

Help! a storm!

Man has always been afraid of lightning, in fact in the past lightning was considered a sign of the anger of the gods, but in reality, even though lightning may seem an exemplary punishment, the possibility of being struck is quite remote. Unlike the common belief, furthermore, those struck by a lightning flash are not incinerated on the spot, it is only in rare occasions that superficial burns have been noted, usually death occurs due to electrocution by lightning stroke, i.e. due to the damage produced in the heart and brain by the passage of a strong electric current that goes through the body from head to foot. Those who have been struck directly by lightning rarely survive (the electric discharge provokes heart failure, respiratory arrest and internal singed parts) even though at times some have survived without severe damages. The probability of being struck directly by lightning however is extremely rare and one must be particularly unlucky to be the victim of such an accident. The possibility of being struck by the electric discharges that propagate in the ground when one is near to the spot where the lightning fell (for example, if we are near to a tree that has been struck by lightning) is more frequent. The electric discharges propagate in the ground and if we are nearby, they can propagate in the ground in our direction, or better, right inside us. In this case, however, the intensity of the electric discharge is much less and the charge does not go through us directly from head to foot, but reaches us, rising from the ground, up one leg, and then back down the other leg: and we will get a pretty strong "shock" through our legs, but the heart and the vital centres will not be crossed by the lightning, that will not cause any irreparable damages in our body. Four legged animals and not as lucky: the electricity which is discharged from the front legs to the hind legs (or vice-versa) also crosses the vital centres, with fatal effects. For this reason during a storm, sheep in a flock or cows in a herd may die due to lightning that fell in the vicinity, while the shepherd or cowherd who was tending them remains unharmed. If we are caught in a storm, therefore we must avoid crawling or crouching on all fours, it is an extremely dangerous position.

Some minor precautions

While we cannot, in any way avoid lightning from striking us directly, we can however adopt opportune measures during excursions in the mountains, to avoid being in places where it is more probable that lightning may fall. Therefore it is important to stay away from slopes, in particular if these are bare rocks, rocky walls and rock shelters, specially if these are wet, and from large boulders, trees, poles, antennas, electricity or telephone wires, metal masses.

Furthermore, We must try to lean against a very small area, and not be the highest object in the vicinity. The ideal position is to stay crouched, hands far off the ground and feet near to each other, better still standing on one leg only... a safe position that is certainly quite uncomfortable. We must stay far from pointed objects such as sticks and umbrellas, or bulky objects such as backpacks or... our own friends. The company of another human being may be reassuring, but standing close to each other could be quite dangerous!

A lightning discharge can be felt instinctively, when there are numerous positive charges in the ground. In fact, even our body becomes charged, we feel this when we feel a tingling sensation, we have electric hair and raised body hairs.

Metal objects around us may emit a characteristic buzzing sound (the same as we can hear when we pass under high voltage wires). In this case it is best to rapidly let go of any ice-axes, crampons, snap-hooks, and ski poles!

According to the tradition, gold chains attract lightning because those wearing them, when struck, often find they have melted, (and as a result they burn the skin). Actually in this case the gold chain is a lifesaver because it deviates a large amount of energy onto itself, with a consequent melting of the gold medal, but it prevents the same energy from propagating in the body of the person wearing it.

Lightning and water

A curious effect regards water. If the trunk of a tree is wet and smooth, the lightning will propagate along the bark across the tree leaving it intact. If, instead, the bark is dry or very rough, the lightning will propagate inside the tree, where it will make the water and the plant's lymph evaporate violently, consequently leading to an explosion. For this reason some species of trees, those with a rough bark show the damages caused by lightning, and so the legend was born that some

trees attract lightning more than others. Similarly if, when we are struck by an electric discharge, our clothes are wet, the water they contain evaporates violently and our clothes will be literally torn off us, including shoes and mountain boots, but the electric discharge will propagate on the surface, as on the trees with a smooth bark, and the lightning will not provoke any interior damages

However, we must not be afraid of lightning when we are travelling by car or by plane because these behave like a “Faraday cage” isolating us from the electric discharges,

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