Colton Oglesbee
Flow Visualization
MCEN 4151-001

Fall 2020 Clouds 2 Report
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Introduction

For the second clouds picture assignment for MCEN4151 (flow visualization), I was able to capture the image on the title page and analyze the clouds seen in the photograph. The image was taken November 10th 2020 in Thornton Colorado right before sunset, at 4:46 pm with my iPhone 12.

Cloud Science & Psychometrics

The clouds seen in the image were a result of a nice day in November following a snow storm from a couple days before. From the psychometrics chart in Figure 1 it can be concluded that the atmosphere was stable due to the CAPE value being zero. It is likely that the clouds were forming at around 9000m or 30,000 ft above sea level since Figure 1 shows the actual temperature and dew point lines get closest at that elevation. Based on the cloud(s) shape, psychometric properties, and being in a stable atmosphere, I believe these are altostratus clouds and the orange clouds in the image may be mountain wave clouds from the previous weather system.

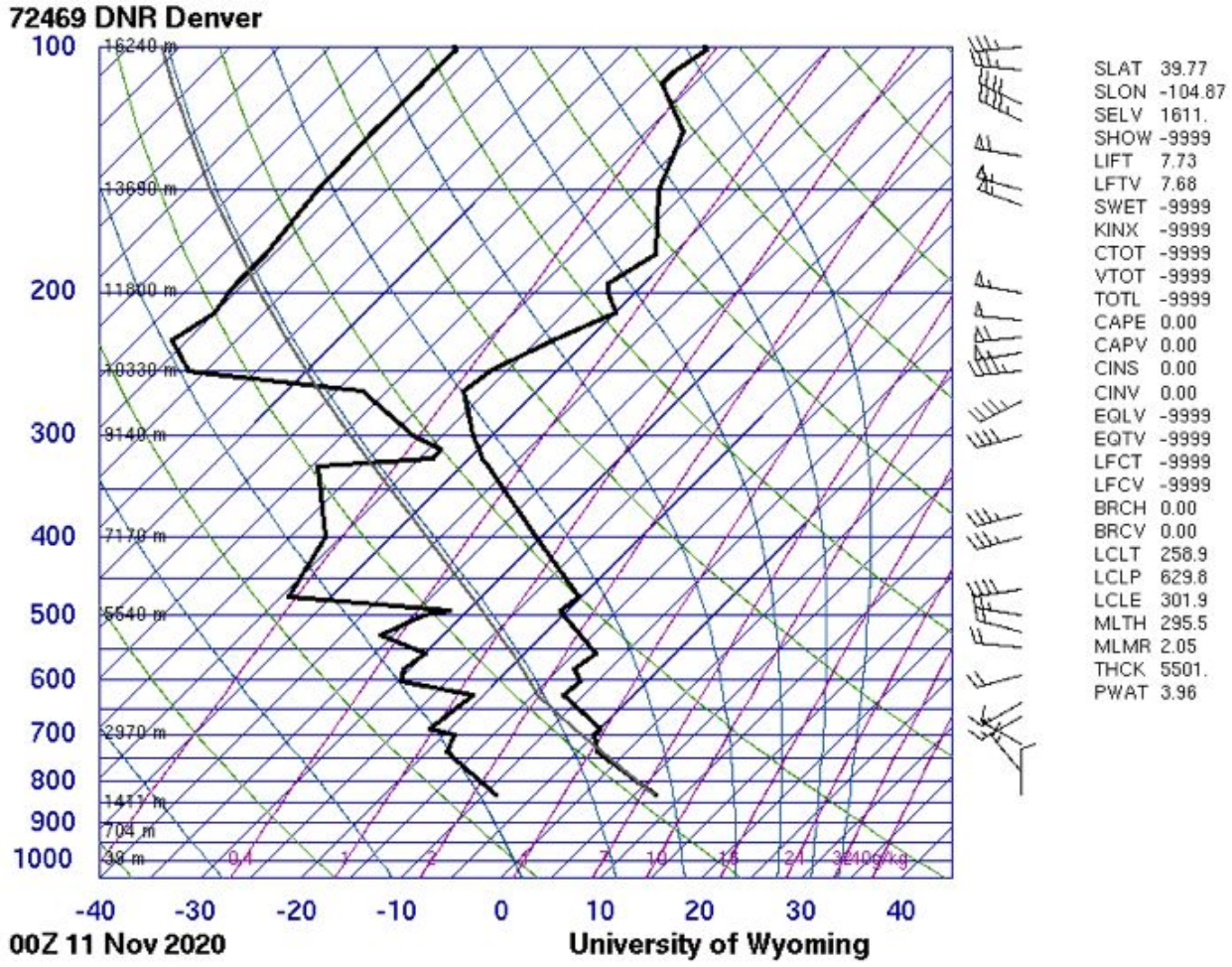

Figure 1. Psychrometric chart for Denver on November 10th at 6pm. Very close to the time the image was captured.

The sun setting over the mountains in the west created the beautiful color to the image. While some clouds in the top of the image remain white and puffy in blue skies.

Photography

As mentioned before I used an iPhone 12 using the ultra wide camera with a focal length of 4.2mm. I have been enjoying this new camera on my phone and have used the wide angle a lot to capture different images than on my DSLR due to this wide angle view. The aperture used was f/1.6 at an exposure of 1/527. Although I was not able to play with the ISO the camera captured this with a low ISO of 32. The raw image came out to be 4032 by 3024 pixels and exported at 1300 by 900 pixels. On the following page the original image can be seen as well as the edited image below that.

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In the original image I believe it is easy to see a wide angle was used. After cropping and editing it is more challenging to notice, however it offers more clouds to be in the image. When originally taking the image I tried to stick to the one thirds rule, having the ground tape up one third of the photo, and conveniently the orange clouds took up about one third, and the top ended up being white fluffy clouds with blue sky. Other than cropping I increased the exposure and contrast slightly to bring out the colors more as well as darken the bottom of the image, trying to capture the full palette of colors.

Conclusion

As a result of the cloud images assigned over the course of this semester, I have grown to enjoy taking pictures of clouds. Where as before I never paid much attention to the cloud types, I find myself trying to guess more and more. Through these cloud assignments and with help of critiques with Dr. Hertzberg I have gotten much better at identifying and understanding clouds. To reflect on my image, I found myself to love the colors and I think it turned out pretty good. I was lucky enough to shoot this on my new phone with a much nicer camera but I wish I had my DSLR to compare what image I would have liked more.

References

[1] Department of Atmospheric Science. (2020, November 10). Retrieved December 1, 2020, from http://weather.uwyo.edu/upperair/sounding.html