



## TRORC Regional Emergency Management Committee

### Meeting Minutes – DRAFT

**May 31, 2023**

**Virtual**

#### Voting Member Attendance

<b>Town</b>	<b>EMD or Designee</b>	<b>5/31/23</b>	<b>First Responder Representative</b>	<b>5/31/23</b>
<b>Barnard</b>	Mike Manning		Stuart Hull	
<b>Bethel</b>	Therese Kirby		David Aldrighetti	
<b>Bradford</b>	Gary Moore	X	Dan Perry III	
<b>Braintree</b>	Dereck O'Toole			
<b>Bridgewater</b>	George Spear		Josh Maxham	
<b>Brookfield</b>			Kevin Wheatley	
<b>Chelsea</b>	Tracy Simon			
<b>Corinth</b>	Joe Blodgett		Mike Wolff	
<b>Fairlee</b>	Peter Berger	X	Ken Champagne	
<b>Granville</b>	Mark Belisle	X		
<b>Hancock</b>				
<b>Hartford</b>	Scott Cooney			
<b>Hartland</b>			Chet Pasho	
<b>Newbury</b>	Jeff Morin		Jeff McKelvey	
<b>Norwich</b>			Alex Northern	X
<b>Pittsfield</b>	Ryan Thompson		Doug Mianulli	
<b>Plymouth</b>	Albert Poirier			
<b>Pomfret</b>	Kevin Rice	X	Gordon Modarai	
<b>Randolph</b>	Wayne Warner			
<b>Rochester</b>	Larry Plesant		Terry Severy	
<b>Royalton</b>	Brad Salzmman	X	Loretta Stalnaker	
<b>Sharon</b>	Nathan Potter		Keith Lyman, JR.	
<b>Stockbridge</b>	Zachary Cavacas			
<b>Strafford</b>	Jason Schumacher		Aaron Dotter	
<b>Thetford</b>	Mariah Witcomb		Chad Whitcomb	
<b>Topsham</b>	Bradford Calhoun		Jonathan Calhoun	
<b>Tunbridge</b>	Brenda Field		Simon Bradford	
<b>Vershire</b>	Eric Gilbert			
<b>West Fairlee</b>	Delsie Hoyt	X		
<b>Woodstock</b>				

## Non-Voting Member Attendance

Organization	Name and Contact Information	3/17/22
Vermont Emergency Management	Taiga Christie	X
Orange County Sheriff		
VNH Care		
VA Medical Center – White River Junction	Ariel Young	
Thompson Senior Center	Deanna Jones	
American Red Cross / VDART	Dr Jackson Schonberg	X
Irving Oil		
VT Dept. of Health		
VT 211 / United Ways	Elizabeth Gilman <Elizabeth@unitedwaysvt.org>	X

Other Attendees: Sydney Steinle, TRORC

### 1. Call to Order

The meeting was called to order at 6:40PM by Sydney Steinle, TRORC. It was determined that 7 voting members were present. There were no proxies at this meeting.

Taiga Christie (VEM) explained the passage of H.465 *An act relating to regional emergency management committees' meeting quorum requirement*, which temporarily changes REMC quorums to 5 voting members or their proxies and allows REMCs to set their own quorum requirements if that requirement is at least 20% of the REMC voting membership or their proxies.

### 2. Election of Officers

The REMC Agenda was screen-shared with the attendees. Peter Berger of Fairlee as Chair and Mark Belisle of Granville as Vice-Chair. A motion was made by Kevin Rice (Pomfret) and seconded by Delsie Hoyt (West Fairlee) to elect Peter Berger as Interim Chair. All approved.

### 3. Appointments to State Committees

The slate was Alex Northern (Norwich) as representative to the Statewide LEPC and Scott Cooney (Hartford) as representative to the THIRA/SPR process.

A motion was made by Kevin Rice (Pomfret) and seconded by Delsie Hoyt (West Fairlee) to elect the slate as presented. All approved.

### 4. Bylaw Adoption

Sydney Steinle displayed the draft REMC Bylaws for review. These were created from old LEPC bylaws and those of other REMCs in the state. A motion by Delsie Hoyt (West Fairlee) was seconded by Peter Berger (Fairlee) to adopt the bylaws. The REMC discussed the draft prior to voting on adoption. Discussion between REMC members

concluded that the new language should not state an exact number but rather the percentage presented in the bill.

The following suggested change was made to the draft bylaws:

- ARTICLE VIII: QUORUM AND VOTING- Change quorum wording to the following in light of the passage of H.465 *An act relating to regional emergency management committees' meeting quorum requirement*, "Quorum is defined as 20 percent of voting members, including proxies, being present."

A motion was made by Peter Berger (Fairlee) and seconded by Kevin Rice (Pomfret) to adopt the TRORC REMC bylaws as amended. All approved.

5. **Presentations by Scott Whittier (DOC/NOAA/NWS) and Jared Ulmer (VDH)**  
Heat Hazards presentation by Scott Whittier, Warning Coordination Meteorologist at DOC/NOAA/National Weather Service, and Jared Ulmer, Climate & Health Program Manager at the Vermont Department of Health. Both presentations are attached to these minutes.

Questions to Scott:

- Peter Berger (Fairlee) - How can we get weather notifications?
  - Answer- best way to get weather notifications is to sign up for VT Alert.
- Alex Northern (Norwich) - Is there something similar [to the heat page shown on the presentation] for cold?
  - Answer- Yes, there is a cold page with the same information. It switches over to the winter page in winter. NWS also has a "tropical" page on the website for hurricane season.
- Question- Peter Berger, Fairlee- Can you provide the presentation to us?
  - Answer- Yes, Scott will send it to Sydney. Scott also put the presentation in the chat.

Jared's presentation began at 7:28PM, on the 2021 Heat Dome in the northwestern United States. Jared mentioned a Heat Annex in development by Kevin Geiger (TRORC), which may be of interest to REMC members. Jared also discussed signs of heat illness, the map of cooling sites, and encouraged REMC members and other attendees to contact him or TRORC if they knew of other sites not displayed. There is also a survey available on the Vermont Department of Health's website to gather this information.

There were no questions.

## 6. **Adjournment**

A motion was made by Peter Berger (Fairlee) and seconded by Mark Belisle (Granville) to adjourn the meeting at 7:57PM.

Minutes submitted by Sydney Steinle, TRORC.



# Summer Heat in Vermont

Two Rivers-Ottauquechee  
Regional Emergency Management Committee

31 May 2023

Scott Whittier – [scott.whittier@noaa.gov](mailto:scott.whittier@noaa.gov)  
Warning Coordination Meteorologist  
NOAA/NWS/WFO Burlington, VT





# Overview - Agenda

- Climatology and Trends of
  - Summer and Hot Days ( $\geq 85^{\circ}\text{F}$ ,  $\geq 90^{\circ}\text{F}$ )
  - Are summers getting longer?
- **NEW** NWS Burlington **HEAT** Page
- What to possibly expect in the future

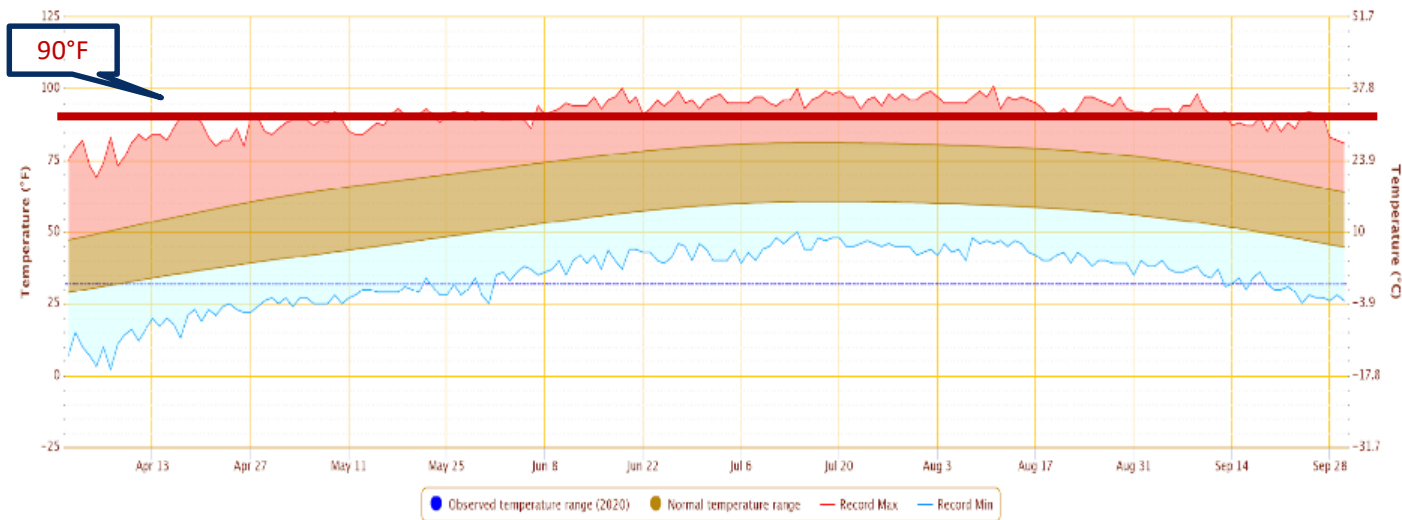




# Temperature Climatology for VT

April 1<sup>st</sup> – September 30<sup>th</sup>

Temperatures above 90 degrees are possible from mid-April through late September



Powered by ACIS

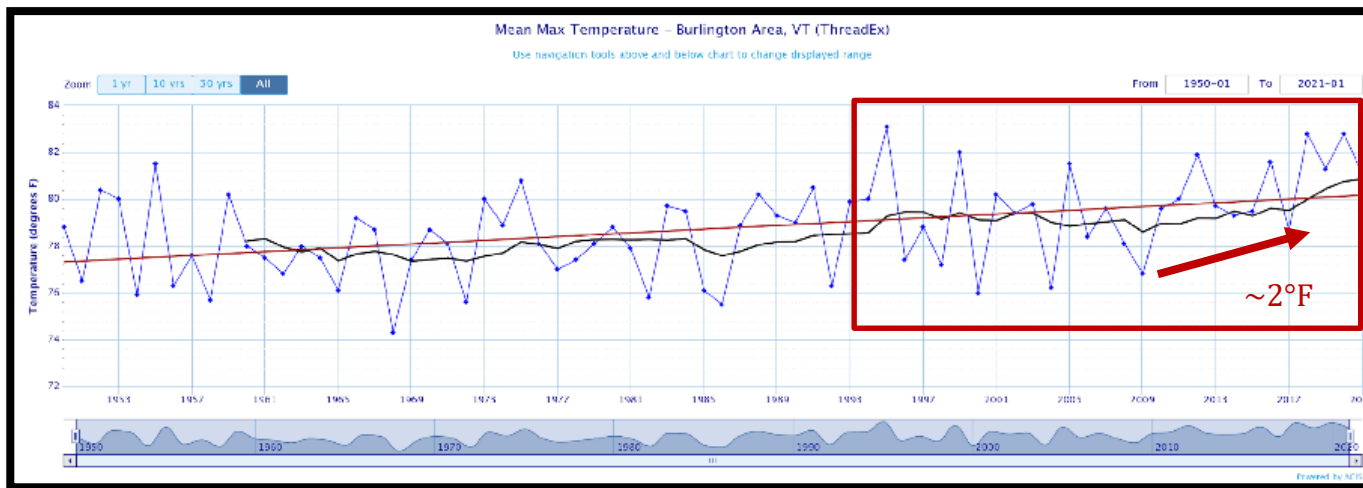
**Early heat** is problematic due to lack of acclimation.  
**Prolonged heat** is problematic due to compounding effects.





