

“CLOUDS SECOND”

Image Context Report

ABSTRACT

This report will provide context for my second cloud image in the fall 2016 flow visualization class.

Daniel Luber

Flow Visualization: The Physics and Art of Fluid Flow

1 CONTEXT AND PURPOSE

I have tried a slightly different technique than my previous cloud photo for the fall 2016 section of flow visualization. The objective of this assignment was to capture the flow of cloud formations. Ideally capturing a unique cloud phenomenon. This usually resulted in lots of photos over a 3-week time frame. We also were told to evolve upon our technique from the last session of cloud photos. This photo was taken on a bridge on foothills parkway in Boulder, Colorado. A set of friends and I were on our way to Avery Brewing in Gun Barrel on a Friday evening. I was watching this sunset develop over the course of the drive. I stopped my vehicle on the bridge crossing pearl street. This photo is a lot more panoramic than any of my previous photos and I like the way It turned out. I have to say that upon further reflection, I wish I had decreased increased the contrast and shadows to try and put more of the foreground in a silhouette. However, there is a part of me that is comfortable knowing that I didn't adjust the features of the photo in a substantial way. I feel like this round of cloud submissions my photo is truer to the appearance of the actual cloud formation.

2 FLOW APPARATUS

In the case of cloud flow photography, the flow apparatus is effectively the atmosphere. Given that the atmosphere is constantly changing, the flow apparatus is best described by the atmospheric conditions at the time of the photograph. The particular clouds in the case of this photo seem to either be of an

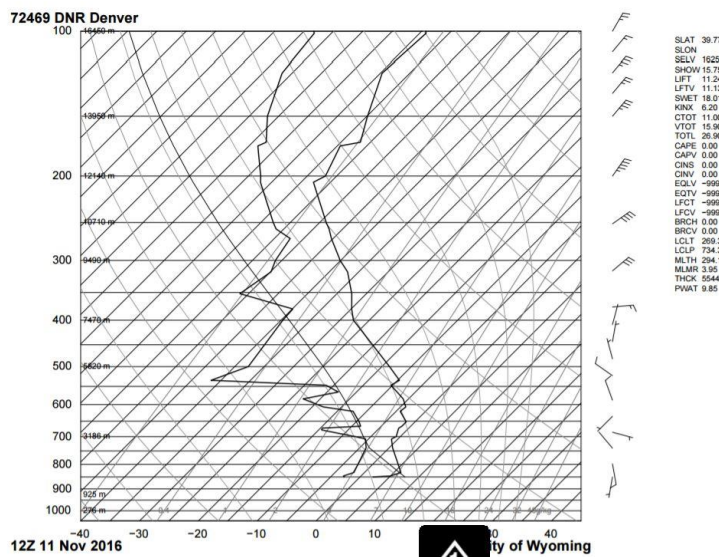


Figure 1 - Skew-t Plot

altocumulus, altostratus, or both in terms of classification. This cloud formation occurred in a stable atmosphere as seen by the zero value for CAPE in the Denver Skew-T diagram for the time of day the photo was taken. I would again argue that this isn't necessarily accurate. Like my first cloud photo, I was seeing many transitional and unstable characteristics in the cloud structures at the time of the photo. There was a large bracket of time between the Skew-T data was recorded and the photograph was taken. This transition between atmospheric states could have easily begin to occur or already transpired.

Most of these cloud formations must have been above 5000 meters based upon the Skew-T data. It seems that the clouds were generally heading in a north eastern direction. This agrees with the formations and the general direction they were heading.

The last portion of the apparatus I would like to touch on is the lighting. The setting sun offers very unique colors to the photographic situation. The light passing through greater portions of atmosphere

creates this effect. Additionally, given the time of year, the sun sets in a more southern latitude. This gives the photo a unique lighting direction.

3 DESCRIBE THE VISUALIZATION TECHNIQUE

The visualization technique is quite natural in this photograph. Relatively minor lighting and color effects were done in post processing. You can see that when comparing the figure 2 and 3 below. Figure 2 is the original image before post processing and Figure 3 is the image after post processing.



Figure 2- Original image before post processing

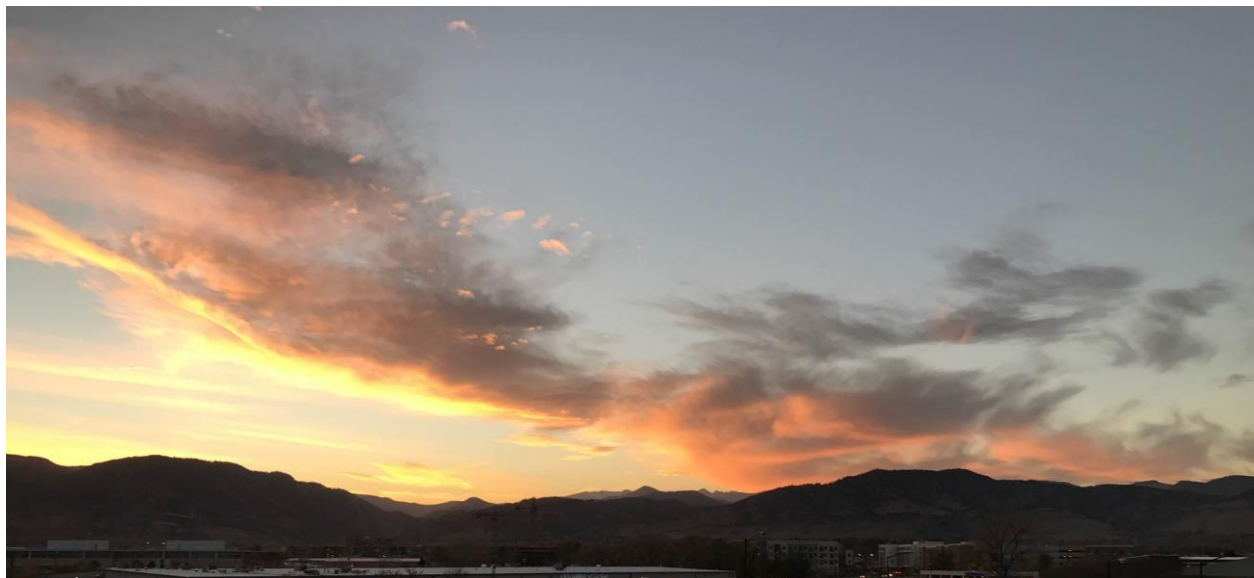


Figure 3-Final image after post processing

You can see that the colors were augmented that much at all between the original and final photos. The photograph was cropped and straightened substantially before posting.

4 PHOTOGRAPHIC TECHNIQUE

I'll begin my discussion on my photographic technique with my camera. I am using a Canon 7D DSLR camera body. Capable of achieving 18.1 MP of resolution in its highest quality mode. The camera has a APS-C sensor, not a full frame. At the time I was using a Canon 18-200 mm F/3.3-5.6 lens. The lens had a Tiffen UV filter on it as well. The camera modes for this particular image were as follows, F/3.6 (lowest with the current zoom state of lens), ISO-100, Exposure time of 1/200 sec. with a focal length of 22 mm of zoom at the time. The mountains pictured in the foreground are approximately 4.5 miles away.