# Cloud seconds report

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The adventure began when Professor Hertzberg asked the class to take as many pictures of clouds to finally choose one that are athletically looking and resembles a type of cloud studied earlier in the flow visualization class. In that journey, I had a lot of fun enjoying different shades and shapes of clouds and overserving how beautiful they look.

One day I was having a nice coffee at sunset near 28th St. & Arapahoe Ave in the beautiful Boulder, CO, and captured many images of the same cloud as the shades were stunningly crispy red. The final image that was chosen have been taken on November 3 at 5:03 PM. The direction of the caption was towards the south of where I was sitting as shown in figure 1.
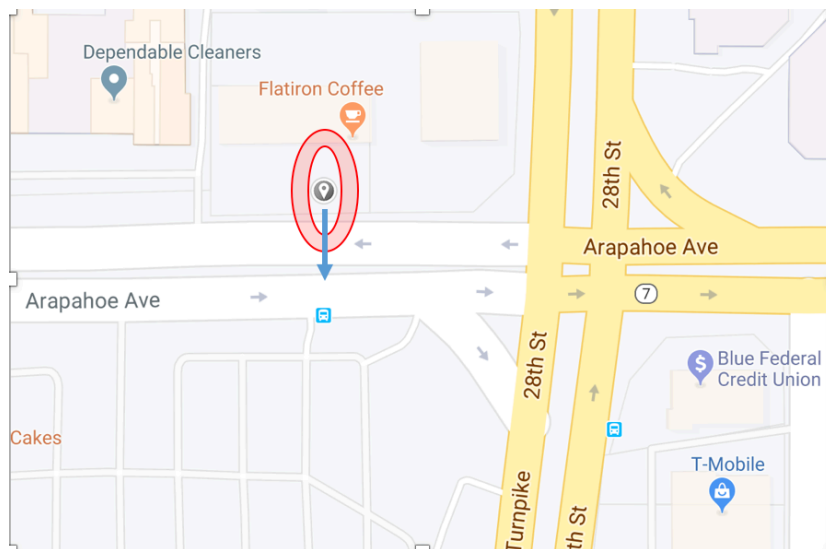
Figure 1. Position and direction of the image

Skew T diagram were then found using University of Wyoming's resources [1] to give clear perspective of the weather behavior and clouds formation around the Denver area as shown in figure 2. It has been observed the clouds on November 03 was stable as the convective available potential energy (CAPE) value was 195.2.
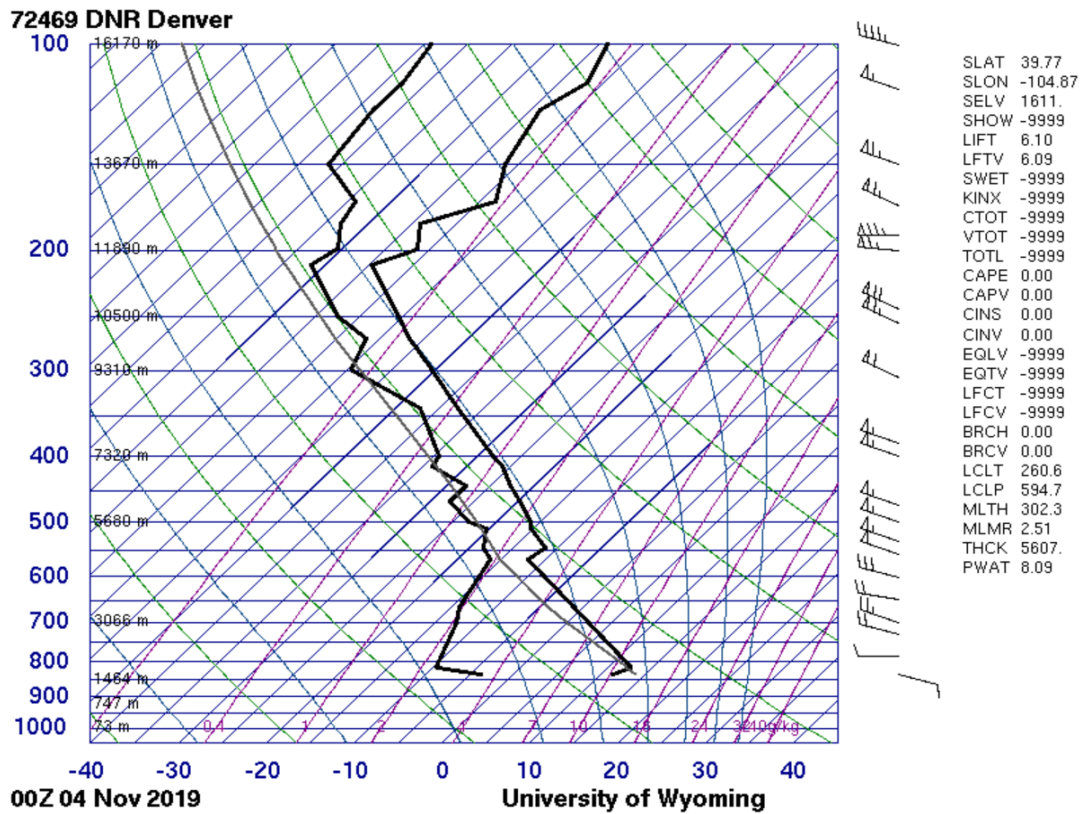
Figure 2. Skew T diagram

