



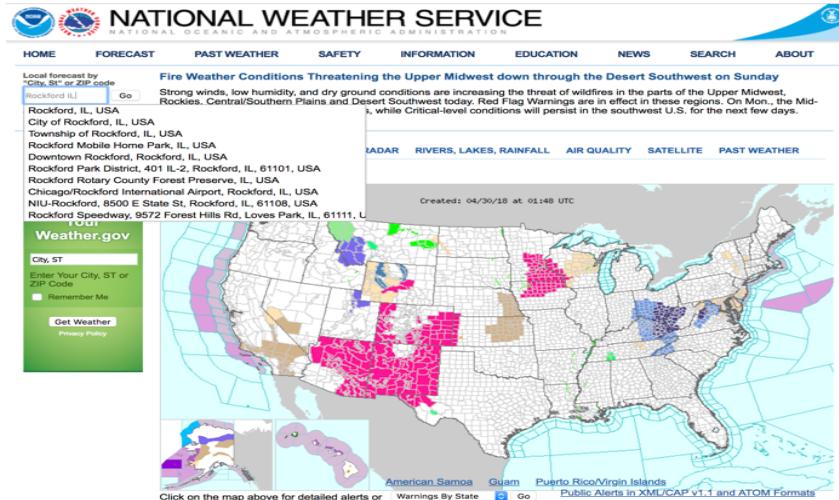
Troopers 2022 Weather Guidebook

The Troopers implement the attached Weather Guidebook via their Health and Wellness Caption. Two professional meteorologists provide support to Troopers' leadership throughout the DCI rehearsal and tour seasons. An example of the daily weather outlook product provided by our Health and Wellness meteorologists is attached at the end of this Guidebook. Our meteorologists also communicate via text messaging with Troopers leadership during imminent weather threats such as heat, lightning, wind and rain.

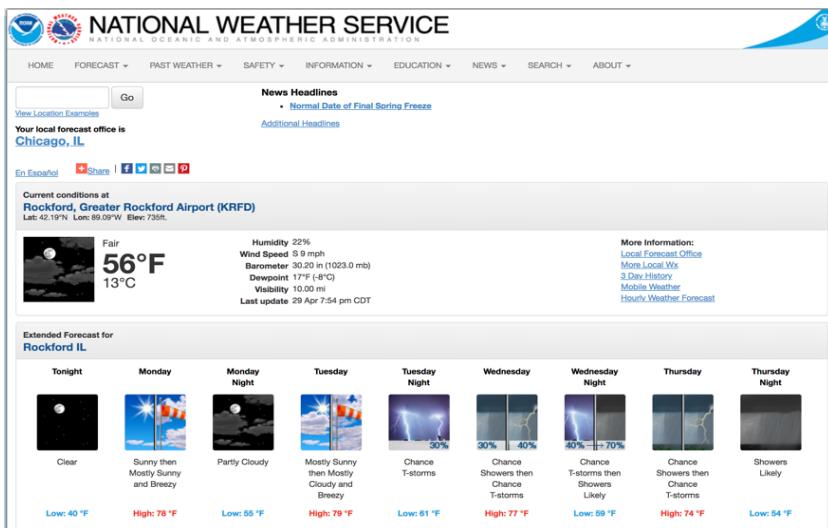
Proactive Weather Awareness

Assign a staff member with a smartphone or laptop computer to access weather.gov during the

- 1) planning of each day's activities.
- 2) Once at weather.gov, type in the location of concern (rehearsal/performance venue) into the search field in the upper left-hand portion of the page.



- 3) Search results will return a graphical depiction of the official weather forecast from the National Weather Service for the selected location.



- 4) Evaluate the NWS forecast page for threats such as heat, cold, rain, wind, lightning, etc. In the case above, the lightning risk increases Tuesday night through Thursday.

Application: Awareness of the possibility of upcoming weather threats can help in scheduling of activities. For example, in this instance you would prepare in advance to find adequate space for refuge from lightning and make a determination of how long it takes to get everyone off the field and into shelter. You would also be able to proactively plan to have real-time lightning monitoring available.

Proactive Awareness - Lightning Threat

Lightning is a deadly hazard and can strike even if rain is not falling.

It is imperative that all staff are aware of a lightning threat, as well as know appropriate locations for safe refuge.

Staff should be aware of how long it takes to end an activity, secure equipment and props, and have everyone reach safe refuge.

Safe refuge is a sturdy, fully enclosed building. A tour bus and vehicles are also safe, and buses can be parked adjacent to rehearsal space in advance if lightning is anticipated. (Examples of locations that DO NOT meet safe refuge criteria include food or souvenir trailers, under metal bleachers, ball field dugouts/batting cages, covered bench areas, storage sheds, or under a canopy, tent or awning.)



Lightning Monitoring/Detection

Designate a staff person to monitor lightning when thunderstorms are forecast. This person will have the authority to end outdoor activities immediately and move everyone to shelter without delay.