# Trend of Summer Mean Maximum Temperatures

June, July, August



**7 of the Top 10**  
Warmest Summer  
High Temperatures  
have occurred in  
the last 10 years

Rank	Year	Mean Max Temperature
1	1995	83.1
2	2020	82.8
-	2018	82.8
4	1999	82.0
5	2012	81.9
6	2016	81.6
7	2005	81.5
-	1955	81.5
9	2019	81.3
10	2022	81.1
-	2021	81.1

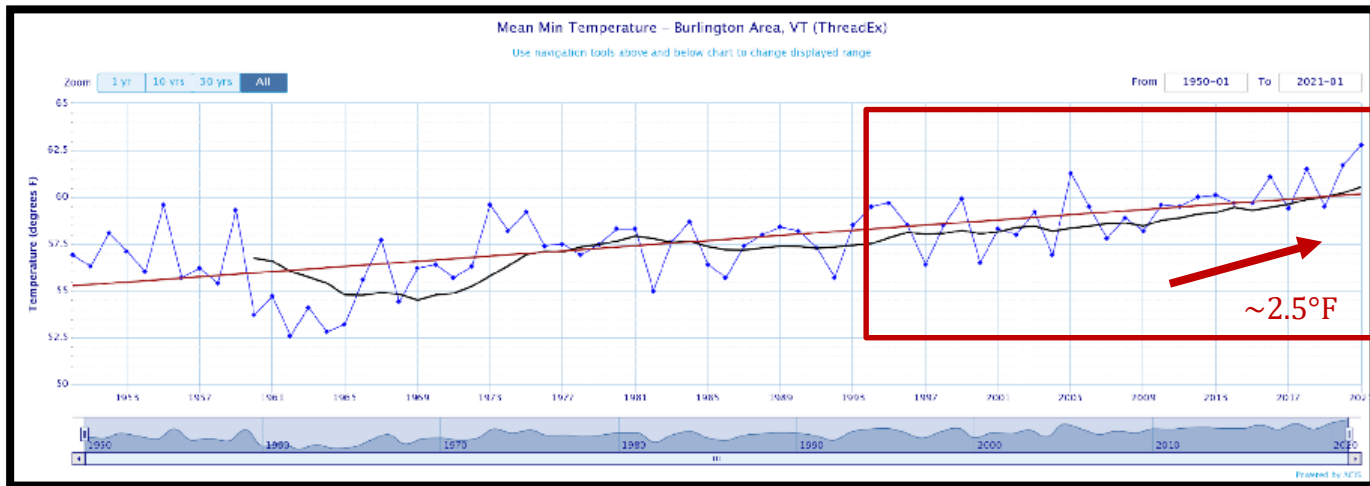
**9 of the Top 10**  
have occurred  
since 1995





# Trend of Summer Mean Minimum Temperatures

June, July, August



**9 of the Top 10**  
Warmest Summer  
**Low Temperatures**  
have occurred  
in the last 10 years

Rank	Year	Mean Min Temperature
1	2021	62.8
2	2020	61.7
3	2018	61.5
4	2005	61.3
5	2016	61.1
6	2022	61.0
7	2013	60.1
8	2012	60.0
9	1999	59.9
10	2015	59.7
-	2014	59.7
-	1995	59.7

**ALL of the Top 10**  
have occurred  
since 1995





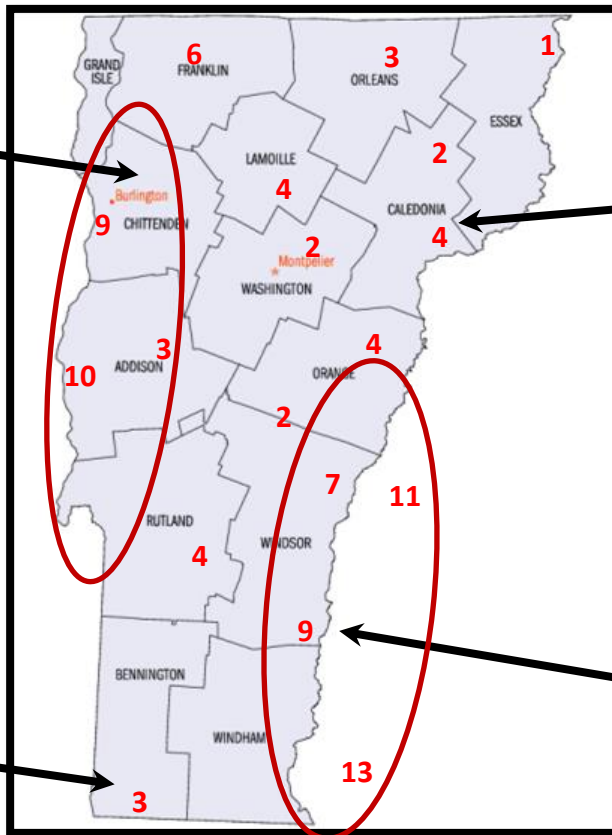


# Climatology of Mean # Days $\geq 90^{\circ}$

2002-2021

Year	Number of Days Max Temperature $\geq 90$
2002	17
2003	6
2004	0
2005	5
2006	6
2007	10
2008	3
2009	2
2010	11
2011	7
2012	13
2013	9
2014	3
2015	9
2016	12
2017	8
2018	17
2019	8
2020	20
2021	14

Year	Number of Days Max Temperature $\geq 90$
2002	4
2003	0
2004	0
2005	5
2006	3
2007	3
2008	2
2009	0
2010	9
2011	2
2012	7
2013	4
2014	0
2015	3
2016	4
2017	3
2018	12
2019	1
2020	6
2021	2



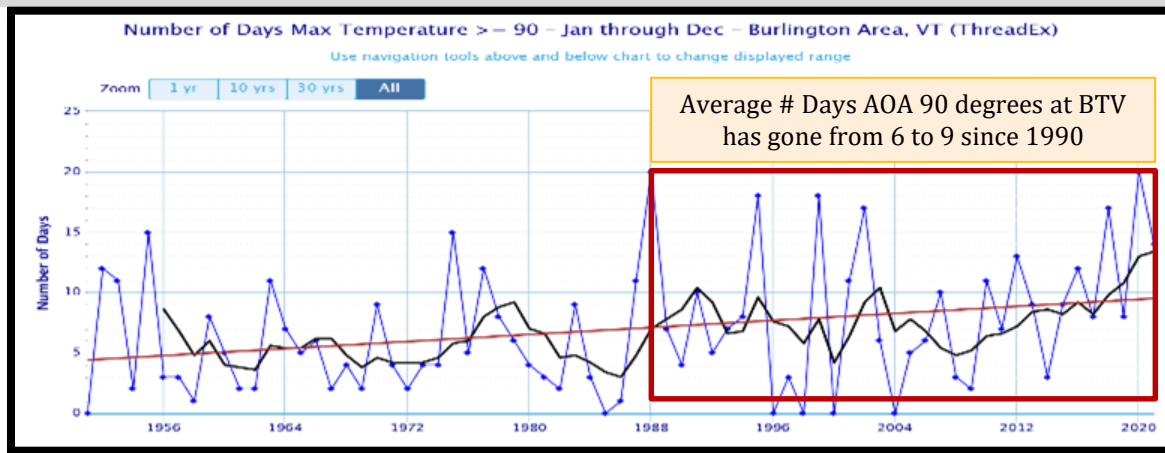
Year	Number of Days Max Temperature $\geq 90$
2002	6
2003	4
2004	0
2005	3
2006	6
2007	5
2008	2
2009	1
2010	5
2011	3
2012	4
2013	4
2014	1
2015	1
2016	3
2017	5
2018	6
2019	2
2020	11
2021	7

Year	Number of Days Max Temperature $\geq 90$
2002	19
2003	7
2004	1
2005	5
2006	7
2007	8
2008	5
2009	2
2010	15
2011	9
2012	20
2013	11
2014	1
2015	5
2016	7
2017	6
2018	14
2019	6
2020	10
2021	13





# Trend of Summer Mean Maximum Temperatures # Days $\geq 90^{\circ}$



Rank	Year	Number of Days Max Temperature $\geq 90$
1	2020	20
-	1988	20
3	1999	18
-	1995	18
5	2018	17
-	2002	17
7	1975	15
-	1955	15
9	2021	14
10	2022	13
-	2012	13

**5 of the Top 10**  
have occurred in  
the last 10 years  
and **8 of the Top 10**  
since 1995

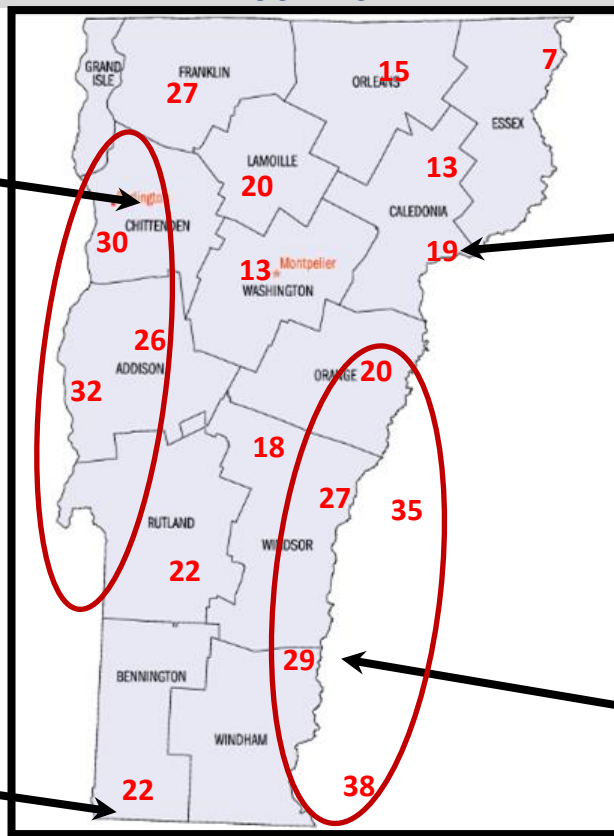


# Climatology of Mean # Days $\geq 85^{\circ}$

2002-2021

Year	Number of Days Max Temperature $\geq 85$
2002	36
2003	28
2004	8
2005	37
2006	23
2007	30
2008	12
2009	14
2010	30
2011	24
2012	37
2013	29
2014	25
2015	41
2016	45
2017	23
2018	49
2019	30
2020	49
2021	37

Year	Number of Days Max Temperature $\geq 85$
2002	29
2003	11
2004	7
2005	36
2006	17
2007	20
2008	15
2009	10
2010	27
2011	15
2012	32
2013	22
2014	12
2015	26
2016	31
2017	19
2018	35
2019	16
2020	33
2021	24



