Clouds First Report

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March 16, 2018 University of Colorado, Boulder For my first clouds assignment, I decided to take my picture on Sunday, March 4th during a sunny and windy day. The beginning of the day was really nice with good weather and not many clouds. However, during the afternoon, a chilly wind started to pick up and bring clouds in over Boulder. The wind brought in a cold front that dropped the temperature that day. Cumulus and stratocumulus clouds rolled in during the afternoon, which is when I took my cloud picture. Initially, I faced north and took several pictures of stratocumulus clouds, however, I was not satisfied with the look of the clouds and the quality of the pictures. Then, I faced east and took pictures of stratus clouds, but these clouds did not look that interesting. Lastly, I faced southwest towards the flatirons and took a picture of a cumulus cloud. I settled with this picture because I got the top of a flatirons peak at the bottom of the picture and was able to make the cumulus cloud the center and main focus of the image. My picture of this cumulus cloud can be seen in Figure 1 later in this report.

As stated earlier, my first cloud image was taken on March 4th in Boulder facing southwest. I captured this image in my neighborhood on Pennsylvania Avenue in the afternoon at about 2:30pm when it was slightly windy and sunny outside. The cumulus cloud I captured was right above the horizon on top of the flatirons, so my camera angle from the horizontal was about 25 degrees.



Figure 1: Final edited image of cumulus cloud

The cumulus cloud that I captured can be seen in Figure 1. The weather for March 4th was a high of 64 degrees and a low of 32 degrees. When I captured this image, the temperature was 55 degrees with winds out of the south. The last several days before I took this picture, the weather was pretty similar; sunny days with temperatures between 50 and 65 degrees. The clouds were fairly similar during these previous days, with a mix between cumulus, stratocumulus, and stratus clouds spread throughout the sky. There were no snowstorms or rain during the previous several days, and there was no precipitation on March 4th either. The clouds were too spread apart for there to be a chance of rain or snow. The skew-T diagram for March 4th can be seen in Figure 2.





Figure 2: Skew-T diagram for March 4th

By inspecting this skew-T diagram, the atmosphere appeared to be unstable during the first part of the day, meaning the lowest levels of air were warmer and more humid than the air above it. This warmer air rises in the atmosphere, and since there is only colder air above it, this warm and humid air continues to rise. However, later in the day when the cold front came in during the late afternoon, the atmosphere became stable because the temperatures of the different layers of air evened out. When I took my picture of the cumulus cloud at 2:30pm, I think the atmosphere was still unstable because the cold front had not moved in yet. Also, I came back to look at the same cumulus cloud that I took a picture of at about 4pm and it had moved up in the sky, meaning the atmosphere was unstable causing lower and warmer air to rise in the sky.

Once I captured the cumulus cloud using my Nikon D90 DSLR camera, I uploaded the image to Photoshop to do some cropping, contrast and brightness editing, and color enhancing. The original picture I took can be seen in Figure 3.



Figure 3: Original unedited image of cumulus cloud By comparing Figure 1 and Figure 3, it can be seen that I cropped out part of the top and bottom of the image because there were distracting elements in the image that took one's focus away from the cumulus cloud. The blue colors in Figure 1 are a lot more pronounced using Photoshop's color enhancing techniques. I also turned the brightness down and the contrast up to make the flatirons appear darker.

I really like my final edited image because it forces the audience's attention to be on the cumulus cloud. The way the cloud stretches across the image and seems to bend around the flatirons really makes this picture interesting. If I could improve this image in anyway, I would have liked to wait until later in the day when the atmosphere was stable and during the sunset to get a cool color contrast of white, blue, orange, and yellow colors. Overall, I was satisfied with my picture and this assignment because it taught me a lot about the different types of clouds and atmospheric stability.

References

[1] Atmospheric Soundings, weather.uwyo.edu/upperair/sounding.html.