

Making of: Altostratus at Twilight

Clouds First

MCEN 5151

19 October 2025

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1 Introduction

In this first clouds assignment, I wanted to capture the cloud structures which form over the Flatirons in Boulder as well as the rich hues at sunset. It took several attempts since the Rockies tend to gather large masses of clouds which block the sunset light from reaching clouds along the front range. On the evening of September 29 however, I drove up to an overlook and discovered a lone cloud hovering over the Flatirons with a clear sky visible behind. After waiting for the sun to lower more, I captured the orange-red colors of the late sunset reflecting off the bottom of the clouds. Using the unique lighting angle and colors, *Altostratus at Twilight* illuminates cloud physics while also embodying the natural beauty of clouds.

2 Setup

The photo was taken from the scenic overlook along the US 36 Westbound when descending into Boulder on September 29, 2025 at around 7:47 PM local. Facing West with a slight angle of about 5-10 degrees, this image captures the tops of the flatirons and the late-hour sunset light reflecting off the clouds. The clear sky behind the primary cloud was key to ensuring the light reflected off the bottom of the cloud.

3 Cloud Physics

This image prominently features stratocumulus clouds directly over the Flatirons. In the background on the right side, distant altostratus clouds are visible which reflect a pink light against the blue sky. The mix of cloud types indicate regions of varying stability throughout the atmosphere. As seen in Figure 1 below, the atmosphere is relatively stable with only one significant pocket of instability around 5 km in altitude. This means that the cloud types will generally be stable cloud types with some slightly unstable clouds forming around that 5 km altitude. The altostratus clouds seen in the background are a stable cloud type which forms at high altitudes. The stratocumulus clouds are a slightly unstable cloud type which form at lower altitudes. The large stratocumulus cloud featured in the image likely formed in the pocket of instability around km leading to this distinct cloud formation.

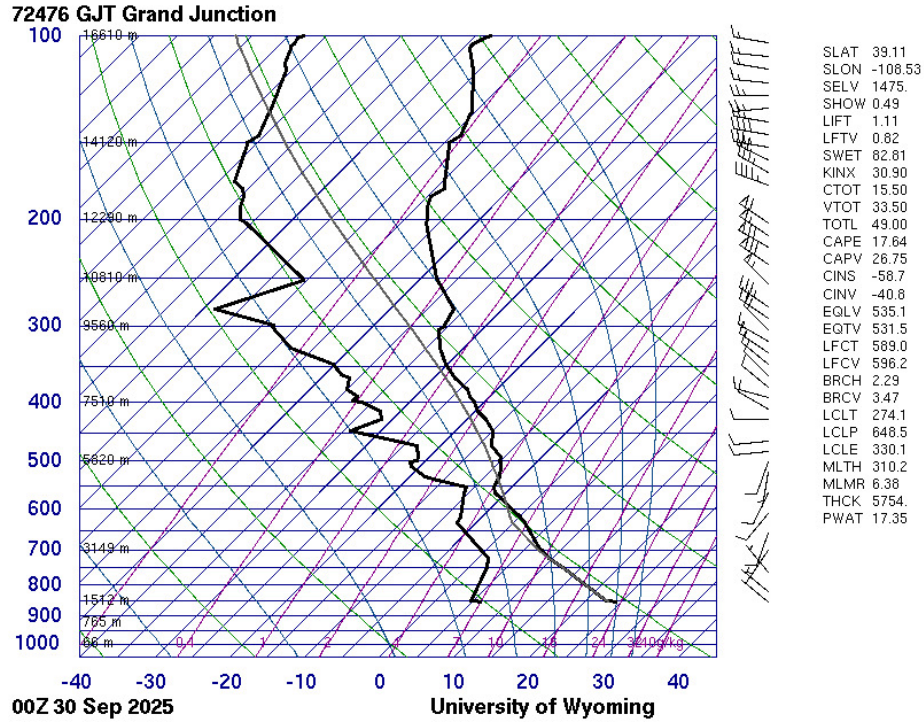


Figure 1: SkewT diagram from Grand Junction on September 29, 2025 at 6pm local [1]

4 Visualization and Photography

The image was captured using a Canon EOS 7D Mark II DSLR camera. The camera used an ISO of 640, f/ of 14, shutter speed of 1/125 sec, and focal length of 27 mm. While the cloud shapes and lighting were subtly changing over time, on the scale of seconds, no significant changes were noticeable. Thus, the flow was relatively stationary during the capture time. Figure 2 below compares the raw and final images. The raw image has a resolution of 5496 x 3670 pixels while the final edit has 5496 x 1896 pixels. This cropping focuses the image on the low-lying group of clouds and the colors present therein. The contrast is enhanced by making some of the lightest pixels lighter and darkest pixels darker. On the dark end, this enabled the Flatirons, which were already the darkest part of the image, to be completely blackened into a silhouette. color calibration was altered slightly with a color correction temperature of 4095 K. This helped to bring out the blues which enhance the orange-blue contrast.



Figure 2: Comparison of unedited and final images, top and bottom respectively

5 Conclusion

Altostratus at Twilight portrays a variety of cloud layer highlighted by the rich colors of sunset. The combination shade and color contrast in this image are dramatic yet complimentary. Some questions remain about how the topology of the Flatirons act to create the clouds in the image. Future work could try to put this formation into context by comparing to other examples of similar cloud types around the Flatirons on different days.

References

- [1] 72376 *GJT Grand Junction*. University of Wyoming, Sep 2025.