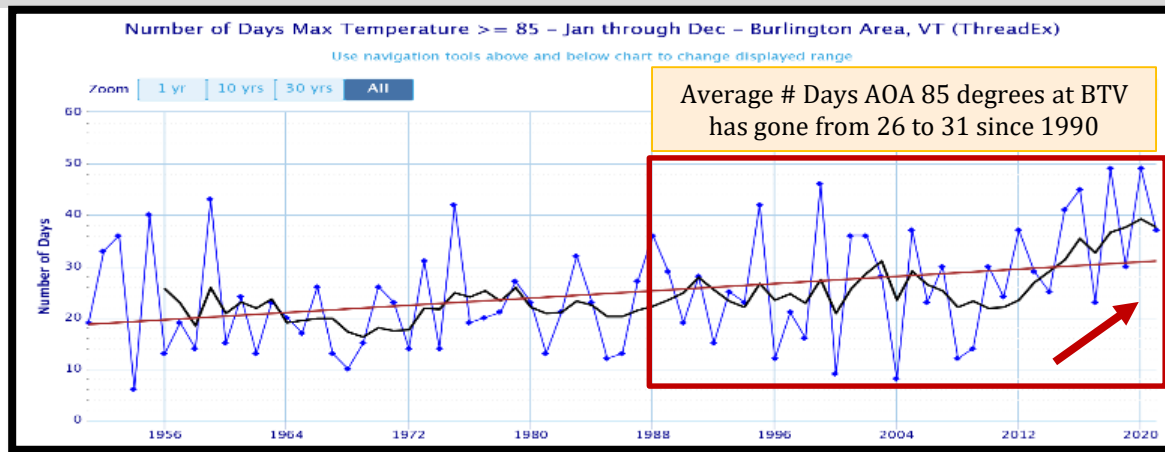
Year	Number of Days Max Temperature $\geq 85$
2002	27
2003	13
2004	8
2005	26
2006	23
2007	25
2008	7
2009	10
2010	24
2011	16
2012	20
2013	17
2014	12
2015	18
2016	20
2017	14
2018	24
2019	15
2020	33
2021	23

Year	Number of Days Max Temperature $\geq 85$
2002	40
2003	22
2004	13
2005	41
2006	20
2007	26
2008	14
2009	16
2010	40
2011	29
2012	44
2013	26
2014	17
2015	33
2016	36
2017	23
2018	33
2019	29
2020	40
2021	29

# Days  $\geq 85^{\circ}\text{F}$  is 3-5X MORE compared to # Days  $\geq 90^{\circ}\text{F}$



# Trend of Summer Mean Maximum Temperatures # Days $\geq 85^{\circ}$



Rank	Year	Number of Days Max Temperature $\geq 85$
1	2020	49
2	2018	49
3	1999	46
4	2016	45
5	1959	43
6	1995	42
7	1975	42
8	2015	41
9	1955	40
10	2021	37
-	2012	37
-	2005	37

**6 of the Top 10**  
have occurred in  
the last 10 years  
and **8 out of 10**  
since 1995



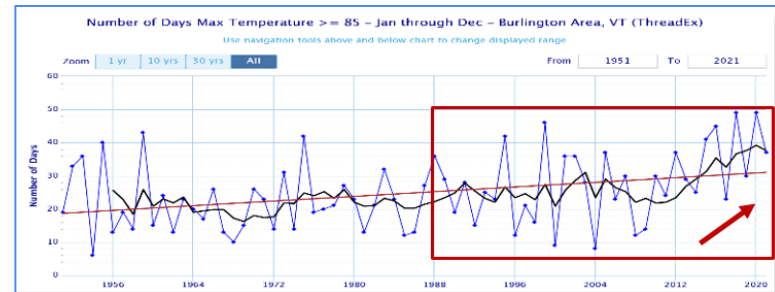
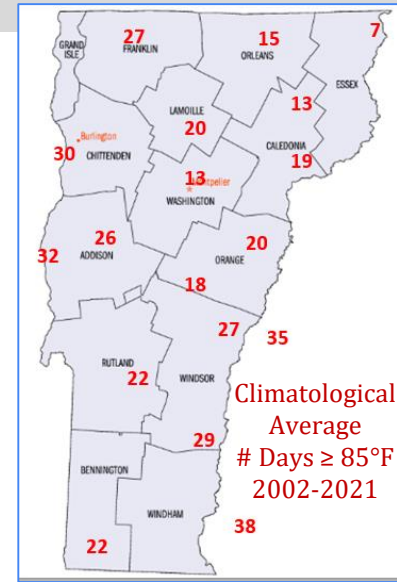
# Risk of Heat-Related ED Visits

VT Department of Health

Risk of Heat Related ED Visits  
20X More at 95<sup>th</sup> Percentile

Location	65th Percentile Heat Index (May-Sept) (~ 30 Year Normal High)	95th Percentile Dry Bulb Temp (May-Sept) *	95th Percentile Heat Index (May-Sept)*
Bennington	79	87	90
Burlington	81	89	92
Montpelier	77	85	87
Newport	75	84	85
Rutland	78	85	87
Springfield	80	89	90
St. Johnsbury	78	86	88
Stowe	78	87	88
Swanton	79	88	91

- Basically 90-95F in the Champlain Valley and Lower CT River Valley ~ **8-12 days/year**
- Mid-Upper 80s for Interior/Higher Elevations of VT ~ **8-12 days/year**
- **Trend is going higher!!!**



# Days ≥ 85°F is 3-5X MORE compared to # Days ≥ 90°F

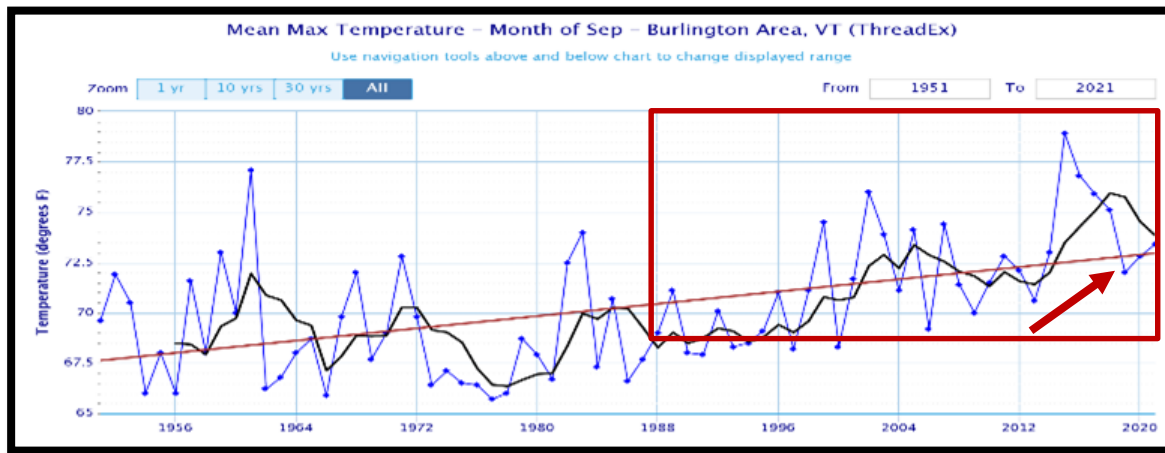
Burlington Weather Forecast Office





# Is Summer Getting Longer?

## September



**9 of the Top 20** have occurred in the last 10 years.  
**15 out of Top 20** since 1995.

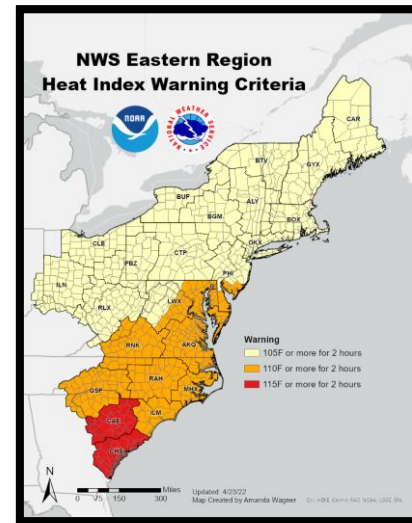
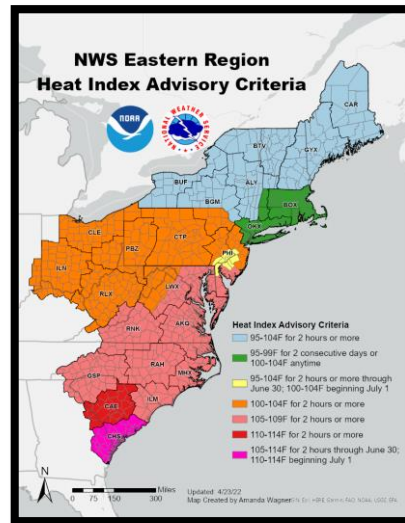
Rank	Year	Mean Max Temperature
1	2015	78.9
2	1961	77.1
3	2016	76.8
4	2002	76.0
5	2017	75.9
6	2018	75.1
7	1999	74.5
8	2007	74.4
9	2005	74.1
10	1983	74.0
11	2003	73.9
12	2021	73.4
13	2014	73.0
-	1959	73.0
15	2020	72.8
-	2011	72.8
-	1971	72.8
18	1982	72.5
19	2012	72.1
20	2019	72.0





# NWS Heat Headlines

- NWS issues Heat Headlines using the Heat Index.
  - Heat Index is the combination of the ambient (air) temperature and the humidity.
  - **Heat Advisory** issued for Heat Index of 95-104°F
  - **Excessive Heat Warning** issued for Heat Index  $\geq 105^\circ\text{F}$







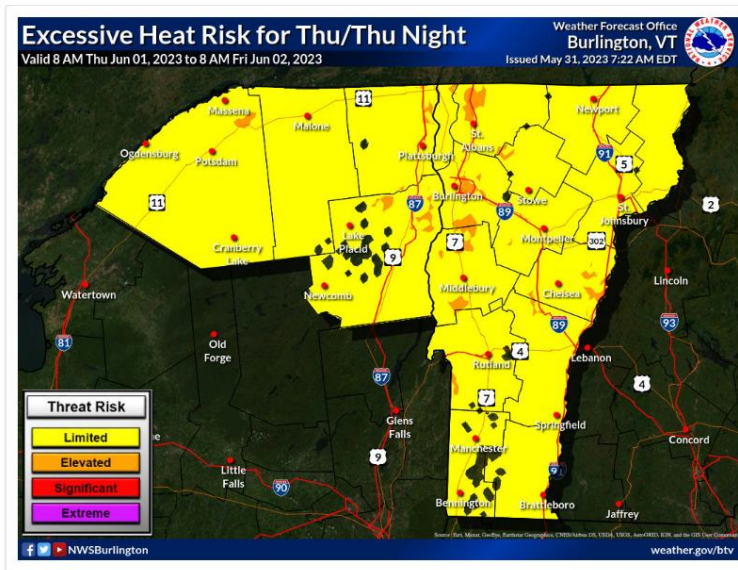
# Graphical Hazardous Weather Outlook

Color coded quick preview of potential weather hazards for the next 7 days



## Experimental Graphical Hazardous Weather Outlook

We encourage your comments or suggestions for improvements using this [electronic survey](#)



### 24 Hr Hazard Risks

	Today	Thu	Fri	Sat	Sun	Mon	Tue
Severe Thunderstorm	■	■	■	■	■	■	■
Tornado	■	■					
Thunderstorm Wind	■	■					
Hail	■	■					
Lightning	■	■	■	■	■	■	■
Excessive Rainfall	■	■	■	■	■		
Excessive Heat	■	■	■	■	■	■	■
Wind	■	■	■	■	■	■	■
Frost/Freeze	■	■	■	■	■	■	■
Fog	■	■	■	■			
Fire Weather	■	■	■	■	■	■	■

Threat Map

Days 1-7 Threats

Risk Level	Category	Definition
None	None	Maximum heat index < 80 degrees. No Excessive Heat Risk.
Limited	Limited	Maximum heat index 80 to 89 degrees. Heat exhaustion possible with prolonged exposure.
Elevated	Elevated	Maximum heat index 90 to 94 degrees. Heat exhaustion likely with prolonged exposure. Heat stroke possible.
Significant	Significant	Maximum heat index 94 to 104 degrees. Heat exhaustion or heat stroke likely with prolonged exposure.
Extreme	Extreme	Maximum heat index >= 105 degrees. Dangerously hot conditions could quickly result in heat exhaustion or heat stroke.

