

Data Visualization - Peer Assessment 1

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Motivation

We live in the age of global warming and temperature observations show that temperatures have risen in the past century or so. The provided data contains temperature deviations from the average level which is calculated based on the period from 1950 to 1980. The goal of this visualization is to see if the average temperatures before the reference period were lower (negative deviations) and higher after the reference period (positive deviations). I will split the data into five parts as follows:

Before the period for which the mean reference level is calculated

- 1880 - 1919
- 1920 - 1949

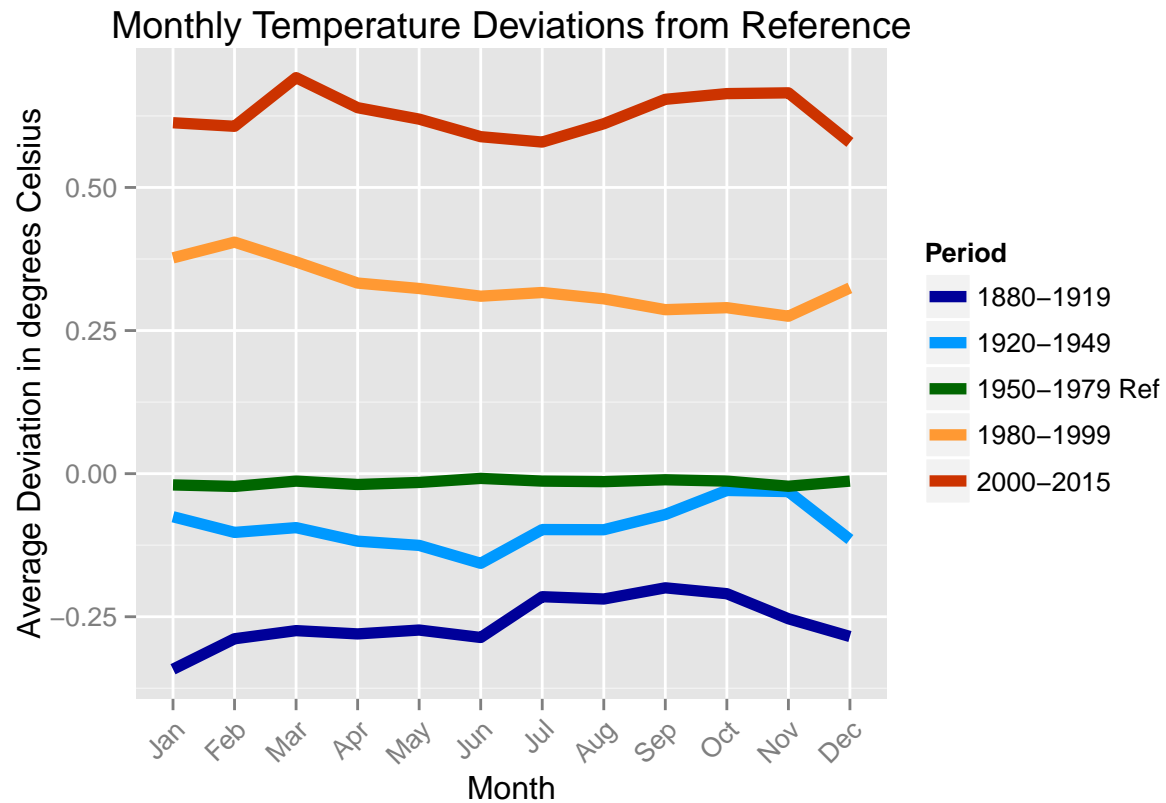
The mean reference level from which deviations are calculated

