Data Collection

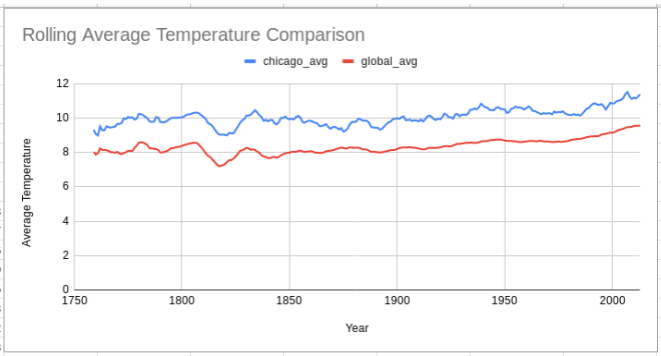
I used the following query to extract the temperatures for my local city of Chicago and join that with the global temperatures on year. Doing so happens to have removed several earlier years for Chicago that did not have temperatures making it unnecessary to deal with missing data.

```
SELECT
	a.year,
	a.city,
	a.country,
	a.avg_temp chicago_temp,
	c.avg_temp global_temp
FROM
	city_data a
INNER JOIN city_list b ON
	a.country = b.country
	AND a.city = b.city
INNER JOIN global_data c ON
	a.year = c.year
WHERE
	b.country = 'United States'
	AND b.city = 'Chicago'
```

Data Processing

I then loaded the CSV data into a Google spreadsheet and added a ten year rolling average temperature for both Chicago as well as global temperatures. Doing so does remove the first nine years from comparison since there would be no rolling averages for those first nine years. I then created a relatively simple line chart of the two averages for comparison.

year	city	country	chicago_temp	chicago_avg	global_temp	global_avg
1750	Chicago	United States	10.49		8.72	
1751	Chicago	United States	11.19		7.98	
1752	Chicago	United States	4.5		5.78	
1753	Chicago	United States	10.04		8.39	
1754	Chicago	United States	10.64		8.47	
1755	Chicago	United States	7.41		8.36	
1756	Chicago	United States	11.15		8.85	
1757	Chicago	United States	9.5		9.02	
1758	Chicago	United States	8.61		6.74	
1759	Chicago	United States	9.59	9.312	7.99	8.03
1760	Chicago	United States	8.05	9.068	7.19	7.877
1761	Chicago	United States	10.4	8.989	8.77	7.956
1762	Chicago	United States	9.82	9.521	8.61	8.239
1763	Chicago	United States	7.72	9.289	7.5	8.15
1764	Chicago	United States	10.63	9.288	8.4	8.143
1765	Chicago	United States	9.78	9.525	8.25	8.132
1766	Chicago	United States	10.49	9.459	8.41	8.088
1767	Chicago	United States	9.41	9.45	8.22	8.008
1768	Chicago	United States	8.95	9.484	6.78	8.012
1769	Chicago	United States	9.79	9.504	7.69	7.982
1770	Chicago	United States	9.66	9.665	7.69	8.032
1771	Chicago	United States	10.44	9.669	7.85	7.94
1772	Chicago	United States	10.27	9.714	8.19	7.898
1773	Chicago	United States	10.42	9.984	8.22	7.97
1774	Chicago	United States	10.27	9.948	8.77	8.007
1775	Chicago	United States	10.99	10.069	9.18	8.1
1776	Chicago	United States	9.98	10.018	8.3	8.089
1777	Chicago	United States	9.67	10.044	8.26	8.093



Observations

The first observation is that Chicago is consistently warmer than the global average but only slightly (Brrr).

Both averages are trending upward with almost two degrees of increase over 250 years.

There was a sudden sharp decline in average temperatures in the early 1800’s followed by a spike in temperature back to previous levels that was just as sudden.

The upward trend in average temperatures appears to begin around 1900.