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## Fact Sheet: Storms and Lightning

Sometimes storms can occur with little warning and can be very hazardous if you are outdoors without adequate shelter. Storms can have elements of wind, rain, snow, and lightning that can cause the following:

- Falls
- Getting lost
- Injury from flying debris
- [Frostbite](#)
- [Hypothermia](#)
- Injury from lightning (burns, concussive trauma, cardiac arrest, etc.)
- Flash flood conditions

### Personal Protective Equipment

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- Water and wind resistant clothing appropriate to the weather conditions
- Rubber Soled Shoes
- Lightning detector \*Optional
- Shovel-for blizzard potential
- Safety whistle

### Preparation and Training

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- It is essential that you monitor the weather before travel.
- Know the weather patterns of the area you plan to visit. For example, in mountainous areas, thunderstorms typically develop in the early afternoon.
- It is recommended that you take courses in: [Basic First Aid](#)

### General Safety

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- Watch for cloud formation and changes in wind direction that may indicate a developing storm.
- Tides can be much higher and rougher during storms, so avoid doing any work near large bodies of water.
- If you are going to be in low-lying areas, such as arroyos, canyons or river valleys, be aware of the potential for flash floods, especially in desert environments. They can occur on a sunny day if there is rain farther upstream.
- Obey mandatory evacuations for storms, floods, and other natural disasters.

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## Emergency Response

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- Seek shelter and do not continue to perform field work in storm conditions. Shelters could be cars or enclosed buildings.
- Try to stay dry. Both blizzards and rainstorms can cause the onset of hypothermia, especially if clothes become wet.

### Thunderstorm

- Thunderstorms can be severe, producing hail that is 1 inch or larger and winds greater than 58 mph.
- Obey the 30/30 rule which is if there are less than 30 seconds between a flash of lightning and the roll of thunder seek shelter and remain in that shelter until 30 minutes have elapsed after the last roll of thunder.
- Do not seek shelter under trees or small caves (lightning can jump the gap from the roof to the ground through you).
- Do not seek shelter in a tent during a thunderstorm as the metal poles may attract a lightning strike.
- If you are above the tree line, move to lower elevation as soon as you recognize a storm coming.
- Stay away from tall, isolated trees or other tall objects.
- If you are unable to find shelter minimize your contact with the ground and minimize your height. Crouching down on the balls of your feet placed close together with your head tucked down. If you have a metal framed pack, leave it at least 100 feet from where you intend to stand.
- Stay at least 50 feet away from another person to minimize injuries in the case of a strike.
- Lightning victims do not carry an electrical charge, are safe to touch, and need urgent medical attention. Identify if they are breathing. If they are not breathing, perform CPR.
- Treat for shock and burns. Burns generally occur in the extremities and areas that contact metal jewelry or objects.
- Every person injured by lightning requires immediate medical attention.

### Blizzard

- Blizzards are strong storms that produce large amounts of falling or blowing snow, with high winds (> 35 mph) and near zero visibility (<1/4 mile) for an extended period of time (> 3 hours).
- In whiteout conditions, stay put, as the reduced visibility could cause you to miss hazardous obstacles or become disoriented.
- Try to shelter in an area out of the wind. If there is no shelter, make a shelter out of snow by digging a pit or a trench and banking the snow on the side that the wind is blowing from.
- If sheltering in a vehicle, make sure the tail pipe is not clogged by ice or snow. The exhaust fumes will enter the vehicle cabin and could cause carbon monoxide poisoning and death.
- Stay warm. Keep your body covered. Be careful when moving to warm yourself, as sweating can trigger hypothermia.

- Stay hydrated. Melt snow before drinking to avoid lowering your body temperature.
- If there are signs of frostbite or hypothermia seek medical attention as soon as possible.

## References and Additional Resources

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- National Outdoor Leadership School: [Lightning Safety](#)
- [National Weather Service](#)
- Adapted from *Storms and Lightning Fact Sheet*, by University of Maryland: Department of Environmental Safety, Sustainability & Risk (<https://essr.umd.edu/about/research-safety/field-research-safety/planning>) with permission.