Clouds 2

Matt Feddersen
MCEN5151
Professor Hertzberg

I. Introduction

For the Clouds 2 image I really wanted to capture a big ominous cloud. My first image was a cloud being torn apart; while that was awesome to see, I really wanted to find a well-established cloud. Clouds have always been fascinating for many reasons, especially because they change so fast. Even bigger developed clouds will shift very rapidly. The cloud formation featured in my image was one that I was admiring on the drive up to Boulder from Denver, and in that short time (approximately 30 min) the cloud changed significantly. The cloud changed not only in shape, but also in color due to the time of day. Watching the cloud during the drive, I knew that once in Boulder I could get a great shot.

II. Location

The image was taken in the heart of Boulder near 28th and Colorado. When the image was taken, the camera was positioned about 4 feet off the ground pointed at around a 10 degree angle above the horizon. By positioning the camera as such, the image includes a foreground that makes the image more interesting by adding some contrast and extra content. The camera was pointed in an Easterly direction and caught a cloud moving to the south. The image was captured shortly before 6pm on April 9, 2011. The sun was just starting to go behind the mountains, thus creating the beautiful colors in the image.

III. The Clouds

The clouds in the image are high stratocumulus clouds. The clouds are classified as stratocumulus because they create a continuous layer on the bottom of the formation and also appear fluffy.[1] Looking at the skew-T plot shown in Figure 2, the clouds appear to be forming around an elevation of 4500m. This puts the cloud in the higher region of stratocumulus clouds. The higher elevation helps to explain the shape of the clouds because it means the clouds are bordering altostratus clouds. Altostratus clouds are much flatter than stratocumulus clouds. This accounts for why the clouds in the image are not as big and puffy as one would typically expect from stratocumulus clouds.

When the image was taken, the sky to the east was fairly clear of any clouds barring this one. The sky to the west had a lot of similar style clouds; however these clouds were very dark due to their location and orientation with respect to the sun. Also a storm en route to boulder played a major role in the dark clouds. In terms of

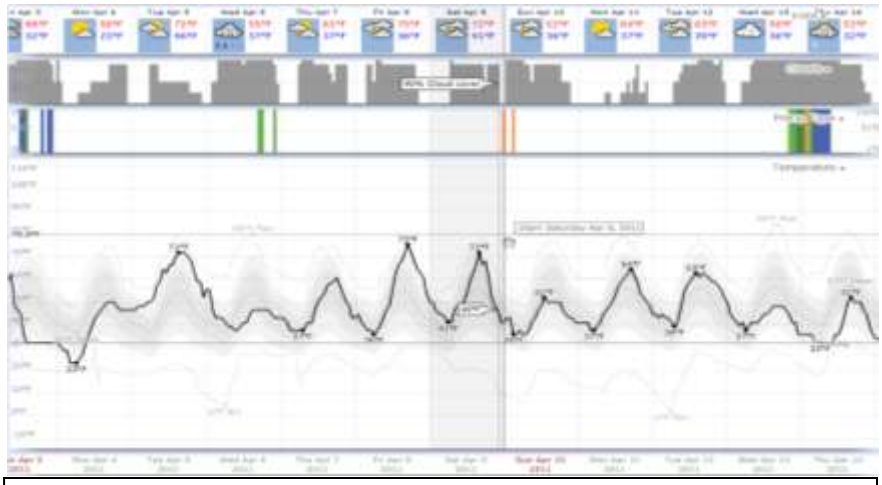

Figure 1- Weather for the time period surrounding April 9, 2011. The day that is shaded is April 9.[2]

the weather around this time, consult Figure 1. The shaded area is April 9, 2011 and the image was taken near the peak in temperature, around 6pm. Shortly after the image was taken, the temperature began rapidly decreasing. That night there was a slight rain, nothing significant, just a little bit of precipitation. Throughout the afternoon and the following day there was a lot of cloud cover. The weather for the surrounding April 8th and 9th was noticeably colder than these two days. This means that on these days there was a warm front moving through Boulder. As the warm front was leaving on the night of the 9th, the atmosphere was a bit unstable, thus creating the stratocumulus clouds seen in the image.

Looking at the skew-T shown in Figure 2 for 6pm in Denver, the clouds appear to be fairly stable. The CAPE at DIA on the night of the 9th was 0.00. Looking at the dewpoint curve, there is a section around 4500m that appears to be unstable. To check the stability in this section, take a point on the dewpoint curve and follow the general flow of the adiabats up in elevation. This will put the point on the right side of the dewpoint curve which means that the atmosphere is unstable. Since this only happens for a very small elevation, and the point will not be too far to the right of the dewpoint curve, the atmosphere was not too unstable. Additionally, only a small elevation range will be unstable as the dewpoint curve only briefly shows this area that will be unstable. This small unstable section caused the clouds to be a bit fluffy, but not as tall as one would expect if the atmosphere was more unstable.