Risk Level Legend



National Oceanic and  
Atmospheric Administration

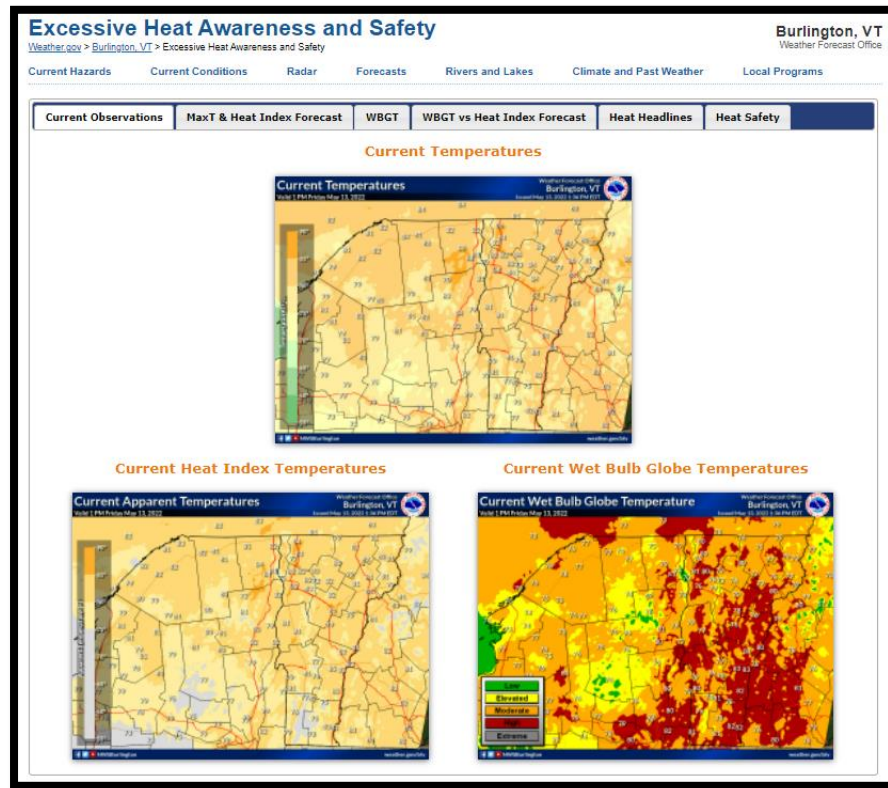
U.S. Department of Commerce

Burlington Weather Forecast Office





- **Heat Headlines**
- Current Observations
  - Ambient, Apparent (HI) and WBGT
- Max T and Heat Index Forecast
- WBGT (Wet Bulb Globe Temperature)
- WBGT vs. Heat Index Forecast
- Heat Safety





- Heat Headlines

- Any heat headlines will have a **RED** tab and appear as the first tab with more detailed heat headline information.

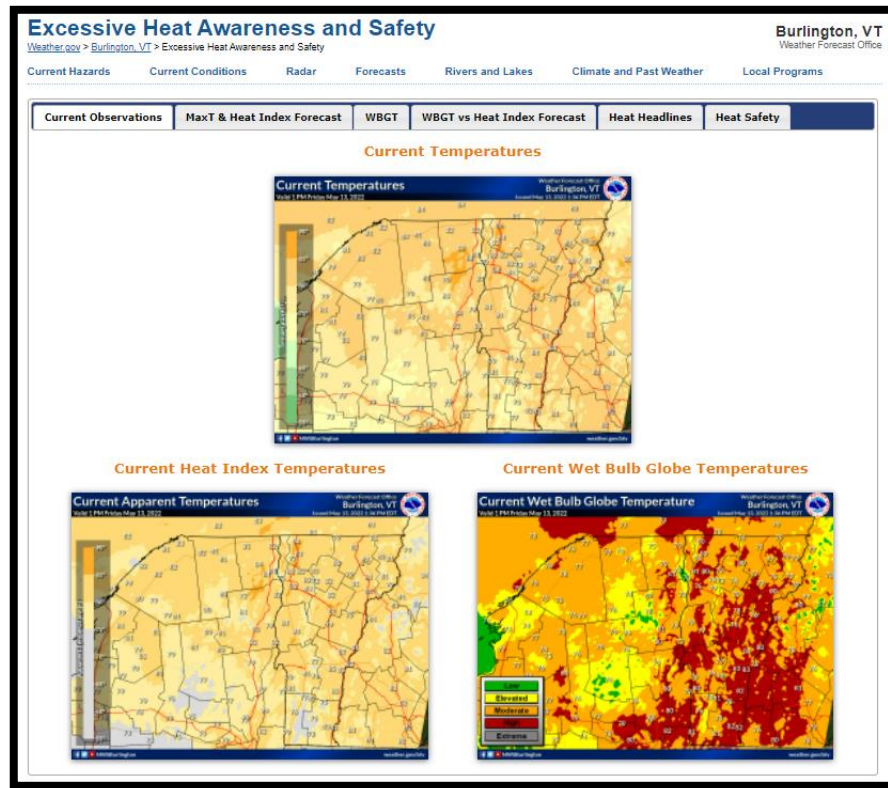
- NWS issues Heat Headlines using the Heat Index

- Heat Index is the combination of the ambient (air) temperature and the humidity.
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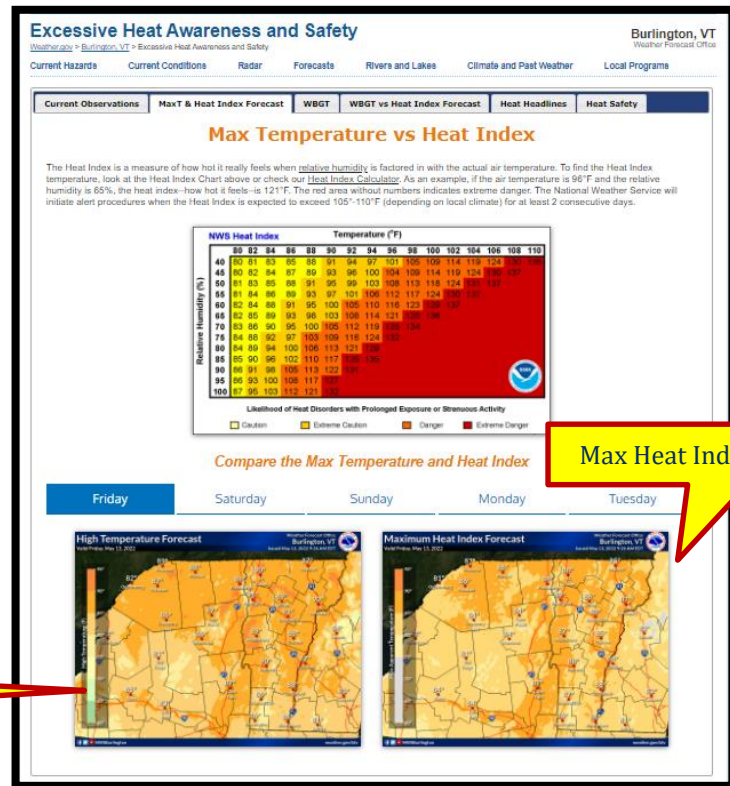
- **Current Observations**
  - Ambient, Apparent (HI) and WBGT





## Max T & Heat Index Forecast

- Max T and Heat Index Forecast
  - Daily forecast for Days 1-5







## WBGT

### WBGT (Wet Bulb Globe Temperature)

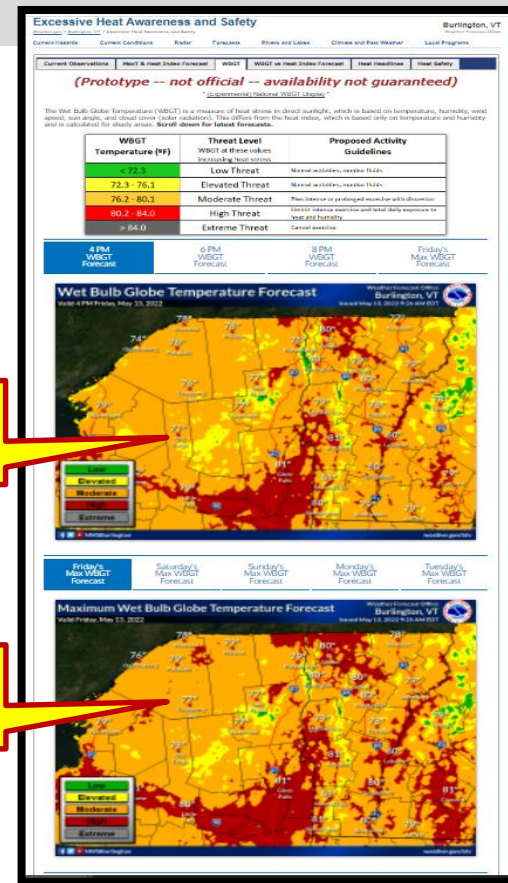
- The WetBulb Globe Temperature (WBGT) is a measure of the heat stress in direct sunlight, which takes into account: temperature, humidity, wind speed, sun angle and cloud cover (solar radiation).
- If you work or exercise in direct sunlight, this is a good element to monitor.
- Military agencies, OSHA and many nations use the WBGT as a guide to managing workload in direct sunlight.
- Day 1 WBGT Forecast 10 am to 8 pm (every 2 hours)
- Max WBGT for Days 1-5

#### Resources

- [General WBGT Information \(Wiki page\)](#)
- [American College of Sports Medicine \(ACSM\), \[position stand\]](#)
- [Korey Stringer Institute](#)
- [University of Georgia Research \[AMS conference presentation\]](#)
- [WBGT Research](#)
- [OSHA Heat Hazard Assessment and WBGT](#)
- [Department of the Army: Prevention of Heat and Cold Casualties](#)
- [Department of the Army: WBGT, Guidelines, Prevention](#)



WBGT Day 1 Forecast  
for (10 am to 8 pm)



Max WBGT Days 1-5



## WBGT vs. Heat Index Forecast

- WBGT vs. Heat Index Forecast
  - Days 1-5 Forecast comparing Heat Index and WBGT

### HOW DOES WBGT differ from HEAT INDEX

#### WET BULB GLOBE TEMPERATURE

The Wet Bulb Globe Temperature (WBGT) is a parameter that estimates the effect of temperature, relative humidity, wind, and solar radiation on humans.

#### HEAT INDEX

The traditional measure of what the temperature feels like to the human body when relative humidity is combined with the air temperature, also known as apparent temperature.

	WBGT	HEAT INDEX
Measured in the sun	●	●
Measured in the shade	●	●
Uses temperature	●	●
Uses relative humidity	●	●
Uses wind	●	●
Uses cloud cover	●	●
Uses sun angle	●	●

### Excessive Heat Awareness and Safety

[Weather.gov](#) > [Burlington, VT](#) > Excessive Heat Awareness and Safety

[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

[Current Observations](#) [MaxT & Heat Index Forecast](#) [WBGT](#) [WBGT vs Heat Index Forecast](#) [Heat Headlines](#) [Heat Safety](#)

## WBGT vs Heat Index

### What's the Difference?

#### HOW DOES WBGT differ from HEAT INDEX

**WET BULB GLOBE TEMPERATURE**  
The Wet Bulb Globe Temperature (WBGT) is a parameter that estimates the effect of temperature, relative humidity, wind, and solar radiation on humans.

