Making of: Brushstroke

Clouds Second
MCEN 5151
5 December 2025

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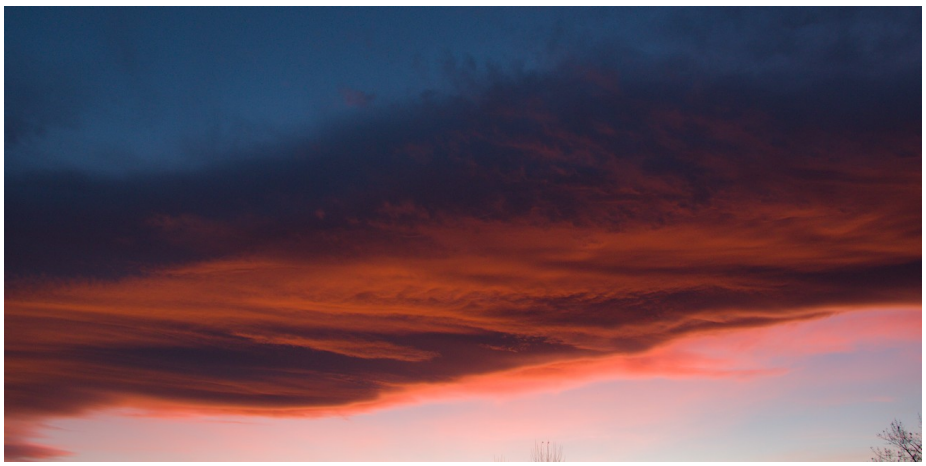

1 Introduction

After my clouds first image, I continued to pay close attention to the sky at sunset to see if the clouds presented an interesting image. The timing became more complicated as sunset drew closer to work hours, but I kept looking up. After finishing classes for the day on November 10th, I noticed a striking sunset cloud out the window of the CU Aerospace building. With fleeting sunset light, I rushed outside with my camera and captured this image. These clouds were different from my prior capture; the smooth, broad cloud textures imitated a painter's work. This key difference piqued my interest in finding what physics were responsible for the cloud formation in *Brushstroke*.

2 Setup

The photo was taken from behind the Ann and H.J. Smead Department of Aerospace Engineering Sciences building on November 10, 2025 at around 5:06 PM local. Facing West with a angle of about 20-30 degrees above horizon, this image captures part of a broad cloud that spanned the sky. This cloud ran roughly parallel to the mountains, and the twilight light is illuminating the cloud and the sky.

3 Cloud Physics

This image prominently features an altostratus cloud at twilight. The SkewT diagram seen in Figure 1 below shows the atmosphere was stable with a CAPE of 0. The stable atmospheric measurement and relative lack of puffy cloud features align with status clouds. However, the SkewT diagram did clearly highlight an altitude for cloud formation. According to the CU Boulder Skywatch, these clouds formed at an elevation of about 7 km [1], so the alto prefix could be considered for this cloud. Thus, the smooth, soft textures observed in the image are likely a result of the stable atmospheric conditions present at the time.

The position of the cloud parallel to the mountains may suggest some orographic effects on creating the cloud structure. Many photographers in the class captured the same cloud at a similar time, and their images could suggest undulatus categorization.

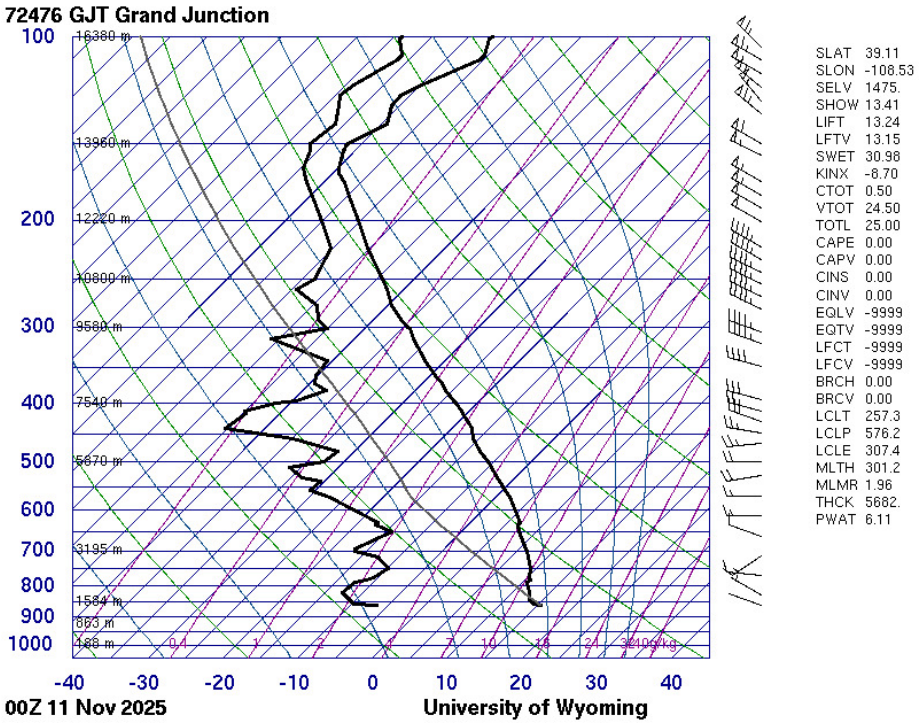

Figure 1: SkewT diagram from Grand Junction on November 10, 2025 at 6pm local [2]

