



MINNESOTA STATE HIGH SCHOOL LEAGUE

Board Policy for Weather Conditions and Competition or Practice

PART 1 – COMPETITION AND PRACTICE GUIDELINES FOR LIGHTNING/THREATENING WEATHER

Prior to the start of a contest, the host school is responsible for determining whether or not the conditions present a threat to the safety of participants and spectators and will determine whether or not the contest will begin. Once the contest begins, the officials have the authority to postpone or suspend a contest due to unsafe weather conditions -- that decision may not be overruled. School officials also still have this authority. **On-site medical professionals should also be consulted and included in the decision-making process.** The Superintendent or his/her designee may overrule an official and suspend or postpone a contest once it has begun. In other words, once a contest has begun either the officials or school authorities may postpone or suspend a contest and cannot be overruled by the other party. When in doubt, err on the side of safety.

Thunder means there is immediate danger to athletes, officials, and spectators. The adage — "If you can hear it, clear it" — should be used to make decisions to postpone or cancel the activity. Lightning can strike 10 miles ahead of or behind the storm front and thunderhead clouds. While lightning on the horizon should warn of potential danger, under certain atmospheric conditions, especially at lightning flashes may be seen from distant storms. In these cases, it may be safe to continue an event. If no thunder can be heard and the flashes are low on the horizon, the storm may not pose a threat. Independently verified lightning detection information that is available on many weather apps should help eliminate any uncertainty. When lightning-detection devices or mobile phone apps are available, this technology can be used in making a decision to suspend play if a lightning strike is noted to be within 10 miles of the event location. However, you should never depend on the reliability of these devices and hearing thunder or seeing lightning should always take precedence over information from a mobile app or lightning-detection device. Always err to the side of caution.

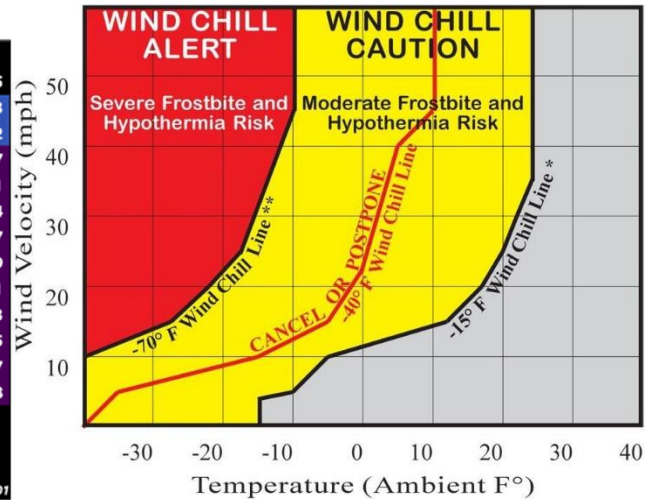
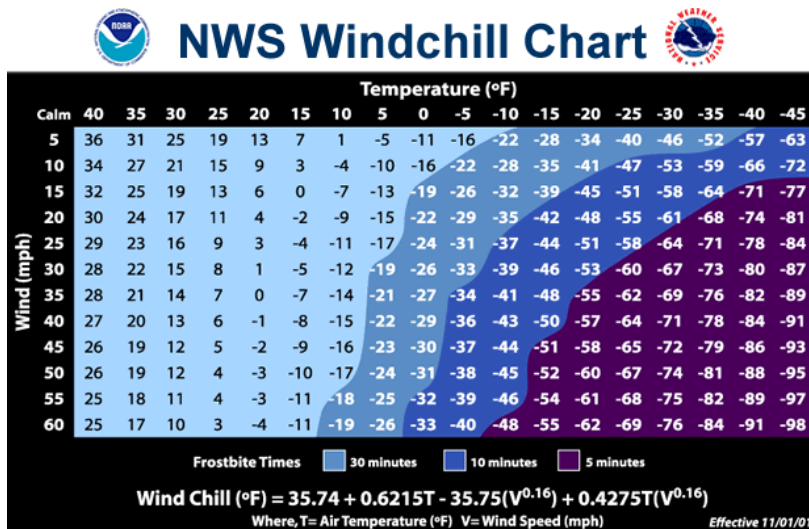
The MSHSL recommends that everyone should wait at least 30 minutes after the last flash of lightning or sound of thunder before returning to the field or activity.