**HEAT INDEX**  
The traditional measure of what the temperature feels like to the human body when relative humidity is combined with the air temperature, also known as apparent temperature.

	WBGT	HEAT INDEX
Measured in the sun	●	●
Measured in the shade	●	●
Uses temperature	●	●
Uses relative humidity	●	●
Uses wind	●	●
Uses cloud cover	●	●
Uses sun angle	●	●

### Compare the WBGT and Heat Index

[Friday](#) [Saturday](#) [Sunday](#) [Monday](#) [Tuesday](#)

#### Maximum Wet Bulb Globe Temperature Forecast

Burlington, VT  
Expires: May 11, 2023

#### Maximum Heat Index Forecast

Burlington, VT  
Expires: May 11, 2023

Max WBGT

Max HI

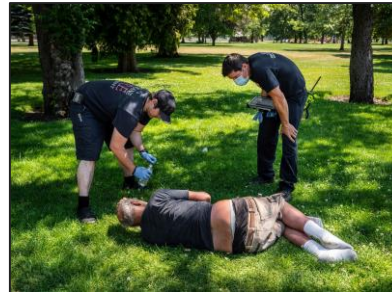


## Heat Safety

- Heat Safety
  - Quick Heat Safety Tips
  - Links to Various Heat Safety resources

### Resources

- [NWS Heat Safety Tips and Resources](#)
- [NWS Heat Safety Brochure](#)
- [NWS Heat Safety \(One Pager\)](#)
- [Vermont Department of Health Hot Weather and Health Impacts](#)
- [New York Department of Health - Extreme Heat Advice](#)
- [FEMA's Extreme Heat](#)
- [CDC Guide to Extreme Heat](#)
- [American Red Cross Heat Wave Safety](#)
- [Occupational Safety and Health Administration](#)
- [National Highway Traffic Safety Administration](#)



Excessive Heat Awareness and Safety

[Weather.gov](#)
[Burlington, VT](#)

[Current Hazards](#)
[Current Conditions](#)
[Radar](#)
[Forecast](#)
[History and Lakes](#)
[Climate and Past Weather](#)
[Local Programs](#)

[Current Observations](#)
[Forecast Maps](#)
[WBGT](#)
[WBGT vs Heat Index](#)
[Heat Headlines](#)
[Heat Safety](#)

Heat Safety

Heat Exhaustion

Heat Exhaustion

Symptoms: Heavy sweating, weakness or tiredness, cool, pale, clammy skin; fast, weak pulse; muscle cramps, dizziness, nausea or vomiting, headache, fainting.

First Aid: Call 911 or get the victim to a hospital immediately. Heat stroke is a severe medical emergency. Delay can be fatal. Move the victim to a cooler, preferably air-conditioned, environment. Loosen clothing. Apply cool, wet cloths or have person sit in a cool bath. Offer sips of water. If person vomits more than once, seek immediate medical attention if the person vomits, symptoms worsen or last longer than 1 hour.

Heat Stroke

Heat Stroke

Symptoms: Throbbing headache, confusion, nausea, dizziness, body temperature above 103°F, hot, red, dry or damp skin, rapid and strong pulse, fainting, loss of consciousness.

First Aid: Call 911 or get the victim to a hospital immediately. Heat stroke is a severe medical emergency. Delay can be fatal. Move the victim to a cooler, preferably air-conditioned, environment. Reduce body temperature with cool cloths or bath. Use fan if heat index temperatures are below the high 90s. A fan can make you hotter at higher temperatures. Do NOT give fluids.

Heat Impacts: Vulnerable Populations

Heat Impacts: Vulnerable Populations

Infants, Children, Elderly, Pregnant Women, Outdoor Workers, People with Chronic Conditions

During extremely hot and humid weather, your body's ability to cool itself is challenged. When the body heats too rapidly to cool itself properly, or when too much fluid or salt is lost through dehydration or sweating, body temperature rises and you or someone you care about may experience a heat-related illness. It is important to know the symptoms of excessive heat exposure and the appropriate responses. The Centers for Disease Control and Prevention (CDC) provides a list of warning signs and symptoms of heat illness, and recommended first aid steps. Some of these symptoms and steps are listed below.

**Heat Cramps**

Heat cramps may be the first sign of heat-related illness, and may lead to heat exhaustion or stroke.

- Symptoms:** Painful muscle cramps and spasms usually in legs and abdomen and Heavy sweating.
- First Aid:** Apply firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water unless the person complains of nausea, then stop giving water.

**Seek immediate medical attention if cramps last longer than 1 hour.**

**Heat Exhaustion**

- Symptoms:** Heavy sweating, Weakness or tiredness, cool, pale, clammy skin; fast, weak pulse, muscle cramps, dizziness, nausea or vomiting, headache, fainting.
- First Aid:** Move person to a cooler environment, preferably a well air conditioned room. Loosen clothing. Apply cool, wet cloths or have person sit in a cool bath. Offer sips of water. If person vomits more than once, seek immediate medical attention if the person vomits, symptoms worsen or last longer than 1 hour.

**Heat Stroke**

- Symptoms:** Throbbing headache, confusion, nausea, dizziness, body temperature above 103°F, hot, red, dry or damp skin, rapid and strong pulse, fainting, loss of consciousness.
- First Aid:** Call 911 or get the victim to a hospital immediately. Heat stroke is a severe medical emergency. Delay can be fatal. Move the victim to a cooler, preferably air-conditioned, environment. Reduce body temperature with cool cloths or bath. Use fan if heat index temperatures are below the high 90s. A fan can make you hotter at higher temperatures. Do NOT give fluids.

**Resources**

- [NWS Heat Safety Tips and Resources](#)
- [NWS Heat Safety Brochure](#)
- [NWS Heat Safety \(One Pager\)](#)
- [Vermont Department of Health Hot Weather and Health Impacts](#)
- [New York Department of Health - Extreme Heat Advice](#)
- [FEMA's Extreme Heat](#)
- [CDC Guide to Extreme Heat](#)
- [American Red Cross Heat Wave Safety](#)
- [Occupational Safety and Health Administration](#)
- [National Highway Traffic Safety Administration](#)



# Future

- According to VT Department of Health's Heat Vulnerability in Vermont report (May 2016)\*, working with the Vermont State Climate office.
- **Hot Day** ~ statewide average temperature  $\geq 87^{\circ}\text{F}$ 
  - Since 2000: **Observed** average is 7-9 days/per year
  - Mid-century: **Forecast** is 15 to 20 days/per year
  - End of century: **Forecast** is 20 to 34 days/per year



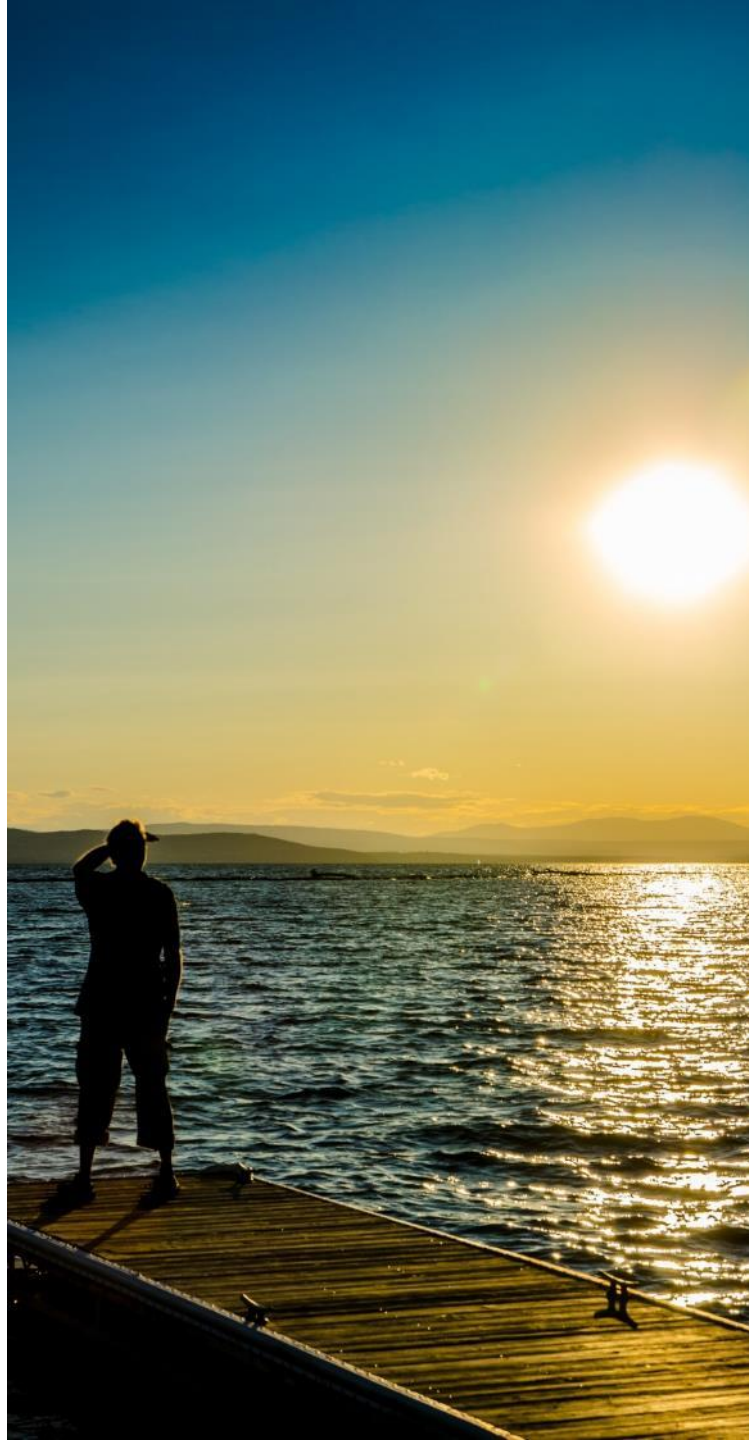
\*[https://www.healthvermont.gov/sites/default/files/documents/2016/12/ENV\\_EPHT\\_heat\\_vulnerability\\_in\\_VT\\_0.pdf](https://www.healthvermont.gov/sites/default/files/documents/2016/12/ENV_EPHT_heat_vulnerability_in_VT_0.pdf)





# Questions?

- NWS Burlington webpage – [www.weather.gov/btv](http://www.weather.gov/btv)
- NWS Burlington Heat Safety Webpage – [www.weather.gov/btv/heat](http://www.weather.gov/btv/heat)
- **If you need to reach a forecaster 24/7**, then please use the following contacts. 802-658-0150 or [nwsbtv.info@noaa.gov](mailto:nwsbtv.info@noaa.gov)
- Scott Whittier – [scott.whittier@noaa.gov](mailto:scott.whittier@noaa.gov)



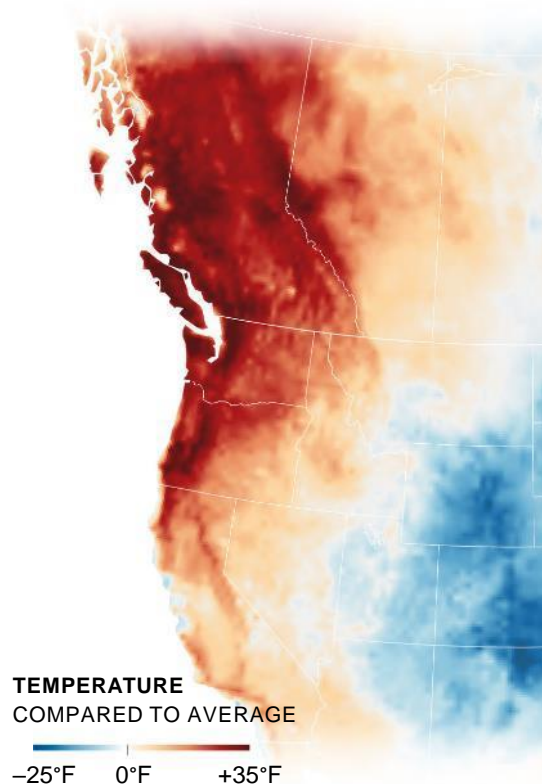
# **Preparing for Extreme Heat in Vermont**

**Jared Ulmer**

**Climate & Health Program Manager**

**May 31, 2023**

# 2021 “Heat Dome” in Northwestern USA & Western Canada



SOURCE: GODDARD EARTH OBSERVING  
SYSTEM MODEL, NASA, JUNE 27, 2021.