To recap the weather, the day I captured the cloud image, it was a chilly afternoon of varying temperature from a low 46 F to 59 F [2]. The wind speed is approximated to be 8.7 mph going from north to south (NW) and specifically going to South East direction [2]. A good representation is shown in figure 3.
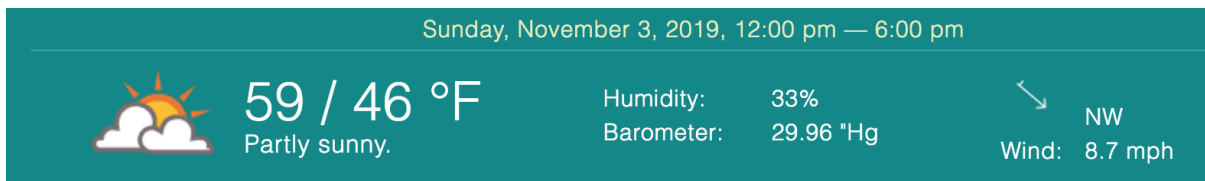

Figure 3. Representation of the weather

The altitude where the image was taken are approximated to be 1.64 km. above sea level. However, the cloud that has been captured was roughly 2-4 km above where I was standing. The cloud type illustrated in figure 5 & 6 showed a Stratocumulus accompanied with Straus. Typically, Stratocumulus is very common in lower elevations. Shown in figure 4 a representation of the elevation of the cloud was taken. The Ceilometer, is an interesting device that sends laser or light source to accurately measure the elevation of clouds. It also can measure the aerosol concentration within the atmosphere.
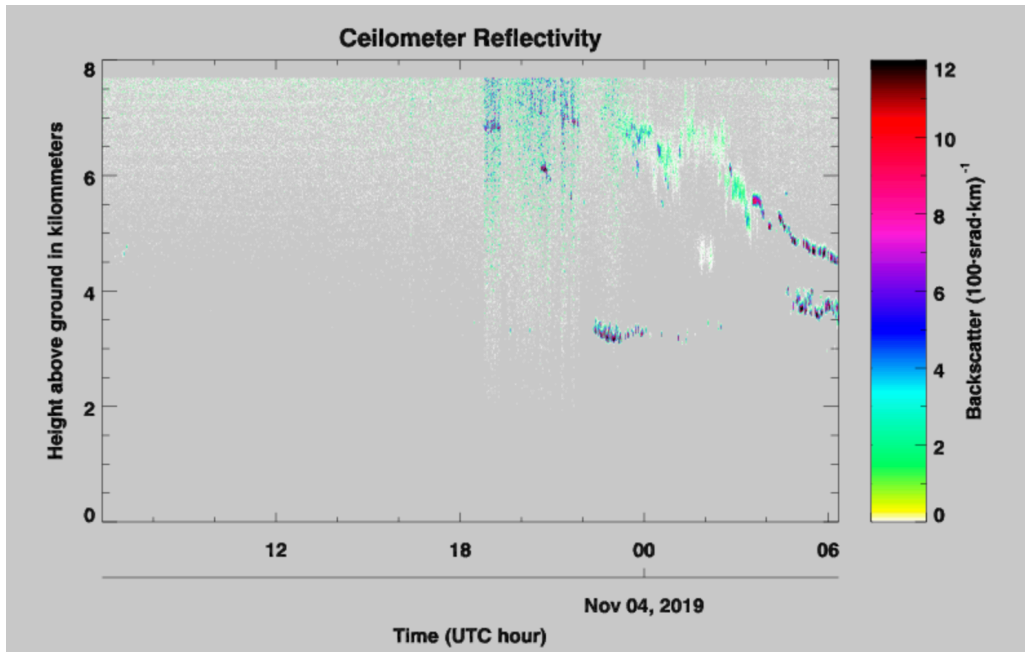
Figure 4. Ceilometer Reflectivity readings (Courtesy image of Boulder Skywatch [3])

The image was taken using my iPhone 7 with a 12-megapixel camera. Unfortunately, when taking the image, the camera setting such as aperture, ISO, and shutter speed were not able to be adjusted. However, I was able to adjust the focus to make the image looks as clear as possible. The image was taken with the following setting: aperture of F/1.8, exposure of 1/40 seconds, and ISO of 25. The focal length of the iPhone 7 camera is 4.00 mm and the image size was 4032 x 3024 pixels. For final editing, I believe that the original image shows more aesthetic looking when no there is no adjustment in highlight and contrast. So, the image has only been cropped to focus more on the cloud that I wanted to capture. The original and cropped image are shown in figures 5 and 6 respectively.

All in all, I enjoyed the journey of watching the sky and capturing images of the clouds. I really learn a lot in that experience in which there are nature around us all the time but we just have to take the moment to capture it. I feel I succeeded in achieving my goal and learning about types of clouds and how they look.

Figure 5. Original image

Figure 6. Final image

Reference

[1] *72469 DNR Denver Sounding*. (2019). *Weather.uwyo.edu*. Retrieved 2019, from
   http://weather.uwyo.edu/cgibin/sounding?region=naconf&TYPE=GIF%3ASKEWT&YEAR
   =2019&MONTH=11&FROM=0400&TO=0400&STNM=72469

[2] *Weather in November 2019 in Boulder, Colorado, USA*. (2019). *Timeanddate.com*. Retrieved
   2019, from
   https://www.timeanddate.com/weather/usa/boulder/historic?month=11&year=2019

[3] *Skywatch Observatory*. (2019). *Skywatch.colorado.edu*. Retrieved 2019, from
   https://skywatch.colorado.edu/