Cloud First

By: Travis Smith

CU Boulder

MCEN 4151 Flow Visualization

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Figure 1: A photo of altostratus and altocumulus clouds taken on the 8th of September 2024 at 4:06 PM MT outside of the LEEDS School of Business at CU Boulder.

Introduction/Background

This image was taken for the Cloud First assignment in the Flow Visualization class at CU Boulder. The intent of the image was to capture the yin and yang formation between the altostratus and altocumulus clouds.

This photo was taken outside of the LEEDS School of Business at CU Boulder looking almost straight up. It was taken on the 8th of September 2024 at 4:06 PM Mountain Time, or 22:06 UTC.

Discussion

Seen in this image are altocumulus clouds (top left) above altostratus clouds (lower right). As seen in the ceilometer data from Skywatch Observatory in Figure 2, the clouds at this time range from close to ground level to 4,500 m above ground level, which equates to 6,100 m above sea level. In the image it appears that the altocumulus clouds sit above the altostratus clouds in this range of altitudes.
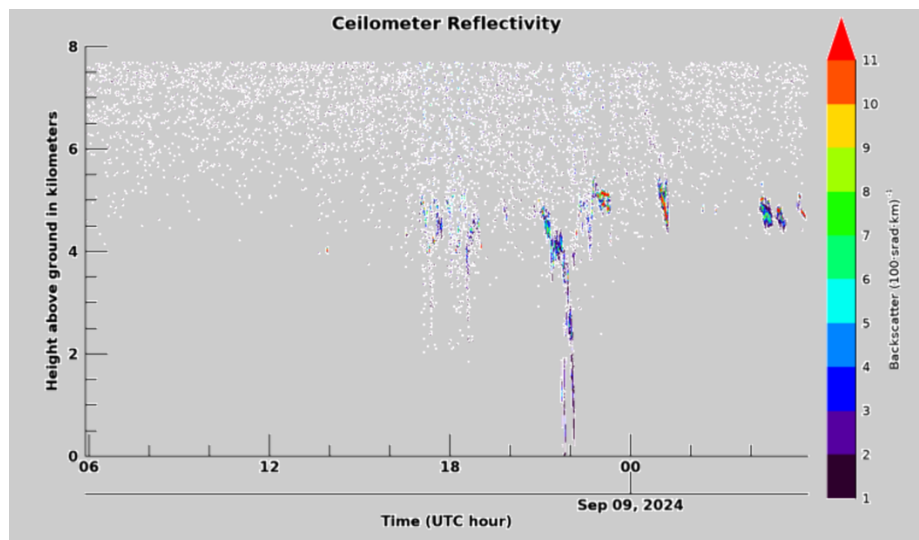

Figure 2: Ceilometer data taken by the Skywatch Observatory in Boulder Colorado.

Looking at the skew-T recorded from Grand Junction Colorado at 00 September 9th UTC (Figure 3), it shows possible cloud layers at 5,900 m and 6,600 m above sea level that could line up with the data from the ceilometer and the type of clouds seen.
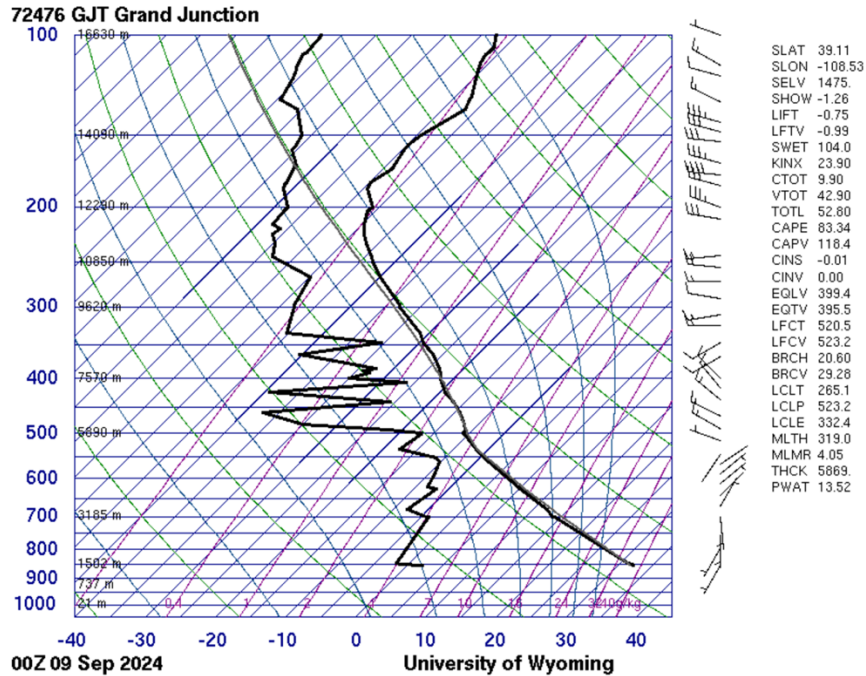
Figure 3: skew-T data from the weather balloon station in Grand Junction Colorado taken at 00 UTC on the 9th of September 2024.

The weather was in the mid 80's with no precipitation in the week surrounding date of the photo. Looking at the skew-T chart in Figure 3, you can see that the CAPE was 83 meaning that the atmosphere was mostly stable.

This photo was taken on an iPhone 13 pro using the 26mm, 12 MP and f/1.5 lens. It had an exposure time of 1/16393 seconds. The original photo was 4032 × 3024 pixels, and the edited photo was 3750 × 2812 pixels. Slight adjustments were made to the contrast and saturation as seen when comparing to the original image in Figure 4.

Figure 4: The original unedited photo.

  I like the symbolism that this photo brings with the two types of clouds mixing and the different colors of the sky that accompany them. I feel like this image captures the intent I was trying to get out of it, but if I could go back, I would have liked to try a few more angles of the clouds to better capture what is currently the lower left corner of the photo.