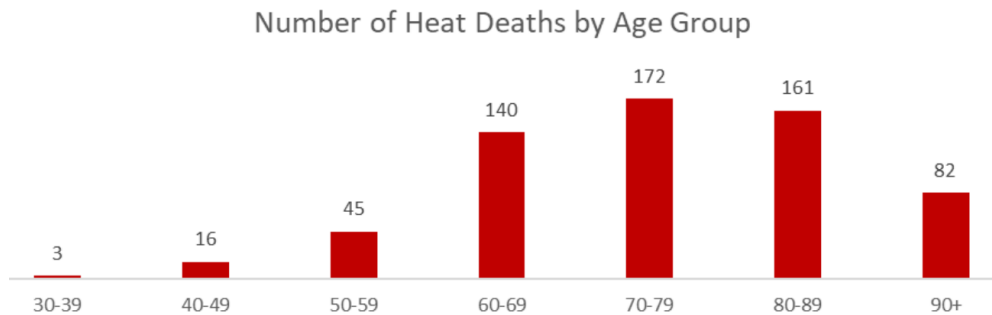
City	Average high (May-June)	Average low (May-June)	Record high (before Heat Dome)
Seattle, WA	65	48	103
Portland, OR	68	49	107
Victoria, BC	64	46	98
Burlington, VT	67	46	101

City	June 26, 2021	June 27, 2021	June 28, 2021
Seattle, WA	102	104	108
Portland, OR	108	112	116
Victoria, BC	96	99	103

# Well over 1,000 people died as a result of the Heat Dome event

	Excess deaths
Washington	450
Oregon	160
British Columbia	600
Vermont equivalent	45

Deaths in British Columbia:



**98%** of deaths occurred inside a residence  
**56%** of decedents lived alone  
**10%** had A/C in residence, **2%** had A/C on

# Lessons learned / recommendations

Planning	<ul style="list-style-type: none"><li>• Develop specific heat action plans</li></ul>
Communications	<ul style="list-style-type: none"><li>• Increase “push” notifications to phones</li><li>• Focus on highest risk groups</li></ul>
Cooling centers	<ul style="list-style-type: none"><li>• Expand coverage, arrange transportation</li><li>• Extend hours, provide overnight shelters</li><li>• Allow pets</li></ul>
Assistance for high-risk individuals	<ul style="list-style-type: none"><li>• Conduct wellness checks for high-risk people</li><li>• Provide home cooling assistance</li><li>• Provide resources for unhoused individuals</li></ul>

# Heat-related health risks in Vermont

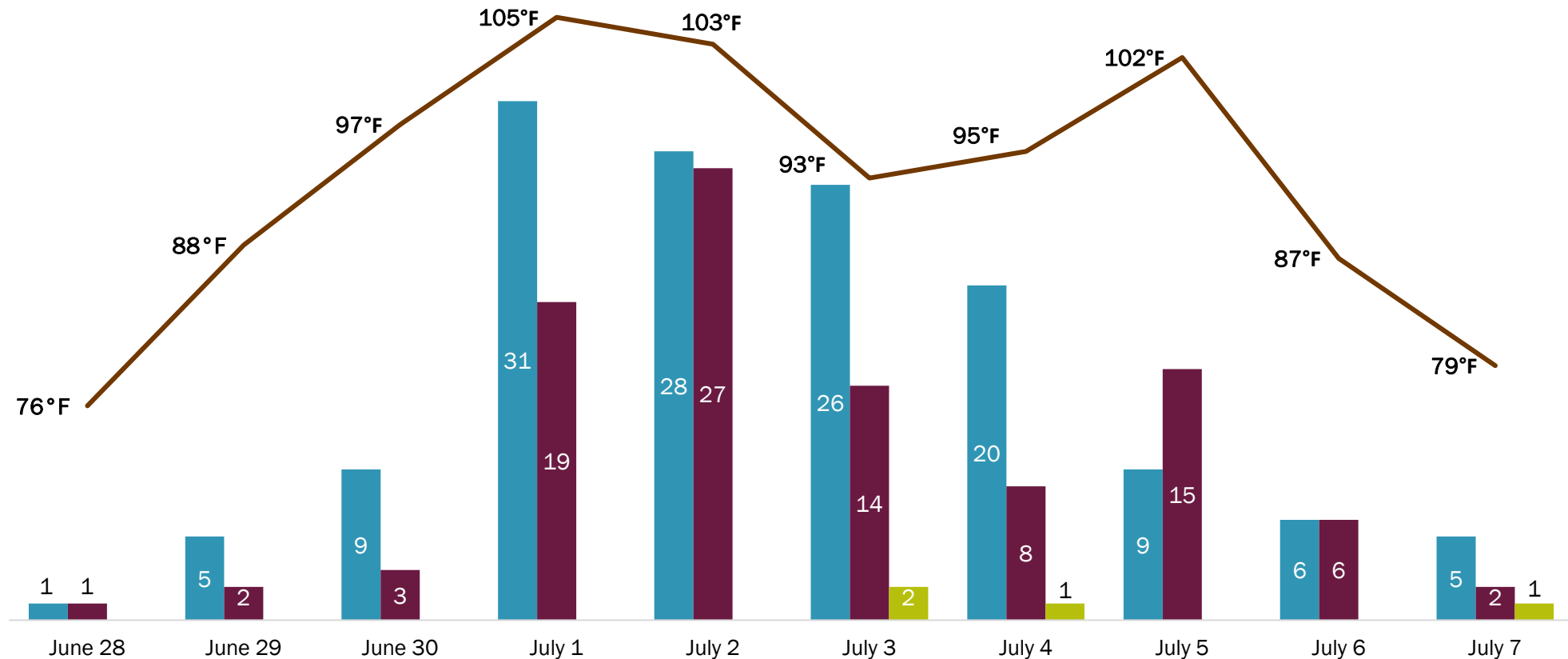
	May	June	July	August	September
<b>Average daily high heat index (°F), Burlington Airport</b>	68°	75°	83°	81°	72°
<b>Heat-related ED visits, statewide total, per month (2009-2019)</b>	14	19	47	17	7

Max heat index (°F), Burlington Airport	Days per year*	Heat-related ED visits, per day*	Heat-related deaths, total*	All ED visits, per day*	All deaths, per day*
<b>Less than 80°</b>	97	0.2	2	742	12.9
<b>80° - 89°</b>	46	1	2	778	13.3
<b>90° - 94°</b>	6	3	2	789	14.1
<b>95° or hotter</b>	3	7	6	795	14.2

\* Heat-related data are reported for May-September, 2009-2019. ED visits and deaths are statewide totals.

# June-July 2018 heat wave impacts

Heat-related **EMS calls** and **ED visits** increased with the **heat index** during the heat wave of July 2018. There were also four heat-related **deaths**.



# June-July 2018 heat wave impacts

LOCAL

## Vt. heat wave: Essex Junction woman died in home where temperature reached 115 degrees

Elizabeth Murray and Will DiGravio Burlington Free Press

Published 4:16 p.m. ET July 6, 2018 | Updated 5:32 p.m. ET July 10, 2018

[View Comments](#)



Vermont's death toll from last week's extreme heat wave has risen to four, state Department of Health Spokesman Ben Truman said Monday.

Among the deceased is Mary Myott, 79, of Essex Junction, who died in a home where the temperature had risen to 115 degrees.



# Some people are at especially high risk during hot weather

More exposure to hot conditions

- Outdoor workers and hobbyists
- Unhoused
- Urban residents

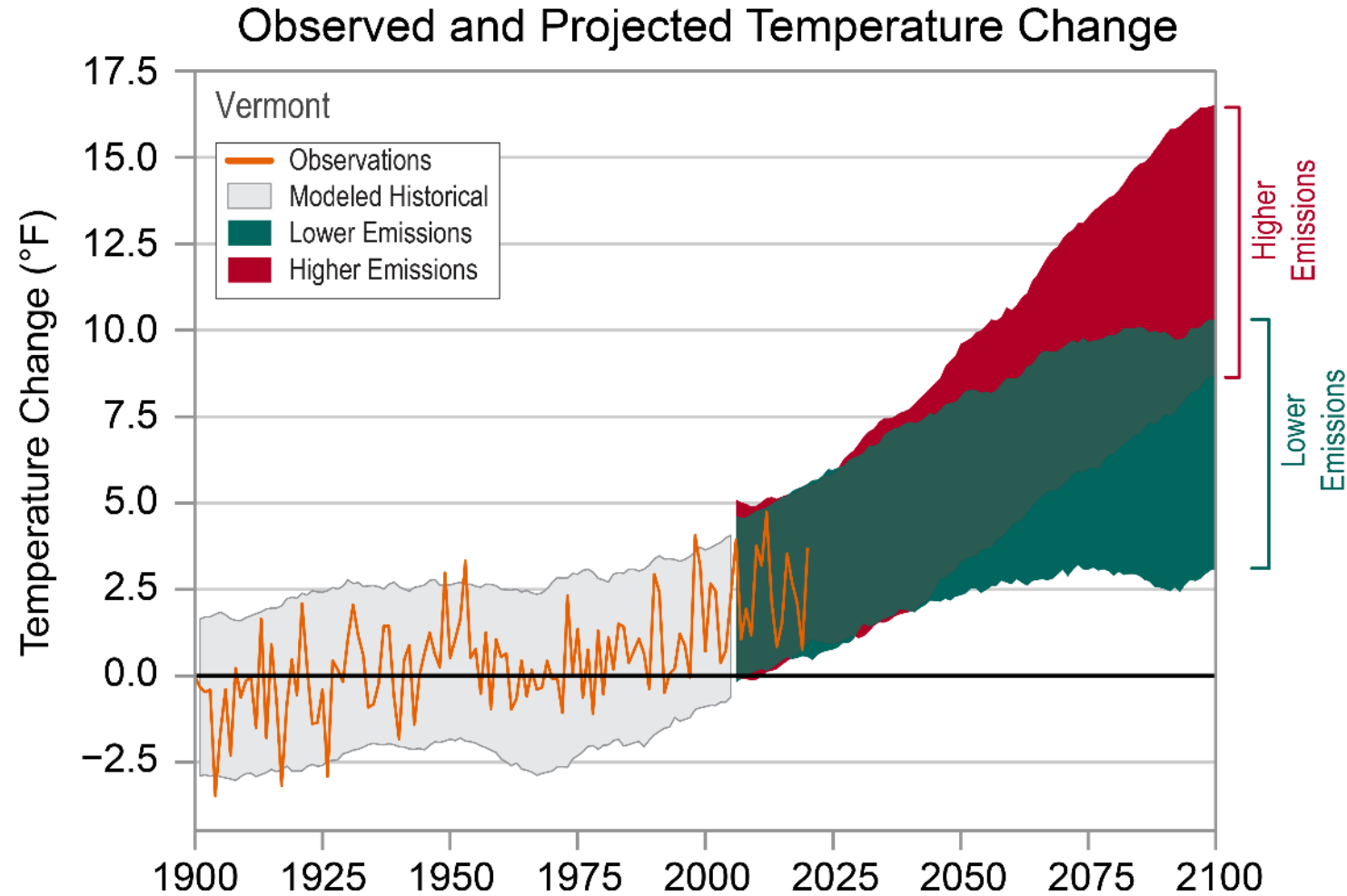
Particularly sensitive to heat exposure

- Anyone not acclimated to hot weather
- Older adults and young children
- Pregnant women
- Overweight or chronic medical condition
- Using drugs, alcohol, some prescription meds

