

A comparative study of local climates in Vermont

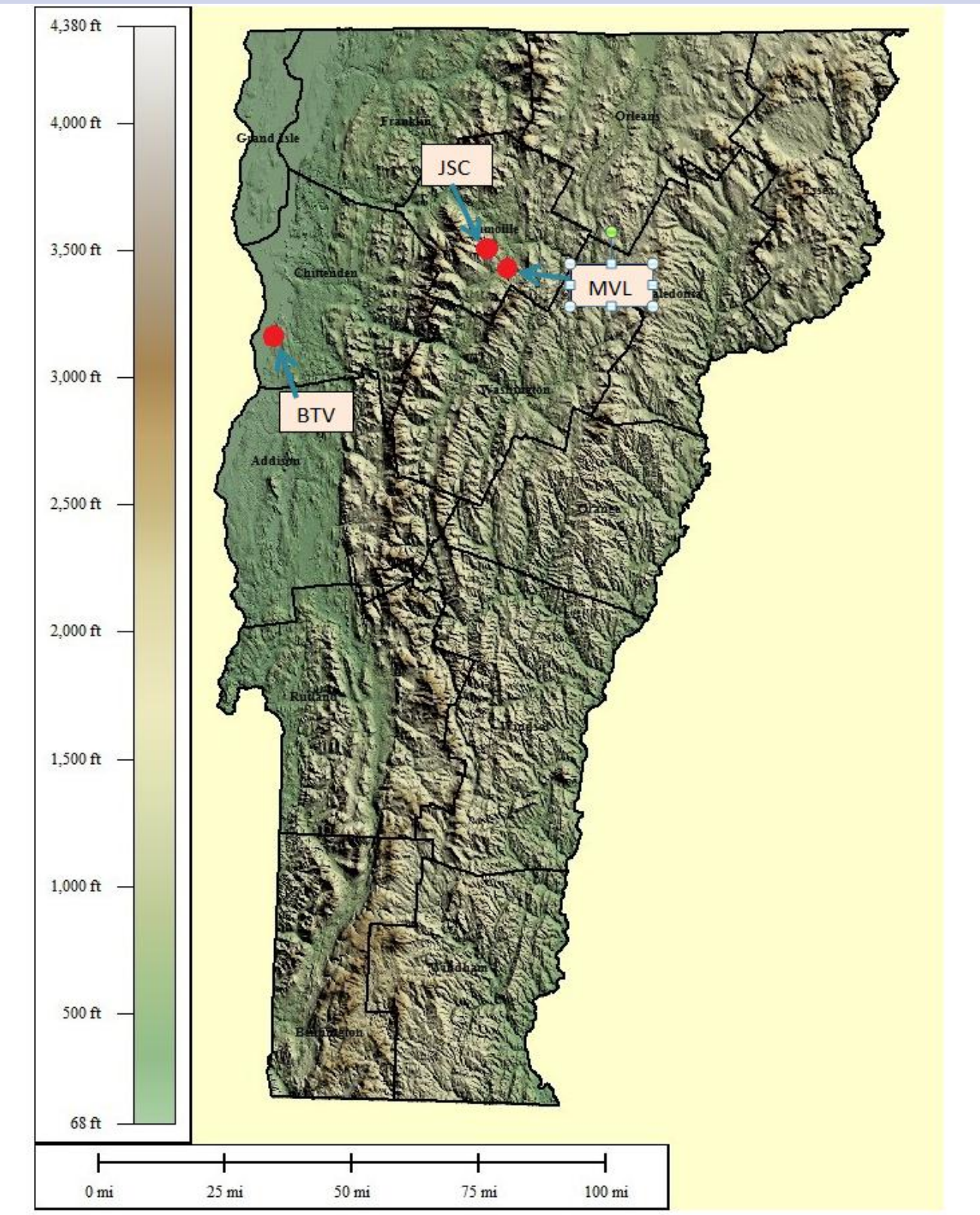
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Vermont EPSCoR, Research on Adaption to Climate Change, Johnson, Vermont 2012