Additional lightning-safety information:

1. The existence of blue sky and the absence of rain are not protection from lightning. Lightning can, and does, strike as far as 10 miles away from the rain shaft. It does not have to be raining for lightning to strike.
2. If no safe structure or location is within a reasonable distance, find a thick grove of small trees surrounded by taller trees or a dry ditch. Assume a crouched position on the ground with only the balls of the feet touching the ground, wrap your arms around your knees and lower your head. Minimize contact with the ground because lightning current often enters a victim through the ground rather than by a direct overhead strike. **MINIMIZE YOUR BODY'S SURFACE AREA AND MINIMIZE CONTACT WITH THE GROUND! DO NOT LIE FLAT!** If unable to reach safe shelter, stay away from the tallest trees or objects (such as light poles or flag poles), metal objects (such as fences or bleachers), individual trees, standing pools of water, and open fields. Avoid being the highest object in a field. Do not take shelter under a single, tall tree.
3. A person who feels his or her hair stand on end or skin tingle should immediately crouch, as described in item 2.
4. Avoid using the telephone except in emergency situations. People have been struck by lightning while using a land- line telephone. A cellular phone or a portable remote phone is a safe alternative to land-line phones if the person and the antenna are located within a safe structure or location and if all other precautions are followed.

- People who have been struck by lightning do not carry an electrical charge. Therefore, cardiopulmonary resuscitation (CPR) is safe for the responder. If possible, an injured person should be moved to a safer location before starting CPR. Lightning-strike victims who show signs of cardiac or respiratory arrest need emergency help quickly. Prompt, aggressive CPR has been highly effective for the survival of victims of lightning strikes.

PART 2 – COMPETITION AND PRACTICE GUIDELINES FOR COLD



CANCEL OR POSTPONE:

- Competition >1 minute duration at -4°F
- All Activity at -20°F for or at -40° Wind Chill

NOTES

- 15°F or greater Wind Chill – Exposed flesh can freeze in 1 minute
- 70°F or greater Wind Chill – Exposed flesh can freeze in less than 30 seconds

CURRENT STANDARD FOR ALPINE SKIING

- >-4 °F Ambient Temperature – Check for frostbite on exposed skin.
- 4 °F to -10 °F Ambient Temperature – Severe frostbite and hypothermia risk. No metal jewelry. Eye protection for frostbite. Windscreen for genitalia. Modify pre race protocol to limit athletes’ cold exposure to <30 minutes in duration total time.
- < -10 °F Ambient Temperature or -40 °F wind chill – Lower limit for practice and training. Extreme frostbite and hypothermia risk. No exposed skin. Attempt to reschedule event. If competition cannot be rescheduled, a no strip rule will be enforced with all competitors wearing extra layers that include a wind shell for entire body. Modify pre race protocol to limit athletes’ cold exposure to <20 minutes in duration total time.
- < -40 degrees F wind chill – Postpone/cancel competition

