Clouds Report

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This image captures a cumulonimbus cloud with rain falling in the distance. In this image I wanted to capture the chaotic and dark storm that was happening in the distance and contrast it with the sunny and bright field where I was standing in the foreground. My first photo had lots of bright colors in the foreground with purple flowers, green grass, and the golden field but ultimately this gave me a very large foreground and the cumulonimbus cloud was small and distant. Seeing that the main purpose of this project was to photograph clouds, I decided to crop out some of the foreground in the photo. This made the focus more on the cumulonimbus cloud but still preserved enough of the grass and the field to provide a good contrast.

This image was taken in Thornton, Colorado on September 4th at 4:24 PM. The elevation of Thornton is about 5350 feet, but this image was taken on top of a hill so the elevation is probably closer to 5500 feet. I was facing North, Northwest in this photo.

The main cloud in this image is a cumulonimbus cloud and rain can be seen falling from it. At the time this photo was taken, the sky to the south and to the east of me was rather clear and sunny. Given the thunderstorm that is pictured I would predict an unstable atmosphere with a cape of around 500. Given that the cloud pictured is a cumulonimbus and that the approximate elevation of the ground that the cloud is above is 5350 feet, I predict the base of the cloud to be about 11,500-12,000 feet above sea level. This is because the base of cumulonimbus clouds is usually low (about 6500 feet above ground level). The closest Skew-T plot is pictured below:

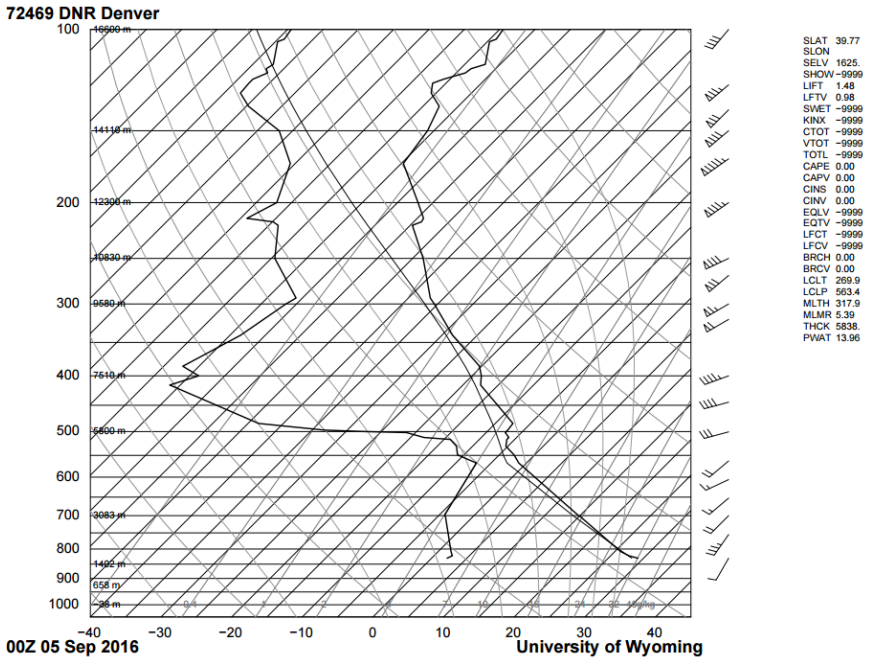

Figure 1 Skew-T Plot from Denver at 00Z September 5th

As can be seen from the Skew-T plot, the cape is 0. This disagrees with my observations and predictions. Furthermore, Dew-point and Temperature lines come close together at a little below 5800m, suggesting clouds are forming at around 19,000 feet. This also disagrees with my observations. Although my photo was taken at 4:24 PM on September 4th, which is relatively close to the time of the 00Z September 5th Skew-T plot in figure 1, I am seeing large discrepancies between my observed/predicted values and what the Skew-T plot shows. I attribute this to being in Thornton and not Denver where the Skew-T data is taken, as well as the fact that the cloud shown was an isolated thunderstorm. The rest of the sky around me was sunny and relatively clear which is more agreeable to what the Skew-T shows.

This image was taken using my Iphone 5 camera in the HDR setting. The focal length was 4mm. The f-stop was f/2.2, the shutter speed was 1/3731 seconds, and the ISO was ISO-32. The original dimensions of this photo were 2448 x 2448 pixels and the final image dimensions are 1640 x 1544 pixels. The main work that I did in GIMP for this photo was enhancing colors and contrast, as well as blurring or clone stamping out some distracting elements. I also cropped the image so that the cloud was the main subject instead of the fields in the foreground. A before and after photo can be seen below:

Figure 2 Before

Figure 3 After

My original intent was to contrast the dark storm cloud with the sunny field that I was in. I feel like I was able to capture this but I think it was better portrayed in my original image with the flowers included in the photo. If I kept the flowers the cloud was too distant and seemed like an afterthought instead of the main subject so I had to compromise and crop out much of the foreground. If I could take this image again I would change the angle and height

that I took it from so that I could include more of the cloud but still have the nice colors from the flowers, grass, and field in the foreground. I think this would have captured my original intent for the image as well as better portray the cloud and the physics behind its towering structure and anvil shape.