Objective

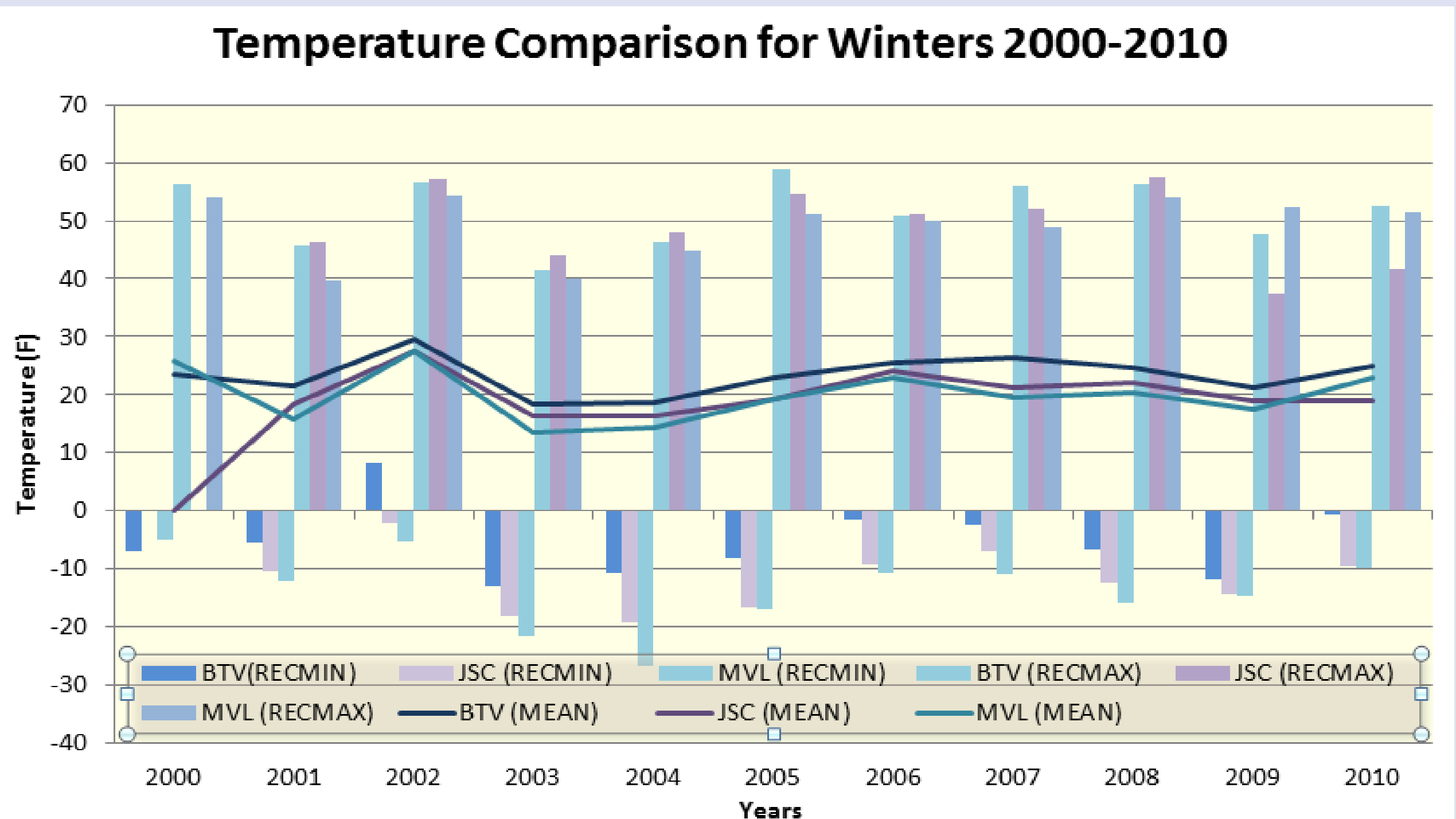
- Is there a correlation between precipitation and mean average temperatures in Vermont? How does this affect the climate?



The image to the right is a Satellite image of Vermont with station locations overlaid. (Burlington, Johnson State College, Morrisville)

