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Clouds Second
Iridescent cirrocumulus
October 28th, 2018
12:02 PM
The Hill, Boulder

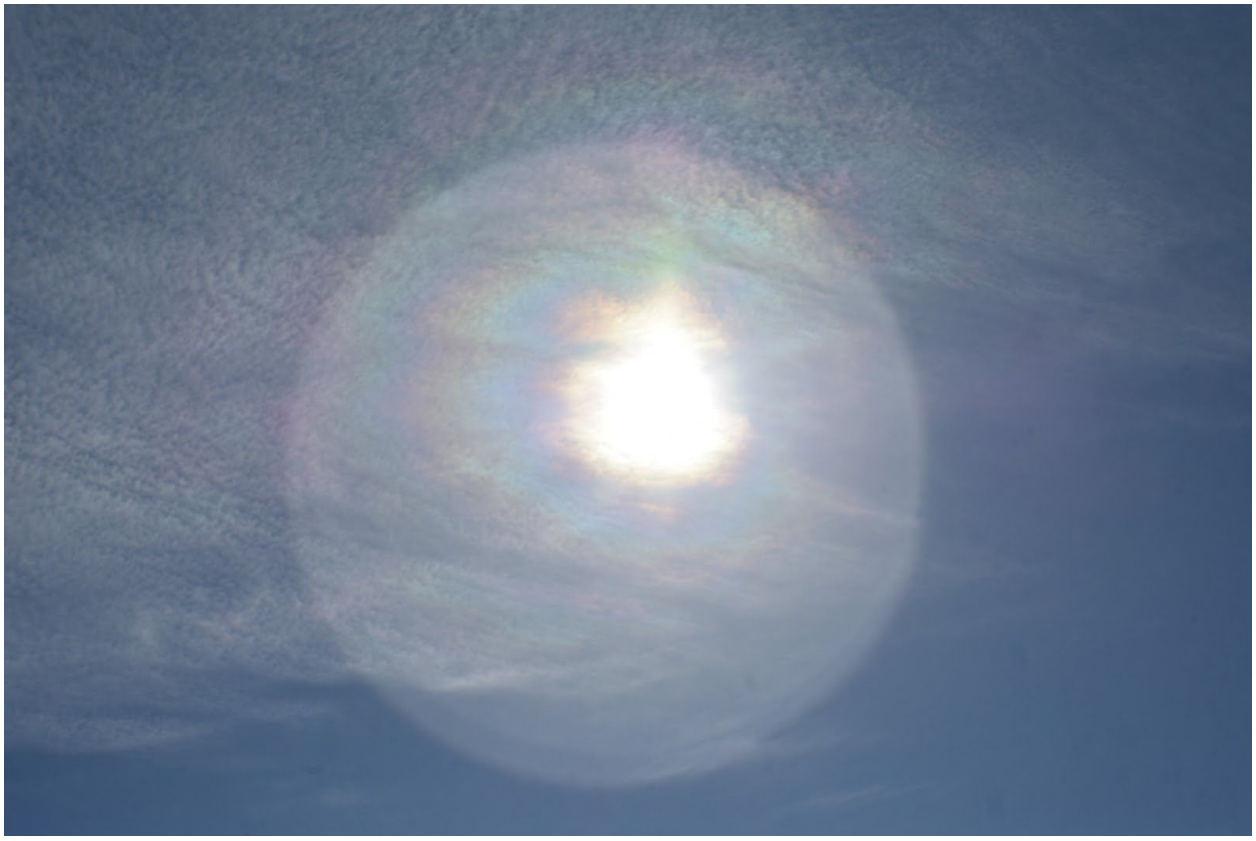
For my second clouds assignment, I had a difficult time choosing between the photo that I would use, as I had captured a few quality photos of cloud iridescence as well as some photos that displayed vortex shedding, a flow phenomena that I had been fascinated with throughout the semester. However, I ultimately chose this photo as I personally liked it more as a piece of art. I do wish, however, that the due date was a bit later because I ended up capturing another photo of iridescence that was much more clear and had a better overall color scheme.

This image was taken at 12:02 PM on October 28th, 2018 as I walked back from class up the Hill on 18th street. The shot was pointed roughly 60 degrees from the northwest horizontal. I began to take photos of the clouds because of the fine stripes that appeared in them due to gravity waves. However, I could not really tell that the cloud had any iridescence in it initially because where the iridescence occurred was next to the sun and was not safe for me to look at.

