Cloud #2: Image Report

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4/17/14

MCEN 4151

The purpose of this image was to capture any type of cloud phenomenon that demonstrates fluid physics in a visually interesting way, fulfilling the second cloud assignment for the course. The intent of this image was to focus on one large group of clouds, as opposed to a singular much smaller one. The main reason I chose this one is because there appears to be Kevin-Helmholtz Instability near the top right portion of the cloud. I took many pictures of the sky this day, but this one struck me the most and I decided to select it because of that.

This image was taken from Highlands Ranch, Colorado. The camera was facing West, and it was at an angle of ~10° above the horizontal. The image was taken on March 3rd, 2014 at 7:30 AM.

The clouds featured in this image are nimbostratus clouds. The clouds seem like they could be under the cumulus category due to the fact that they have distinct clusters present, but due to the low altitude and the fact that they are precipitating I deemed them to be nimbostratus. The higher clouds (not precipitating) are most likely of the altostratus category. According to the Skew-T diagram (Figure 1) clouds were forming at around ~1500 m (1.5 km) and ~6000 m (6 km), and this is consistent with the assumption that the precipitating clouds are nimbostratus, which usually exist around that altitude. The rest of the sky had similar clouds all throughout, appearing to be around the same altitude. Looking again at Figure 1, it appears that the

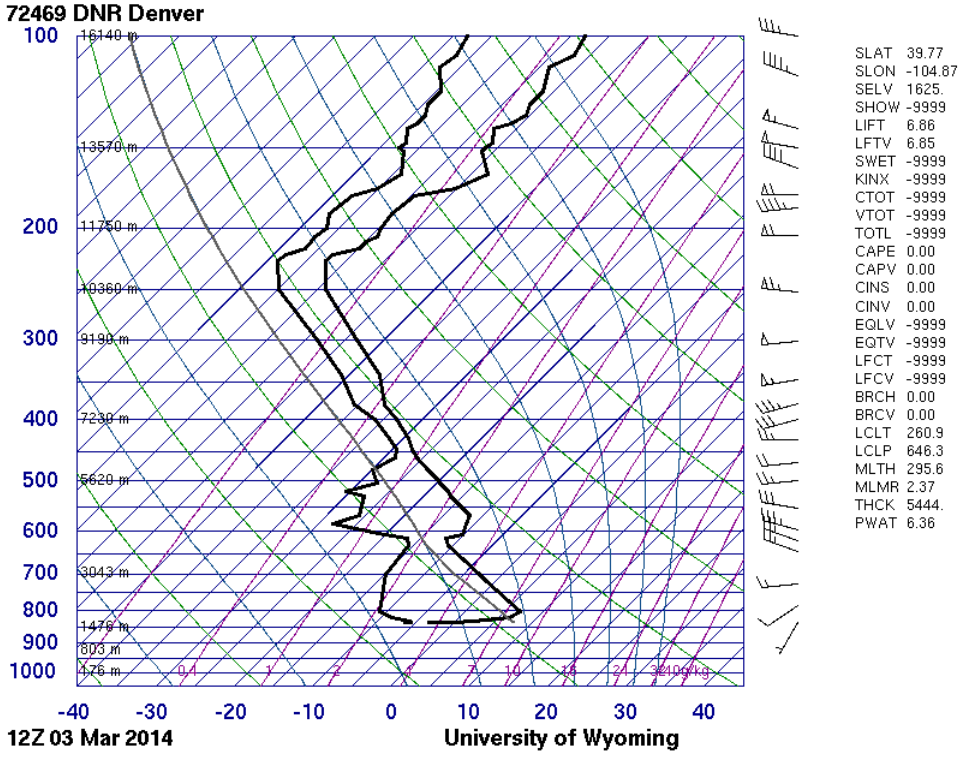

Figure 1: Skew-T Diagram

atmosphere was stable due to the fact that *CAPE = 0*. Also, the winds at the altitude of this cloud appear to be mild, which explains the lack of any instabilities and mostly still behavior within the stationary clouds. There was most definitely rain fallen that day, and the wind at ground level was fairly negligible. The temperature at ground level was about 40° F, according to weatherspark.com. The physics presented in this photo are very simple, displaying typical behavior of clouds and precipitating atmospheric behavior.

The camera that I used is a Canon EOS 7D. The F-number was 4, and the focal length was 105. The lens used was the EF24-105mm f/4L IS USM. The camera was obviously held very far away from the cloud. The shutter speed was 1/13 s, with ISO 100. The original image was 5184 X 3456 pixels (Figure 2). The cropped imaged is 4946 X 2281 pixels. In terms of post processing, the image was cropped, with fairly minor alterations in contrast, exposure, and saturation.

Overall, I'm pretty satisfied with how this image turned out. I like how it captures the pinkness of the sky that day very well, and also has pink rain, which is not too common. In terms of improvement, I think the cloud could have more details shown and more shadows present. However, I like how it turned out in the end.

Figure 2: Original Image