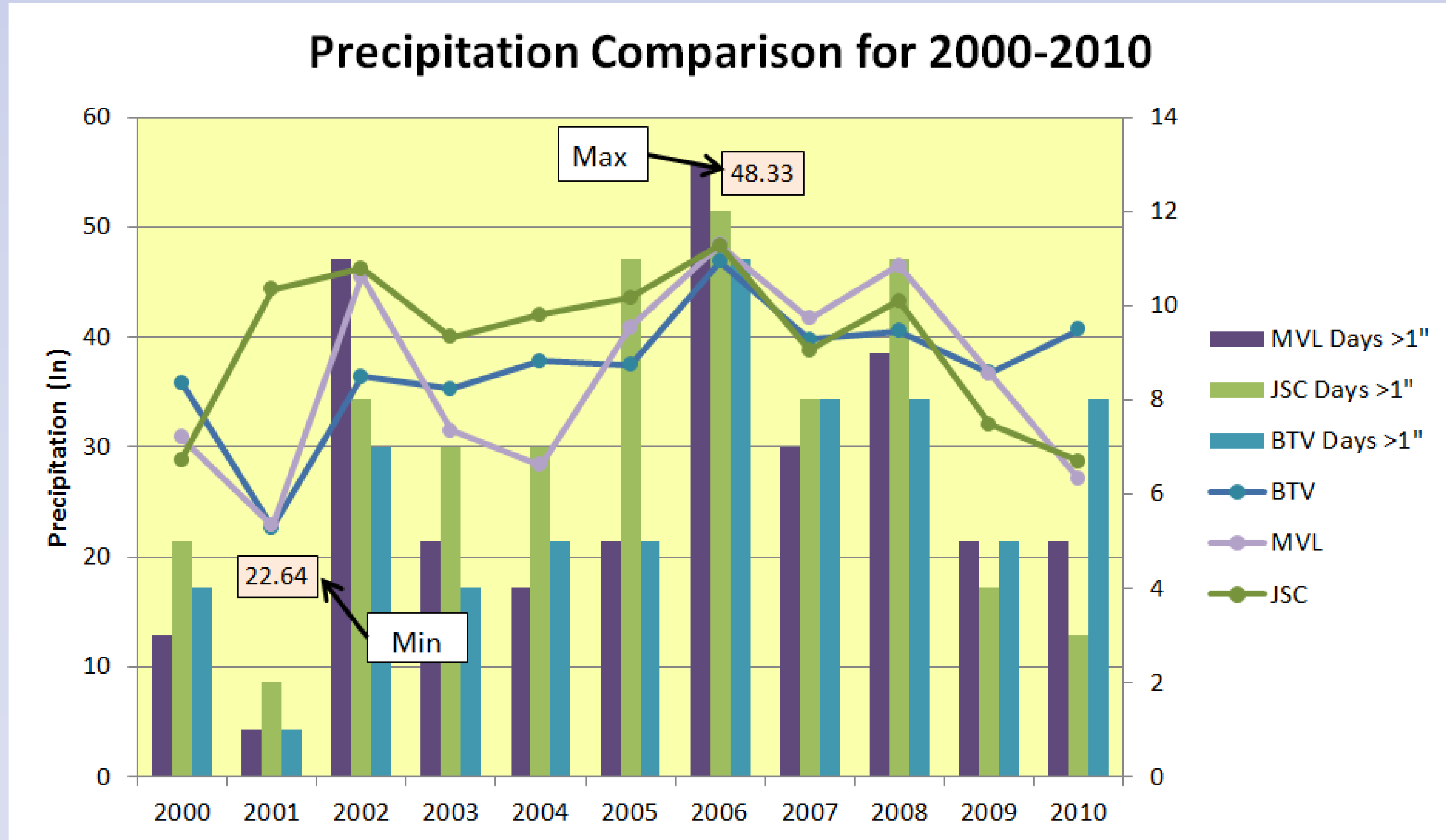
Methods

- Weather data was collected from the Burlington International Airport, Morrisville Airport and the Johnson State College Weather Station from 2000-2010. Using Microsoft Excel this data was compiled and analyzed in order to compare variables such as precipitation, minimum, maximum and average temperatures. From this, conclusions could be made to observe the effects these variables may have on local climate change.



