

Cloud 1

Cloud types: Nimbostratus or Cumulonimbus and stratocumulus.

Cloud date and time: Aug 31, 2022, 17:12

Cloud Location: Center For Community, 2010 Willard Loop Dr, Boulder, CO 80305

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INTRODUCTION

I took this image as one of many potential photos for the first cloud assignment. I took this image because it had slightly rained earlier in the day, and there was a beautiful combination of large dark clouds and smaller, bright, fluffy clouds.

CLOUD CIRCUMSTANCE

This image was taken on August 31, 2022, at 5:12 pm. These clouds were on the east side of the Center for Community, 2010 Willard Loop Dr, Boulder, CO 80305. The camera was facing 30° North East, with an angle of 130° from the horizontal.

CLOUD PHYSICS

The main cloud in the image is either a Nimbostratus or Cumulonimbus, and there is a small amount of stratocumulus in the distance. The biggest cloud was either Nimbostratus or Cumulonimbus because it was slightly raining earlier in the day and is large and dark. However, from this photo, it is difficult to tell whether the cloud was very tall and fluffy, indicating a Cumulonimbus, or flat, indicating a Nimbostratus. Additionally, the cape was 20.23, as shown in the Skew-T diagram in figure 1 below, meaning that the atmosphere was slightly unstable. As such, it is difficult to determine the identity of this cloud. It is also important to note that the Skew-T diagram was taken from the station in Grand Junction, and there is an inherent error in the data. Boulder's atmosphere could be more or less stable than indicated by the diagram. However, the stratocumulus clouds in the distance are more identifiable due to their flat bottoms and fluffy tops. All three cloud types usually form at an elevation of 5000 - 10000 m which is consistent with the skew-T diagram showing the cloud elevation to be around 7000 m. At the time of the image, the temperature was 84°F with 16% humidity, a pressure of 25.1 inHg, and wind speeds of 6.3 mph east. The weather before and after the image was very similar to the weather when this image was taken. The other images of clouds from my peers from the days surrounding my image were indicated to primarily be stratocumulus and altocumulus suggesting a more stable atmosphere. The low cape, the lack of thunder during the day, and the other cloud images during similar times, lead me to believe that the main cloud in the image is Nibostratus rather than Cumulonimbus.

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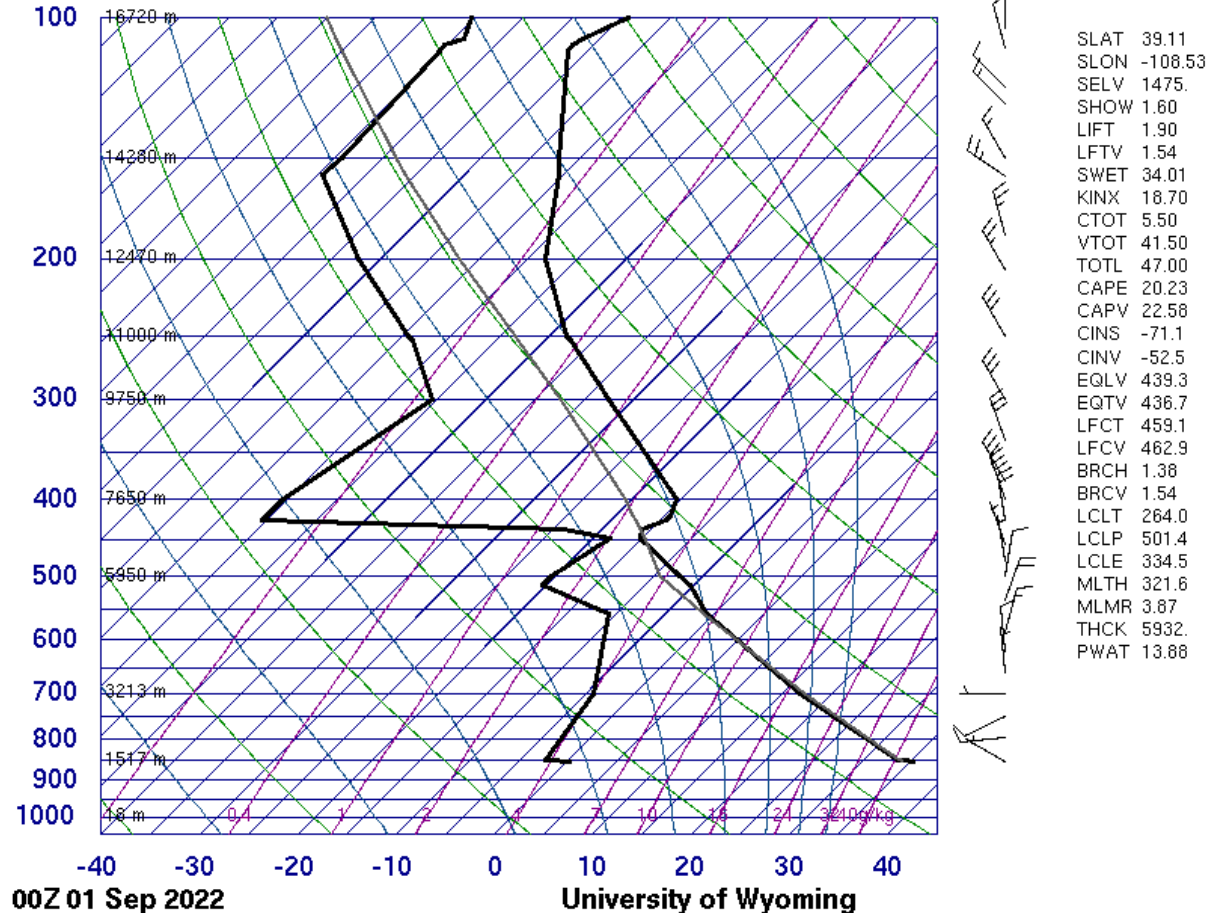


Figure 1: Skew-T diagram from Grand Junction station for August 31 at 6:00 pm local time

IMAGING TECHNIQUES

A Canon EOS Rebel T7i camera with an 18-55 mm lens was used to take this image. The edited image has a field of view of about 30 m wide according to the foreground trees. The camera specs were set to a focal length of 18mm, an ISO of 100, an aperture of f/7.1, and an exposure of 1/250. I chose these settings because the sky was a mixture of light and dark, and I want to make sure that I capture the full details of the sky. Additionally, I used an 18mm focal distance because it allowed me to capture more of the sky than with a higher focal length. The image was edited in Darktable. I cropped the image and added an S-curve to the rbg curve. Additionally, I added a mild blue color correction to make the sky vibrant and added a +0.08 contrast. The original image and the edited image can be seen below in figures 2 and 3.



Figure 2: Original Image: 6024 x 4020 pixels



Figure 3: Edited Image: 6016 x 4010 pixels

CONCLUSION

I like this image because it has a beautiful mixture of dark, stormy clouds and bright, fluffy clouds. I like that this image has a strong diagonal, and I like the mixture of colors between the blues of the sky and the green of the trees. I wish I would have noted the 'fluffiness' of the storm cloud, but I remember that it was difficult to tell if it was flat or not from where I took the image.