First Cloud Image Report

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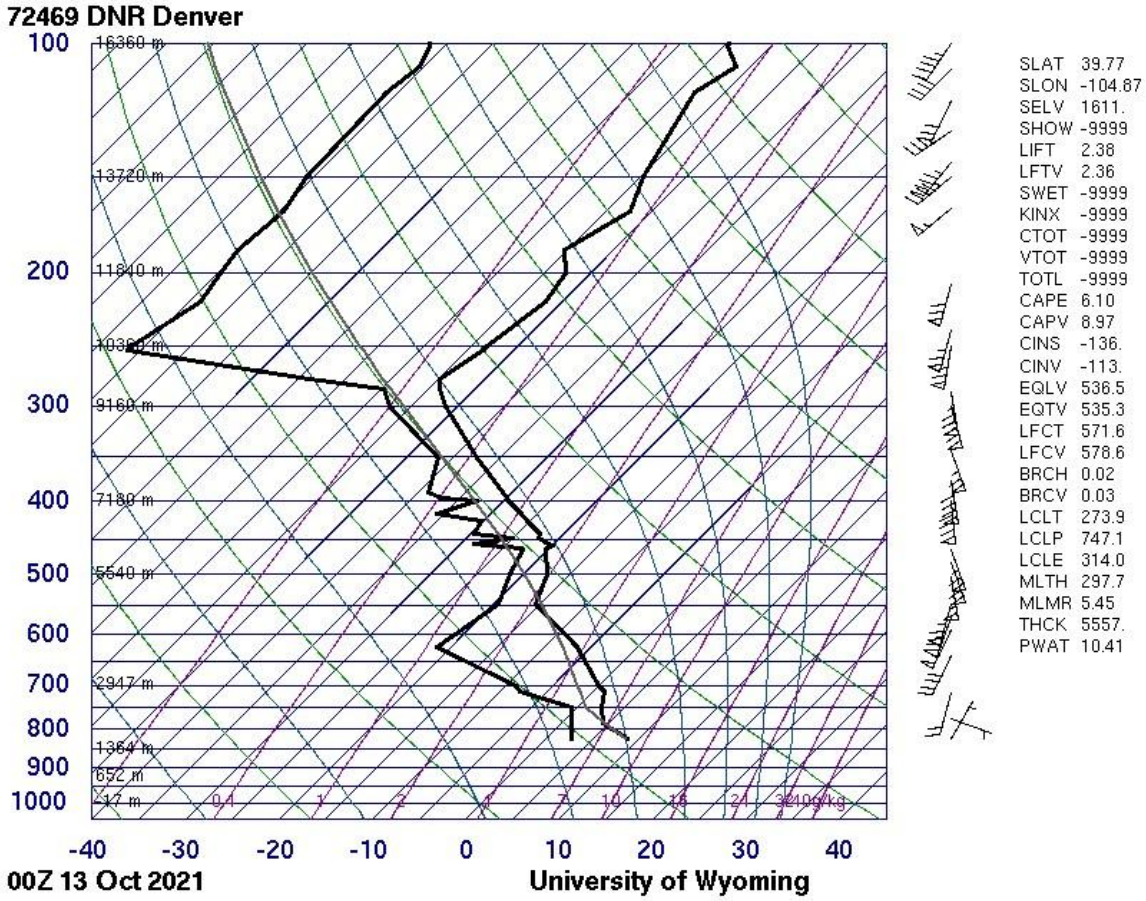
Introduction

The goal of the first cloud assignment was to study cloud formation behavior, understand cloud types and positioning, and lastly to practice visualization techniques. I captured this photo on Oct 12th, 2021. The photo shows a zoomed-in view of stratocumulus clouds mixing with cumulus clouds. In the photo, the sun is backlighting the clouds. I took this image in Boulder, CO standing on the University of Colorado East campus facing west towards the Rocky mountain range.

Cloud Analysis



The clouds in the photo look to be stratocumulus clouds with cumulus/cumulus nimbus clouds above. I also believe in this cloud classification since a large thunderstorm with hail started roughly 30 minutes after this photo was captured. Based on the Skew-T plot above the lower level clouds look to be around ~2000m above the ground with a larger column of clouds in between 5000m-9000m up. The data in the Skew-T diagram was taken above Denver at almost the same time as the photo was taken, so the data is likely very time accurate. The CAPE value can be seen to the right of the diagram as 8.97. That value is likely low for the location of the image due to the mountain range and my knowledge of the subsequent weather patterns. I do believe that the local atmosphere was unstable at the time of this photo.

Image Acquisition

This image was taken on an Apple iPhone 12 Pro Max camera. The image resolution is 3802 x 2288 pixels. The ISO was set to 32. The exposure was shutter speed 1/290 sec and f/1.6. The focal length was 5.1mm. I didn't change much in the final image versus the raw image. I did add a slight vignette and I dehazed the photo to help color sharpen the clouds. I bumped down the exposure slightly as the backlighting from the sun slightly overexposed the image. I adjusted the colors only slightly to give the photo a more blue-shifted monochromatic look. Below is a comparison of the raw and edited images.

Raw Image:

Edited Image:

Conclusion

I think I met the goals of the assignment with this image. I found that editing cloud photos was more difficult than I expected and my inexperience in this field of photography was tested. I enjoyed the opportunity to practice photography in new ways. I was disappointed that I didn't use a better camera to capture this image as I saw these clouds when I didn't have my DSLR camera with me. Nonetheless, I am happy with the artistic nature of the image and the visualization of the stratocumulus clouds.

References

1. The University of Wyoming. Atmospheric Sounding. http://weather.uwyo.edu/upperair/sounding.html