

A Brief Overview of Long-Term Snow Climatology for Burlington, VT

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During late 2009 an effort was made to better understand long-term trends in yearly snowfall climatology for Burlington, VT. Data was compiled over a 106-year period identifying discrete though sometimes subtle trends in seasonal snowfall, days of measurable snow, days with measurable snow on the ground, and the dates of first and last measurable snow. No specific reasoning or conclusions are given on possible mechanisms responsible for the changes noted. Several points regarding the data and resultant calculations follow:

1. All data was obtained either from the National Weather Service's xMACIS climate database, or climatological records maintained locally at the National Weather Service office in Burlington.
2. Snowfall records in Burlington run from 1906 to present.
3. The weather office in Burlington was located downtown on the University of Vermont campus from 1906 to 1943, and at the Burlington airport from 1939 to present. There are overlapping records from 1939 to 1943.
4. Simple linear regression was used on all datasets.
5. Station move in 1943 shows little affect in overall plots.

First Measurable Snow

Discussion: Using simple linear regression the data shows wide variability though the first snowfall appears to occur approximately 6 days earlier than 100 years ago (from November 12th to the 6th).

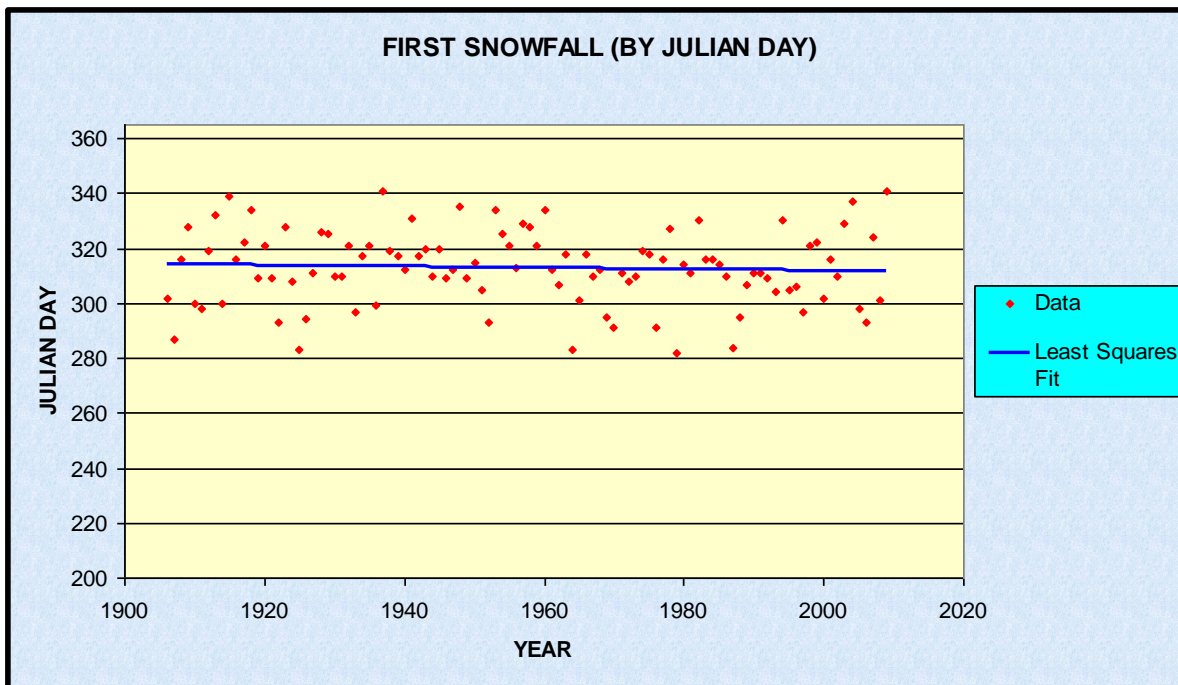


Figure 1: First snowfall in Burlington, VT by Julian Day (1906 to 2009).

