

Utilizing GIS to Enhance Decision Support & Climate Services at WFO Burlington, VT

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Background on GIS at Burlington

- BTV has been an innovative leader in GIS mapping in Eastern Region
- Maps produced routinely are automatically generated through Python/ArcPy scripts
- Templates to run “on-the-fly” maps

BTV GIS: Climate

BTV Climate Supplement

www.weather.gov/btv/climate

Is a supplemental website to the traditional WFO climate page, linked on our office homepage.

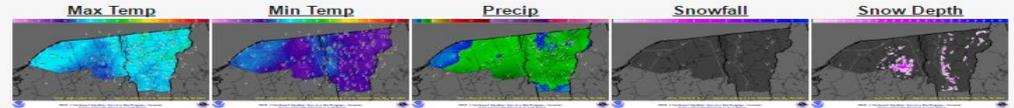
Includes GIS-produced maps of annual temperature, precipitation and snowfall

Others:

- Locally-produced Daily Climate Maps
- Lake Champlain Climatology

Daily Climate Maps

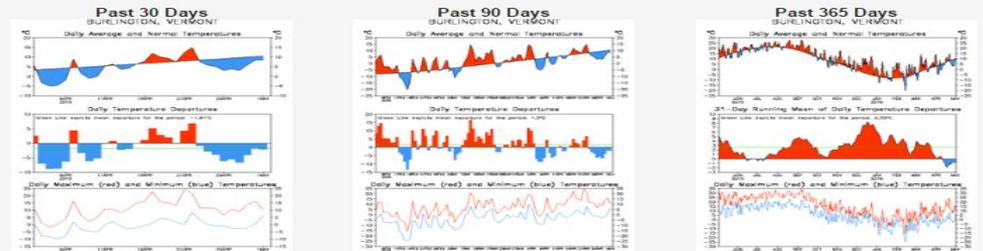
Daily temperature and precipitation maps covering the past 24 hours from 7 A.M. to 7 A.M. EST/EDT. Snow depth is based on measurement at 7 A.M. of the day shown. Maps are generally updated around 10:30 A.M. each day. Ranked listings by state of the individual station reports is provided on our full climate maps page at <http://www.weather.gov/btv/climatemaps>.



Recent Temperatures & Precipitation in Burlington, VT

Temperature

Graphs of daily average temperatures, their departures from normal, as well as daily maximum and daily minimum temperatures over the past 30-, 90-, and 365-days. Shading reflects daily departures from normal using standard convention: red for warmer than normal, blue for colder than normal.



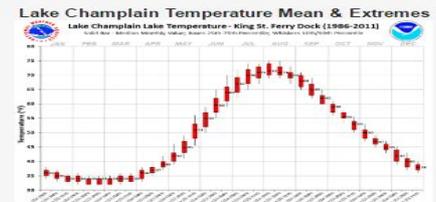
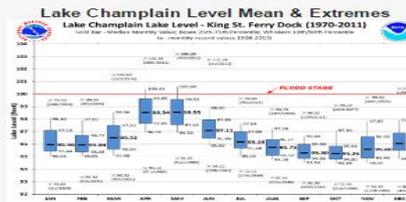
Precipitation

Graphs of precipitation departures from normal (top chart) with daily accumulation (bottom chart) over 30-, 90-, and 365 days are shown here. Shading for rainfall departures follows standard convention: green for wetter than normal, brown for drier than normal.



Local Climatology

Lake Champlain level (in ft) and lake temperature (in degrees F) graphs. Observations taken from the King St. Ferry Dock in Burlington. Lake levels are broken out into monthly box-and-whisker charts, while the lake temperatures are broken out into box-and-whisker charts over a 10-day period. See graphs for interpretation of box-and-whisker charts.



Maps of annual mean high, low and average temperature (in degrees F) as well as precipitation and snowfall (in inches) for Vermont, New York and New England. Values are based on the 1981-2010 normals.

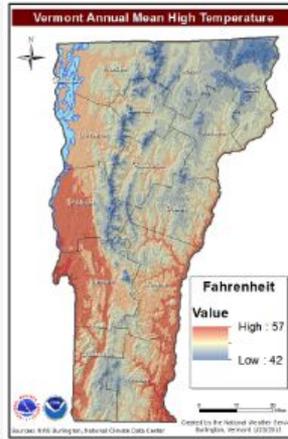
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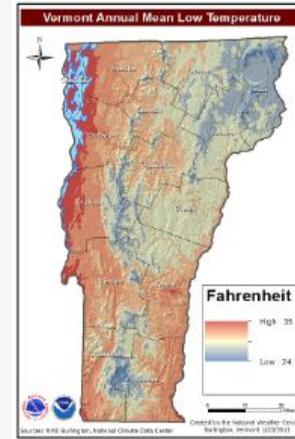
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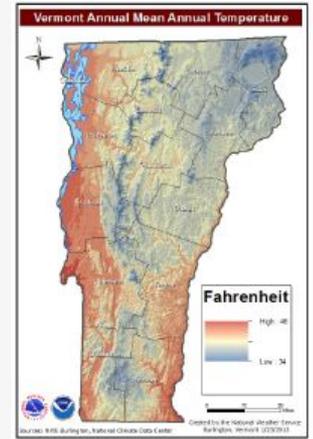
Vermont Annual Mean High Temperature