- 1950 - 1979

After the period for which the mean reference level is calculated

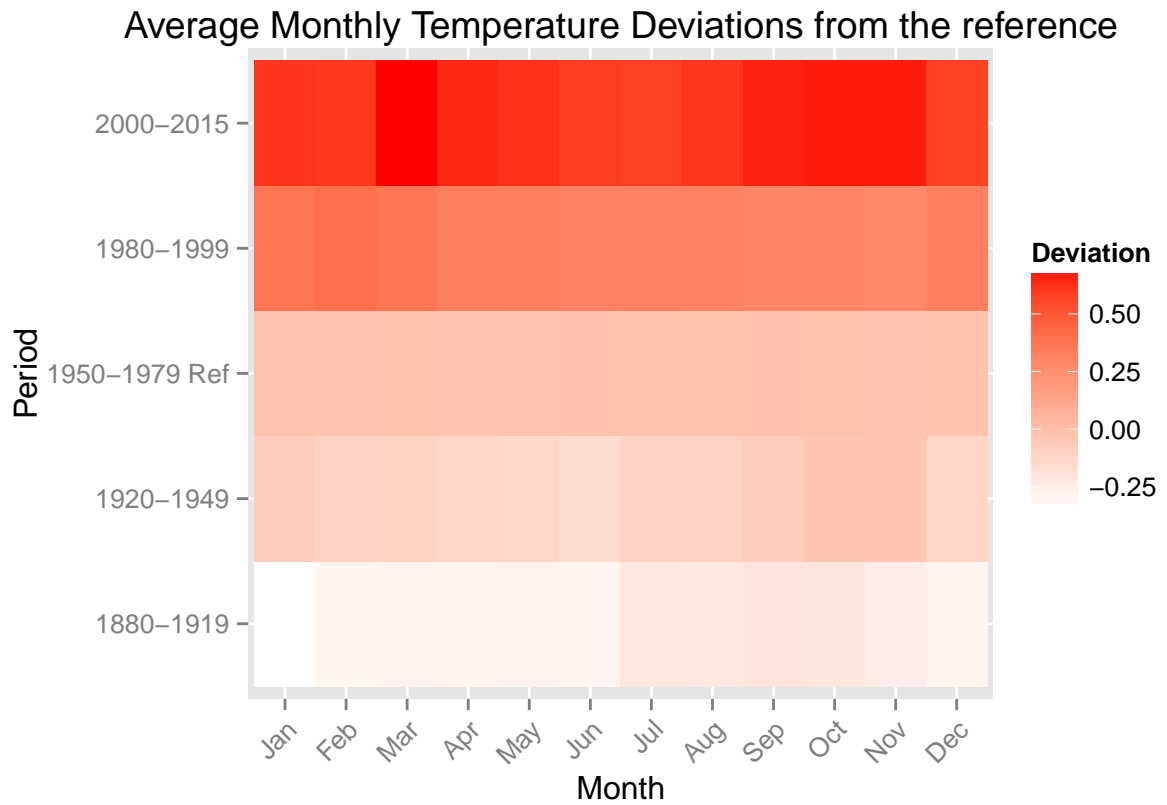
- 1980 - 1999
- 2000 - 2015

Plot 1: Average Temperature Deviations by Period compared to reference X-axis: Month Y-axis: Deviation in degrees Celsius



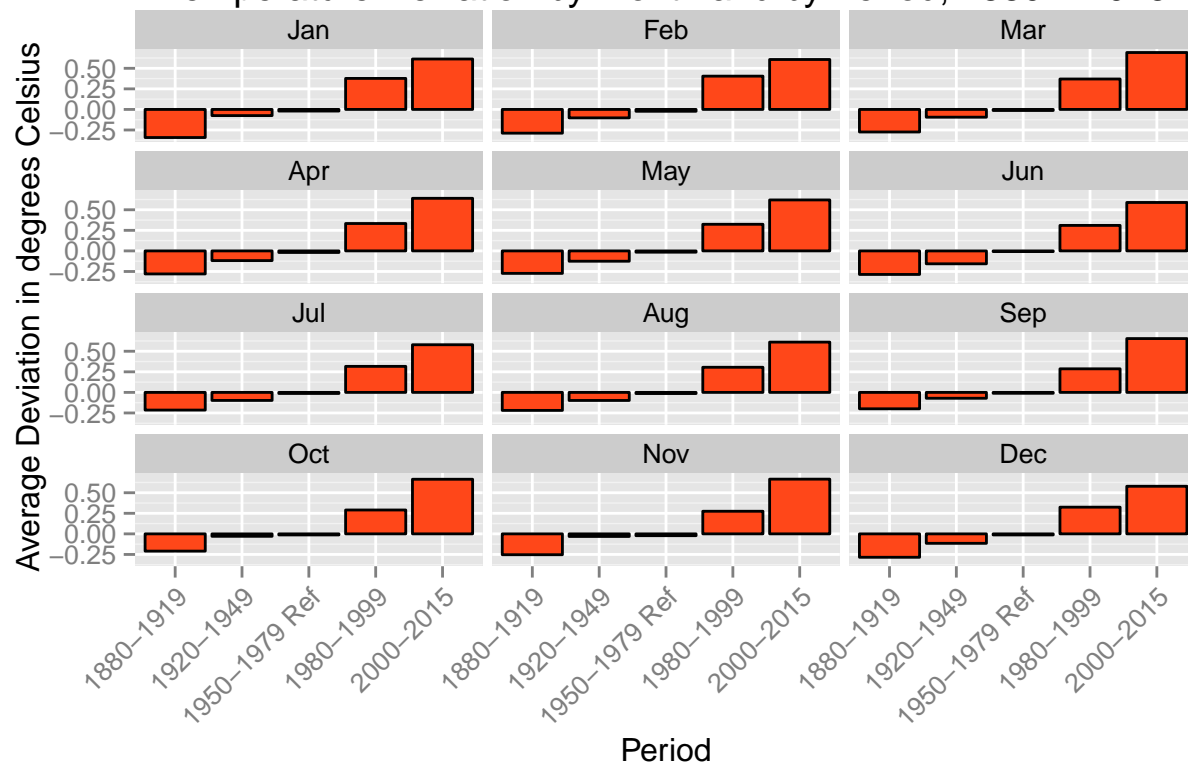
The plot confirms the global warming trend. Average monthly temperatures have risen by as much as 0.75 degrees Celsius since the reference period (1950-1980) and by more than 1 degree Celsius since the beginning of observations in 1880.