Limited adaptation resources

- Live alone
- Unable to access community cooling sites
- Unable to keep their home cool

# The frequency and intensity of hot weather is increasing



# Preparedness Guidance: [www.healthvermont.gov/climate/heat#prepare](http://www.healthvermont.gov/climate/heat#prepare)



## Local Hot Weather Preparedness Guidance

June 2022

### Contents

Why should Vermont communities prepare for hot weather? .....	1
Hot weather and health impacts in Vermont.....	2
Who is at highest risk during hot weather? .....	3
Planning for hot weather events .....	4
Heat safety outreach; Hot weather info call lines .....	6
Community cooling sites .....	7
Identify and assist people needing extra assistance.....	8
Establish and encourage policies for modifying or canceling activities .....	9
Mobilize extra emergency personnel; Coordinate with utilities.....	10
Exercising the plan; Evaluation and plan improvement.....	11
Template for hot weather emergency response planning .....	12
Long-term hot weather adaptation & mitigation.....	18
Resources and examples.....	21

<https://www.healthvermont.gov/sites/default/files/documents/pdf/ENV-CH-hot-weather-planning-guidance.pdf>

# National Weather Service advisory/warning thresholds

Forecasted heat index (°F)	Hazardous weather risk category	Advisory or warning triggered
Less than 80°	Low Risk	None
80° - 89°	Limited Risk	None
90° - 94°	Elevated Risk	None
95° - 104°	Significant Risk	Heat Advisory
105° or hotter	Extreme Risk	Excessive Heat Warning

For more info: [weather.gov/btv/heat](https://www.weather.gov/btv/heat)

# Heat response strategies to consider

<b>Raise awareness</b>	<ul style="list-style-type: none"><li>• Alert the community about heat warnings, safety tips, resources.</li></ul>
<b>Activate cooling facilities</b>	<ul style="list-style-type: none"><li>• Open or extend hours at public buildings with air conditioning.</li><li>• Support access to cooling facilities, pools, beaches, etc.</li></ul>
<b>Mobilize support networks</b>	<ul style="list-style-type: none"><li>• Work with community partners and volunteers to conduct wellness checks and assist people at highest risk.</li></ul>
<b>Ensure safety for outdoor activities</b>	<ul style="list-style-type: none"><li>• Ensure access to water, shade, indoor cooling, and medical attention. Be prepared to modify or cancel activities.</li></ul>
<b>Mobilize emergency response personnel</b>	<ul style="list-style-type: none"><li>• Emergency medical personnel may be needed for event support, wellness checks, cooling center staffing, or surge capacity.</li></ul>
<b>Long-term adaptation</b>	<ul style="list-style-type: none"><li>• Address heat in the Local Hazard Mitigation Plan.</li><li>• Consider public building upgrades, tree planting, supporting residents and organizations to pursue adaptation strategies.</li></ul>

# Hot weather emergency planning template (example)

## Overall responsibility / incident manager

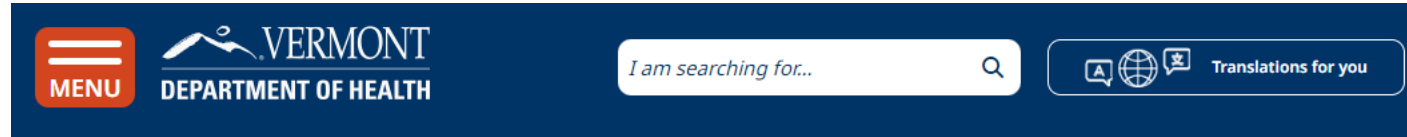
	Incident Manager	Deputy Incident Manager
Name	Sally	Matt
Title	Emergency Management Director	Emergency Management Coordinator
Primary contact info	802-123-4567	802-987-6543
Secondary contact info	<a href="mailto:emd@town.gov">emd@town.gov</a>	<a href="mailto:emc@town.gov">emc@town.gov</a>

## Overview of actions, triggers, and responsibilities

Action	Trigger*	Responsibility
Public outreach (seasonal awareness)	First forecasted heat index of 90°F+ each year	Deputy Incident Manager
Public outreach (advisory)	Heat Advisory	Deputy Incident Manager
Activate most cooling facilities	Heat Advisory	Incident Manager
Mobilize support networks	Heat Advisory	Deputy Incident Manager, Fire Chief, Senior Center Director
Consider activity modifications	Heat Advisory	Incident Manager
Coordinate with utilities	Heat Advisory	Deputy Incident Manager
Mobilize emergency personnel	Heat Warning	Deputy Incident Manager, Fire Chief
Activity modifications	Heat Warning	Incident Manager
Activate cooling shelter	Heat Warning for 2 or more consecutive days	Incident Manager

\*Triggers are meant to be advisory. Actions and triggers should be modified based on the expected or actual severity of each hot weather event.

# Heat Safety Info: [www.healthvermont.gov/climate/heat](http://www.healthvermont.gov/climate/heat)



Home / Health & The Environment / Climate & Health / **Hot Weather**

## Heat Can Cause Serious Illness

Heat illnesses can be deadly. On very hot days, sometimes your body temperature control systems can't keep up and your body temperature can get dangerously high. This makes you at greater risk for serious heat illnesses, including heat exhaustion and heat stroke. Heat stroke is a life-threatening emergency. **Dial 9-1-1 or get immediate medical help if you are concerned about your health or someone else's health when it's hot outside.**

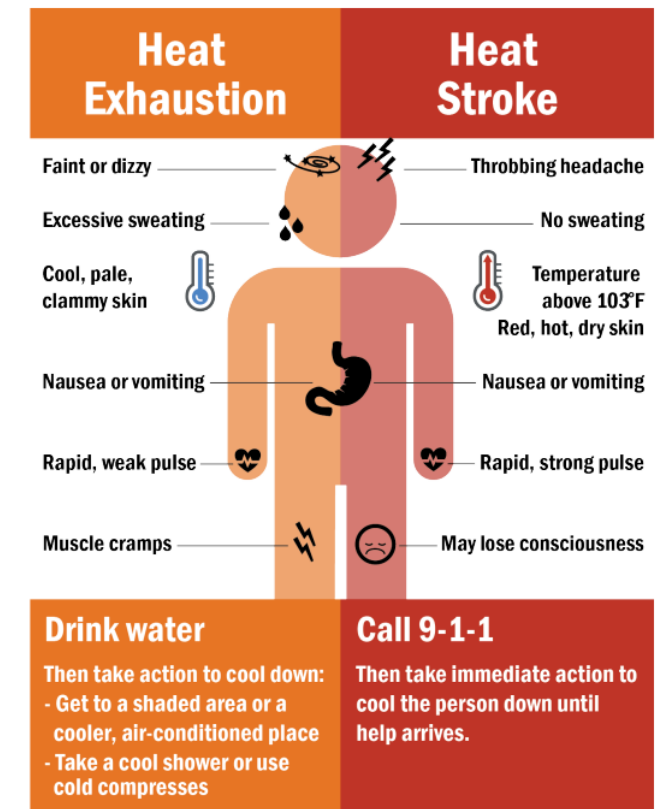
Know the **signs and symptoms of heat illnesses** →

Find tips on **how to stay safe when it's hot outside** →



**Translated information in:** [العربية \(Arabic\)](#) | [စာဖြင့်ဟ \(Burmese\)](#) | [中文 \(Chinese - simplified\)](#) | [Français \(French\)](#) | [ကဵုနီု \(Karen\)](#) | [Kirundi](#) | [नेपाली \(Nepali\)](#) | [Soomali \(Somali\)](#) | [Español \(Spanish\)](#) | [Kiswahili \(Swahili\)](#) | [Tiếng Việt \(Vietnamese\)](#)

## Know the Signs and Symptoms of Heat Illnesses



Adapted from the National Weather Service

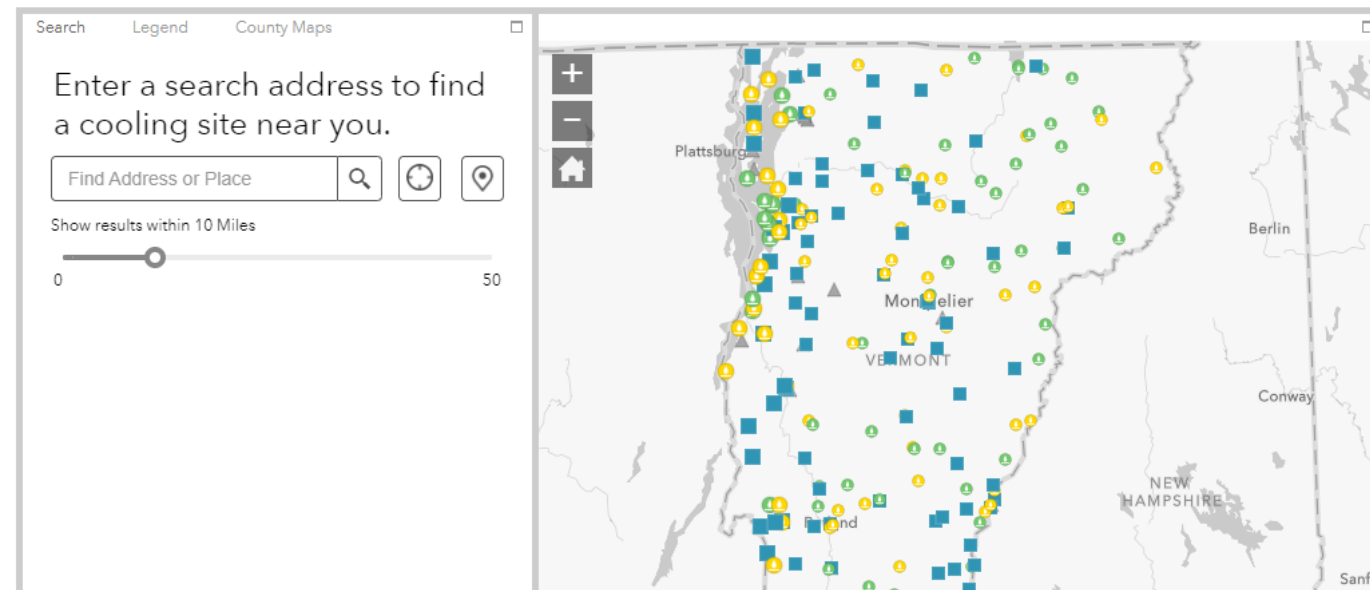
# Cooling sites map: [www.healthvermont.gov/climate/heat](http://www.healthvermont.gov/climate/heat)

## Find Somewhere to Cool off This Summer

Use the map below to find somewhere to take a break in air conditioning or splash in cool water. Please call the site before you go to confirm it is open and if there are entry fees. If you're going to a lake or pond, be sure to [look for cyanobacteria blooms](#) before going in the water. If you need more help finding or getting to a cooling site, please call 2-1-1. Swimming holes are typically not displayed on this map, but they may provide a safe option when following these [safety tips](#).