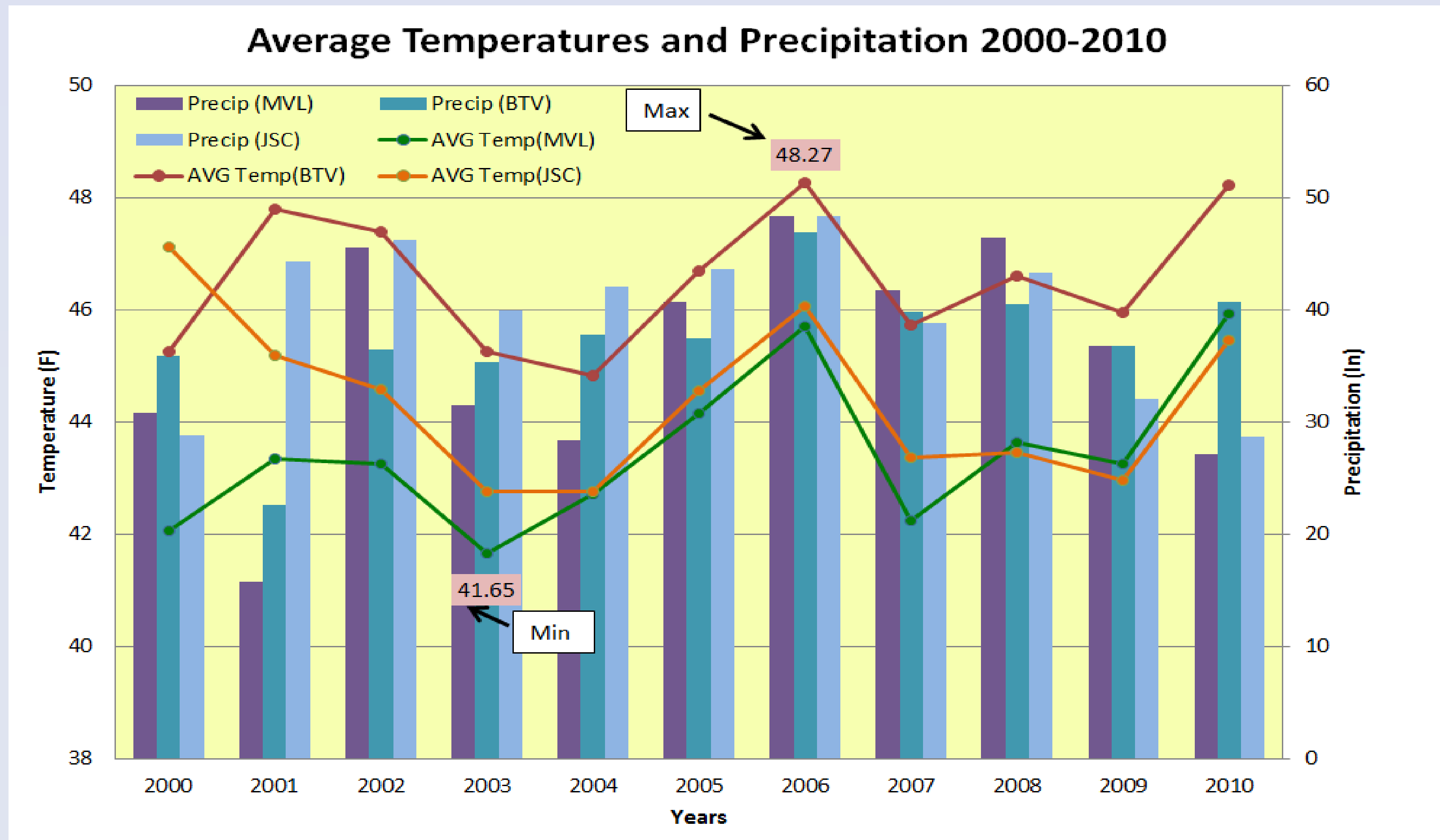
- The graph above is a station data comparison of winter temperatures for 2000-2010. For this research our winter was defined as December, January and February.

