

**Flow Visualization 4151-003: Clouds Second**

**Quintin Smith**

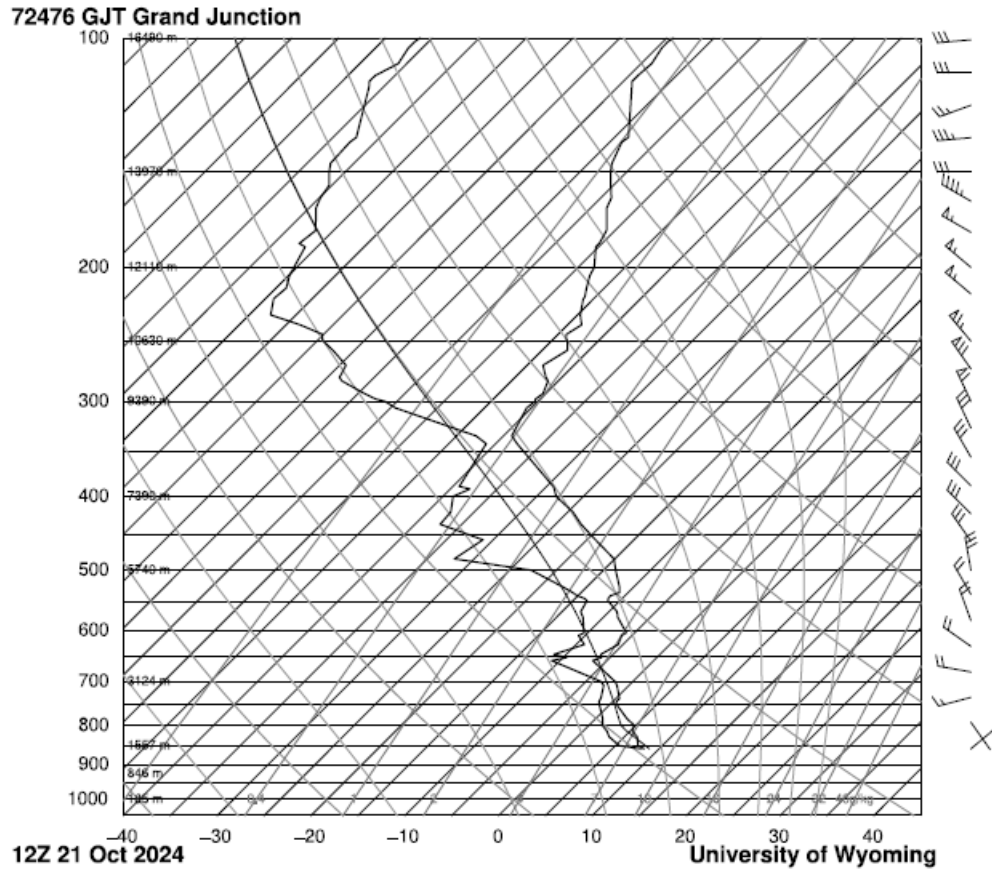
**12/14/2024**



The above image was taken at Crunch Fitness in Boulder facing East while exiting the gym. This was taken on October 21<sup>st</sup>, 2024 at about 7:30 AM. The cloud type shown is Stratocumulus and was taken just after an evening rain. Shown below is the original unedited picture.



The camera was pointed about 10 degrees up from horizontal facing East-Northeast. As previously stated, the clouds seen in the above photos appear to be Stratocumulus clouds [1]. These clouds are characterized by the gray undersides with hints of blue peaking through and are common with light rain. This light rain also is most likely to form rainbows. Not to be confused with altocumulus, these clouds are much larger but have similar features like having broken groups of clouds. Fig. (1) shows the skew-T plot from that day.



**Figure 1.** Skew-T plot from Grand Junction Colorado on Oct. 21<sup>st</sup>, 2024.

Given the Skew-T from that day, there seems to be a high change of cloud formation between 2,000 m and 3,100 m in elevation. This does make sense given the elevation of the clouds in the picture as there certainly was quite a bit of low-hanging cloud formations that day. The front was coming in from the West and did not exhibit similar features to the previous day's clouds as those were mostly cumulus. From both the Skew-T and weather reports, the picture shown does agree with all of the measurements taken that day. At our elevation, there were some small winds as indicated by the arrows to the right of the chart. Since it was sunny earlier that day, it seems that these clouds formed from evaporating moisture as they recondensed into the clouds shown into the picture. Also, since cumulus clouds were previously seen, it's possible a wind shear flattened them turning them into stratocumulus clouds [1].

The distance from the camera to the clouds must have been about a mile. The picture was taken with an iPhone 13's ultra wide angle 13 mm lens. The camera had an ISO of 32, 14 mm zoom, f2.4, and 1/290 second shutter. The original picture was 4032 x 3024 pixels with the cropped image being 2030 x 1170. The only image processing was some minor highlight and shadow adjustments to help highlight the cloud features, but any other adjustments were difficult as the image would tend to look extremely grainy and would lose detail (this was not grain as a result of the ISO).

This image shows an interesting example of Stratocumulus clouds while also featuring a nice rainbow from the recently-ceased rain. I like the image, but I really wish I had my nicer camera on me as opposed to only having my phone so I really couldn't do this picture justice. The only thing I would've done next time is have a better camera. This would have enabled me to take a much nicer picture and could open the possibility of having more editing power in post-production.

## *References*

[1]

[https://en.wikipedia.org/wiki/Stratocumulus\\_cloud#:~:text=A%20stratocumulus%20cloud%2C%20occasionally%20called,2%2C000%20metres%20\(6%2C600%20ft\).](https://en.wikipedia.org/wiki/Stratocumulus_cloud#:~:text=A%20stratocumulus%20cloud%2C%20occasionally%20called,2%2C000%20metres%20(6%2C600%20ft).)