Last Measurable Snow

Discussion: Again the data shows considerable variability though a discrete trend of earlier last snowfalls from approximately April 18th to April 10th is noted.

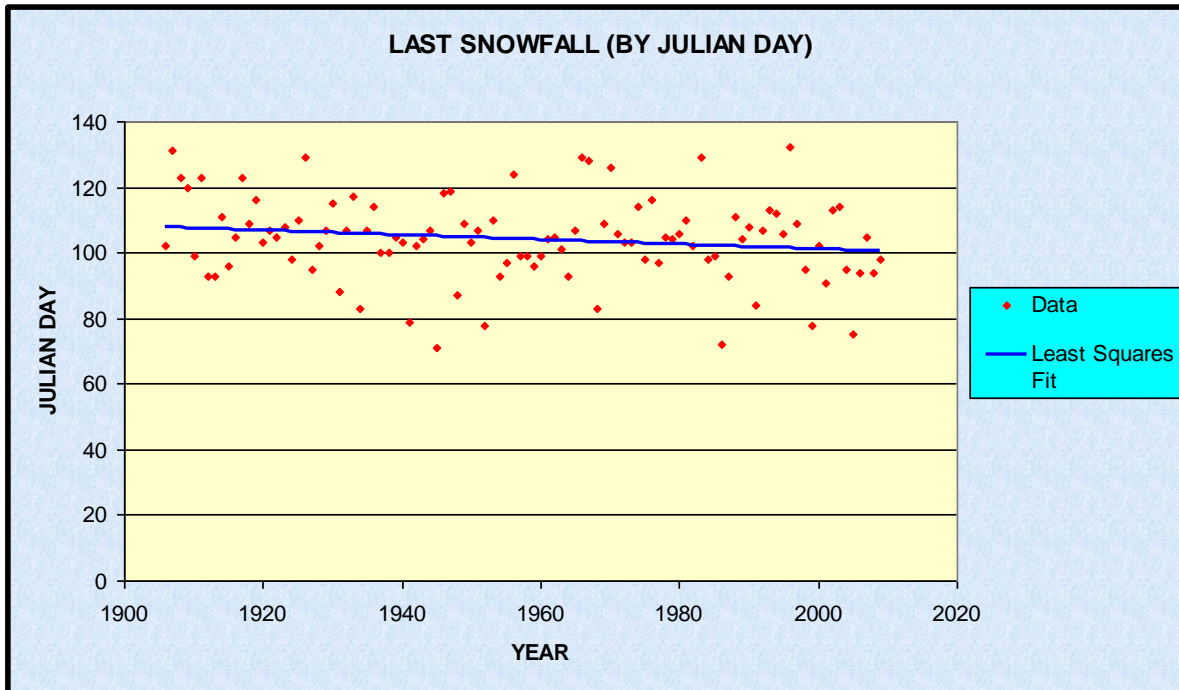


Figure 2: Last snowfall in Burlington, VT by Julian Day (1906 to 2009).

Frequency of Measureable Snow by Winter (Number of days with snowfall greater than a trace)

Discussion: Wide variability, though with a steady upward trend in the period of record (44 to 58 days).

