Clouds II

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MCEN 5151

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Figure 1: A golden Minnesota sunset on November 19th, 2022, 4:52pm.

Introduction

Although the beauty of Colorado is near limitless, the Front Range does have a unique deficiency. The beautiful Rocky Mountains obscure the horizon, or at least elevate it. This reduces the visible effect of light scattering, the phenomenon which causes the golden red color of sunsets. Minnesota, with its unbroken flatness, allows this maroon and gold color to be broached across the sky.

At sunset, the golden color comes from the particulate matter in the atmosphere. Scattering of short wavelength light, such as blue and violet wavelengths of light

Circumstances

Waldorf Minnesota, and its surrounding areas, has been home to the Kelling family farm since 1886. Although not where I grew up, I spent many holidays and summers. My parents, recently retired, returned moved closer to our aging family to my dad's hometown. I have

appreciated the phenomenal sunsets in this part of the country for years. Returning home for Thanksgiving, I set out to capture a sunset from my final cloud image in MCEN 5151.

Figure 2: Weather Data

A cold, windy day, I set out for my daily run at on November 19th at 4:05pm. Later in the day usually yields warmer temperatures and allows me to procrastinate being in the dreaded weather. With the entire road network in this area being a gridwork around farm fields, I convinced my mom to pick me up, allowing a one way, with-the-wind run, and allowing me to have a camera ready at sunset.

The weather that day was frightful. A temperature of 13°F and an 18mph wind, giving a wind chill of -4°F. The humidity was 71% with a dew point of 6°F. With good visibility and a clear sky, the sunset at 4:44pm would provide a good golden sky. At the end of my run, I was picked up and began photographing. Facing 217°SW from the location 43.910750, -93.627306, I was able to capture a beautiful golden sunset of cirrus and altostratus clouds with a contrail.
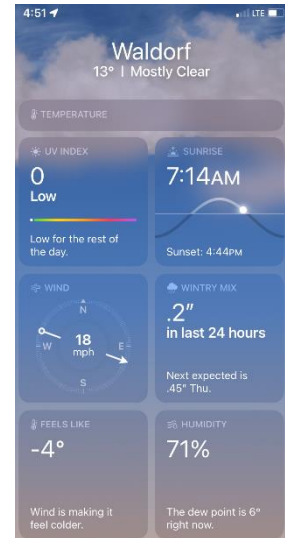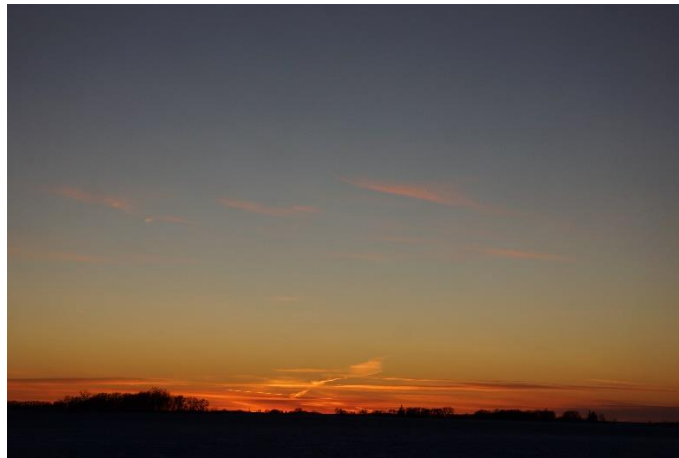

