STATISTICS FOR SPATIO - TEMPORAL DATA

Proposal for Final Project

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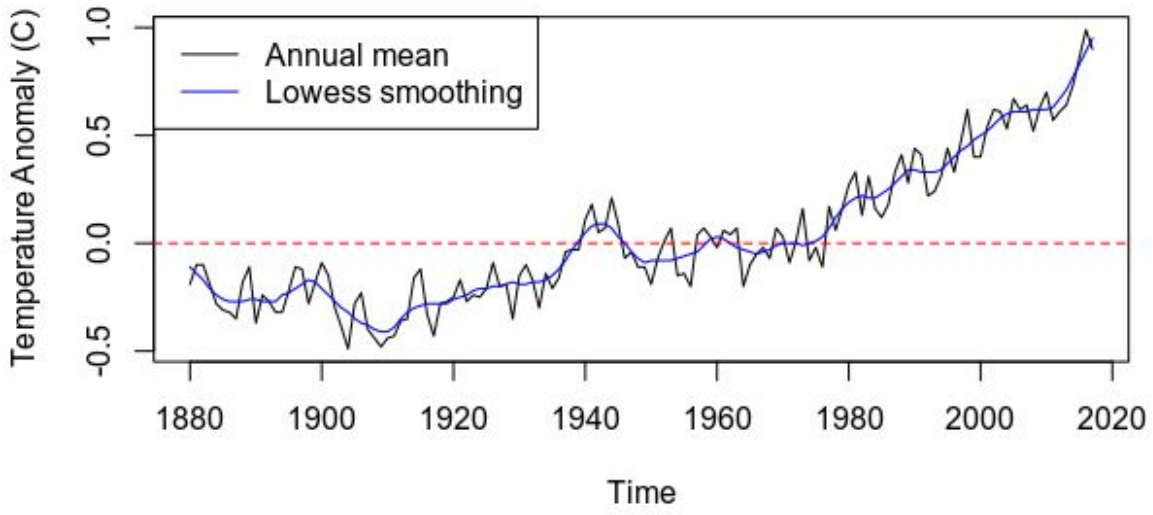
I. Motivation for the problem

It is widely known that the global average temperature has increased, especially in recent decades. So it seemed like a good time to analyze a time series of global temperature of land and ocean to identify and estimate persistent features in climate change.

II. A description of data

The data set is downloaded from the NASA Official Climate Change website Link here . The data set combines average temperature of land and ocean. Temperature densities from globally distributed data during the 1880 to 2017 period are treated as a time series of functional observations that change over time.



This graph illustrates the change in global surface temperature in the given period.

III. Statistical methods: Temporal analysis

- Apply filtering to identify trend.
- Describe the changes.
- Verify the stationarity and the randomness of the time series.
- Evaluate the data support for different of ARIMA processes.
- Make predictions in some periods.