

# Clouds 2 Report: Alessandro Villain

11/28/2022 Section 1

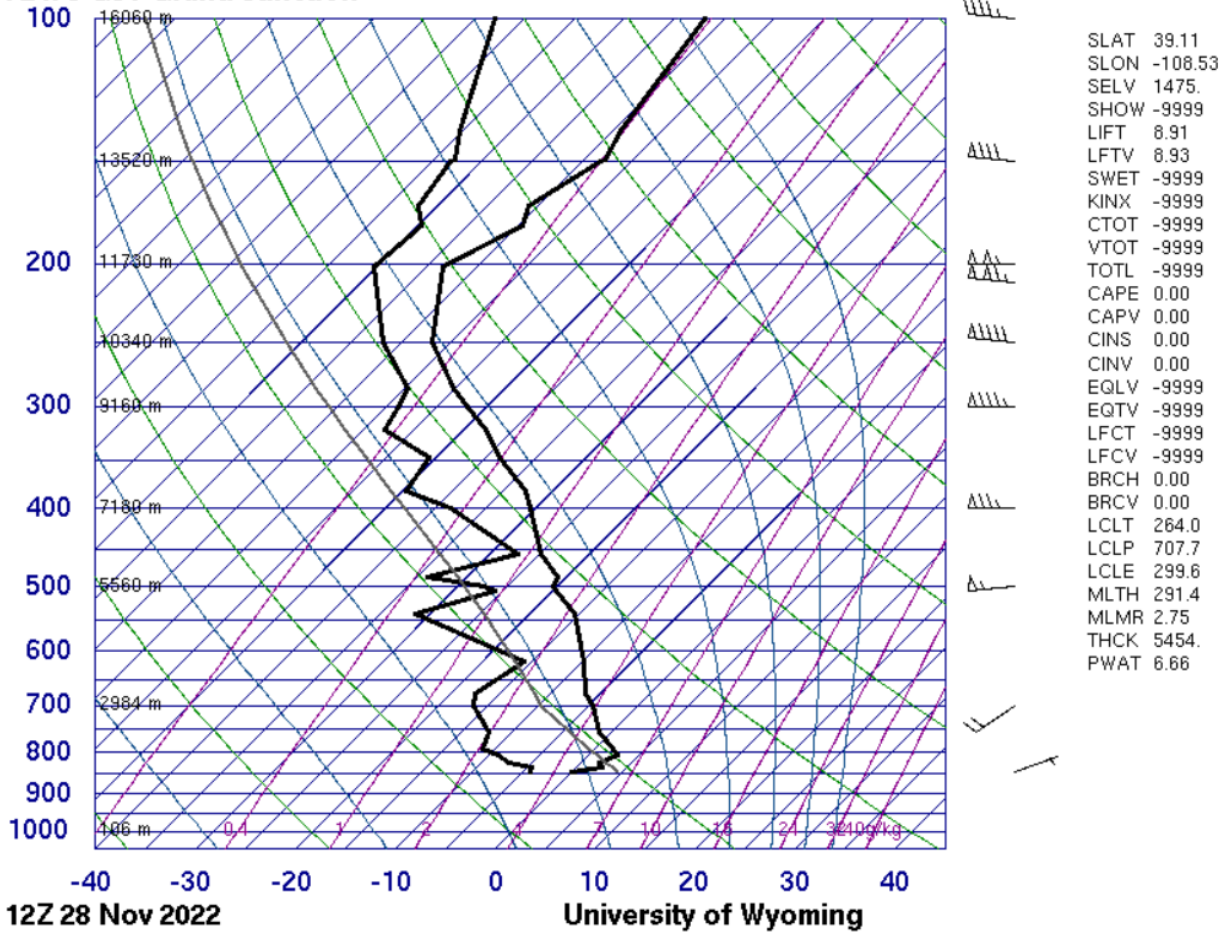


Living in Andrews Hall has its perks, one of which being able to visit the aerospace building. Returning home, I always see brilliant clouds which I always have to take a picture of, because clouds this beautiful don't come around very often. This thought occurs to me about twice a week. I have a lot of clouds of this exact angle. I chose this one because I wanted to really get a good landscape view, and try to convey just how grand the clouds in Boulder are.

I was just outside the aerospace building. I quickly grabbed my camera and ran out to take these photos before I lost the chance. I am looking up at a seven angle in a south-westerly direction.

I suspect these are cumulus clouds because of the way that they are. I suspect the upper clouds are altostratus. They are sparse, quite small, and when looking at a larger picture of the sky that day, they are the only clouds present. At that altitude. They are coming over the front range towards the plains. This is also very conducive to cumulus clouds. It was a clear day, preceded by really cold weather, and preceded by a pretty warm two weeks. Looking at the skew-t, there is a pinch at about 2500 meters and 6000 meters, which is where we'd expect cloud formation for cumulus and altostratus. Inspecting the photo reveals that this is about correct, seeing that the clouds are about 1000m and 4500m up. There were strong winds at altitude on this day, and I could tell that they were moving slowly from the ground.

### 72476 GJT Grand Junction



The field of view of the camera is about 80 degrees, and the clouds are approximately 20 to 50 kilometers away. A focal length of 2.5mm, which is great for landscape photography. The iPhone shoots at a resolution of 4032X3024.

The specs for the photo are as follows:

Camera	iPhone 10x Max
--------	----------------

This photo reveals the wonderful shapes and features of clouds in Boulder. I really love well shaped clouds, and these are exemplary clouds in that regard.



Original photo (4000x6000)



Edited Photo (3000x6000)

References:

Clouds anonymous: <https://lelit.com/>

Equations for the minimal surface area were taken from the University of Chicago:

<https://math.uchicago.edu/~may/REU2019/REUPapers/Zheng.SiqiClover.pdf>

Information on Plateau-Rayleigh instability was found at:

<https://ui.adsabs.harvard.edu/abs/1995PhFl....7.1529P/abstract>

<https://arxiv.org/abs/chao-dyn/9612025>

Supplemented by wikipedia:

[https://en.wikipedia.org/wiki/Plateau%E2%80%93Rayleigh\\_instability#cite\\_note-Papageorgiou1995-1](https://en.wikipedia.org/wiki/Plateau%E2%80%93Rayleigh_instability#cite_note-Papageorgiou1995-1)