Vermont Annual Mean Low Temperature



Vermont Annual Mean Annual Temperature



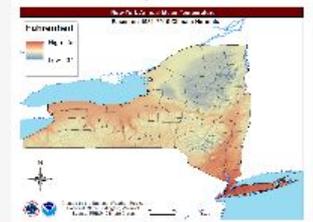
New York Annual Mean High Temperature



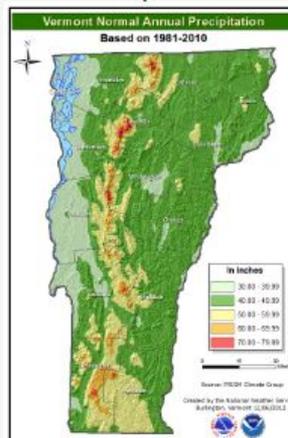
New York Annual Mean Low Temperature



New York Annual Mean Annual Temperature



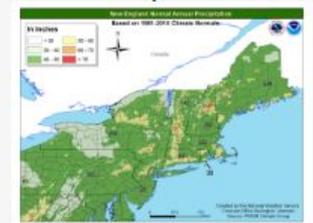
Vermont Annual Average Precipitation



New York Annual Average Precipitation



New England Annual Average Precipitation



BTV GIS: Decision Support

BTV Winter Storm Impact Index

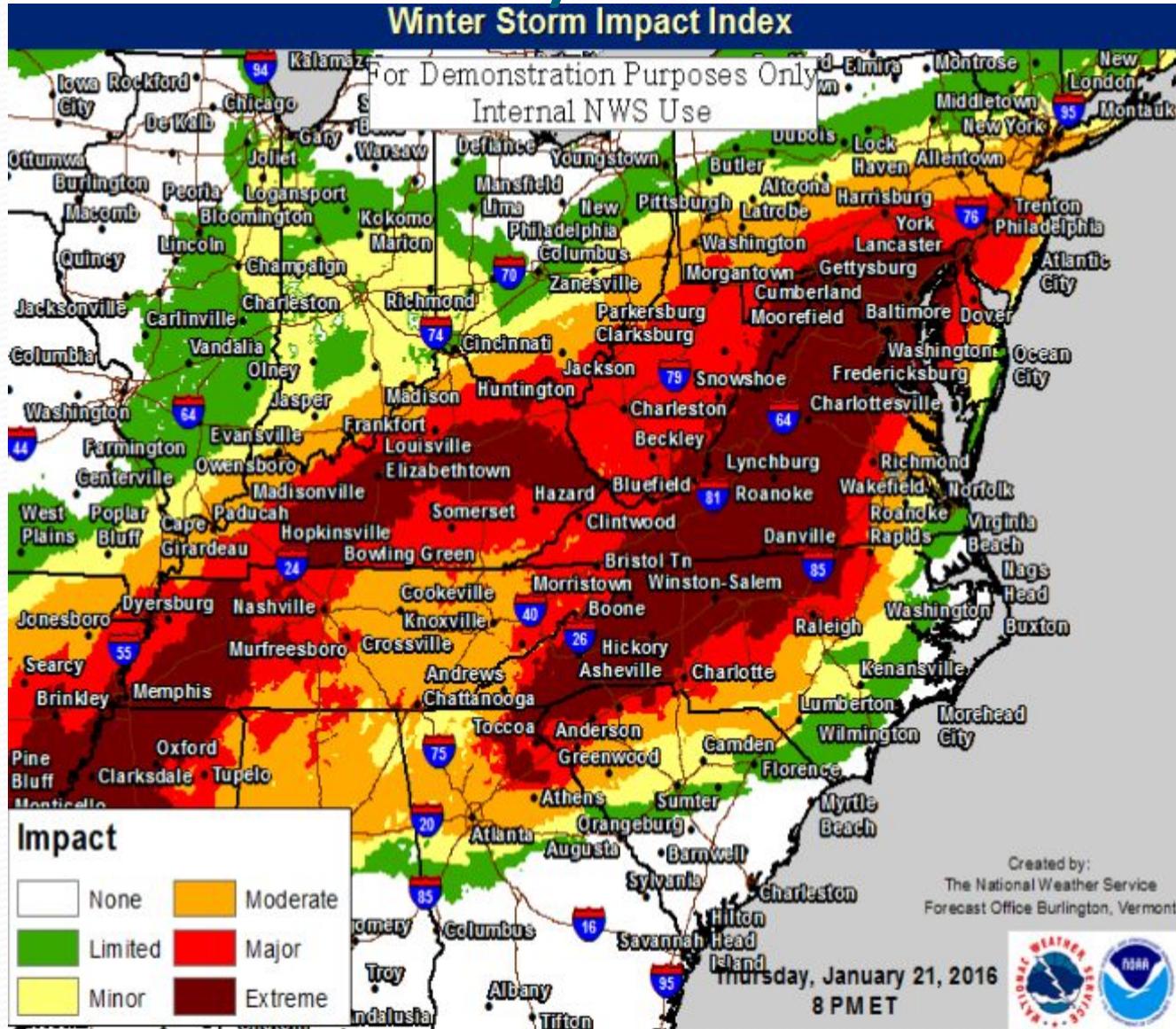
- Uses 48-hour NDFD data to assign a WSII value based on expected hazardous winter weather.
- Conditions which affect WSII include blowing snow, snow amount, snow load, icing, flash freeze, and ground blizzard.
- Uses 1- and 2-day snowfall return intervals (xmAcis):
 - A 6" snowfall in Atlanta occurs less often and is more impactful than a 6" snowfall in Burlington
- 2015–2016 winter: Distributed to VT/NYS EMs & state DOTs
 - Useful for pre-event resource staging & staffing