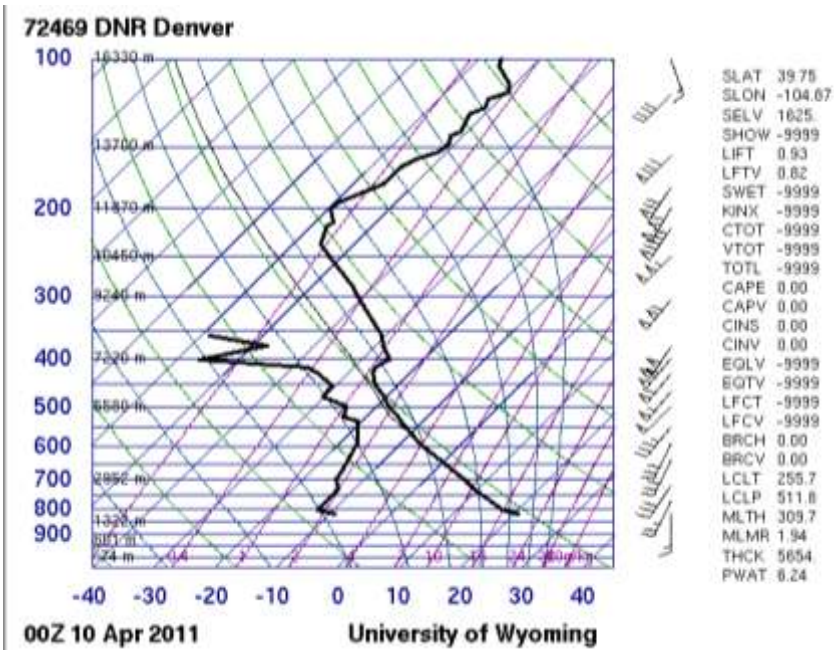

Figure 2- Skew-T graph for 6pm at DIA.[3]

At 4500m, the dewpoint curve is the closest to the temperature curve. This translates into clouds at this elevation and is also where the atmosphere was a bit unstable. The combination of clouds and a slightly unstable atmosphere at 4500m created the higher stratocumulus clouds in the image.

IV. Photographic Technique

This image was shot with a Canon EOS Rebel T2i. The camera produced an image that was 5184x3456 pixels. The final size of the image was not changed from the original because the framing was exactly as desired. An F-stop of f/5.6 was paired with an exposure time of 1/60sec

and an aperture of 3.125. All of these settings allowed for a crisp image. Unfortunately, in the original image the colors are not very well defined. I wish the exposure time would have been just a bit longer because that would have allowed the original image to show the colors better.

The photo underwent a minor makeover in Photoshop once imported into the computer. The only feature used to alter the image was the curves feature. This was used to make the trees and other objects in the foreground darker. This change draws the focus of the viewer to the clouds instead of the foreground. In addition to making the foreground darker, the curves feature was also used to make the colors of the clouds more distinct and vibrant. The colors on the bottom side of the clouds came out as beautiful lavender and the sky a strong blue. Figure 3 shows the before and after of the image. Notice the added definition in the clouds due to the extra color contrast.

Figure 3- Side by side comparison of the original image and the image after processing.

V. What the Image Means

To me, this image has so much more than just clouds in it. The entire left side of the image is chaos; it has a skeletal tree clinging to life and clouds that show an impending storm. The chaos greatly contrasts with the beauty displayed on the right side of the image. The right side features a nice full tree with flowers on it. To accompany this tree are charming clouds surrounded by a beautiful blue sky. The two halves are connected in the image by the cloud and power lines that run along the bottom of the frame. To me this means that even with disarray there will be beauty, and vice versa. Furthermore, the connection between chaos and beauty can be made by both man and nature. Nature will always have the power to create mass chaos, but nature can also create majestic features. Man too has the power to cause massive destruction, yet still create pieces of excellence. These powers are a fine balance and often connected by little more than a thin thread.

VI. Closing Comments

I really like this image and the way it speaks to me. I absolutely love the colors and the framing of the image. My one dislike with the image is that the colors are a bit blown out; however, I really like the shades and specific colors. Some colors being blown out is a sacrifice I am willing to make to have the rest of the image be beautiful. The cloud is a prime example of an atmosphere that is right between stable and unstable. The cloud is huge, and well established, so in that regard I nailed my objective. To go further with this idea, I would like to find an area with a more defined foreground. I feel like the bottom of the foreground is a bit cluttered and I don't really like that. On the whole, I am very pleased with this image and the message that it carries.

Sources

1. Pretor, Gavin. "The Clouds Collector's Reference." *The Cloud Appreciation Society*. Web. 20 Apr. 2011. <http://cloudappreciationsociety.org/collecting/>.
2. *WeatherSpark | Interactive Weather Charts*. Web. 20 Apr. 2011. <http://weatherspark.com/#!graphs;a=USA/CO/Boulder>.
3. "Atmospheric Soundings." *Wyoming Weather Web*. Web. 20 Apr. 2011. <http://weather.uwyo.edu/upperair/sounding.html>.