

MCEN 5151: Second Cloud Image Report

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Date: 11/26/2016



MCEN 5151 Flow Visualization

1. Introduction

This report serves as an overview of the second cloud image assignment on MCEN 5151 Flow Visualization. This assignment was intended to give students another chance to capture images of clouds of different kinds and understand the physics behind them. I shot the image during my visit to the Rocky Mountain National Park on a nice Saturday.

2. Image Basics

This image was shot at around 2:30 PM on Oct 15th in the vicinity of the Glacier Gorge, one of the scenic spots in the park. The elevation of the point where the image was taken is about 9000ft, and the clouds over there moved way faster than the ones at lower elevations. At the time when this image was taken, it felt like the clouds were ascending from the valley.

3. Cloud Physics

The clouds observed here can be labeled as cumulus clouds. From the image one can easily identify the cumulus clouds in that they always appear puffy, dense and sometimes resemble a cauliflower. In meteorology, the cumulus cloud is categorized as a type of low-level cloud. The formation of cumulus clouds has something to do with atmospheric convection. The elevation of the cumulus clouds observed was expected to be around 3,000ft-4,000ft. Cumulus clouds form as warm, moist air ascends, water vapor in the air condenses on particles into tiny water droplets. As this process goes on, these droplets accumulate and go upward, forming puffy, visible clouds up in the sky[1].

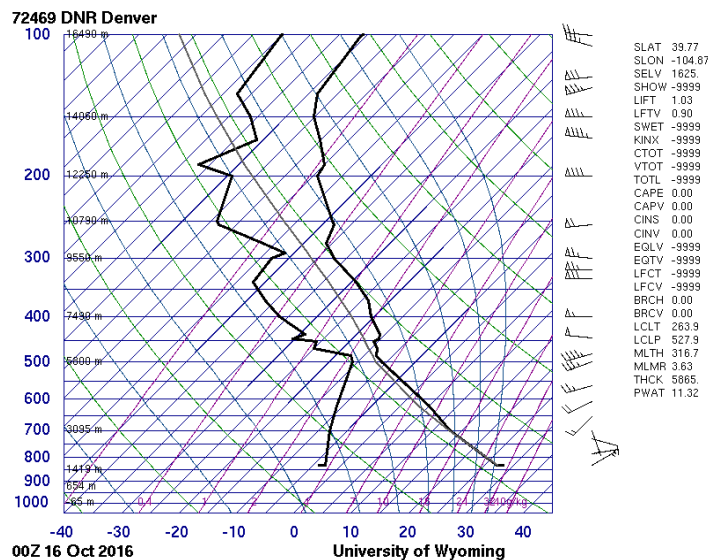


Figure 1: Skew-T Diagram[2]

4. Photographic Techniques

I shot the image with my iPhone 6s Plus and the details are also satisfactory. The distance from the clouds I was trying to capture to the smartphone lens was probably 5,000ft-6,000ft based on the visibility on that day. The original image has a resolution of 4032x3024, a focal length of 4.15mm, an f number of f/2.2 and an ISO of 25. The image was edited using a popular app "Polarr Editor" and some parameters have been fine-tuned to improve the quality of the image.

5. Conclusion

The second cloud image is fairly similar to the first cloud image in many ways, like the angle at which the lens was facing, the weather condition and the hue. I like the second image because the second one appears to be neater and less messed-up due to a lack of unevenly scattered clouds. In general, the image demonstrates what is expected in a clear, sunny day and meets aesthetic expectations.

6. Reference

[1]Cumulus cloud (2016). . In Wikipedia. Retrieved from https://en.wikipedia.org/wiki/Cumulus_cloud

[2]"72469 DNR Denver observations at 00Z 16 Oct 2016 - 12Z 26 Oct 2016." n.d. Web. 27 Nov. 2016.