024

Download monthly sea level data from Charleston, SC using this PSMSL dataset. You can download it directly or copy and paste it into a .txt file.

1. Read in the sea level data, creating separate vectors for the date (first column) and the sea level (second column).
2. Plot the time series of sea level data
3. Fit a linear regression to the whole time series (1921-2023)
4. Calculate the anomalies about the linear regression, and then calculate the variance about the detrended data.
5. Calculate sea level rise rates for each of these periods: 1923-1942, 1943-1962, 1963-1982, 1983-2002, 2003-2022