Brody Rosch
Clouds First Report
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2026 Clouds First Report

This image was taken for the first Clouds Assignment of Flow Visualization. The intent of this image was to capture the beauty of unique cloud formations that occur. I was trying to capture the presence of multiple different cloud types in one picture, as when I came across the location of the picture, I found that I could see more than one kind of cloud, which I thought would be a great moment to get the picture for this assignment.

Figure 1: Final edit of Clouds First image.

My image was taken outside of Buena Vista and shows the clouds formed above Mt. Princeton and was taken on September 5th, 2026, around 3PM MST. This picture was taken at an elevation of around 8000 feet outside of Buena Vista and was taken at around a 9-degree angle from the horizontal (west-southwest).

The clouds shown in the image are cumulus clouds at the lower altitude and the wispy clouds at a higher altitude are cirrostratus. I believe they are these clouds because of the altitude they are in, and the overall appearance of them. Based on how dense and fluffy the lower clouds are and their position in the sky they are almost surely cumulus. Similarly, the cirrostratus clouds

are identified by being thin and feathery at a higher elevation, which is supported by the conditions of the image. The rest of the sky was clear blue, which leads me to believe that the atmosphere was stable, which is also supported by the fact that both cirrostratus and cumulus can form in stable atmospheres. There was also no significant unstable weather in the days before or after this picture in this area, meaning no rain or heavy winds. Cirrostratus forms commonly in stable atmospheres. Cumulus also forms but a little less easily, which results in them being smaller and rounder in shape, which is also observable in the image.

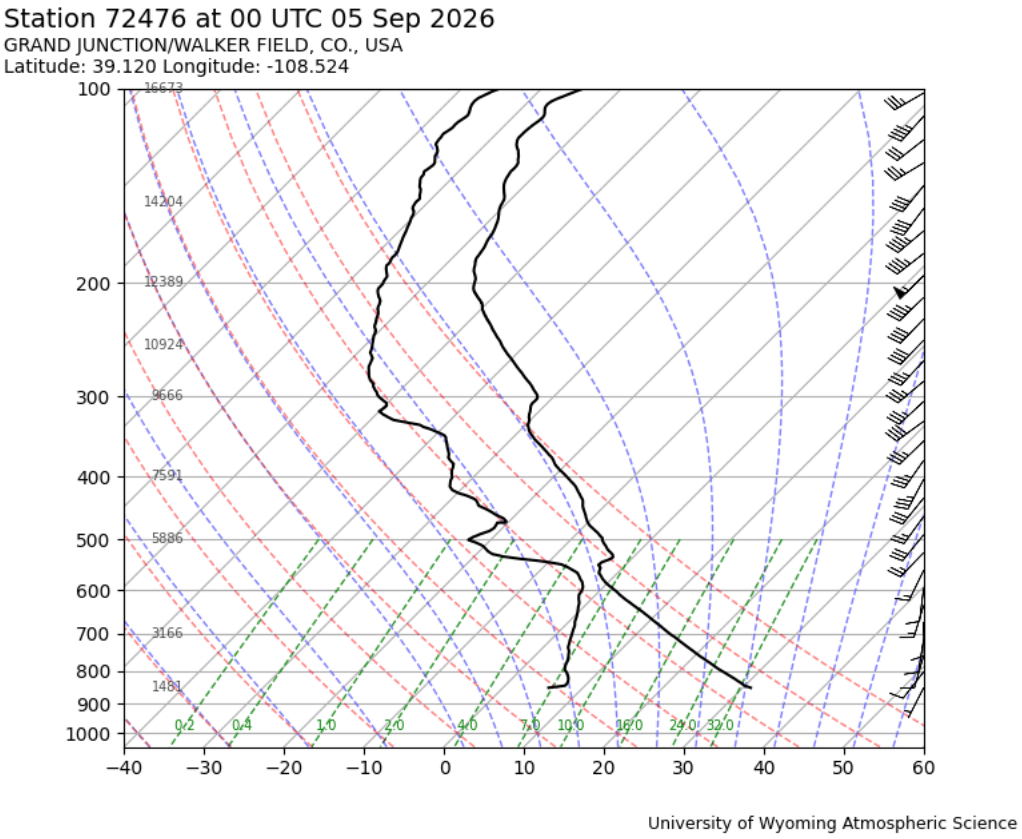

Figure 2: Closest correlating SKEW-T plot.

This SKEW-T plot is taken from Grand Junction and is for the corresponding time I took the image. Based on the plot, clouds would be expected at a height of around 550 mb because that's where the dewpoint and temperature lines come the closest. I think this is where the cirrostratus clouds formed as they were the higher of the two present clouds. Cirrostratus clouds are typically formed much higher which leads to their thin appearance [1] I think the elevation of the cumulus clouds is around 800mb because they form lower from the heating of the ground by the sun causing vents of warm air to rise from the surface and form cumulus clouds [2]. I think because the weather was so clear in the leading days, the atmosphere allowed for direct sunlight to the surface which caused so many of the cumulus clouds shown in their small formations.

The image was taken on my iPhone and the field of view for my camera is around 85 degrees with a 26-millimeter focal length. The distance from the lens to the base of the mountain shown is around 5 miles, so the spatial resolution of the image is quite large. The image was taken with an aperture of f1.6, a shutter speed of 1/18000, and an ISO of 50. The original image was 5712 x 4284 pixels. In post processing I cropped the image to enhance the subject clouds and take out distractions. I also brightened the image to show the clear blue skies behind them all. The final image size is 1300 x 803 pixels.

Figure 3: Original unedited version of Clouds First image.

I think this image reveals a lot about how clouds form in stable atmospheres, especially because multiple different kinds of clouds are shown. I like how this image has a massive sense of scale with Mt. Princeton being below all the clouds. It feels very open and inviting as a picture, and I think that it works very well. I believe that I fulfilled my intent with this image, and if I could change anything I would only have spent a little more time in post processing to keep the clouds in the upper half of the image at a better level of exposure. I think fluid physics are shown well here with the discussion of how the clouds form with the surface heating and presence of a stable atmosphere.

References:

[1] National Weather Service https://www.weather.gov/lmk/cloud_classification

[2] NOAA (2023) https://www.noaa.gov/jetstream/clouds/ten-basic-clouds