

Cloud 2 Report

This is the second cloud assignment and the purpose this assignment was to capture the clouds formation images in order to gain better knowledge of uncontrollable flow in the sky. Rather than just taking a single picture of clouds formations, my intention was to produce a panoramic image in order to capture the constantly changing clouds dynamic affect based on different regions throughout Boulder.



Figure 1. Final image

All of my images were taken on April 10, 2011 between 3 to 4pm; near Flagstaff area (elev. 6000 Ft.), since this was a panoramic image thus required multiple images (total of six images) as camera was rotated to capture the prospective of wide view. My far left image began from North Boulder up near Haystack to far right image near Valmont power station. As you may noticed in fig.1, there are a few different clouds formations depending on the region. I was able to make a scientific prediction of the clouds formations and its atmosphere stability by using available resources: Atmospheric Sounding Data [1] and the general weather data of the previous and the following day [2]. One thing to know is the nomenclature of clouds. Clouds are classified based on heights and appearance. Most clouds fall into one of ten groups, or genus and any possible combination of variability. I believe clouds in my final image are Stratocumulus virga, Stratocumulus opacus, and Nimbostratus virga.

One of which Stratocumulus is one of the most common clouds, it is the composed of clumps or rolls, and often show large variations in tone – from white to dark grey [3]. Stratocumulus clouds elements may be joined into form a continuous layer or have gaps between them. Opacus and virga are identified as a possible variability. Opacus occurs when the layer is thick enough to obscure the position of the sun or moon [3]. Virga is observable streak of precipitation that falls from a cloud. This happens because as ice crystals at high altitudes falls before melting and evaporates as the air pressure increases and air is heated as it approaches closer to the ground [4]. Both types of variability can be seen in figure 1.

Based on the sounding data of 00Z 11 Apr 2011 suggested that these were possibly combinations of low and middle region clouds which exist between just below 8,500 Ft. up to 13,000 Ft. The CAPE was 0 that day which meant that the atmosphere was stable but I disagree. In my opinion it was actually conditionally stable as my image showed some precipitation off to right. The inaccuracy of the sounding data may have been resulted because the data was taken from Denver International Airport (DIA) which could have been a bit different than Boulder atmosphere condition. Next the general

weather conditions of the previous and the following day were analyzed. Based on weather conditions history, I was able to conclude that there was a small interaction of a cold front coming near April 10. Particularly, on the day of when this image was taken showed a bit of declined in the high and the low temperatures when compared to the previous day and the day after. On April 10, the high and low temperatures of 52 deg. Fahrenheit and 36 deg. Fahrenheit whereas the previous day's high and low were 72 and 41 deg. Fahrenheit.

As discussed previously my personal goal for this assignment was to use a panoramic technique to capture clouds dynamic behaviors throughout different regions in Boulder. In order to produce a panoramic image I needed take multiple pictures in a same setting. I began taking pictures from far right (near Valmont power station) and rotated my camera while including about 30% of the previously taken photo. I did this process about 4 more times until I reached the far left side of the image (near North Boulder by Haystack). No settings were changed between pictures. I had used Canon EOS REBEL T2i with EF 100mm f/2.8L macro lens. The shutter speed, ISO setting and aperture value were set to 1/30 second, 100 and f/32. I used Photoshop CS5 to stitch multiple photos into a single panoramic image. This menu can be found under File>Automate>Photomerge. I had to crop the final image a bit in order to have clean edges. During final editing of the image, I decided to use the HDR editing tools>Surrealistic option to darken the clouds contrast and highlighted the blue sky and green foregrounds. Thus giving a more dramatic effect of highs and lows of contrast different and still able to identify the clouds above.

I'm very proud of how my panoramic image turned out. All the other assignments were done by experimental setups and took multiple images of the fluids after. I found this routine to be rather challenging since I wasn't always able to capture images I had versioned. I think learning and trying different photographic techniques have given me great hands on experience to become a better photographer. Other thing I need to consider for next assignment is the size of the image. It was a bit pain trying to compress the image without losing much of details in the image. Maybe next time, I like to try High Dynamic Range (HDR) technique to capture the images of beautiful and interesting looking clouds.

References

¹ Atmosphere Sounding Data Skew T- diagram weather.uwyo.edu

² <http://weatherspark.com/>

³ G. Pretor-Pinney, "The Cloudspotter's Guide The Science, History, and Culture of Clouds," Rev. the Penguin Group. June. (2007)

⁴ <http://en.wikipedia.org/wiki/Virga>