Smart phone apps (use more than one to ensure redundancy) can be utilized to monitor lightning. (WeatherBug Elite, My Lightning Tracker Pro, RadarScope Pro, etc.)

If you are not monitoring lightning data, head indoors at the first flash of lightning or clap of thunder, no matter how far away. Lightning can be seen at great distances at night, therefore use of lightning location data will allow for more accurate decision making.

Safe Lightning Distance

Plan for everyone to be INSIDE safe refuge by the time lightning reaches 8 miles from your location. There may be times when first lightning strike occurs within 8 miles. In these instances, everyone should move as quickly as possible to the designated safe refuge space.

Remain in safe refuge until lightning is beyond 8 miles, is moving away from your location, and no additional lightning is moving towards you. Allow 30 minutes to elapse with no lightning within 8 miles before resuming outdoor activities.



Proactive Awareness - Heat Threat

Heat Illness is the leading cause of death due to weather.

Heat-related illness (hyperthermia) is a condition resulting from exposure to extreme heat where the body becomes unable to properly cool, resulting in a rapid rise in body temperature. The evaporation of sweat is the normal way to remove body heat, but if the humidity is high, sweat does not evaporate as quickly. Therefore, your body is unable to cool itself. Prompt treatment of heat-related illnesses with aggressive fluid replacement and cooling of core body temperature is critical to preventing death.

The majority of U.S. heat deaths occur during the time period coinciding with the DCI Tour.



Monitoring for Heat

Designate a staff person to monitor heat when warm/hot and humid conditions are forecast. This person will have the authority to activate hydration protocols, activity modification and implementation of mandatory rest periods during afternoon rehearsals. Wet Bulb Globe Temperature (WBGT) is the preferred metric for heat safety and should be measured using an appropriate WBGT device.

Mitigating Heat Illness – Hydration Protocols and Mandatory Rest Periods

The chart below provides guidelines for managing rehearsal schedules, hydration protocols, and mandatory shaded rest periods for mitigating heat during DCI activities.

Wet Bulb Globe Temperature * This is not the same as air temperature		EASY - standstill		MODERATE - basics, dance, + instruments		HARD - music + drill, run-throughs	
		Water quarts/hr	Rest* min/hr	Water quarts/hr	Rest* min/hr	Water quarts/hr	Rest* min/hr
< 82°F	CLEAR	½	6	¾	6	¾	9
82-84.9°F	GREEN	½	6	¾	9	1	12
85-87.9°F	YELLOW	¾	9	¾	12	1	16
88-89.9°F	RED	¾	12	¾	16	1	20
90-92+°F	BLACK Limit outside activity	1	16	1	20	1+	24

*rest includes, but not limited to: opportunity to hydrate, out of direct sunlight, sit down, allow chance for heart rate and body temperature to return to baseline

(WBGT Chart Adapted from OSHA, US Armed Services, Georgia High School Athletic Association, National Athletic Trainers Association, and provided by Oregon Crusaders Drum and Bugle Corps)

Recognizing the Heat Threat

Mitigating Heat Illness – Additional Safety Suggestions

Make sure rehearsal schedules are structured to allow for gradual acclimation to the summer heat. For scheduled rest periods, make use of available shaded spaces, including grassy areas with trees, underneath grandstands, and portable tents (with appropriate safe anchoring/ballasting against strong winds).

Closely monitor performers rehearsing on asphalt, concrete or artificial field turf surfaces, as these surfaces can be 30F warmer than adjacent grassy surfaces. Artificial field turf surfaces and concrete should be avoided during the middle of the afternoon as these surfaces can become hot enough to burn exposed skin.



Make sure water is accessible to each performer during rehearsal. Avoid fluids containing either caffeine or alcohol as both substances can accelerate fluid loss and worsen heat exhaustion. All water breaks should be shaded to allow for adequate body temperature recovery in hot conditions.

The Centers for Disease Control and Prevention recommend that you wear lightweight, light-colored, loose-fitting clothing. Cotton is the worst material to wear in the summer heat. It soaks up sweat like a towel causing your body temperature to increase. Select moisture-wicking, quick-drying clothing. These fabrics are thin, lightweight and don't absorb sweat. Avoid dark colors as dark clothing absorbs the sun's heat.



A baseball cap or bandanna made of cotton increases your risk of heat exhaustion. Look for head bands and hats made of polyester or microfiber that wick away moisture. Hats should have added ventilation to allow heat to escape and sweat to evaporate. Wide-brimmed hats are preferred as they shield your head and neck from direct sunlight.

Besides preventing sunburn and skin cancer, sunscreen (at least SPF30) helps reflect UV rays and can slow body temperature rise in direct sunlight.

