MCEN 5151-003 Flow Visualization — Clouds 2

Pablo Botin Garcia Planas

December 8, 2024
Boulder
Lenticular Sunset Cloud

Figure 1: Edited photograph.

The photograph taken for this clouds assignment shows a single lenticular cloud, floating close to the ground over a parking lot in Boulder. The motivation behind this photo was the beauty and particularity of the cloud, with its vivid colors and unique shape and texture, which stood out in the dark light of the post-sunset. Spontaneously taken with my iPhone 12, the image evokes a sense of melancholic genuine wonder. This assignment combines scientific observation with artistic expression to explore the dynamics of cloud formation and their aesthetic appeal.

The shoot was taken from a parking lot in Boulder, after buying groceries for a lovely dinner with friends at my house. With the camera oriented towards the south. The image captures a moment during sunset when the sky was transitioning to twilight, intensifying the dramatic red and orange reflection. This specific lenticular cloud formation was observed on October 26, at 6:51 pm. The skies were clear and the weather was calm and stable. Despite the lower quality implied on using the iPhone instead of the DSLR, the cloud's unique qualities made it the selected choice for this project, among many other collected cloud pictures.

The focus of the photograph is a single lenticular cloud, noted for its unique lentil shaped structure and vibrant reds and oranges. Lenticular clouds form under stable atmospheric conditions and are typically stationary, resulting from moist air condensing as it flows over geographic barriers like mountains. According to the critique's expert. These clouds are commonly found in the Front Range. The low-altitude positioning of

the cloud allowed for a highlighted reflection of the warm light of the setting sun. The colors are a result of light scattering during sunset, contrasting the brilliancy of the cloud with the darkening sky.

While the atmosphere was stable during the time of capture, the presence of such a prominent lenticular cloud suggests significant orographic lifting in the region; the Flatirons. The unique appearance of this formation and the sunset colors highlight the aesthetic and scientific importance of this post.

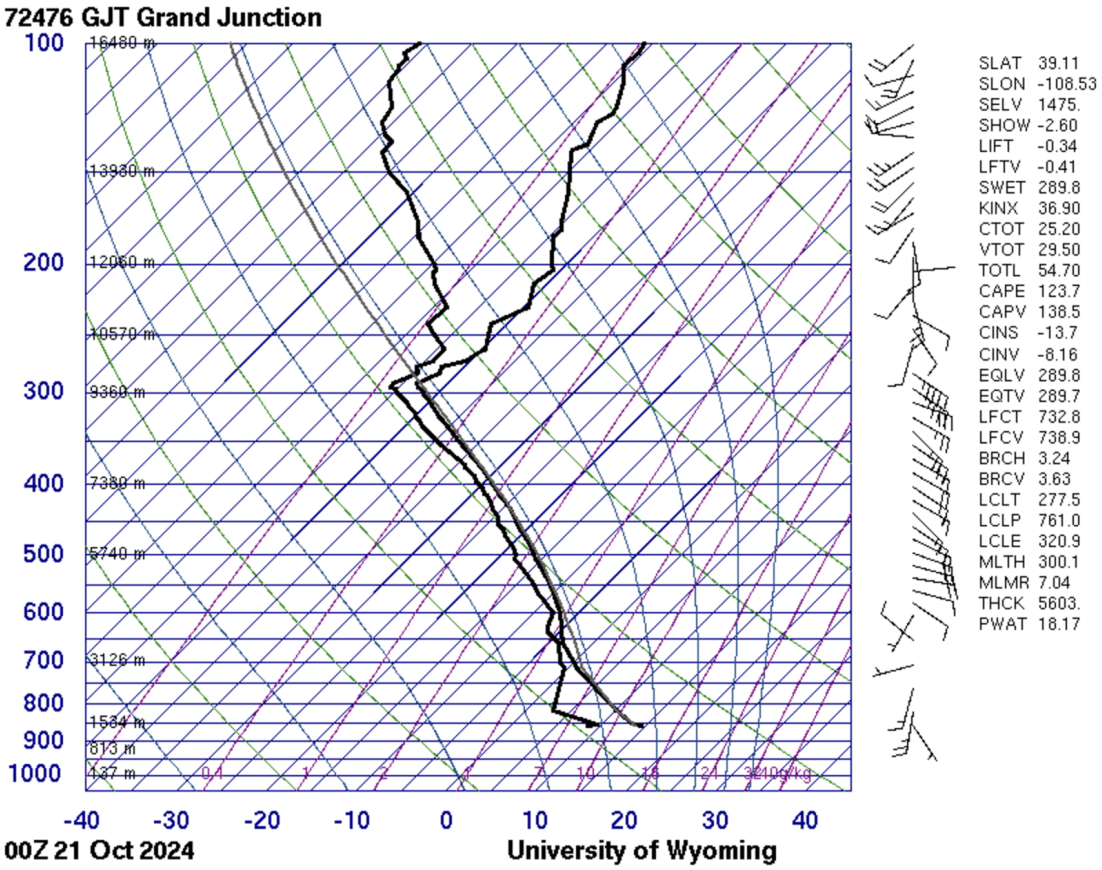

Figure 2: skew T chart. October 26th.

Based on the low angle of inclination and cloud height, the distance to the clouds is estimated to be in the lowest atmospheric layer and pretty close to the shooting point. It was spontaneously photographed using the long exposure setting of the iPhone 12. This extended exposure was necessary, since it was pretty dark already. Simple post-processing was applied to enhance contrast and color balance, ensuring that the vivid hues of the cloud were accurately represented. No extensive cropping or additional editing was performed to preserve the authenticity of the moment captured.

I used my Fujifilm X-T2 DSLR with a 35mm lens to record the original motion video. The field of view was approximately 90 degrees, according to some rough space approximations and basic trigonometry calculations (see figure**??**). This allowed for a wide perspective of the cloud formations above the lake.

Camera model	Fujifilm X-T2
Lens	EF-S18-135mm f/5.6
Focal length	120amm
Aperture	5.0
Exposure	1/500
ISO	400
Image size	5202 x 3464
Cropped image size	4200 x 2600
Field of view	2 km x 500 m

Table 1: Camera Specifications

During the post-processing phase, several techniques were applied to enhance the visual impact of the video. First, I adjusted the exposure and slightly increased the brilliance to accentuate the vibrant colors of the sunset reflection. Additionally, I cropped the image to remove the distracting view of the parking lot streetlights and refined the cloud shape for a more balanced composition.

Figure 3: Original photograph

I feel that I successfully achieved my goal of incorporating cloud observation into my daily life and capturing them through photography. This image is just one of many I've taken, but it stands out as my favorite.