MCEN 4151: Flow Visualization

Section 001

Cloud Second

12/07/2020

By: Edgar Palma

Altostratus Clouds 10/19/2020

Thornton at 6:30 PM

The Cloud Second assignment was able to give me the opportunity capture the natural phenomenon of clouds while also allowing me to apply all the photography techniques that I've learned throughout the whole semester. The assignment also gave me the opportunity to learn why clouds are formed and what factors, such as environmental conditions, contribute to the type of clouds end up forming. Throughout this assignment I was able to read what the Skew-T diagram represented during certain days. The picture that I ended up taking was on October 19th, 2020 at around 6:30 PM in Thornton fairly close to a park close to neighborhood houses. The direction that these clouds were taken from were north and the angle from the horizontal was at a 15-degree angle. The type of cloud that I was able to capture in my image was an Altostratus cloud due to the moisture that occurred a few days prior.

Throughout the semester, we have learned a lot on how to figure out what type of clouds we are looking at. In order to identify what type of clouds were present in my capture image, I used the Skew-T diagram during the day taken and I also used the clouds classification document that was provided to us. *Figure 1* below shows the Skew-T diagram for October 19th for the time around 6:30 PM. The diagram shows that on this day the value for the CAPE = 00.00 which meant that the atmosphere was stable and resulted on these cloud formations. When trying to understand the altitude of the clouds, we can look at diagram where it shows a close proximity between the Dewpoint Curve and the Temperature Curve. With this information the clouds altitude is around 5700m.

Now stepping away from the Skew-T diagram, we can focus on the physical aspects that the clouds have. The clouds look "silky" with no distinct shape. This cloud possessed a darkish grey tone which signified that there could have been some kind of moisture within it. By looking at the information stated from the Skew-T diagram along with the physical visualization of the clouds, we can determine that these are Altostratus clouds.
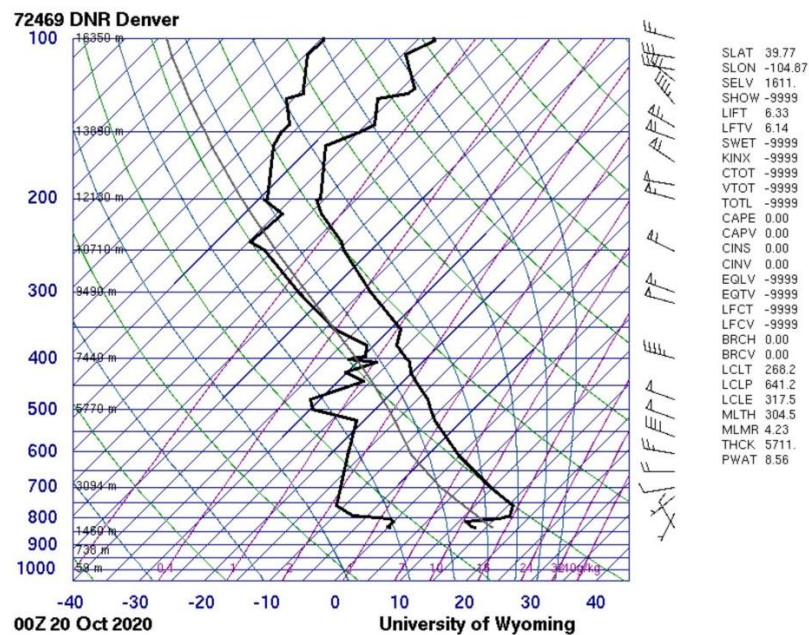

Figure 1: Skew-T Diagram at 00Z 20 October 2020

The image was taken on the camera of an iPhone 7 Plus at about 5700m away. I ended up using a focal length of 4mm with a F-stop of f/1.8, an exposure time of 1/20 sec. and an ISO speed of ISO-40. For the post-processing, I decided to use Darktable to match the yellowish sky to the rest of the cloud's pinkish hue. To do so I ended up playing around with the brightness, the exposure, and the haze. By slightly lowering the brightness and slightly decreasing the exposure, more specifically the black level correction, I was able to make the light blue sky have a darker blue hue. After this, I played around with the haze in order to change the yellow coloration to pink. During this process, I made the houses and lamp darker which was not intentional. At the same time that the silhouette at the bottom became darker, the outline/boarder became lighter creating this "glowing" effect on it. *Figure 2* below shows the difference between the original and the post-processed image.
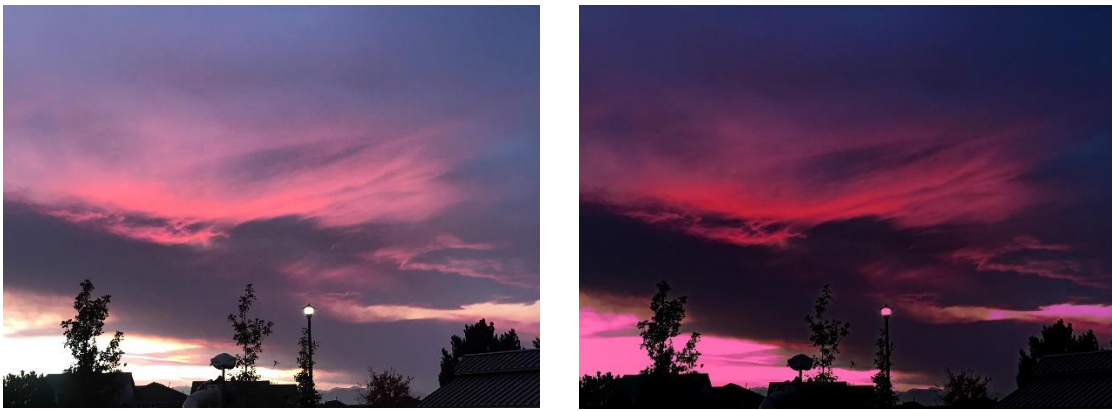

Figure 2: Comparison bewteen the original image at 4,032 x 3,024 -pixel (left) and the edited image at 1200 x 900-pixel (right)

Overall, I like the outcome of my image. I feel that the clouds were captured nicely and clearly. I believed that I fulfilled my intent because I was able to show a beautiful colored sky with a pretty cool silhouette showing at the bottom of the image. I also like that my processed image doesn't look too unrealistic and looks like it could possibly be captured in some crazy nature phenomena. Finally, I like the non-intentional glowing effect that I was able to add to the silhouette's outline. I don't really have an aspect that I would like to improve on since I added the silhouette what I stated from my report on my first cloud image. For future cloud images and general images, I would like to improve on and actually know how to add the glowing effect to the boarder of specified objects within an image.

<u>References</u>

Skew-T Diagram: weather.uwyo.edu/upperair/sounding.html