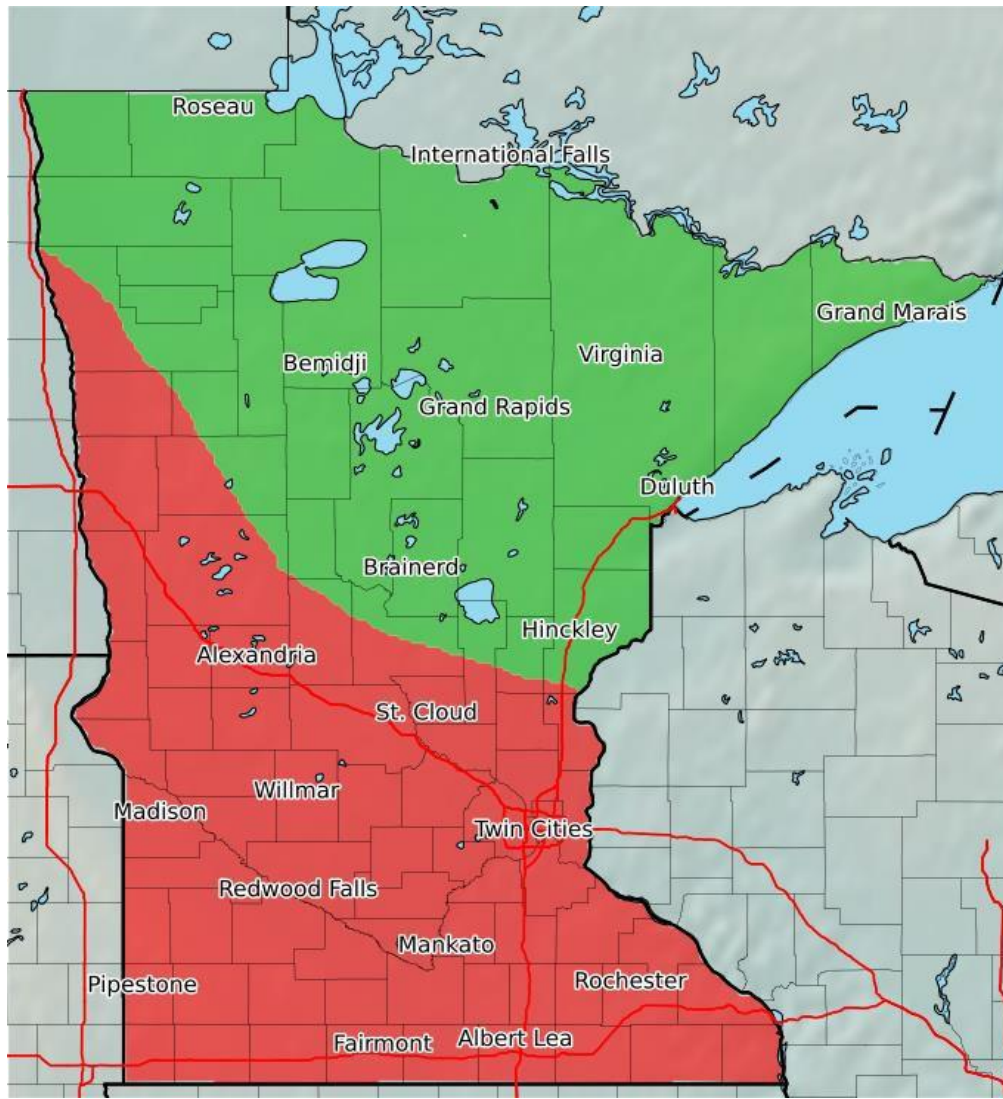
CURRENT STANDARD FOR NORDIC SKIING

- <-4 °F Ambient Temperature – FIS* - No competition limit. Severe frostbite and hypothermia risk. No metal jewelry. Eye protection for frostbite. Windscreen for genitalia.
- < -20 °F Ambient Temperature or < -40 °F wind chill – Lower limit for practice and training. Extreme frostbite and hypothermia risk. No exposed skin. Wear extra layers. Wind shell for entire body.

* FIS = Federation Internationale de Ski (Adapted from reference 2 and the FIS rules)

PART 3 – COMPETITION AND PRACTICE GUIDELINES FOR HEAT

North equals green and south equals red



Minnesota North and South Region Activity and Rest Break Guidelines

Normal Activities: Provide at least 3 separate rest breaks each hour with a minimum duration of 3 minutes each during the workout. Use discretion for intense or prolonged exercise; watch at-risk players carefully. Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each.

Maximum Practice time is 2 hours:

- **For Football:** players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts.
- **For All Sports:** Provide at least 4 separate rest breaks each hour with a minimum duration of 4 minutes each.

Maximum practice time is 1 hour:

- **For Football:** no protective equipment may be worn during practice, and there may be no conditioning activities.
- **For All Sports:** There must be 20 minutes of rest breaks distributed throughout the hour of practice. No outdoor workouts. Delay practice until a cooler WBGT level is reached.

Activity Modification Chart

WBGT** Range (°F)	Practice Recommendation	All Sports Changes	Additional Football Changes
South less than 77.1 North Less than 73.5	Normal Activities	Provide at least 3 separate rest breaks each hour with a minimum duration of 3 minutes each during the workout.	
South 77.1 - 82 North 73.5 – 78.4	Caution for intense or prolonged exercise	Watch at-risk players carefully. Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each.	
South 82.1 - 85 North 78.5 – 81.4	Maximum practice time is 2 hours	Provide at least 4 separate rest breaks each hour with a minimum duration of 4 minutes each.	Players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts.
South 85.1 – 87.1 North 81.5 – 83.5	Maximum practice time is 1 hour	20 minutes of rest breaks distributed throughout the hour of practice.	No protective equipment may be worn during practice, and there may be no conditioning activities.
South Greater than 87.1 North Greater than 83.5	No outdoor workouts or non-air conditioned indoor workouts	Delay practice until a cooler WBGT level is reached.	

