



REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE, WATER AND FORESTRY

Tel.: (061) 208 7719/7040
Fax: (061) 221733
Enquiries: Mrs. S. Shilimela / M. Kalo

Office of the Executive Director
Government Office Park
Private Bag 13184
WINDHOEK
12 February 2019

PRECAUTIONARY MEASURES AGAINST THUNDERSTORMS/LIGHTNING

The Ministry of Agriculture, Water and Forestry, extends our deepest sympathy to the families and relatives who lost their beloved ones during this rainy season as a result of thunderstorms/lightning.

As a Ministry mandated to promote, develop, manage and utilize agriculture, water and forestry resources is obliged to create awareness on the dangers of extreme weather conditions that could affect the above resources and peoples' livelihood.

In this context, it is important to know and understand thunderstorms/lightning as natural phenomena and their effects on the surrounding environment.

1. What is lightning?

Lightning is the occurrence of natural electrical discharge of very short duration and high voltage between a cloud and the ground or within the cloud, accompanied by a bright flash and thunder.

Although there are four main types of lightning, the most critical/dangerous one peoples' day to day operations is the **Cloud-to-ground lightning**.

Cloud-to-ground lightning causes two types of hazardous phenomena, namely:

- **Ground current:** A ground current is set up when lightning hits the ground, spreads out and sends a current through a target (victim). This type of lightning accounts for 60-80% of lightning-related injuries and deaths; and
- **Side splash lightning:** This when lightening hits a tall object, travels partly down the object and transmits to a nearby target (victim).

A lightning bolt is a million times more powerful than household current, carrying up to 100 million volts of electricity. Due to the fact that light travels faster than sound, lightning (bright flash) is seen before one hears the thunder. If one hears thunder, one should know that he/she is within striking distance. What to do? Immediately go to the nearest (well-constructed) building or a fully enclosed, metal-topped vehicle.

2. What are the general precautions to be taken?

- a) **Get inside** as quickly as possible
- b) **Stay low:** It's best to get as low to the ground as possible, you do not want to be the tallest object around in a thunderstorm. "If there is no shelter available, it's best to find a low spot. Avoid places like fields or the tops of hills. Avoid tall and isolated trees.

- c) **Cars are better than nothing:** While being in an enclosed car is not as safe as being inside a building, it is a safer option than staying outside. Common myths regarding cars and lightning is that the rubber from the tires or the gasket around the windshield keep you safe, but that's not necessarily true. The real reason cars are a safe option is that the metal shell of a car disperses the lightning around the occupants of the car and to the ground,"
- d) **Avoid bodies of water:** Water is an excellent conductor of electricity, meaning that it can travel far. Being near water is not a good option.
- e) **Tents and pavilions are not good options:** Many tents/pavilions have metallic or frames made of other conductive materials.
- f) **Be alert:** Pay attention to weather forecasts and check the sky
- g) **Don't delay:** Another common misconception is that thunderstorms have to be nearby for lightning to be a danger. In reality, as soon as one hears thunder, one should move to shelter immediately. Lightning can strike very far from a thunderstorm, so even if it isn't raining, once one can hear thunder he/she may be in danger.

3. What are the safety precautions to take when inside the building?

- Stay away from doors, windows, and fireplaces.
- Stay away from anything that will conduct electricity such as radiators, stoves, sinks and metal pipes.
- **Use battery operated appliances only.** Avoid handling electrical appliances and regular telephones, most especially mobile phones/cellular phones.
- If one is inside, avoid taking baths or showers and wash dishes. Also avoid using televisions, and other appliances that conduct electricity.

- Once it's over, stay inside for 30 minutes after the last lightning.
People have been struck by lightning from storms centered as far as 16 kilometres away.

4. What are the safe shelters or buildings?

The safest place to be take shelter in during a thunderstorm is a well-constructed building that is fully enclosed with a roof, walls and floor with electrical wiring, plumbing, telephone line, or antennas to ground the lightning.

5. What are the unsafe shelters or buildings?

Unsafe shelters are buildings or structures without electricity or drainage system to ground the lightning, as they do not provide any lightning protection. Shelters that are unsafe include carports, tents, baseball dugouts as well as other small non-metal buildings (sheds and greenhouses).

6. What should one do if one cannot find shelter?

It is not safe to be outdoors during a thunderstorm. However, there are areas that might be less dangerous, and help reduce the risk of being struck by lightning when outside.

- The next best place for shelter is an enclosed metal car, truck or van but not a tractor, cart, topless or soft-top vehicle. When inside a vehicle during a lightning storm, roll up the windows and sit with ones hands in one's lap and wait for the storm to clear out.
- Don't touch any part of the metal frame or any wired device in the vehicle (including the steering wheel or plugged-in cell phone). A direct strike to a car will flow through the frame of the vehicle and usually jump over or through the tires to reach ground.

- Stay away from objects that are tall such as trees, flagpoles or posts, water, and other objects that conduct electricity such as tractors, metal fences, lawn mowers, and golf clubs.
- Do not become a prime target by being the highest object on the landscape. Take shelter in low-lying areas such as valleys or ditches but watch out for flooding.
- If in a group of people in the open, spread out several meters apart from one another.
- Bend down on the balls of your feet immediately, with feet together, place arms around the knees and bend forward. Be the smallest target as possible, and at the same time, minimize contact with the ground. Don't lie flat.

7. What should one do if someone has been struck by lightning?

Lightning victims are safe to touch. Bystanders shouldn't hesitate to save a life by calling for help.

- If breathing has stopped, administer mouth-to-mouth resuscitation.
- If the victim is not breathing or they do not have a pulse, a trained rescuer should administer cardio-pulmonary resuscitation (CPR).
- Call the ambulance or the police immediately.

References

IPCC *et al* 2013 *Climate Change 2013 The Physical Science Basis. Contribution of Working Group to the fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge, Cambridge University Press

Lawrence E, 2015 *What is Lightning*, Bearport Publisher, ISBN 1627248633

NOAA release fact sheet on lightning, June 7, 2016

United State Department of Commerce National Oceanic and Atmospheric Administration NOAA, National

Yair Y, 2018 *Lightning hazards to human societies in a changing climate*,
29November2018, Environ.Res.Lett.13 12300
Weather Service Safety, Communications Office, Silver Spring, MD 20910