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1/28/21

ATMO-1010-401

## Weather in Movies

### The Aeronauts

#### Thunderstorms:

This film was related to weather because a person who wanted to study the weather and try and predict what the weather was going to do next hired an aeronaut to fly him up in a hot air balloon so he can get closer to the sky to study the weather and take down some measurements so he could perhaps predict the weather on the ground. The thunderstorm in this film was used to put Amelia and James in big danger because the wind from the thunderstorm aggressively pushed their hot air balloon around, almost killing Amelia. Her solution for getting out of the thunderstorm was to cut some weight from the balloon to rise above the thunderstorm so it would not affect them. A thunderstorm forms when hot air rises up against cold air, the warm air becomes cooler, which creates moisture, which then creates condensation, the cool air then falls and gets warmer and rises again, this is called convection cell, if this keeps happening, a cloud will form, if this happens with a lot of air and lots of moisture, creating a cumulonimbus cloud, a thunderstorm can form (Snode-Brenneman). Thunderstorms disturb the atmosphere with lighting and thunder. Lightning is an electrical discharge that is created by charged particles in moving air.

There are many types of thunderstorms. single-cell, multi-cell, and supercell.

A single-cell thunderstorm is created by only one convection cell, these storms are small and only last about an hour, these are also called ordinary thunderstorms. These storms usually occur during the summer, rain and lightning are common, and sometimes it hails (Snodgrass-Breneman).



Multi-cell thunderstorms, like single-cell storms, have convection cells, however, there are multiple convection cells moving as one unit. A multi-cell storm can push warm air high up into the atmosphere above the cold air, forming a line called the squall line. The squall line can be

up to 600 miles long (Snodde-Brenneman).



Thunderstorms that have big, spinning updraft winds, are called supercells, they are quite large and last for hours, exerting large amounts of rain and sometimes even hail that are the size of baseballs. They also have fast moving convection with winds moving upward as fast as 175 mph. The rotation that is caused in supercell thunderstorms can make aggressive tornadoes that rip through the land. These severe thunderstorms fortunately not very common so we do not have to worry about them as much (Morrison).



The movie depicted a thunderstorm quite accurately. The storm in the movie appears to be a supercell thunderstorm. Judging by the massive clouds, the extensive amount of rain, and the vicious wind that tossed their insignificant balloon around. During the thunderstorm scene, it is shown that the balloon was thrown upward, almost killing Amelia, this wind that was going upward was an updraft wind in the supercell thunderstorm.

## Citations

Deese, Ashley, et al. *An Introduction to Thunderstorms*, Smithsonian, 22 Mar. 2017, [ssec.si.edu/stemvisions-blog/introduction-thunderstorms](https://ssec.si.edu/stemvisions-blog/introduction-thunderstorms).

This source is credible because it was written only 4 years ago, the science has not changed much. This source introduces thunderstorms, so it is appropriate. This source is also written by someone from a school. The information in this paper seems to be consistent with the other sources I have found.

Snode-Brenneman, Emily. *Thunderstorms*, UCAR/NSF, 2019, [scied.ucar.edu/learning-zone/storms/thunderstorms#:~:text=Thunderstorms%20form%20when%20warm%2C%20moist,atmosphere%2C%20warms%20and%20rises%20again](https://scied.ucar.edu/learning-zone/storms/thunderstorms#:~:text=Thunderstorms%20form%20when%20warm%2C%20moist,atmosphere%2C%20warms%20and%20rises%20again).

This source is credible because it was written 2 years ago. It talks about thunderstorms and how they form, this article was written by a teacher from UCAR, a school that specialized in atmospheric research.

Morrison, Mike. "Do You Know the Different Types of Thunderstorms?" *WeatherNation*, 7 May 2017, [www.weathernationtv.com/news/know-different-types-thunderstorms/](http://www.weathernationtv.com/news/know-different-types-thunderstorms/).

This source was written 4 years ago. It talks about the different types of thunderstorms and how they are formed. It was written by a meteorologist that works for a weather broadcasting website called weather nation.