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Clouds Second
MCEN 4151
12/10/24



1. Introduction

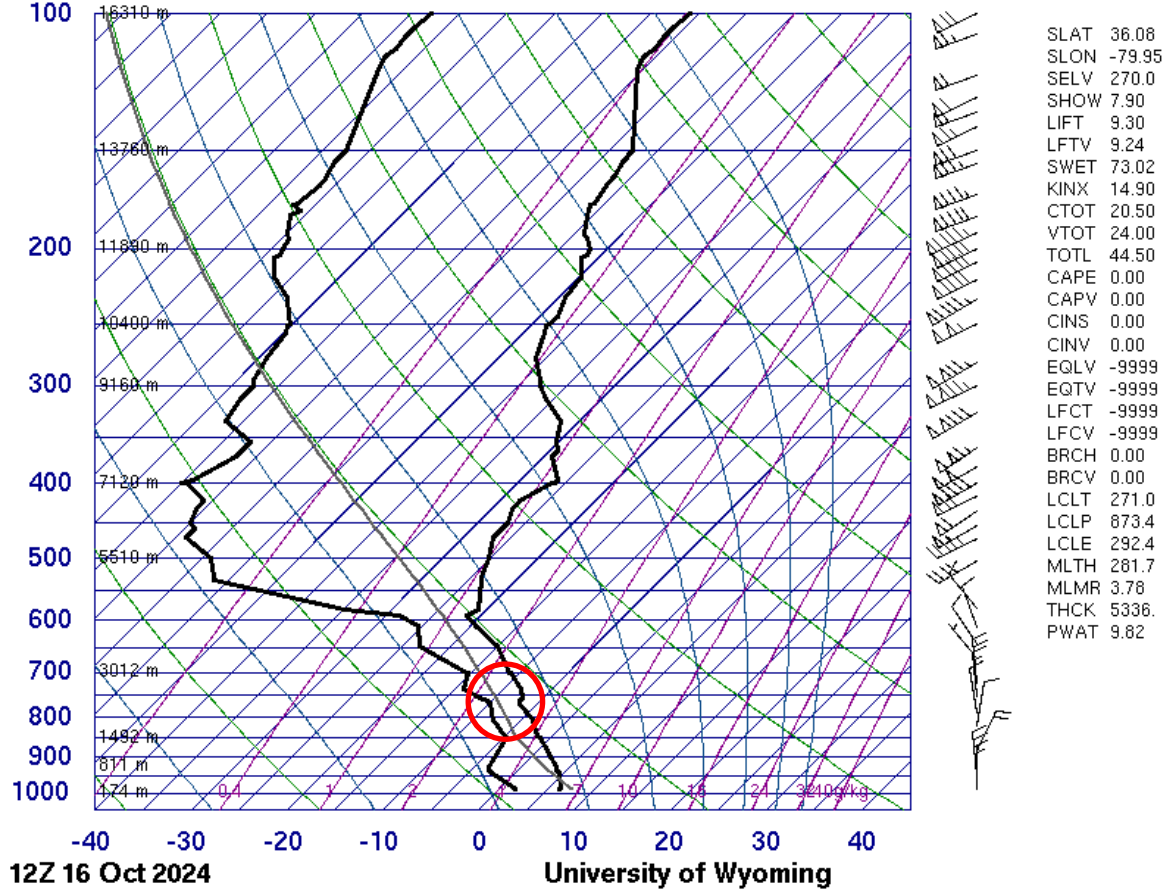
The image above shows stratocumulus clouds over Raeford, NC photographed on Oct 16, 2024. The photograph was taken at approximately 10:00am local time from an altitude of 11500 ft AGL. The clouds were approximately 6500 ft AGL and were about 150-200 ft tall. In addition to the image above, a video of the clouds can be found at the following link: <https://youtu.be/WzuegUkqBGA>

2. Details

The clouds that are the focus of the primary image are stratocumulus clouds. These are medium altitude clouds at 6500 ft MSL that are a mix of stratus and cumulus clouds and are characterized by puffy clouds, and can usually be found joined together, similar to altocumulus clouds[1]. Stratocumulus can be distinguished from altocumulus clouds by

their size, and these are a species called stratiformis, characterized by the layer blanketing the sky. The SKEW-T diagram below [2] shows no areas where we would expect clouds to form necessarily. However, we do know that since the clouds existed at 6500 ft AGL, that would fall generally within the red circle.