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity

		Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																														
		Temperature in Degrees Fahrenheit																														
Relative Humidity (%)		68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2	104.0	105.8	107.6	109.4	111.2	113.0	114.8	116.6	118.4	120.2	122.0
0	59.0	60.8	60.8	62.6	64.4	64.4	66.2	66.2	68.0	68.0	69.8	71.6	71.6	73.4	73.4	75.2	75.2	77.0	77.0	78.8	80.6	80.6	82.4	82.4	84.2	84.2	86.0	87.8	87.8	89.6	89.6	
5	60.8	60.8	62.6	64.4	64.4	66.2	66.2	68.0	69.8	69.8	71.6	71.6	73.4	75.2	75.2	77.0	78.8	78.8	80.6	80.6	82.4	84.2	84.2	86.0	87.8	87.8	89.6	91.4	91.4	93.2	95.0	
10	60.8	62.6	62.6	64.4	66.2	66.2	68.0	69.8	69.8	71.6	73.4	73.4	75.2	77.0	77.0	78.8	80.6	80.6	82.4	84.2	84.2	86.0	87.8	89.6	89.6	91.4	93.2	95.0	96.8	96.8	98.6	
15	62.6	62.6	64.4	66.2	66.2	68.0	69.8	69.8	71.6	73.4	73.4	75.2	77.0	78.8	78.8	80.6	82.4	84.2	84.2	86.0	87.8	89.6	91.4	91.4	93.2	95.0	96.8	98.6	100.4	102.2		
20	62.6	64.4	64.4	66.2	68.0	69.8	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	80.6	82.4	84.2	84.2	86.0	87.8	89.6	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2			
25	64.4	64.4	66.2	68.0	68.0	69.8	71.6	73.4	73.4	75.2	75.2	77.0	78.8	80.6	82.4	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	98.6	100.4	102.2				
30	64.4	66.2	68.0	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	98.6	102.2							
35	64.4	66.2	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2									
40	66.2	68.0	69.8	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2										
45	66.2	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	80.6	82.4	84.2	86.0	89.6	91.4	93.2	95.0	96.8	98.6	100.4												
50	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	91.4	93.2	95.0	96.8	98.6	102.2													
55	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	93.2	95.0	96.8	98.6	100.4														
60	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	95.0	96.8	98.6	100.4															
65	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	87.8	89.6	91.4	93.2	96.8	100.4																	
70	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	91.4	93.2	95.0	96.8	100.4	102.2																
75	71.6	73.4	75.2	77.0	78.8	80.6	84.2	86.0	87.8	89.6	91.4	95.0	96.8	98.6	102.2																	
80	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	89.6	91.4	93.2	96.8	98.6	100.4																		
85	73.4	75.2	77.0	78.8	82.4	84.2	86.0	87.8	89.6	93.2	95.0	98.6	100.4	102.2																		
90	75.2	77.0	78.8	80.6	82.4	84.2	87.8	89.6	91.4	95.0	96.8	98.6	102.2																			
95	75.2	77.0	78.8	80.6	84.2	86.0	87.8	91.4	93.2	95.0	98.6	100.4																				
100	75.2	78.8	80.6	82.4	84.2	87.8	89.6	91.4	95.0	96.8	100.4	102.2																				

NOTE: This table is compiled from an approximate formula which only depends on temperature and humidity. The formula is valid for full sunshine and a light wind. Table adapted from Bureau of Meteorology

Using the heat guidelines

The heat stress graph is designed to give a competition safety estimate in hot, humid conditions. It is most relevant for long distance running and prolonged high intensity events like soccer, football, and tennis. The ranges also apply to indoor activities when there is no air conditioning in the practice or competition facility. It should be applied to practices and games.

Using a weather radio or local radio station, collect the air temperature and relative humidity data every hour during the event and plot it on the relative humidity versus air temperature chart. You can [click here](#) to go to this site and drag the indicator to your location. For the Twin Cities Metropolitan area, you can [click here](#) to go to this site for a live WBGT reading.

The decision to cancel or postpone an event should be made when the heat stress moves into the danger range.

Although competition can be continued in the other ranges for increased heat stress risk, coaches and athletes should be aware that exertional heat stroke can occur in the lower risk ranges. Track and cross country runners should stay out of the heat between events and stay well hydrated. A rest break should be provided in activities that require continuous activity like soccer and tennis.

** WBGT = Wet Bulb Globe Temperature = 0.7 (Wet Bulb Temperature) + 0.2 (Black Globe Temperature) + 0.1 (Ambient Temperature)

PART 4 – COMPETITION AND PRACTICE GUIDELINES FOR IMPACTED AIR QUALITY

Air quality is rated by the Environmental Protection Authority (EPA) with an air quality index (AQI) ranging from 0-500 that reflects the five major air pollutants: ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The EPA has established national air quality standards for each pollutant to protect our health.

The higher the AQI value, the greater the health concern. For example, an AQI value of 50 or less reflects good air quality with little effect on athlete health, while an AQI value over 300 is hazardous and can damage healthy lungs. An AQI value of 100 or less is considered acceptable for usual athlete activities. AQI values above 100 are considered unhealthy, at first for athletes and coaches with respiratory or cardiac conditions, and for everyone as AQI values increase.

Recommendations for Air Quality Levels

- Any athlete or team personnel who develops cough, chest tightness, wheezing, or shortness of breath should not exercise outside when the air quality is bad.
- Athletes with asthma should move indoors for an AQI of 100 or above.
- Moving indoors when the AQI is above 150 is recommended.
- When the AQI is greater than 200, all outdoor activities should be moved indoors, postponed, or cancelled.

The chart below has guidelines and explanations to help with your decision.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects

Air Quality Index Resources:

Current Air Quality:

<https://www.pca.state.mn.us/air-water-land-climate/current-air-quality-conditions>

Air Quality Forecast:

<https://www.pca.state.mn.us/air-water-land-climate/air-quality-forecast>

Additional Air Quality Resources

<http://airnow.gov/index.cfm?action=aqibasics.aqi>