

Cloud Second Report

MCEN 4151-001

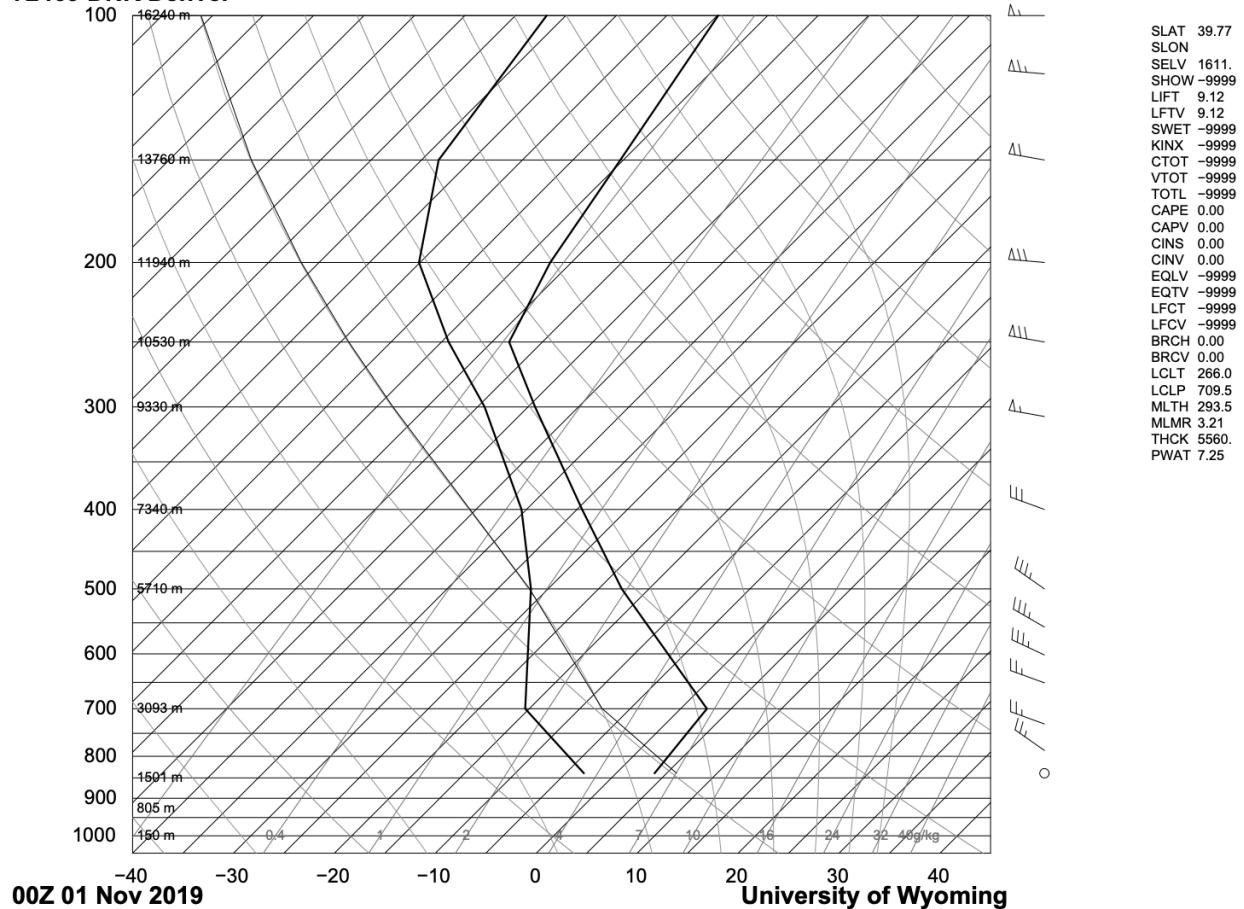


By: Robbie Giannella
Cloud Type: Stratocumulus Lenticularis
Oct. 31, 2019 at 2:14PM on CU Boulder campus

This photo was taken for my Cloud Second image for Prof. Hertzberg's Flow Visualization class. I wanted to capture an image of a unique cloud that showed atmospheric elements as well as something to scale the size of the cloud.

This cloud was captured outside the Fleming building on CU Boulder campus on October 31, 2019 at 2:14PM. The camera was facing west and at about a 35° angle above the horizon.

72469 DNR Denver



The cloud in this image is long and grey with a distinct outline. It is also resting at a relatively low elevation on the down-wind side of a mountain, which is typical for a stratocumulus lenticularis cloud [1]. This picture was taken the day after a snow storm, and by this time the sky was fairly clear of clouds. Referencing the skew-T plot above, the winds were high and the atmosphere was stable with a CAPE of zero. Since the dew point line and the temperature line of the skew-T are not close at any particular elevation, no clouds would be expected to form. This is consistent with what I saw that day, no clouds except for the cloud I captured. Stratocumulus lenticularis clouds form under special conditions where moist air from the base of a mountain rises to form these unique clouds [1]. I estimate the cloud to be at about 8,000ft above sea level based on the known elevations of Boulder and the Flat Irons. Using this elevation and the skew-T above, the wind at the cloud's elevation would be about 25 knots from the north west.



Figure 1: Original Image 4032x3024 pixels



Figure 2: Edited Image 3543x2754 pixels

This photo was taken with a Google Pixel 3 camera phone. Using the foreground as reference, I estimate the field of view to be about two miles wide with the cloud being about $\frac{3}{4}$ of a mile from the camera lens. The lens had a focal length of 4.44mm, aperture of f/1.8, shutter speed of 1/23256, and ISO of 116. To edit the photo, I used pixlr.com. I cropped the photo, increased saturation and contrast, and reduced the highlights.

I like how the cloud is framed within the picture. The foreground adds perspective and scale to the cloud without being too distracting. The sun highlights the wispieness of the top of the cloud compared to the distinct outline of the bottom of the cloud. If I were to retake this image in the future, I would use a wide angle lens to try to capture the full length of the cloud. Overall, I am happy with how my cloud image turned out.

References

- [1] "Stratocumulus Lenticularis." *Names of Clouds*,
<http://www.namesofclouds.com/stratocumulus/stratocumulus-lenticularis.html>.