Results

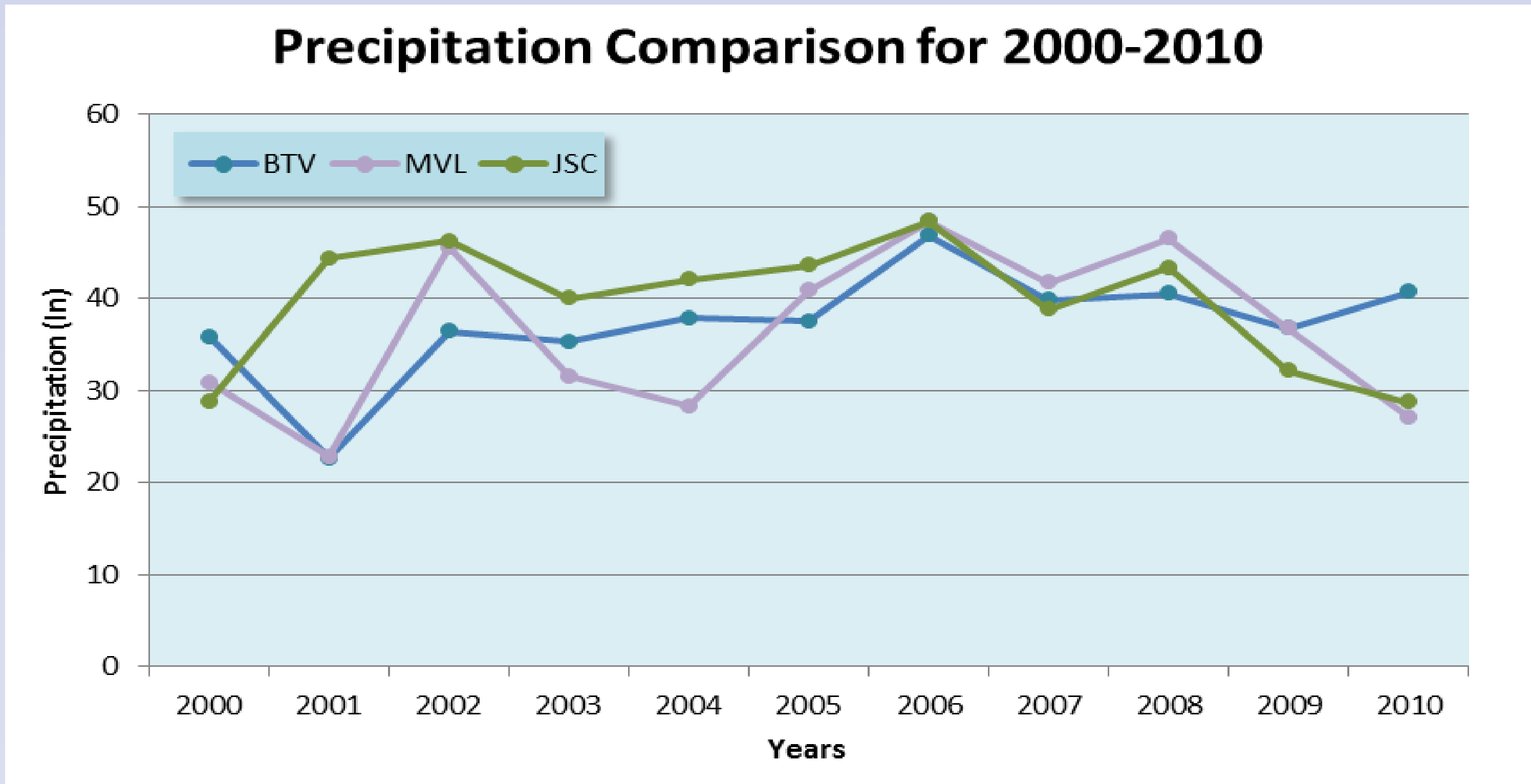


2010. The line graphs represent total annual precipitation for each station. The columns represent the total number of days with greater than 1" of precipitation during the given year. Maximum and Minimum values are identified and highlighted with a maximum at JSC and a minimum at MVL.

- Research showed that years which had a greater amount of days with over 1" of precipitation had higher average temperatures but the following year, precipitation and annual temperatures were significantly lower. Overall Morrisville was observed to be most sensitive to these events and had the largest fluctuations in these variables over the time period analyzed. Years 2000-2001 and 2006-2007 had the most significant differences.



- The graph above is comparing average temperatures and precipitation for each station from 2000-2010. The line graph shows annual average temperatures for each station. The columns represent the average precipitation each year. Maximum and minimum values are highlighted with a maximum at BTV and a minimum at MVL.



- This graph is comparing precipitation at each station from 2000-2010.

Conclusions

- From precipitation and temperature data for each station there is a correlation found between average precipitation and temperatures in Vermont.
- This correlation shows that during years with increased amounts of larger precipitation events the climate may be significantly affected for years thereafter. However, there is not enough data to conclude whether this can dictate how large of an impact on local climates these events may have.
- Further research may include analyzing these events on a larger scale and over a longer period of time to better determine the effects of climate change on a local scale. This also can be analyzed to compare to results on a global scale.

Acknowledgments

- We thank our mentor Dr. Tania Bacchus for guidance and support with our research efforts, VT EPSCoR and RACC for funding this opportunity, and Johnson State College for a research location

For further information

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