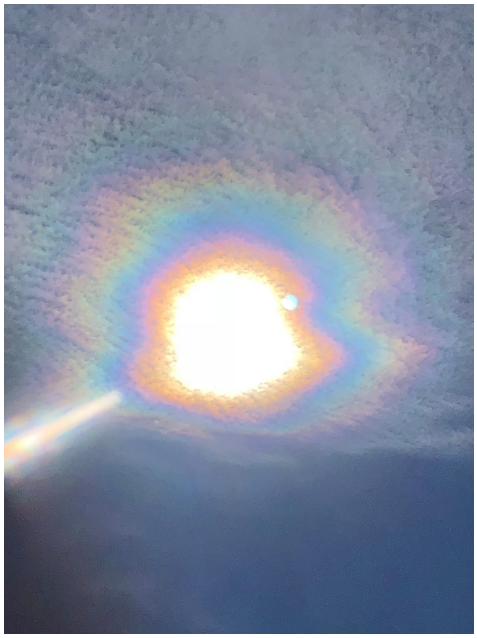
I have determined the clouds to be of the cirrocumulus variety. According to Wikipedia, iridescence occurs most commonly in altocumulus, cirrocumulus, lenticular, and cirrus clouds. I decided that these clouds were likely altocumulus because of the gravity waves present, causing the clouds to come in stripes. I have determined from the SKEW-T data that these clouds were likely formed around 8,000 feet from sea level, which makes sense as my elevation was around 5,500 feet and the clouds were clearly at a much greater elevation. This meets what is expected for this cloud type, as cirrocumulus clouds typically occur at elevations from 6,000 to 12,000 feet. There was likely no front approaching as the weather around that time period was largely within 65 to 75 degrees. In fact, just days after this photo was taken, I captured another iridescent cloud so it is likely that the air conditions supported cloud types that allow for iridescence. The CAPE was 0 so the atmosphere was stable and although there was a slight breeze the air was typically calm. The iridescent phenomenon that occurred in this photo was likely due to diffraction of light from water droplets that were in the cloud. Diffraction is a phenomenon where white light bends around an object like a water droplet and splits into the color spectrum. Iridescence occurs from either water droplets or ice crystals in clouds, but I determined this case to be water droplets as the temperature was above 70 degrees at my elevation and I do not believe that these clouds could have been at a temperature 40 degrees lower as they were still in the troposphere.

The field of view for this photo is difficult to estimate but the sun gives a decent scale of the image because the image is about three “suns” wide and high. The distance is also difficult to estimate although I would estimate that I was 2,500-4,000 feet away from the cloud. For this

shot, I took photos with both my iphone and my DSLR but the iphone photos turned out with a much greater degree of saturation. This is an example of one of the DSLR photos below



The exposure time was 1/50000 and the ISO was 25 which makes sense because the iphone automatically took into account the high amount of light coming from the sun and compensated with a low exposure time. The aperture was at 1.696.
The original photo without editing on the iphone is below.



I am a big fan of polychromatic color schemes and so I was happy to capture a cloud with such an array of color. I also found it interesting how the light beam in the bottom left corner appeared in the photo. I don't believe that it was visible to the naked eye so it may just be a lense flare but I cannot quite tell. It reminds me slightly of the famous Dark Side Of The Moon album cover, which is actually a display of the same light phenomenon: diffraction. I wish I had known the ISO, aperture, and shutter speed settings that the iphone was using at the time of the photo because had I known that information, I likely could have taken a much better photo with my DSLR. Side note: I thought that we would have the opportunity to post a third clouds assignment and I captured a number of other interesting cloud photos that I wish I had the opportunity to post. Below is my favorite of the bunch, taken on an iphone.

http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/opt/mch/diff.rxml
https://en.wikipedia.org/wiki/Cloud_iridescence
https://en.wikipedia.org/wiki/Cirrocumulus_cloud

The University of Illinois. “Diffraction Of Light.” *A Summary of the Hydrologic Cycle: Bringing All the Pieces Together*, ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/opt/mch/diff.rxml.

“Cloud Iridescence.” *Wikipedia*, Wikimedia Foundation, 17 Sept. 2018, en.wikipedia.org/wiki/Cloud_iridescence.

“Cirrocumulus Cloud.” *Wikipedia*, Wikimedia Foundation, 20 Nov. 2018, en.wikipedia.org/wiki/Cirrocumulus_cloud.