

**Clouds Report**

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**Flow Visualization MCEN – 002**



**Purpose:**

This image seeks to capture the detail in a few smaller clouds in the sky. The day the photo was taken there were not many clouds in the sky, just some wispy ones and some very faint layered clouds if looking northeast. The wispy clouds were more prominent than the other cloud that day, so I chose to photograph the wispy ones.

**Circumstances:**

The photo was taken on a warm afternoon facing southwest in Boulder, Colorado on December 7<sup>th</sup> at 2:28pm. The image was taken with the camera pointed vertically at the sky.

**Cloud Classification:**

The clouds in the photograph appear to be cirrus, which are high level clouds. Cirrus clouds occur above 20,000 ft, where temperatures are low in the troposphere, and they are primarily composed of ice crystals, and often appear thin, streaky, and white [1]. Although they often appear thin, they can have a vertical height of over a kilometer [2]. These clouds are typically in stable conditions and can be a sign of warm dry air moving up. An image of verified cirrus clouds is shown below in figure 1. There are similarities with the wispieness of the clouds in figure 1 and the clouds in the photograph.



*Figure 1: General image of cirrus clouds. [2]*

There is a skew -T from the University of Wyoming for the day the photograph was taken that should clouds forming around 6000 m ~ 18000 ft. This is slightly below where cirrus cloud typically forms. This discrepancy could be due to the distance between Grand Junction and Boulder.

**Photographic Technique:**

The image was taken on a Sony 6500. The camera setting for shutter speed, aperture and ISO are as follows: 1/4000, 7.1 and 5000. After consideration I should have varied the ISO and shutter speed to see what would happen. The image came out somewhat grainy. Adjusting the previously mentioned camera settings could have yielded different results. There was

significant post processing done on the image to bring out the blues in the sky. This mainly included messing with the greens in the image and increasing the contrast. The graininess in the photo could also be attributed to post processing.

**Conclusion:**

I think this image does a good job capturing cirrus clouds. I like the blueness in the sky, and I even like the graininess in the image, although it would be fun to mess around with camera setting and post processing to play with this aspect of the photo. In researching, I read that at low sun angles, sunset and sunrise, these clouds can produce beautiful colors in the sky. To develop this idea further I'd like to take photos during those times of the day.

References

- [1] Funk, Ted. "Cloud Classifications and Characteristics" *The Science Corner*. The National Weather Service
- [2] PAO K. WANG "EVOLUTION OF ICE CRYSTALS IN THE DEVELOPMENT OF CIRRUS CLOUDS, *Ice Microdynamics*, Academic Press (2002)
- [3] University of Wyoming

