

## Cloud 2 Report

The goal of this assignment was to photograph a cloud and analyze the basic physics behind its formation. In this photograph I was trying to capture the effect that the clouds made when the setting sun lit a series of smaller clouds. There are many clouds that have unique colors made by the setting sun. The combination of clouds made for an interesting picture that had a lot of depth.

The photograph was taken on April 12, 2009 at approximately 7:00 PM from a scenic overview near Greeley, Colorado. The camera was facing North West and was at an elevation just above horizontal. At this time the sun was setting behind the clouds on the left side of the image and lighting the sky as well as the backs of the clouds. That day had rain in the hours before the image was taken. The clouds had moved east and the clouds shown had followed.

In the photograph there are many separate clouds with a variety of different shapes. Although fairly different in appearance they all appear to be the same classification of cloud. Altocumulus clouds can have a large variety of shapes and sizes. According to the National Weather Service's website these mid-level clouds form between 6,500 and 23,000 feet. [1] There are a variety of different types of altocumulus clouds that can be viewed in this picture. First there are the larger puffy clouds in the center and the right of the picture. These were some of the harder clouds to classify because they resemble stratocumulus clouds. They have the shape and size however they do not cover the sky like a stratocumulus clouds normally would. The National Weather Service classifies the M9 type cloud to be an altocumulus of a chaotic sky. [1] This most fit the clouds that can be seen because part of that definition is a mixture of low and high level clouds. Also these clouds were on the trailing edge of a storm system. The next type of altocumulus cloud that can be viewed is some lower level lenticular type clouds. These clouds are small and off in the distance, near the mountains. This also fits their definition because they tend to form in standing waves that frequently form over mountain ranges. [2] The last type of altocumulus cloud that can be seen is a higher level group of small tufts of clouds. The scientific name for these clouds are Altocumulus Flocus. They are defined by their small round form. To help in the classification process a Skew-T Plot was used, which can be seen in figure 1. In this plot it can be seen that the elevation that clouds are likely to form would be between approximately 2,000 and 6,000 meters.

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This would match the prediction of altocumulus. Also the lines follow each other up for most of that elevation. This would also agree with the classification because there would be a large span in which the clouds could form.

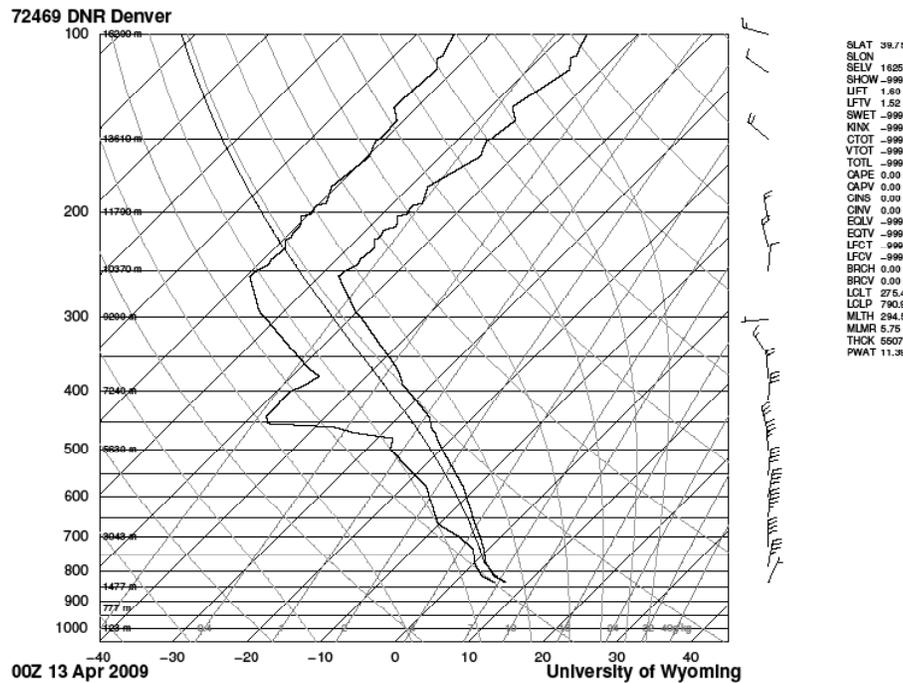


Figure 1 - Skew-T Plot

The photograph was made by with a single shot of a point and shoot camera. It is hard to estimate the actual distance because it will be a matter of many miles. Once again the distance from the lens in hard to estimate, it is also a matter of many miles. The lens used was a Canon Zoom Lens EF-S 18-55mm 1:3.5-5.6. The focal length was 6 mm. The camera body was a Canon PowerShot SD600. The original picture was 2816x2112 pixels and was cropped to 2816x1489 pixels. The aperture was set to f/2.8, the shutter speed was 1/640 seconds and the ISO was set at 200. In Photoshop the color curves along with brightness and contrast were adjusted to darken the foreground and help bring out the colors.

I like this image because it is able to show the formation of the same type of cloud in many different shapes. It demonstrates a good amount of physics in a single picture. I also liked this

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image because it has nice colors. Its shows how the setting sun interacts with the clouds and gives the picture a lot of depth while doing so. If I could change anything about this picture I think I would have liked to include the setting sun in the picture. It would help give a frame of reference and probably would have looked very nice as well. There is less going on in the right side of the picture so I do not think any of the information would have been lost.

References

[1] "NWS JetStream MAX." NOAA - National Oceanic and Atmospheric Administration. 22 Feb 2009 <[http://www.srh.noaa.gov/jetstream/synoptic/clouds\\_max.htm#max](http://www.srh.noaa.gov/jetstream/synoptic/clouds_max.htm#max)>.

[2] "Lenticular Cloud." Wikipedia. 22 Feb 2009 <[http://en.wikipedia.org/wiki/Lenticular\\_cloud](http://en.wikipedia.org/wiki/Lenticular_cloud)>.