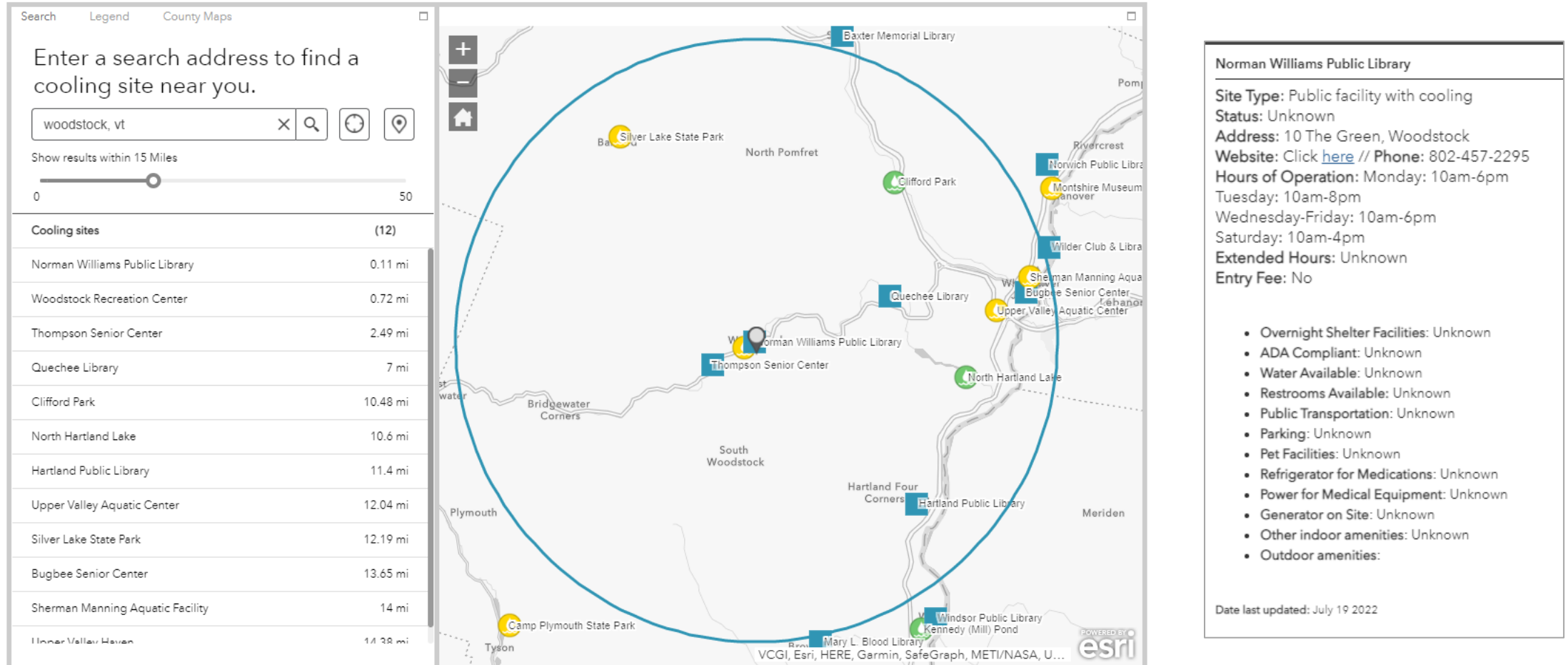
**Are you aware of cooling sites that are not on the map?** Please let us know [→](#)

**We'd like to hear from you!** Let us know if this map is helpful or if you'd like to share your impressions about cooling sites. [Give us your feedback](#) [→](#)





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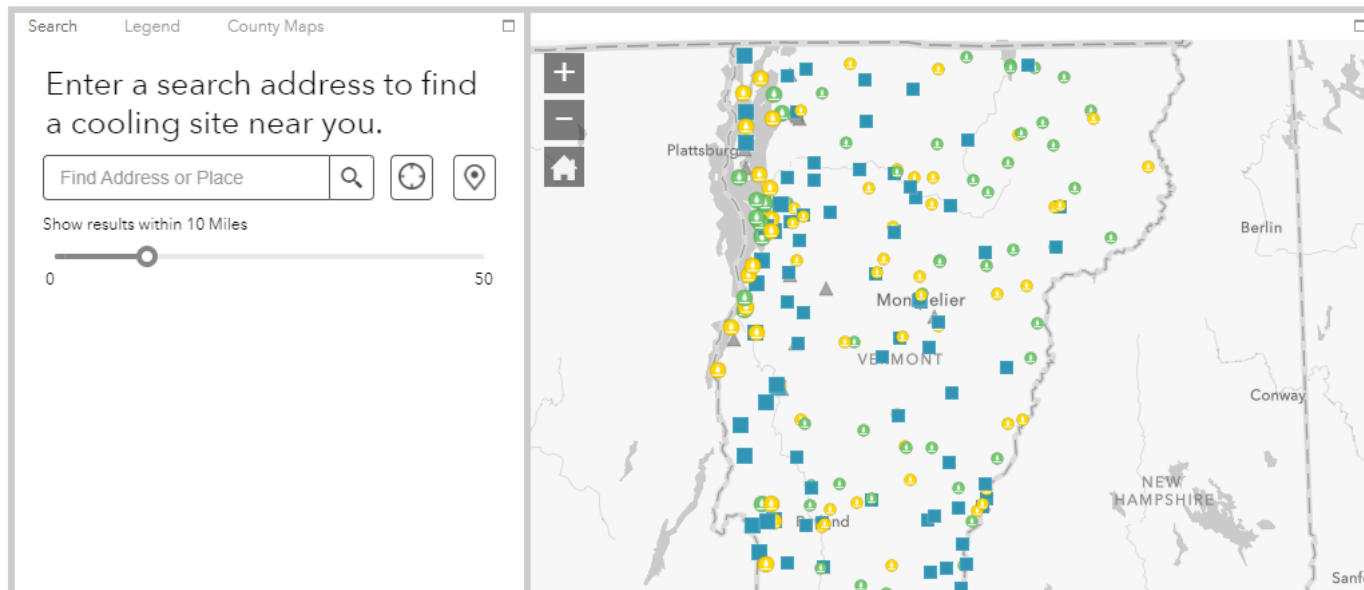
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Are you aware of cooling sites that are not on the map? Please let us know →

We'd like to hear from you! Let us know if this map is helpful or if you'd like to share your impressions about cooling sites. Give us your feedback →



\* Required

### Basic cooling site info

Please only submit information for a single cooling site in this form. If there are multiple sites in your community, please submit additional forms for each site.

1. Cooling site name \*

For example, Green Mountain Free Library or Sugar Maple State Park

Enter your answer

2. What type of cooling could be made available to the public at this location? \*

☒ Indoor access to air conditioned or naturally cool space (like a basement)

☐ Outdoor site with swim/splash water access, shade, and/or drinking water

☐ Misting tent or other mobile cooling unit

☐ Other

3. What type of building is this? \*

☐ Library

☒ Town/city hall

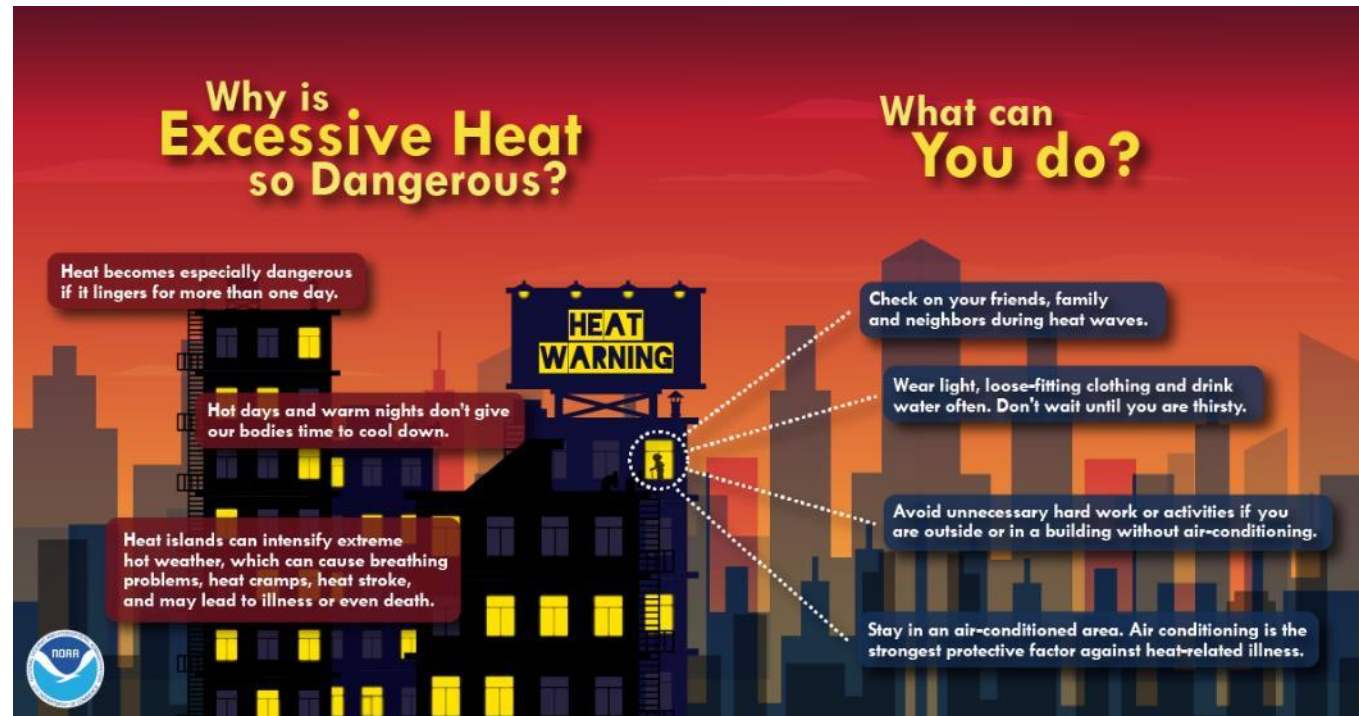
☐ Senior center

☐ Community/recreation center

☐ School

☐ Other

# Outreach toolkit: [www.healthvermont.gov/climate/heat#prepare](http://www.healthvermont.gov/climate/heat#prepare)



[www.healthvermont.gov/file/env-ch-hot-weather-media-toolkitdocx](http://www.healthvermont.gov/file/env-ch-hot-weather-media-toolkitdocx)



# **Thank you!**

## **Let's stay in touch.**

**Email:** [ClimateHealth@vermont.gov](mailto:ClimateHealth@vermont.gov)

**Web:** [www.healthvermont.gov](http://www.healthvermont.gov)

**Social:** [@healthvermont](https://twitter.com/healthvermont)