Flow Visualization
Fall 2019
Clouds First Report
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For this assignment, the goal is to take a picture of a cloud with a timeframe starting from the beginning of the semester until the due date which was October 11th, 2019. This assignment was beneficial because for the first time, I was assigned to observe and learn about the different kinds of clouds and how to differentiate between them. My initial purpose was I wanted to take a picture of a cloud on the top of a mountain with a high altitude that an audience would appreciate; however, I ended up capturing an image during sunset because I thought that the clouds would behave differently with/without the exposure of the sun.

This picture in figure 1 below was taken under several of circumstances. The location of the image was in Broomfield, Colorado near the Flatirons mall, but precisely at Bell Summit apartments. The date and time were 7:02 PM and 09/04/2019 respectively. The image was taken under an angle that is approximately 45 degrees with a high altitude that is approximately 1677 ft and a high up hill.

Figure 1. Clouds First Before Editing

Below in figure 2 is a skew-t diagram, the cape value is 938.4 which states that it was under an unstable atmosphere, that's how the clouds were formed as I lean towards cumulus clouds; but it was shocking and surprising to me at least because I learned that cumulus clouds tend to form in a stable condition. In terms of the weather in Broomfield Colorado on September 4th, 2019, it

was typically from 57°F to 79°F where the warmest part of the day was at 2:45 PM period but it was also warm at 6:30 PM and that was before the image was shot. The temperature was above 74°F. Now with the clouds, the time where it was cloudy the most was around the 6:30 PM timeframe, so the atmosphere was a cloudy condition with a less likely precipitation and wind.

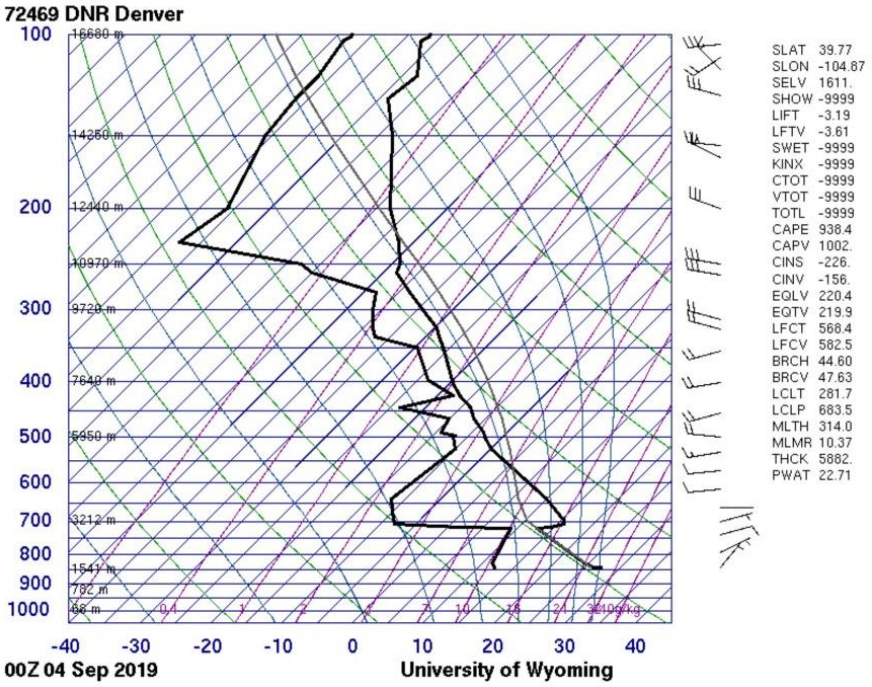

Figure 2. Skew-T Diagram on Sep 4 2019

An iPhone 6s from Apple was used to capture the image with an aperture of F2.2, a shutter speed of 1/2653 sec, a focal length of 4 mm, and an ISO setting of 25. No flash was used during the process. The pixel dimension for the image is 4032 x 3024, and the focal length was 70. As seen in figure 3, this is the final image with editing using GIMP as a photo editor. Although it wasn't changed and edited much, the photo was cropped into the dimensions of 1200 x 900 pixels. In addition, the colors were changed slightly as the exposure and contrast were adjusted between the buildings and the clouds. I also edited the shadows which made it very relaxing to observe.

Figure 3. Clouds First After Editing

This image reveals the phenomena of clouds, more specifically Stratocumulus and cumulus clouds. What I like about the image is the choice of frame orientation that resulted in authenticity, realistic and uniqueness to the image. Moreover, I love how the clouds are dark and have a unique shape. This doesn't happen too often, so I am happy that I got the chance to capture the image at the right day and time with a great angle. On the other hand, some people think that the angle gave the picture more of a bad drama, and that resulted of a distraction, including having the trees and the buildings.