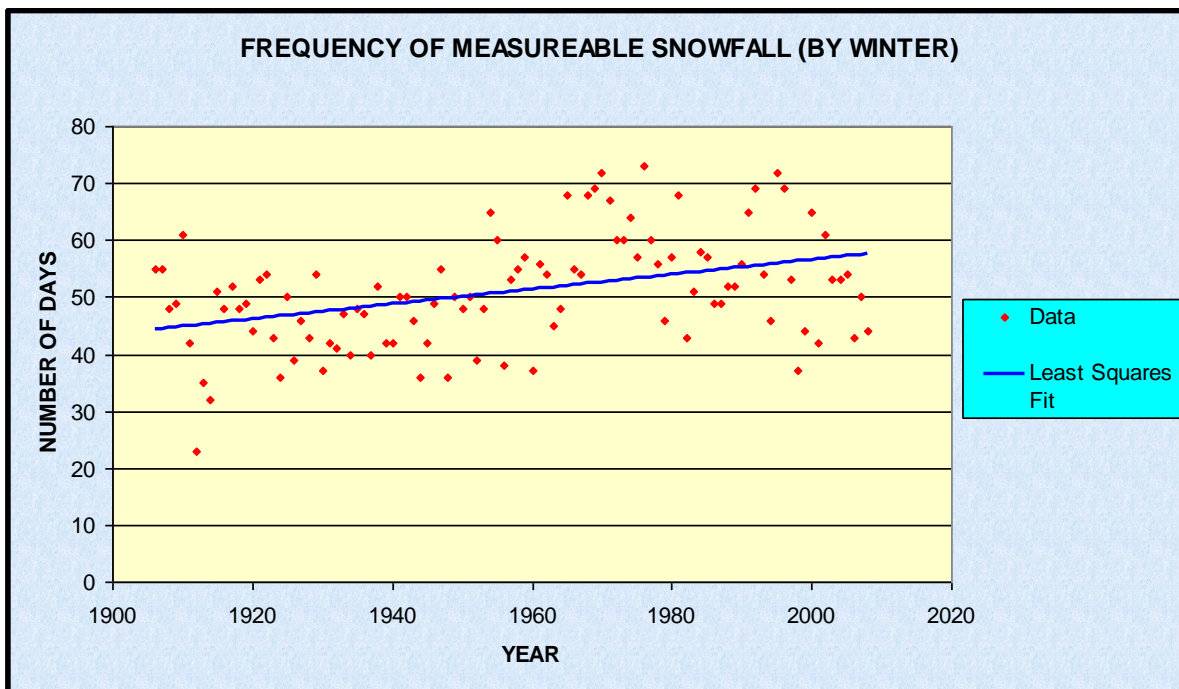


Figure 3: Frequency of measureable snowfall (> trace) in Burlington, VT (1906/07 to 2008/09).

Seasonal Snowfall by Winter

Discussion: Wide variability from year to year, though with a steady upward trend showing a 27 inch increase in the period of record (from 60 to 87 inches).

