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ATLS 4151-001

Cirrus and Altocumulus Clouds, Settlers Park, August 29th, 9:30 PM

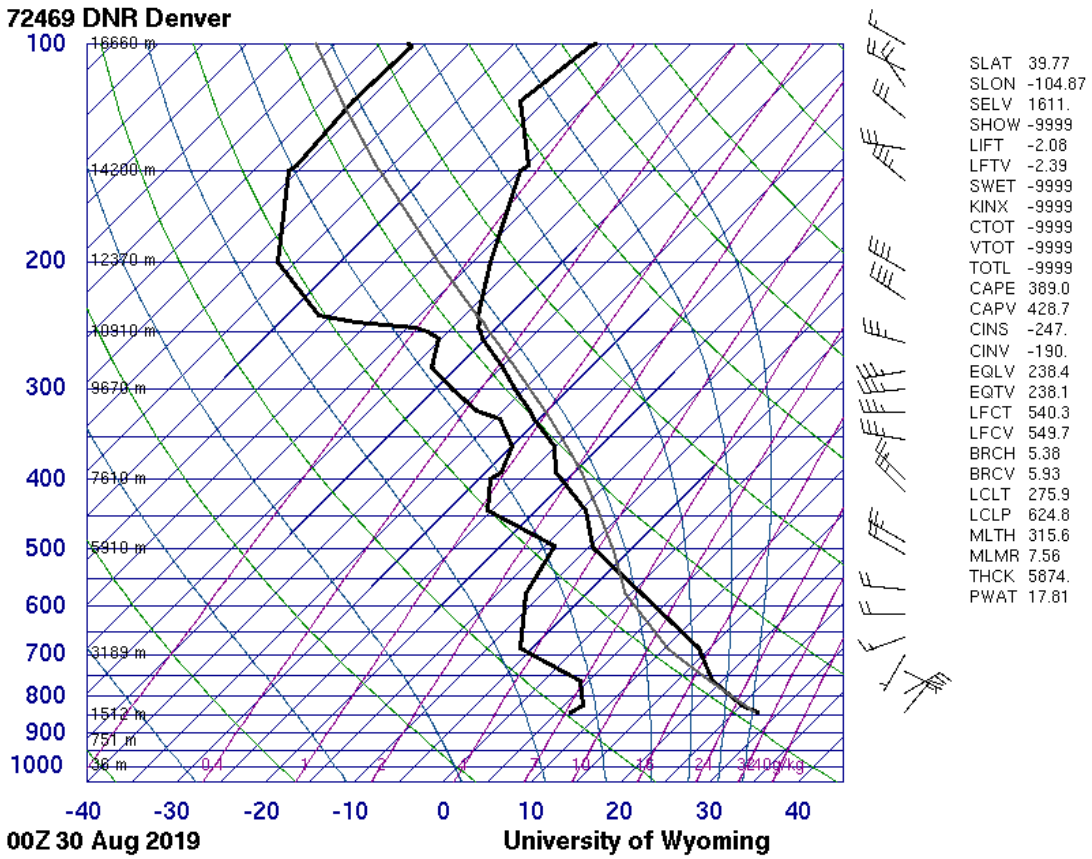
Clouds First

For the Clouds First assignment, I decided to take a hike around sunset and capture the clouds that were in the sky at the time. The week before I took these pictures, I was hiking at Settlers Park right around sunset and watch cumulonimbus clouds form in all directions surrounding me and lightning flash every few seconds in each cloud. I wanted to capture this phenomenon on camera, so I decided to do the same hike, at the same time of day, in the same location once again. Unfortunately, the night I hiked with my camera, there were no thunderheads forming in sight. Instead, cirrus clouds covered central Boulder. Even though I did not see what I expected to, the clouds that formed in place of the cumulonimbus clouds still looked gorgeous as the sun set. I took pictures constantly from sunset to nighttime and noticed that if I left my exposure open for long enough, I could see the light pollution from Boulder lighting up the cirrus clouds bright pink. I decided to focus on this, while also capturing some stars and planets in the frame to compliment the scene of cloud night photography.

