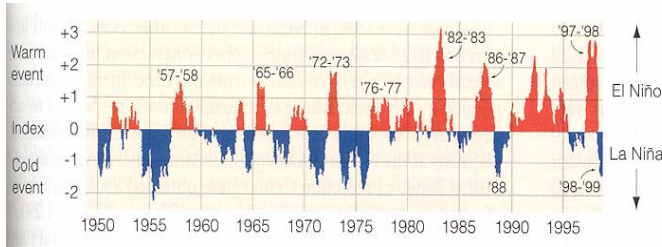


METEO 497: DATA ANALYSIS IN THE ATMOSPHERIC SCIENCES (Spring 2006)

Instructor: Michael Mann



Many key questions regarding the behavior of the atmosphere, ocean and climate, are fundamentally statistical in nature. Is the character of tropical storms and hurricanes changing with time? Is the warming of the globe consistent with natural variability or not? What is the influence of El Nino on global weather patterns?

In this course, we will develop and apply various tools of data analysis and statistics to addressing these, and other fundamental questions in the atmospheric and related sciences. We will emphasize the application of the tools to actual data.

Topics to be covered

- **Hypothesis testing** (applications: characterizing the frequency of extreme/rare weather events)
- **Linear Regression and Trend Analysis** (applications: Is the globe warming?; Is El Nino changing over time? Is the character of tropical storms and hurricanes changing?)
- **Time series methods** (applications: modeling El Nino; modeling the global temperature series)
- **Analyzing spatial data** (applications: characterizing the patterns of monthly and seasonal variation in Northern Hemisphere Sea Level Pressure; determining the spatial pattern of influence of El Nino)