

Comparing Temperatures of 1897-1898

In this project other stations' temperatures were subtracted from the Wakefield temperature. For example, if Ashland had a higher temperature and it was subtracted from Wakefield it would give a negative number. Thus negative numbers for stations indicate that it was warmer and positive numbers indicate that it was cooler than Wakefield.

Ashland was the closest match to Shafer's records in 1897 and 1898. Ashland is located about 18 miles north of Richmond and Shafer was located at 4.5 miles northwest of Richmond at a location called Westbrook or Westbrook Farms which is now in the area of Joseph Bryan Park. Shafer may have had his station located in a deciduous trees forest as his summer maximum temperatures were cooler and his winter temperatures were warmer than Wakefield. It was also noted that Schafer had some of the lowest temperatures of any of the surrounding stations. Wakefield's temperatures and Shafer's temperatures were one and the same for 1897 as the Weather Bureau used Shafer's temperature to complete a full year's records for 1897. The Weather actually started keeping records in Richmond on October 5, 1897. Shafer's temperatures in this study were also compared to each day's temperature for other stations.

Note the large maximum daily average temperature differences in 1897. The large maximum daily average temperature differences between Wakefield and other stations I believe shows that observations during this period weren't very accurate. This was probably due to the lack of standardizing the exposure of the thermometers making the following graphs appear confusing.

Wakefield temperatures in 1897 are from Shafer's temperatures which are much cooler than the surrounding stations.

In 1898 Wakefield's temperatures are from the Weather Bureau which are much warmer than the surrounding stations. The station being used for comparison has changed along with a reversal in their temperature bias.

1897 Graph 1 – Maximum temperatures – Ave. for months

In 1897 the maximum temperatures for the surrounding stations is higher than Shafer's during January through May and November and December. Also the 1897 maximum temperatures for the surrounding stations are cooler except for the newspaper's temperatures during the months of May through September. The newspaper's 1897 maximum temperatures show a definite bias toward warmth during the year 1897. The observations are probably from a roof top site.

1897 Graph 2 – Maximum temperatures – Daily average

This graph shows the 1897 maximum temperatures for the newspaper's temperatures were much warmer than the surrounding stations. Norfolk's temperatures are warmer as one would expect. The graph also shows the large variability of the maximum temperatures for the surrounding stations in 1897.

1898 Graph 3 - Maximum temperatures - Daily average

Wakefield's temperatures in 1897 are from Shafer's temperatures which are much cooler than the surrounding stations. In 1898 Wakefield's temperatures are from the Weather Bureau which are much warmer than the surrounding stations. The newspaper's maximum temperatures for 1898 show greatest variability with Shafer's maximum temperatures. Note Shafer's maximum temperatures are now cooler than the Weather Bureau.

1897 Graph 4 - Minimum temperatures - Daily average

Most for the surrounding stations are warmer than Shafer's minimum temperatures in 1897. Also the daily minimum temperatures show strong variability.

1898 Graph 5 – Minimum temperatures - Daily average

In 1898 the earlier temperatures from the Weather Bureau were very warm on the minimum temperatures. The graph shows that almost all of the

surrounding stations were cooler. The observations of the Weather Bureau in 1898 were taken from the Chamber of Commerce Building.

1897 Graph 6 – Minimum temperatures - Ave. for months

This graph shows variability in temperatures of the surrounding stations with seasons. Norfolk's minimum temperatures are warmer throughout the year and the greatest difference is November December and January. This also shows that Shafer's minimums are low and most of the surrounding stations have higher minimum temperatures for most of 1897. In 1897 Shafer and the Wakefield temperatures are the same temperatures except for the last 3 months.

1897–1898 Graph 7 – Shafer's maximum temperatures compared to Ashland.

This compares Shafer's maximum temperatures in 1897 and 1898 to Ashland. Ashland's maximum temperatures are warmer than Shafer's temperatures in the winter and cooler in the summer.

1897–1898 Graph 8 - This compares Shafer's minimum temperatures in 1897 and 1898 to Ashland.

Ashland's minimum temperatures are nearly opposite the minimum temperatures little warmer in the spring and summer and cooler in the fall and winter.

The November 1897 Richmond temperatures are from the original Weather Bureau records.

It is interesting that Shafer's temperatures were used for the Weather Bureau in 1897 which had a bias toward cooler temperatures and then in 1898 the Weather Bureau temperatures had a bias toward warmer temperatures as they were taken on the Chamber of Commerce Building at a height of 98 feet.