4 Visualization and Photography

A Canon EOS 7D Mark II DSLR camera took the photo with an ISO of 640, f/ of 5.6 and focal length of 18 mm with shutter speed of 1/30 sec. 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 2727 pixels. Darktable performed the post-processing. I edited the contrast slightly to brighten some of the dark areas and darken some of the brighter pixels. Color contrast was also enhanced by changing the green-magenta and blue-yellow contrast from a base-level 1 to 1.1. This helped to bring out the hues of the sky below the cloud along other colors.

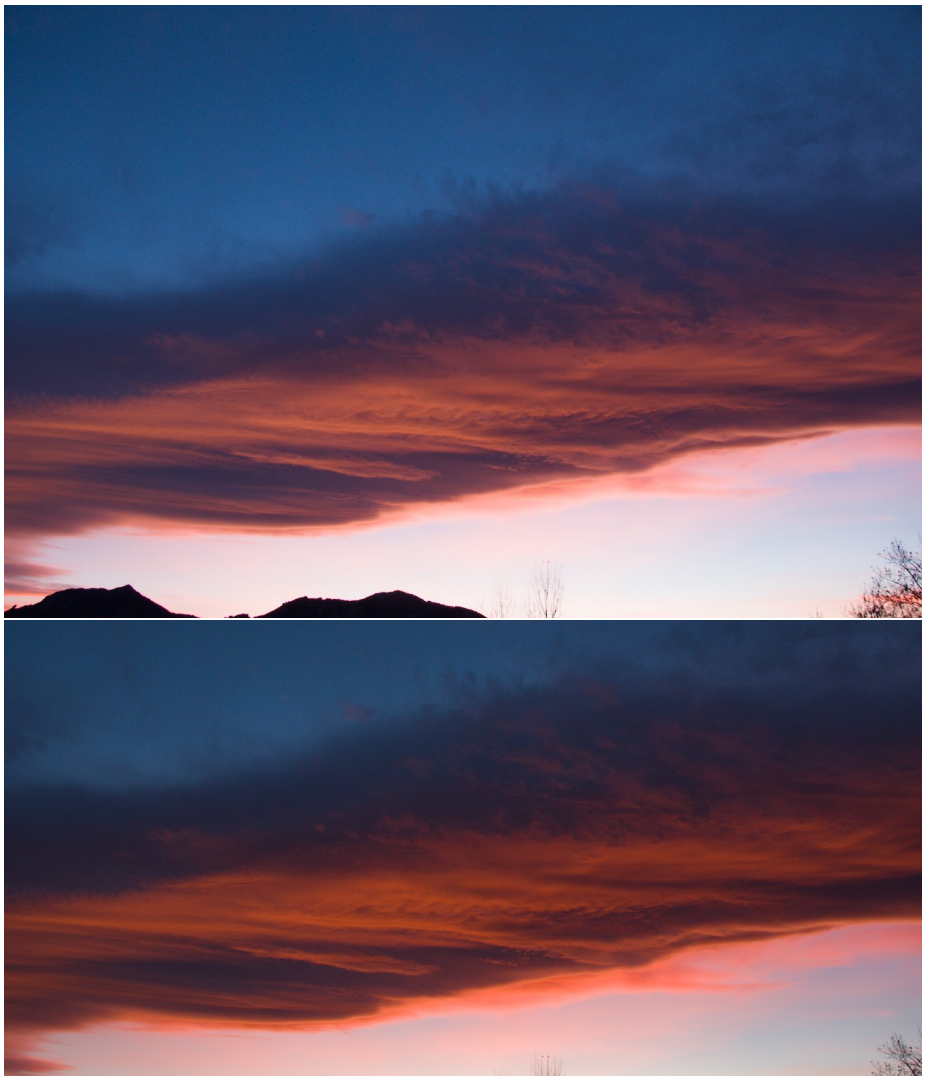

Figure 2: Comparison of unedited and final images, top and bottom respectively

5 Conclusion

Brushstroke leverage the twilight conditions to highlight the dramatic effect atmospheric instability plays in creating unique cloud textures. I feel like the colors of this image are especially dramatic with the focus divided between the light and dark sky above and below. One aspect not portrayed in the image was the scale of the cloud's expanse across the sky. The cloud spanned a field of view of at least 100° across the sky, but such a range would require multiple captures

to portray. Future work using panoramic techniques could better capture the extreme expanse of the cloud across the sky.

References

[1] *Ceilometer Reflectivity*. Department of Atmospheric and Oceanic Sciences.

[2] *72376 GJT Grand Junction*. University of Wyoming, Nov 2025.