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MCEN 4151 – 001

Clouds First Report

28 October 2019

Figure 1: Final image used in post

The purpose of this assignment was for students to take pictures of clouds and determine what type it is and describe the conditions that led to that cloud's formation. The cloud in my image was altocumulus cloud that was located over CU Boulder East Campus on 9 OCT 2019 at 1:30 PM. The intent of this photo was purely scientific; I simply wanted to capture a cloud that I would be able to describe based off of atmospheric conditions at my specific location.

The image was taken using a Panasonic Lumix DMC-GF1 manual mode, and the camera settings were as follows: ISO – 640, aperture – f/9, shutter speed – 4000. There was no setup for this image apart from framing the image such that no trees or any other elements were included in the image that would distract from the clouds themselves. The lighting used was only the light from the sun and, since it was a natural photo of a cloud 17,000 feet away, there was no need or way for me to adjust the fluid

phenomenon. Because the cloud was so far away at the moment the image was taken and the shutter speed was so high, the cloud travelled a minimal distance in the image. This means that the image itself is as time resolved as it could be given the limitations of the technology used in capturing the cloud.

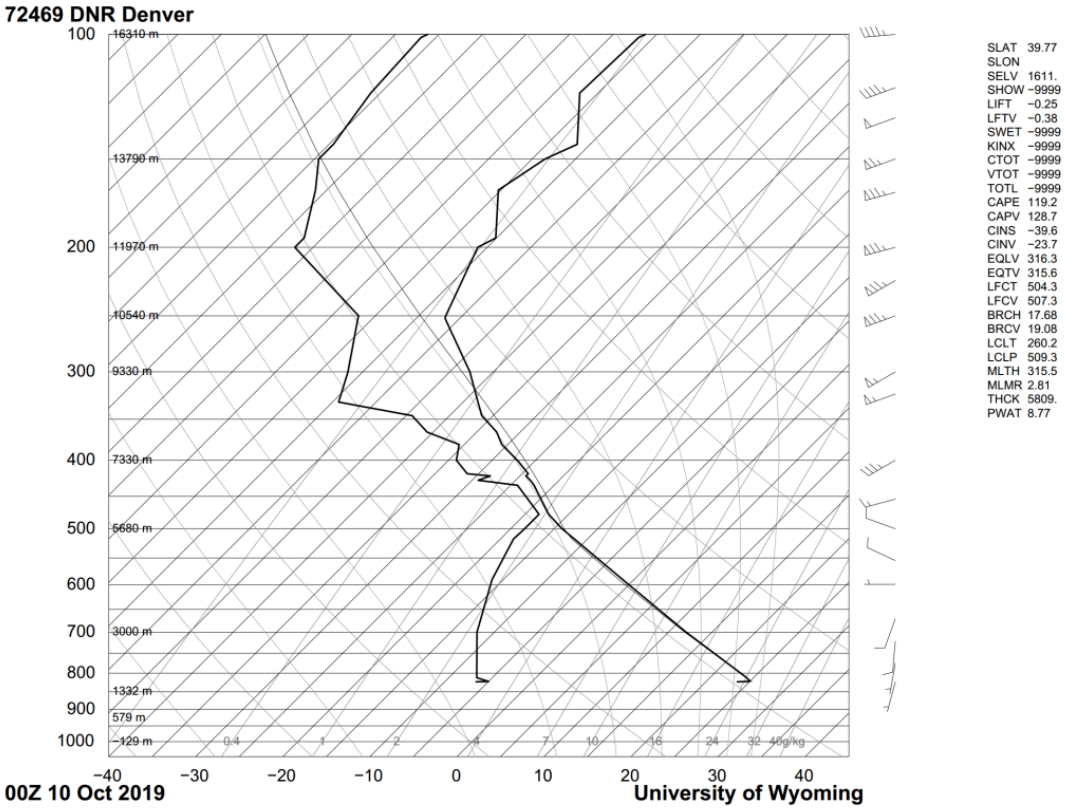

Figure 2: Skew-T plot of atmospheric conditions at time and location of image [1]

As we can see, the cloud was located at approximately 7000 meters and the CAPE value was 119.2, which means that the cloud in the image was an altocumulus cloud within an unstable atmosphere. Furthermore, we can see that the wind speed was relatively low at the location of the clouds, but much higher a few hundred meters above the clouds location, which could explain why the cloud itself is so solid looking while the smaller clouds above are so wispy.

In terms of visualization techniques used, I wanted this to be a relatively simple photo, so all I did was go outside and take a picture of a cloud. I didn't do any sort of editing to the image and left it as natural as possible. I like how the image turned out, and my favorite part of it is how simple it is; it is just a few clouds in the sky being struck by light from the sun. Because of this, I definitely believe that I accomplished my goal of capturing a natural photo. There isn't anything I would consider changing if I

were to take this picture again, except for maybe try to capture a different type of cloud under different atmospheric conditions.

References

[1] University of Wyoming. (n.d.). Atmospheric Soundings. Retrieved October 9, 2019, from http://weather.uwyo.edu/upperair/sounding.html.