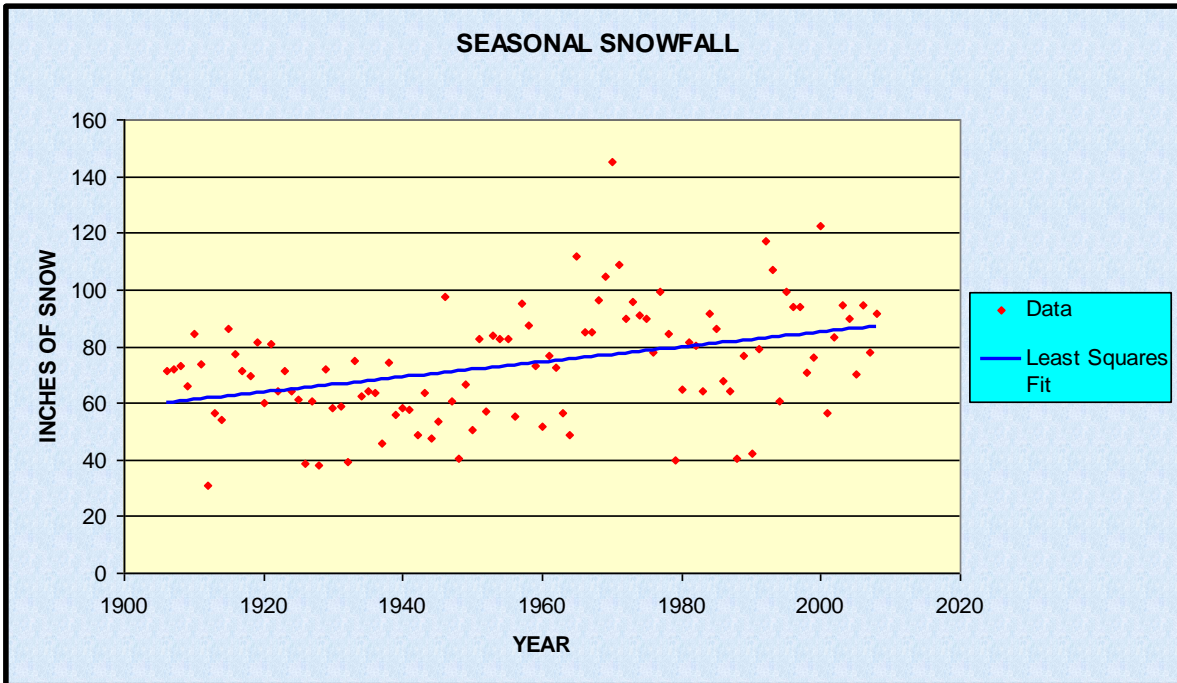


Figure 4: Seasonal snowfall by year at Burlington, VT (1906/07 to 2008/09).

Days with Measureable Snow on the Ground by Winter

Discussion: Significant variation, though data shows a slight decrease of approximately 5 days through the period of record (from 95 to 90 days).

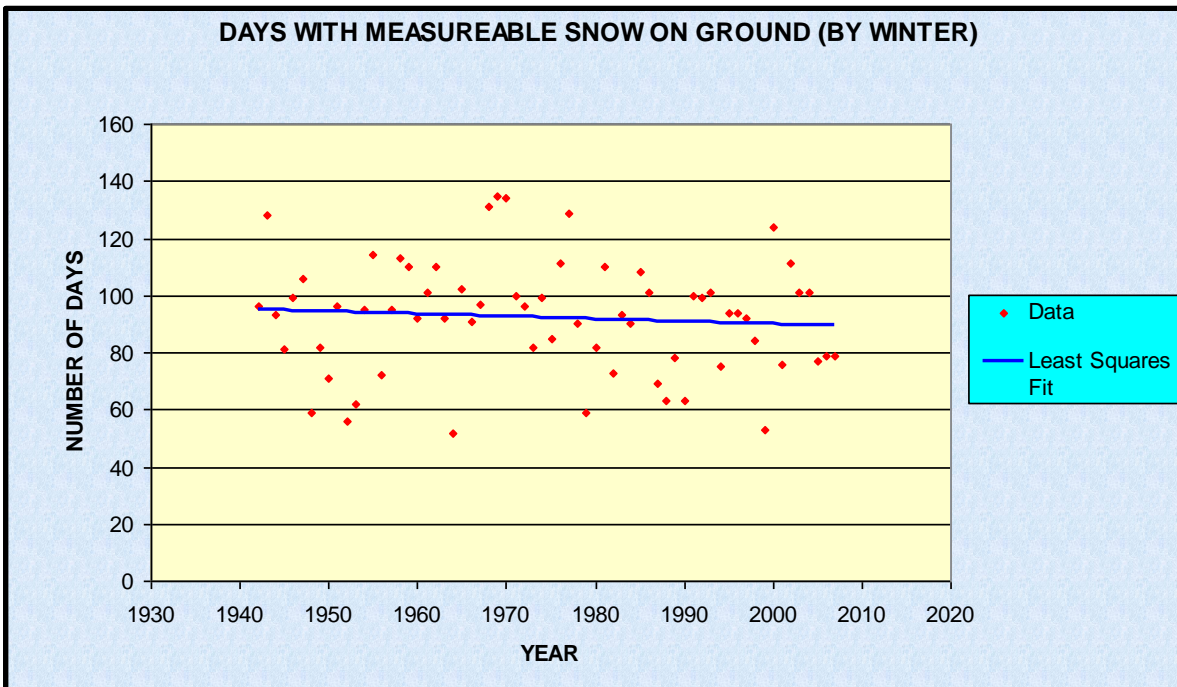


Figure 5: Days with measureable snow on the ground (depth > trace) by winter (1906/07 to 2008/09).