

Altostratus Sunset

Alyx Ellington — Assignment: Clouds Second — MCEN 5151 - 002
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Figure 1: Altostratus clouds

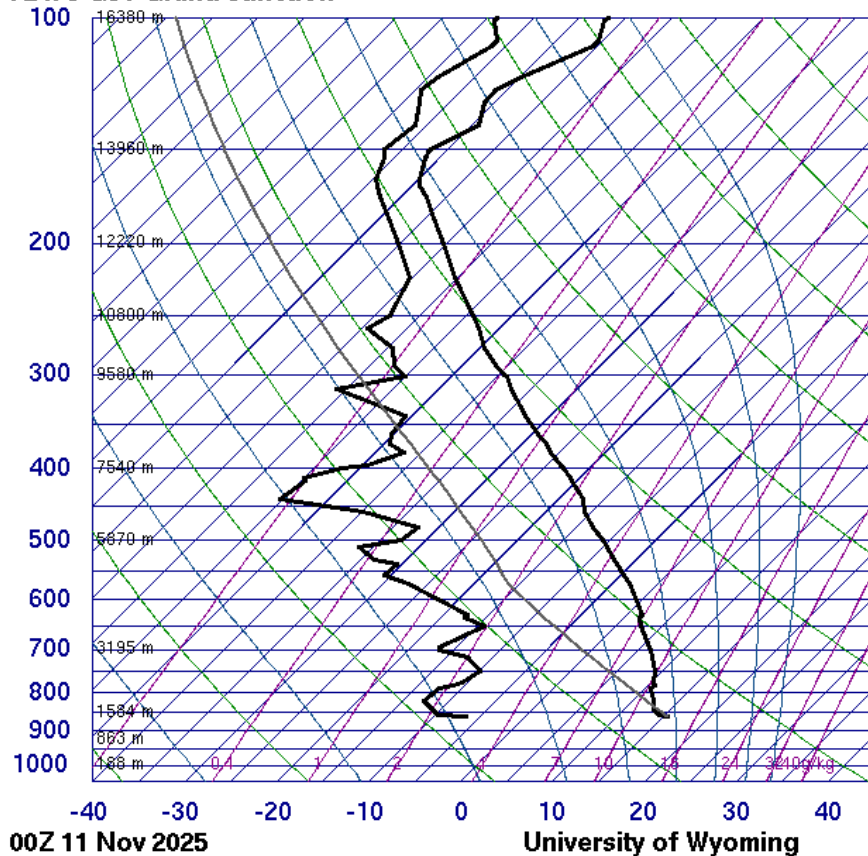
Background

This image was taken with the intent of capturing striking cloud phenomena. The photo was taken at 5:19pm on November 10th, 2025 from CU Boulder's East Campus. The image is facing west and slightly north with a camera elevation of 20-30 degrees.

Cloud Analysis

The Skew-T diagram in Figure 2 shows a stable atmosphere with a CAPE value of zero.

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SLAT 39.11
 SLON -108.53
 SELV 1475.
 SHOW 13.41
 LIFT 13.24
 LFTV 13.15
 SWET 30.98
 KINX -8.70
 CTOT 0.50
 VTOT 24.50
 TOTL 25.00
 CAPE 0.00
 CAPV 0.00
 CINS 0.00
 CINV 0.00
 EQLV -9999
 EQTV -9999
 LFCT -9999
 LFCV -9999
 BRCH 0.00
 BRCH 0.00
 LCLT 257.3
 LCLP 576.2
 LCLE 307.4
 MLTH 301.2
 MLMR 1.96
 THCK 5682.
 PWAT 6.11

Figure 2: Skew-T Diagram [2]

The Skew-T and visual of the clouds indicate that the clouds are likely altostratus. The winds were low and the sunset remained until approximately 5:30. The image shows a repeating wave pattern which may indicate undulatus clouds. However, it is more likely that the image shows a transition between stratus, altostratus, and undulatus clouds rather than a single cloud type.