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Additionally, a photograph was taken from ground level which can be seen below.



Lastly: it can be noted that the CAPE value in the right hand column of the SKEW-T diagram is zero. This indicates a stable atmosphere which is highly unlikely to develop into any storms.

3. Photographic Technique

The picture was taken on a MOTO Z3 Play cellphone. The phone has a focal length of 4mm, with an f-stop value of f/1.7, shutter speed of 1/2362 sec, ISO 50 and no exposure bias. The original image size is 4032x3024. The temperature at ground level was approximately 70 degrees F and the picture was taken at 10:24 pm local time.

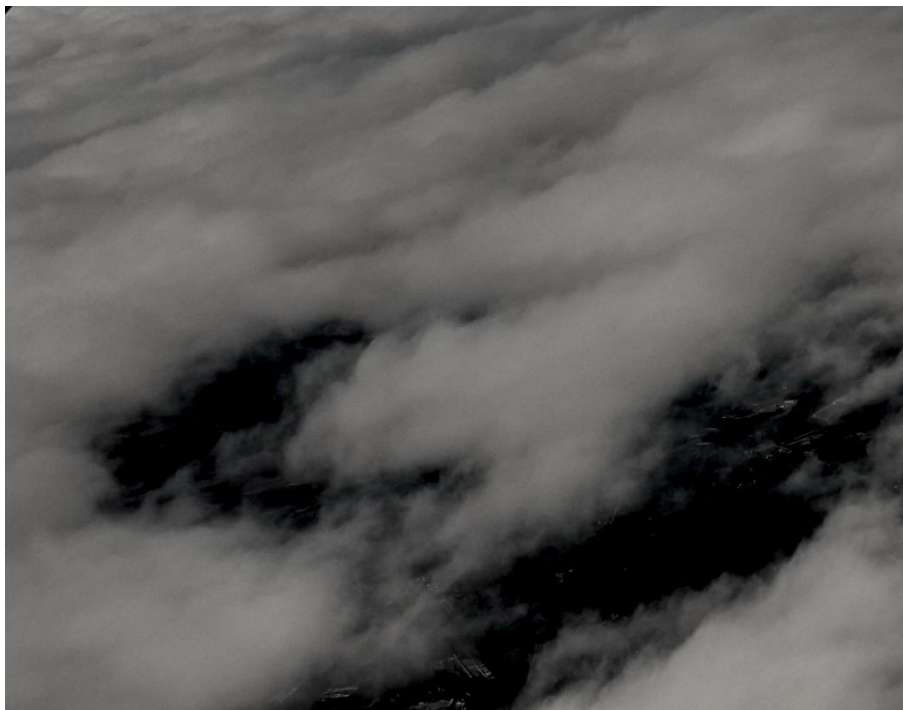
4. Editing Technique

From the original image seen below, the picture was first cropped down to a size of 2017 x 1564 pixels. Then the detail was increased to 335%, the global vibrance was decreased 50%, the contrast was increased 17% and the global brilliance was

decreased 57.54% leading to the final image. The photo was edited using the program Darktable.



Original



Edited

5. Conclusion

The opportunity to capture these clouds was an overall success. These clouds were observed on a day when we were conducting skydiving jumps at an altitude of 11500 ft AGL so it was the perfect opportunity to get realworld data on the clouds, to include their exact altitude. This could have been improved by using a helmet camera to capture the actual fall through the cloud layer, but unfortunately the helmet I brought to the drop zone that day was not outfitted to mount a camera on. Ultimately the media included were effective at capturing interesting perspectives of stratocumulus clouds.

6. References

[1] "Stratocumulus Clouds: Low, Puffy Layer" *What'sthiscloud*, whatsthiscloud.com/cloud-types/stratocumulus. Accessed 10 Dec. 2024.

[2] "SKEW-T Greensboro." *University of Wyoming, College of Engineering*, <https://weather.uwyo.edu/cgi-bin/>. Accessed 09 Dec. 2024.