Plot 2: Heatmap - Average Temperature Deviations by Period compared to reference, 1880-

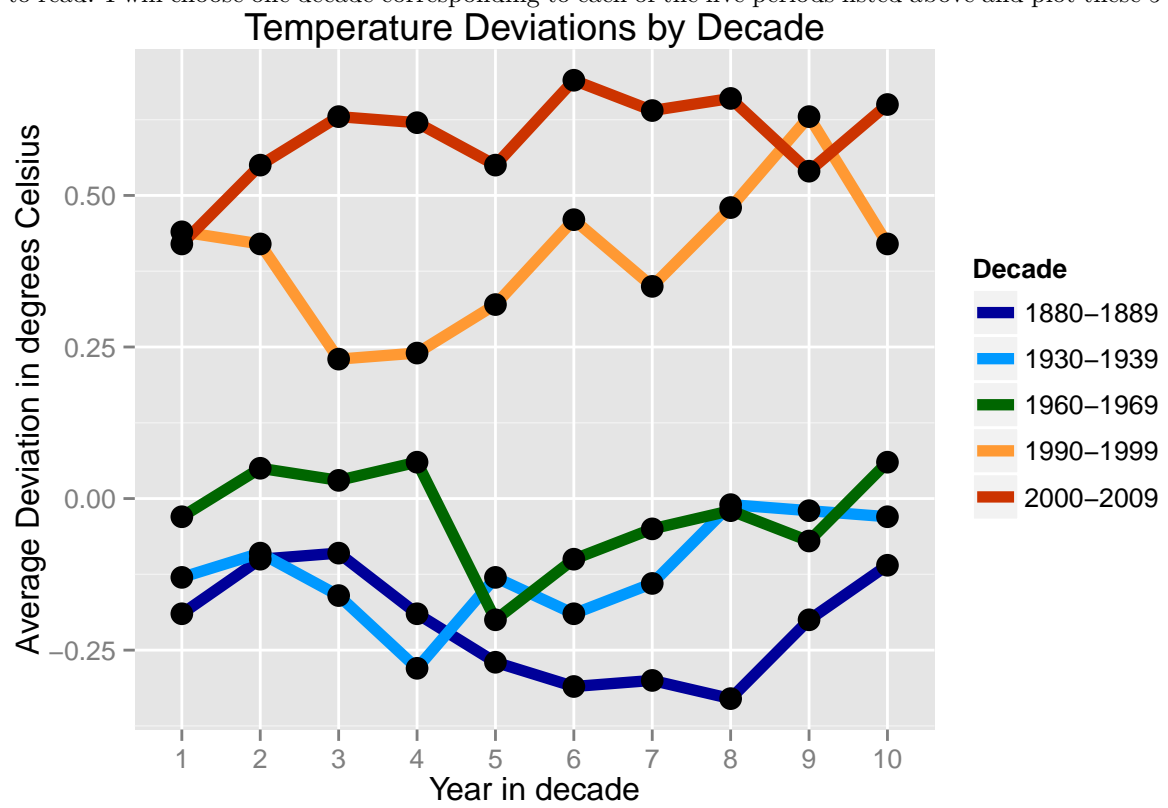


2015

Plot 3: Barplot - Average Temperature Deviations by Period compared to reference
Temperature Deviation by Month and by Period, 1880 – 2015



Plot 4: Annual Deviations by Decade A plot with 14 curves corresponding to each of the decades will be difficult to read. I will choose one decade corresponding to each of the five periods listed above and plot these 5



curves.

All the plots confirm the trend that average monthly temperatures kept rising since 1880.