Figure 3: Unedited Original Photo

Cloud Data

The Skew-T diagram for this day at the closest location, Chanhassen, Minnesota, just 75 miles away, shows the atmospheric conditions at a range of temperatures. One indication of the level of clouds is the indentation of the left line, the dewpoint, towards the right line, the temperature. This indentation occurs below the 2500m level above ground level. This is confirmed by the photo, that most of the clouds are lower to the ground.
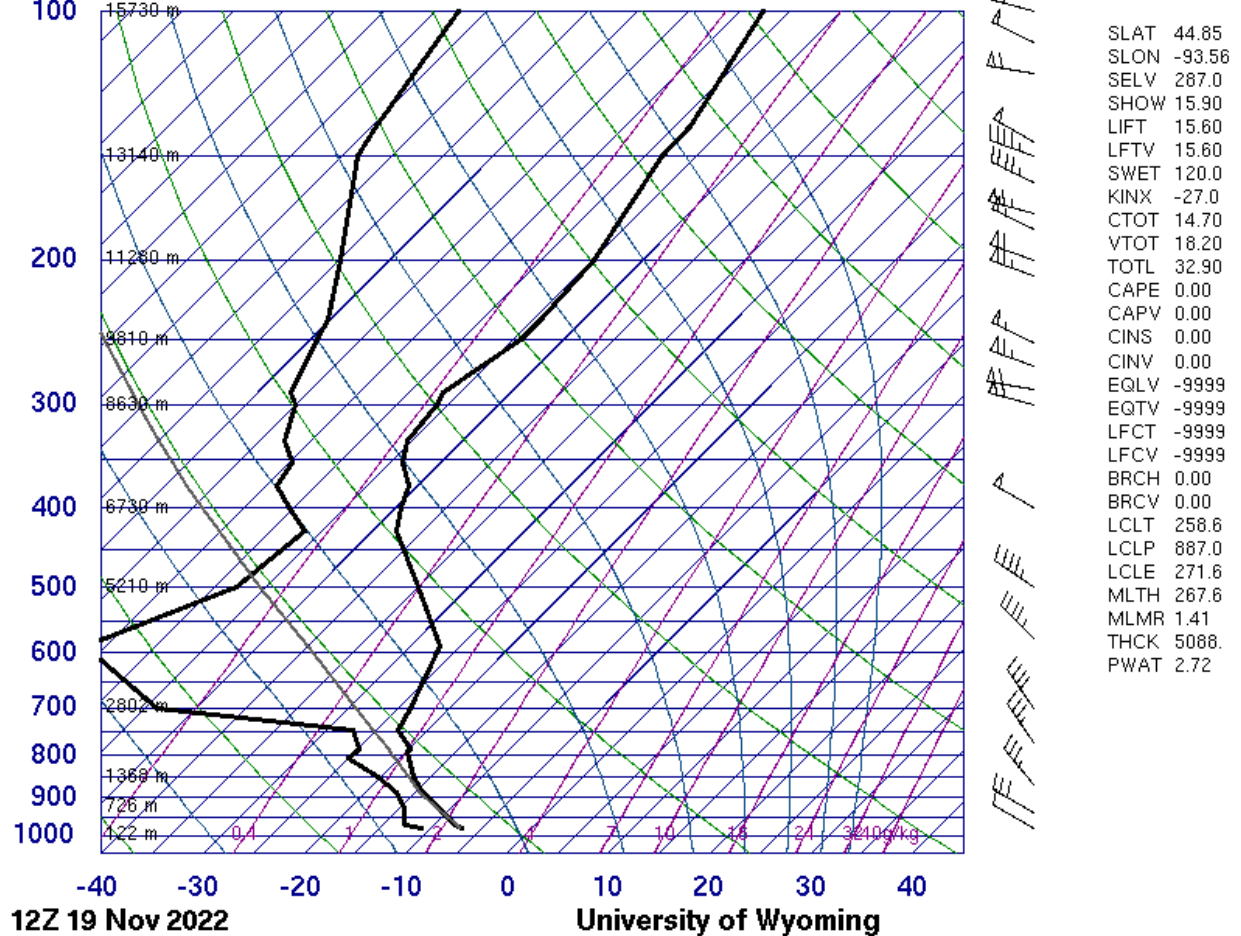
Figure 4: Skew T Diagram (University of Wyoming, 2022)

Photographic Techniques

The camera, a Sony Nex-7 Mirrorless, was used to capture this image. The **70-300mm** focal length lens was used, allowing a closer zoom for far away clouds. The F-Stop was f/6.3. The exposer time was 1/160 of a second. The ISO was 100. The focal length was 55mm. The aperture was 4.3. The original image's dimensions were 6000x4000 pixels. The final image was cropped to 5935x2653 pixels to allow a tighter focus on the bottom clouds and horizon silhouette.

This image was edited in dark table to enhance its looks. The image was cropped to increase attention to the bottom clouds, as well as the RGB curve being manipulated to bring out a richer red sunset and a dark silhouette.

Artistic Results

This image successfully captured my intent of capturing a rich, golden, Minnesota sunset illuminated clouds. This image allowed me to share a beautiful scene that I have admired for years.

Bibliography

University of Wyoming. (2022, November 19th). *Chanhassen Skew T*. Retrieved from
　　　University of Wyoming Weather: http://weather.uwyo.edu/cgi-
　　　bin/sounding?region=naconf&TYPE=GIF%3ASKEWT&YEAR=2022&MONTH=11&F
　　　ROM=1912&TO=3012&STNM=72649