BTV Winter Storm Impact Index

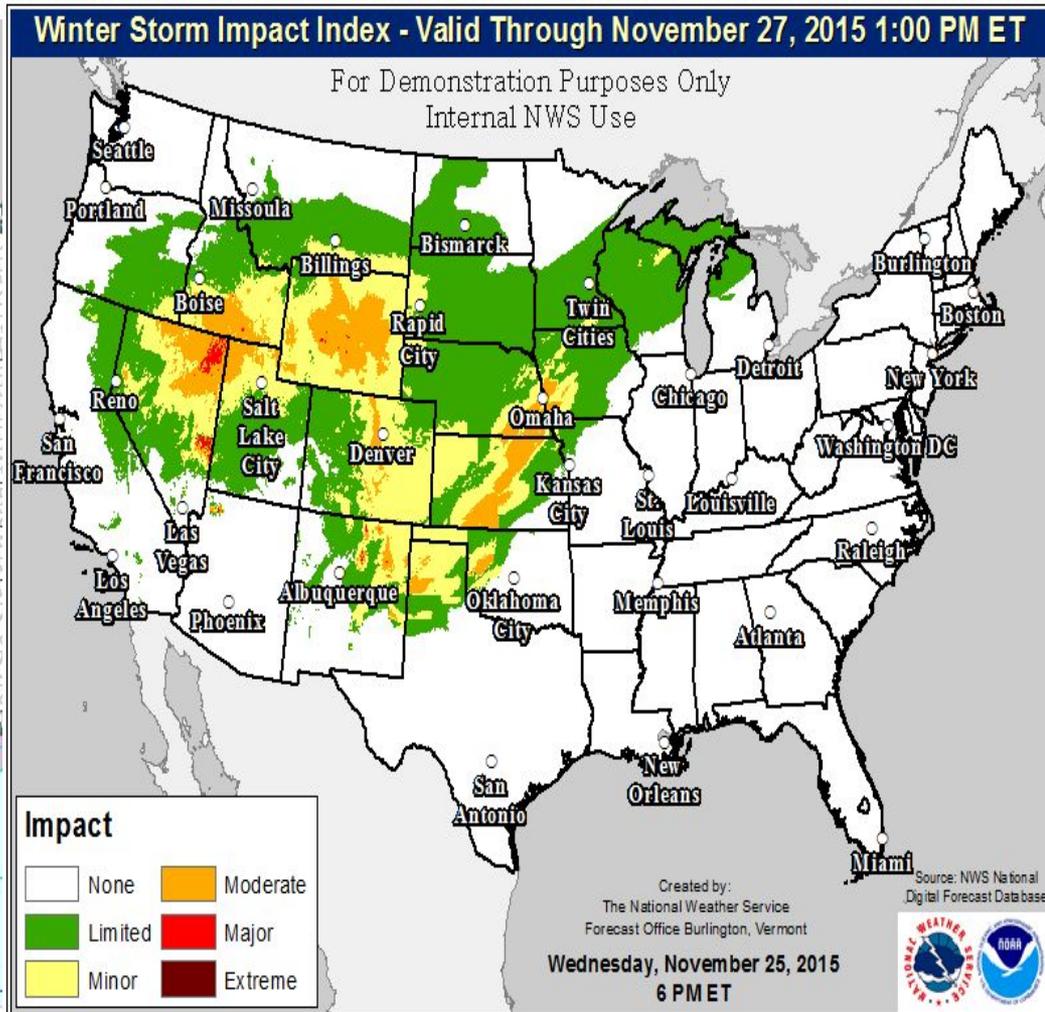
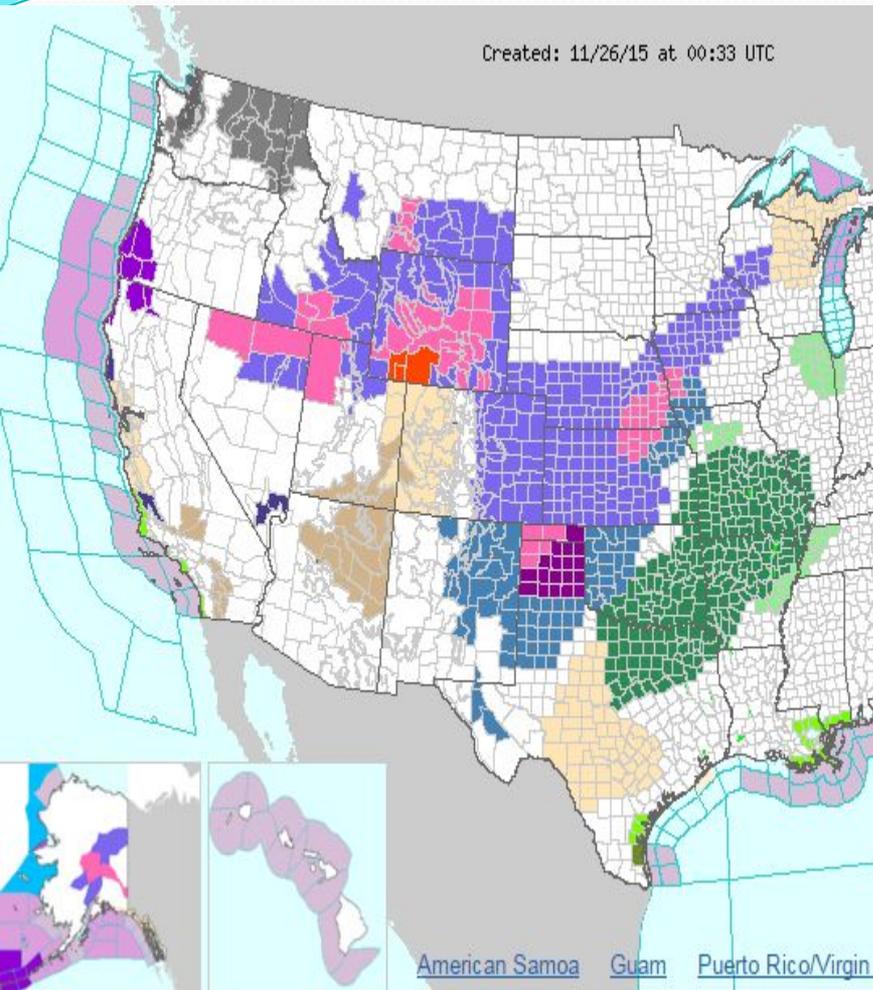
WSII Value (Not Seen)	WSII Descriptor	General Description of Expected Storm Severity and Impacts
0	None	No snow or ice forecast.
1	Limited	Very small accumulations of snow or ice forecast. Minimal impacts, if any, expected. In general, society goes about their normal routine.
2	Minor	Roughly equates to NWS Advisory Level criteria. Minor disruptions, primarily to those who were not prepared. No to minimal recovery time needed.
3	Moderate	Roughly equates to NWS Warning Level criteria. Definite impacts to those with little preparation. Perhaps a day or two of recovery time.
4	Major	Significant impacts, even with preparation. Several days recovery time.
5	Extreme	Historic. Widespread severe impacts. Many days to a week of recovery needed.

* note: Final WSII value that's applied is the maximum of the various component indices (Snow Amt, Snow Load, Ice Accum, Ground Blizz, etc.)

BTV Winter Storm Impact Index: January Blizzard



Goes beyond WWA...



National Weather Service – Burlington, VT



www.weather.gov/btv



US National Weather Service Burlington, VT



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