

Research proposal on three stages of thunderstorm

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There are three stages of thunderstorm formation. The first stage is towering cumulus stage. This is also referred to as the growth stage. At this stage, there is the rise of warm moisture which then cools and condenses to form cumulus cloud. In the process of condensing, there is the warming of air. It is important to note that, during condensation, there is warming of air that surrounds the cloud. With this, there is the instability that gets formed and this makes the cloud to continue forming and rising vertically. When this is taking place, updrafts help ice and drops of water to be suspended on air. At this stage, there is precipitation and no lightning formation at this stage. As the cloud form to higher heights, there will be altitudes where the temperature is below freezing point. At this stage, large drops and even hail start forming (van der Velde et al., 261).

The hail and raindrops will become so heavy that the updraft will not be able to keep them anymore. Thus, they will start begin to drop and fall in a form of precipitation. The particles which are falling, evaporation and cooling process at the cloud lining creates a downdraft which is shows that the next stage is about to start.

Mature stage

This is the next stage of the thunderstorm formation. At this stage, the development of downdrafts is the start of this stage. At this stage, there is the presence of updrafts and downdrafts and, thus, is the thunderstorm formation most intense stage. The clouds will grow to such great heights that they reach the part of the atmosphere which is stable. This could be the stratosphere.

At this stage, they cannot grow any further. The cloud top will spread and

form anvil shape. At this stage, there is the formation of lightning, small thunders, small hails, and heavy rains. There are sometimes when there will be dissipation of the storm when it enters the mature stage.

Dissipation stage

This is the last stage of the thunderstorm lifecycle. At this stage, the downdrafts dominate the whole process. This is because the updrafts weaken leaving the downdrafts to dominate. The thunderstorm will not last much because the updraft is no longer in existence. The updraft was the process that was fueling the formation of the thunderstorm. This is because there was the provision of moist air from the surface. With the absence of warm air from the surface, there are the decrease cloud droplets and thus, there will be light precipitation.

In many occasions, the lower portion of the cloud will evaporate and the thing that is left standing is the anvil shape cloud.

How lightning forms

Lightning is an electrostatic charge which is between the regions which are electrically charged found within the clouds or on the surface of a planet. There is the stabilization of the regions of the atmosphere by way of lightning flash. This lightning flash is what is referred to as strike if it hits an object found on the ground. There are three types of lightning. The first is cloud to itself (this is intra-cloud lightning), from one cloud to another cloud (CC) and from cloud to the ground (CG). Although lightning is accompanied by sound, there are situations where lightning is seen at a distant but because of the long distance, they will not be heard (van der Velde et al.,

62).

Lightning will form when there is the collision of negative charges (referred to as electrons) that are found in the bottom of the cloud are attracted to the positive charges (protons) which are found on the ground.

For lightning to occur there is a need to ensure that the electric charge is great enough so that the insulating properties of air are overcome. When this happens, it will be observed that there will be a flow of negative charges towards the ground. The flow will be towards a high point where the charges which are positive have accumulated and clustered due to pull that is experienced from the thunderhead (Steiger 64).

There will then be the connection and the protons will rush to meet the electrons. This is the point where there is the sight of a light and the thunder is heard. There is a bolt of lightning forms following the path of the air and there is expansion of the light. Thunder is the sound that comes from the air which is expanding rapidly.

In nature, what is seen from the ground is not really what happens. This is normally the case with the occurrence of secondary strikes. It is common that the primary strike is followed by between 30 to 40 secondary strikes. Depending on the delay that is experienced between the strikes, there will be the sight of long-duration main strike or a long strike which will be followed by other small strikes that occur along the path of the main strike. It is easy to visualize this if the light of the main strike is still visible.

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