Heat Illness Symptoms

Staff should be aware of the signs and symptoms of dehydration. These include dry mouth, headache, head or neck heat sensation, general discomfort, dizziness, disorientation, nausea, thirst, apathy, chills, irritability, weakness, vomiting, excessive fatigue and/or decreased performance, profuse sweating, or no sweating at all, muscle cramps or loss of muscle function/collapse. If any of these signs or symptoms are observed notify a medical professional immediately. Early detection of dehydration decreases the occurrence and severity of heat illness.

Heat Illness Response

If you suspect heat illness, call 9-1-1. The longer the body is at an elevated temperature, the more life threatening the situation becomes. Cool first, transport second. While awaiting medics, initiate cooling measures by moving the patient to a shaded or air-conditioned area. If available, put the victim in a tub or portable kiddie pool with cold/ice water; place in cold shower; douse with cool water from a hose, use fans or cool towels. Lay individual with legs raised above level of heart. You may administer sips of cool/cold fluids to drink if patient is not vomiting. Continue cooling treatment until paramedics arrive or member begins to shiver (15-20 minutes).

Proactive Awareness - Wind Threat

Monitoring for winds, especially gusty winds is key for protecting guard members and for safe use of props. Determine a wind threshold for all props, flags, rifles, etc. If guard members or props are difficult to manage in the existing wind conditions, discontinue the use of props until conditions improve. The WBGT device used for heat mitigation also measures wind speed.



Proactive Awareness - Rain Threat

Monitoring for rain, especially heavy rain is key for protecting expensive electronic equipment.

Rain can also be a deadly threat or result in significant delays during vehicular transportation while on tour. Make sure that you are aware of the weather conditions for your location, your next location, as well as along the travel route between the two. Smartphone map



applications such as Waze can help identify delays due to weather hazards along your transportation route. Never drive through flooded roadways or attempt to maintain typical highway speeds in limited visibility resulting from rain or fog.



Rehearsing in rain, especially for extended periods after sunset can result in dramatic lowering of body temperature resulting in hypothermia. If you are rehearsing in rain, make sure that all performers and staff have immediate access to dry towels and dry clothing, and monitor all performers for symptoms of hypothermia (i.e. shivering, exhaustion or feeling very tired, confusion, lack of coordination, memory loss, slurred speech drowsiness).

Quick Weather 101 – The Checklist

1. Set a minimum safe radius appropriate to the current research regarding the weather hazard (wind/tornado/rain/lightning/etc.) behavior. (Ask a Meteorologist!)
2. Be flexible enough to increase the minimum safe radius against factors such as location and distance to available shelter, the speed of the storm, etc. (Don't just use 8 miles for the sake of 8 miles if storm is moving in at 50 mph.)
3. Identify vulnerable spaces where significant hazards might be enhanced for patrons/staff/performers. (souvenir and food trailers, props, "field turf," etc.)
4. Identify safe structures for refuge against weather hazards of all types (these could include autos/buses/etc. and substantial buildings/basements depending upon hazard).
5. Designate a weather officer or someone on the training staff to monitor weather conditions, preferably in conjunction with a professional meteorologist. Make sure this person has access to important weather information (warnings, lightning, WBGT, etc.)
6. Craft pre-authored messages and communications protocols for notification of weather risk, and evacuation plans (scripts, graphics, maps, etc.).
7. Designate a member of the corps leadership with the responsibility for postponing/rescheduling/canceling an event/rehearsal due to weather.
8. Provide weather safety and first aid training for all staff and performers.

Example - Troopers Weather Support Daily Guidance



Troopers Drum & Bugle Corps Health and Wellness Caption Weather Risk Assessment

ISSUED: Tuesday, August 10, 2021

VALID: Wednesday, August 11, 2021

VENUE: Lebanon, IN

WEDNESDAY MORNING (9am – 1pm):

Very humid with temperatures rising to near 81F by noon with gusty winds 20-25mph. There will be a chance of scattered rain showers with isolated lightning strikes through mid-day.

LIGHTNING	HUMID/HEAT	RAIN	WIND

WEDNESDAY AFTERNOON (2pm – 5:30pm):

Hot and oppressive with an afternoon temperature of 90F. Winds remaining quite gusty to near 20mph.

LIGHTNING	HUMID/HEAT	RAIN	WIND
Green	Red	Green	Yellow

WEDNESDAY EVENING (7pm – 9:30pm):

Still very warm with temperatures dropping to the lower 80s and winds still gusty.

LIGHTNING	HUMID/HEAT	RAIN	WIND
Green	Yellow	Green	Yellow

WEATHER SAFETY CONCERNS: Scattered rain showers and lightning storms will be possible in Kokomo early on Wednesday. A breeze will help mitigate the heat just a bit during the afternoon, but it will still be really oppressive.

LOOK AHEAD: Weather will continue to be unsettled across the area on through Friday with daily heat and humidity accompanied by scattered rain showers and lightning storms.