To capture this image, I hiked from Settlers Park up to Mt. Sanitas. I stopped at a lookout point not quiet at the top of the mountain and set up my tripod and camera, facing south, angled at about a 40-degree angle from horizontal. I wanted the mountains and a nearby tree to frame the very bottom of the image while the rest of the frame was filled with the sky and clouds. I was at an elevation of approximately 6,000 feet above sea level when I set up my camera. I took pictures from approximately 8-10 PM on August 29th, 2019. The final picture I used was captured at exactly 9:29 PM.

The clouds that appeared in my image were cirrus clouds. The weather that day was clear and calm. These clouds formed right around sunset; they weren't in existence when I started my hike. The clouds did not bring any weather (no rain, storms, wind, etc.) with them as the night stayed clear and calm after this picture was taken. The day I took the images was about 88 degrees

Fahrenheit while the next day was about 84 degrees Fahrenheit. The day before this image, the weather had been just as calm as it was the day of the image. In the weeks prior to this image, storms had been forming right around sunset consistently each night, as per usual in the summer months in Colorado. Since this image was taken right at the end of summer/beginning of fall, I missed the storm season by about a week. The evening weather had calmed as the general temperature of Boulder cooled off with the end of summer. According to the skew-T plot, clouds could be expected to form that night at elevations of roughly 6,000 and 8,000 and 11,000 meters. This corresponds with my observations as you see the higher elevation (8,000m/26,000ft or 11,000m/36,000ft elevation), thick cirrus clouds lit up bright pink. Cirrus clouds form in fair weather, do not produce precipitation and are composed of ice crystals that occur as water droplets freeze at elevations between 4,000m-12,000m. These pink clouds' thick, wispy, visibly far away nature makes me concur that these clouds are cirrus. You also see lower elevation (6,000m/20,000ft elevation) altocumulus clouds in front of the stars, planet and higher clouds. These clouds are low hanging, thin and transparent and from observing their puffy, cotton ball like features in contrast to the thick flat higher elevation cirrus clouds, I concur they are altocumulus. Altocumulus clouds exist between 2,000m-7,000m and form from convection and instability, which can be caused by a cold front. No precipitation falls from these clouds. The existence of altocumulus clouds can indicate the onset of cooler temperatures, with corresponds with the end of summer evening thunderstorms and the onset of cooler and calmer fall nights. The strongest winds that night clocked in at 35-40 knots W between 8,000-14,000 meters, subjecting the pink cirrus clouds to their strength. The lower elevation clouds experienced 20-25 knot winds traveling a bit more NW. The temperature where the lower elevation clouds hung was about 68 degrees Fahrenheit while the mid clouds felt about 50 degrees Fahrenheit and the highest clouds experienced about 40 degrees Fahrenheit. At my elevation of 6,000 feet, the winds were pretty much nonexistent, clocking in at 5 knots SW. The surrounding sky, outside the frame of my image, had altocumulus clouds scattered and consisted of some small cumulus clouds. At the bottom of this report I included some other pictures I had taken the same night of different parts of the sky.



To take this photograph, I used my Nikon D7200. Since I took this image after sunset, I used a f-stop of f/3.5, an exposure time of 4 seconds, and an ISO of 1000. My focal length was 18 mm. My frame covered a few miles of the flatirons as viewed from the side and the mountains behind. I'd say I was about 2 miles from the flatirons when I took this picture. The tree included in the bottom left corner of this image was only about 500 feet from my camera. The original and final image had dimensions of 6000 x 4000 pixels as my only edits included color correction. In post-processing, I upped the contrast, saturation and highlights/shadows to enhance the light pollution and cloud formation.

Overall, I was very happy with the image that I ended up with. I liked how I was able to frame the clouds with the nature surrounding (the mountains and the tree). I love how the clouds were lit up with the light from Boulder, it really draws the viewers eyes to the clouds first and foremost. I also like how there was multiple layers of clouds in the scene, consisting of different types of clouds at different elevations. I also am happy with capturing Jupiter and a few stars in the image, so it is clear this picture was taken at night. I learned a lot about clouds through this project and am excited to be able to tell the clouds I am taking pictures of beforehand in the Clouds Second project.

References

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