

Laboratory 3 – Spatial patterns of climate

2. In general, the precipitation patterns between the stations for January is roughly the same. The exception is in 1947, when the Shawinigan station has almost double the amount of precipitation than any of the other station. July precipitation varies much greater than the January precipitation from the same stations. The greatest variations between the stations for July were at the Ottawa station around the early 1900's, Quebec Downtown in the late 1930's, McGill University in the late 1950's and the Quebec Airport in the early 1990's and the Shawinigan station ended its data in 1996 with an abnormally high precipitation.

The January temperatures between the stations are also generally similar, with the exception of a few years. The Shawinigan station recorded an abnormally cold year around 1911 and again in 1993. The years from 1931-1933 were abnormally warm, however all the stations recorded the warm year. The Les Cedres station seems to record cooler readings than the rest of the stations, but not by a large amount. The recorded July temperature between the stations was again generally the same. Apart from the Beauceville station which on average records lower readings than the rest of the stations, likely due to an alternate altitude, environment or if it is near a large body of water which lowers the temperature of the surroundings landmass. In 1921 there was an above averagely warm year, but it was consistent throughout the stations.

3. The correlation coefficient we are looking for is the value that is close to 1. Using this information, the temperature correlation is more highly correlated as it is closest 1. The winter precipitation is more highly correlated than the summer precipitation. These values are not as correlated as the temperature correlation. The January temperature is more highly correlated than the July temperature.

The temperature and precipitation can be similar for the same month because an increased temperature would result in a decrease in precipitation and a decreased temperature would result in an increase in precipitation and so they are inversely proportional.

4. When looking at the graphs for the January and July precipitation, the correlation decreases the farther away the station is from McGill. The decrease in correlation is not as large for the January precipitation, but it varies by a much larger amount for the July precipitation. The July precipitation is not as linear as the January precipitation as the July precipitation follow almost a wave like pattern.

The graphs for temperature correlation do not vary to the same amount as the precipitation graphs. The January temperature graph has hardly any variation, and so it is strongly correlated. The July temperature graph has a much larger variation or correlation. However if one was to draw a trend line through the points, the line would not have a very large slope, and therefore there is a strong correlation between the stations and McGill, even though the temperatures are more varied.



