

Stratocumulus Stratiformis



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INTRODUCTION AND PURPOSE

This photograph and paper was created for the initial Clouds 1 assignment in the Flow Visualization course at CU Boulder. The instructions for this assignment were to simply observe and capture an image of any cloud, identify different cloud types, and develop an understanding of cloud formation processes.

CLOUD PHYSICS

This image was taken at 3:10PM on February 14, 2014 in Boulder, Colorado. The image was taken in the parking lot of the Target on 29th street with the camera 90 degrees above the horizon, directly facing the sky.

The field of view is filled with a low stable cloud layer of stratocumulus stratiformis. The imaged stratocumulus is mostly uniform, with only one significant break in the cloud layer, giving the species name stratiformis. This can be seen in the final image in Figure 1.



Figure 1: Stratocumulus Stratiformis

ATMOSPHERIC CONDITIONS

The weather at the time of this image was approximately 43 degrees Farenheit, on a pretty windy day, 5.8 MPH of wind. It was a pretty dark and gloomy day all day. As can be seen from the weatherspark data in Figure 2, at the time of the photograph there was approximately a 100% cloud cover, ranging from 7500-8000 ft, both of these are congruent with a stratocumulus cloud formation.

After the weatherspark data was determined, a stable atmosphere was next on the docket. Using the University of Wyoming Skew T database, the skew-T data was taken at the nearest time interval, at approximately dusk in Denver, CO. The University of Wyoming database did not seem to have Skew-T data at the time required, so the nearest time interval data was taken. An image of the skew T can be seen below in Figure 4. As can be seen from the figure, the CAPE is 0, and the dashed line is far to the left, indicating a stable atmosphere. The atmospheric data coincides with a stratocumulus observation.

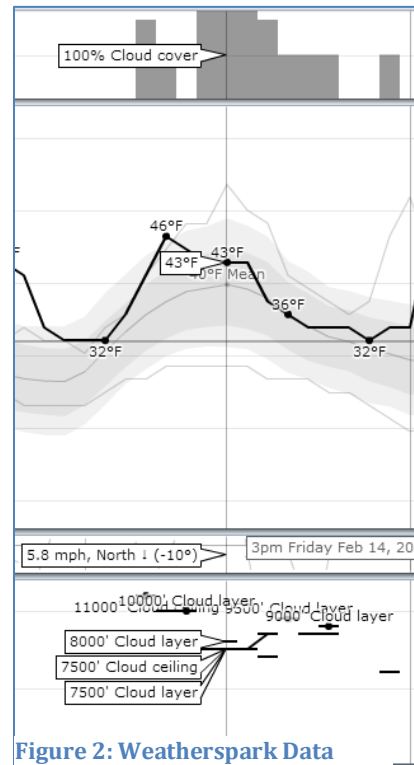


Figure 2: Weatherspark Data

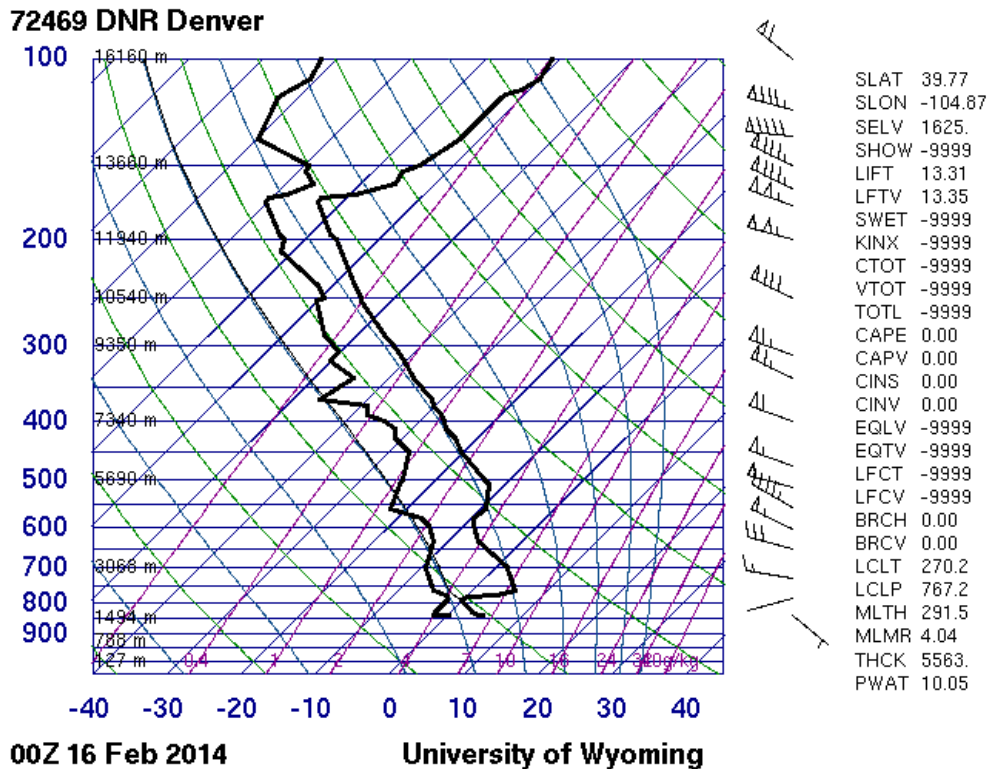


Figure 3: University of Wyoming Skew-T

PHOTOGRAPHIC TECHNIQUE AND POST PROCESSING

The camera used to capture this shot was a iPhone 5 held directly facing the sky, parallel to the ground. Several pictures were taken, but the image chosen has a beautiful ethereal quality that I particularly liked.

In the final stages of this image creation, I significant edits to the image using Adobe Photoshop 4. The iPhone 5 used has several lens and dust problems, creating strange red dots throughout the original image, and a small power line can be seen in the top right corner. All of these were removed using the clone stamp tool. In addition the contrast was increased and the darks were enhanced in the photograph. Once the contrast was increased a beautiful rainbow patch can be seen in the bottom middle of the image, although it is not clear if this is from the cloud physics or the lens optics.



Figure 4: Left: Original image, Right: Final image

REFERENCES

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<http://namesofclouds.com/stratocumulus/index.html>