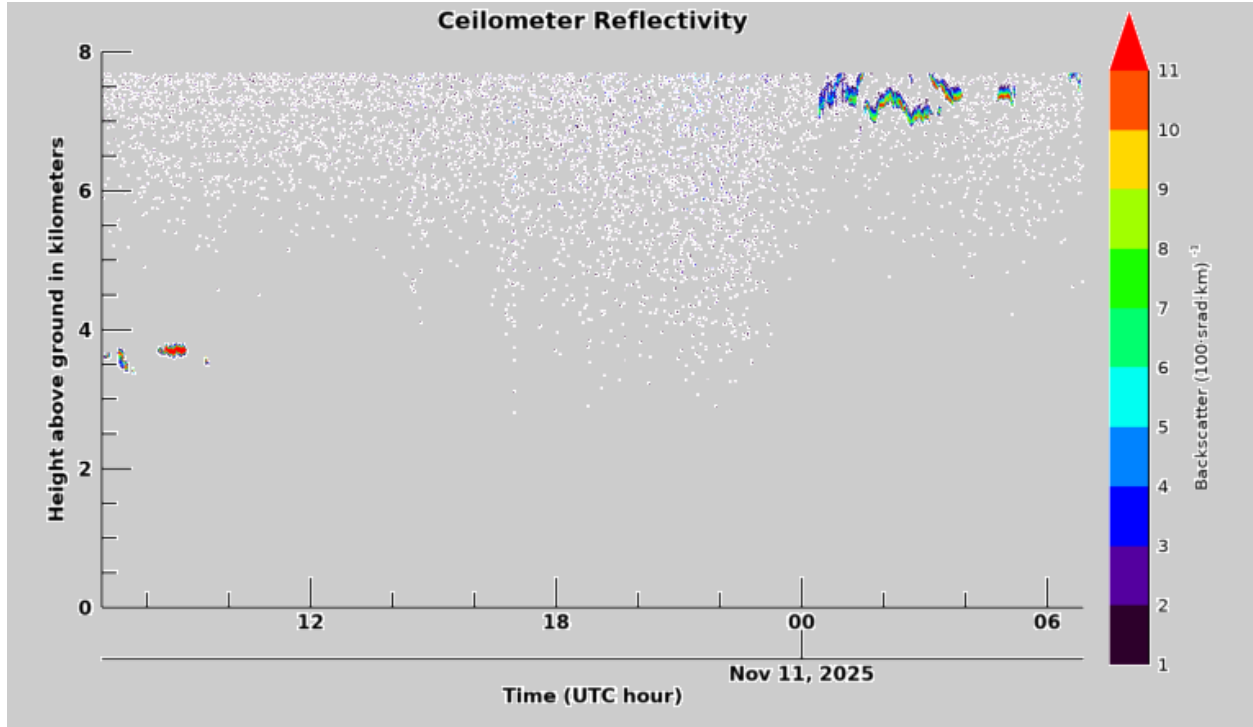


Figure 3: Ceilometer reflectivity from Skywatch Observatory [1]

To further determine the cloud height and type, we can look at the Ceilometer reflectivity from the Skywatch observatory in Figure 3. Since the image was taken from East campus near the Skywatch observatory, the data is particularly relevant. Around 00:19 UTC on November 11th (5:19 PM on November 10th local time), the ceilometer shows a compact region of reflectivity centered near 7–8 km above ground level. This height lies near the upper bound of the typical range for altostratus. This suggests a relatively high based cloud deck or possibly a transition toward high clouds. The large backscatter values at this level indicate a thick, dense cloud layer. This is consistent with thicker cloud types like altostratus.

Photographic Technique

All camera settings, specifications, and edits are shown in the following table.

Table 1: Capture and Processing Details

Camera	iPhone 15
Image Size	Original image: $[5712 \times 4284]$ px Final image: $[5712 \times 3973]$ px
Settings	f/1.6, +1.81 EV, 6mm focal length, ISO 2000
Processing	Crop, and increase green-magenta contrast

The most notable difference between the original and final image is the cropping and increase in green-magenta contrast.



(a) Original



(b) Edited

Figure 4: Original vs. edited

Conclusion

This image captures a high deck of altostratus clouds, with a subtle wave pattern that may hint at an undulatus structure. The pink light from the sunset really brings out the contrast between the upper and lower layers and highlights the thick, blanket like look of the clouds. I'm especially proud of the range of colors in the photo from the bright pinks to the deep purpley blues and the softer blue sky. In person, the sunset felt much darker, moodier, and almost eerie. While my final edit looks more delicate and light than what I remember, I still really like how it turned out. Overall, I'm happy with the image, and I enjoyed digging into the ceilometer reflectivity data to better understand the cloud height and thickness behind what I was seeing.

References

- [1] CU Boulder Skywatch Observatory. (n.d.). Skywatch Observatory. Retrieved December 4, 2025, from <https://skywatch.colorado.edu/>
- [2] University of Wyoming. (n.d.). Upper Air Sounding. Retrieved December 1, 2025, from https://weather.uwyo.edu/upperair/sounding_legacy.html