

Rainy Rays

Clouds First

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MCEN 5151 Flow Visualization

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Introduction

This image was captured for the first Cloud assignment for Flow Visualization. We were tasked with taking photos of interesting cloud formations and explain how and why those clouds formed. I took this image immediately after a rainstorm. I thought that the low hanging clouds were very intriguing, and it resulted in the captured image.

Image Circumstances

This photo was captured on September 3, 2023 at 4:25 pm. It was taken outside of Leadville, Colorado. The photo was taken facing North-West, and was taken at an elevation of 10,158 feet. It was a rainy morning, but began clearing up in the afternoon.

Cloud Description

The clouds in the picture are stratus and nimbostratus clouds. Both of those types of clouds form during and after rain. Considering the timing of the photo, it is likely that both types of clouds are present. Additionally, both stratus and nimbostratus clouds are very low hanging clouds. As shown in the picture, these clouds were very close to the ground. The clouds had just moved in as it had rained that day, but none of the previous days. Shown below is the Skew-T diagram of the weather that day.

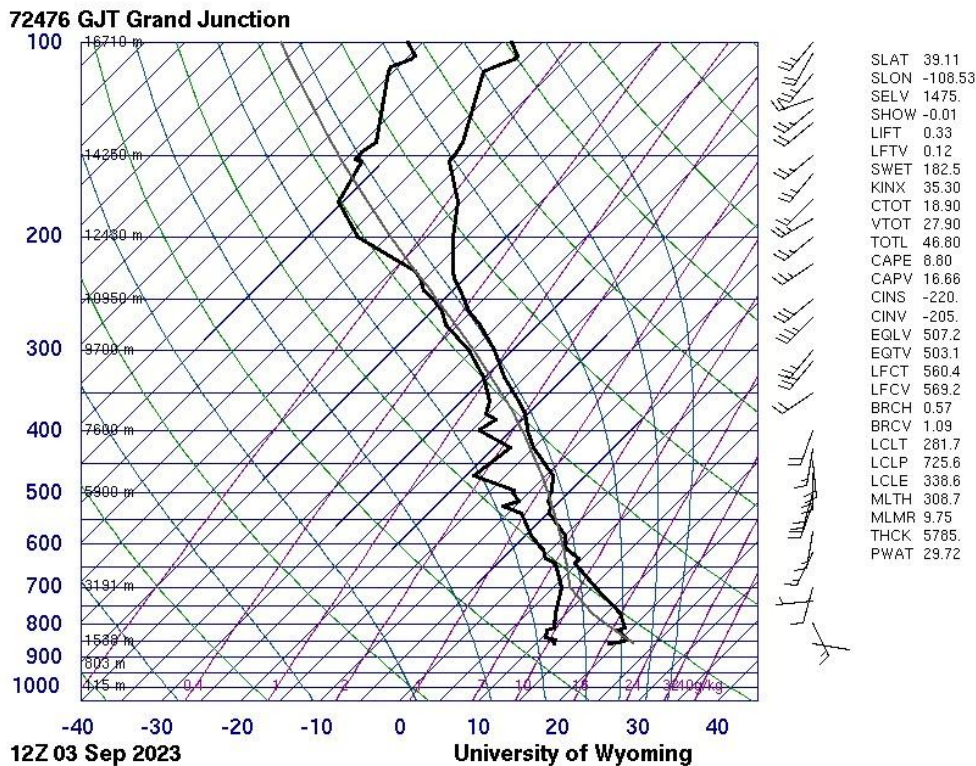


Figure 1: Skew-T diagram

As noted on the Skew-T diagram, the CAPE value is far below 1000. This is suggestive of a stable atmosphere. Stratus clouds exist the most within a stable atmosphere, which agrees with my prediction. The altitude of these clouds is likely 2000 to 4000 feet.

Photographic Technique

Since this image was captured so early in the academic year, I didn't have access to a quality camera. So, this image was taken on an iPhone 12. The settings it used were an ISO of 32, a focal length of 26 mm, an aperture of f/1.6, and a shutter speed of 1/7813 s. The field of view is approximately 60 degrees. The size of the initial image was 4032 x 3024 px. The size of the edited image is 3580 x 2241 px. The distance from the clouds to the lens was likely around 10000 ft. While I really like the raw image, I chose to make some edits to the image. The original and edited images are shown below.



Figure 2: Raw and edited images

I cropped the image first. Then, I increased the blue hues in the image to provide the sky with more pop. I also slightly increased the contrast to show depth in the clouds. Overall, I am very pleased with the image.

Image Analysis

Overall, I think my image does a great job capturing clouds after a rainstorm. I really liked both the photo as well as the edits I made. I think there is great depth in the image as well as a lot of clarity. That is something I have struggled with in past assignments, and I think I did a great job this time around. I think that in the future I will try to be ready with my DSLR. I think that using a higher quality camera could have helped improve this image.