

Cloud First



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MCEN-4151

Flow Visualization

A Course in the Physics and Art of Fluid Flow

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Background



Figure 1. The image of Cumulus Clouds and Stratus Clouds

The photo shown in the figure 1 is taken for the first cloud assignment. The picture shows the mixture of Stratus and Cumulus on a windy day. The picture was taken on March 5th 2018 where the wind helped the picture to show off the cloud's behavior on a windy day. The objective of the First Cloud assignment was to take a beautiful photo of cloud flow visualization, to creatively design a setup to photograph the flow of cloud.

Experimental Setup, Physics, and Chemistry

The photo shows the Stratus cloud, which exists below 6,000 feet and Cumulus cloud, which exists below 6,000 feet as well. Stratus clouds are low-level clouds that is characterized by horizontal layering with a uniform base, which in this photo, the clouds were separated more due to a high velocity of wind. Cumulus clouds are puffy clouds that looks

like a floating cotton, which the photo shows that the Cumulus cloud can be seen through the Stratus clouds.

The Skew-T diagram provided information that indicates the stability of the atmosphere. The Skew-T diagram can be seen in Figure 2.

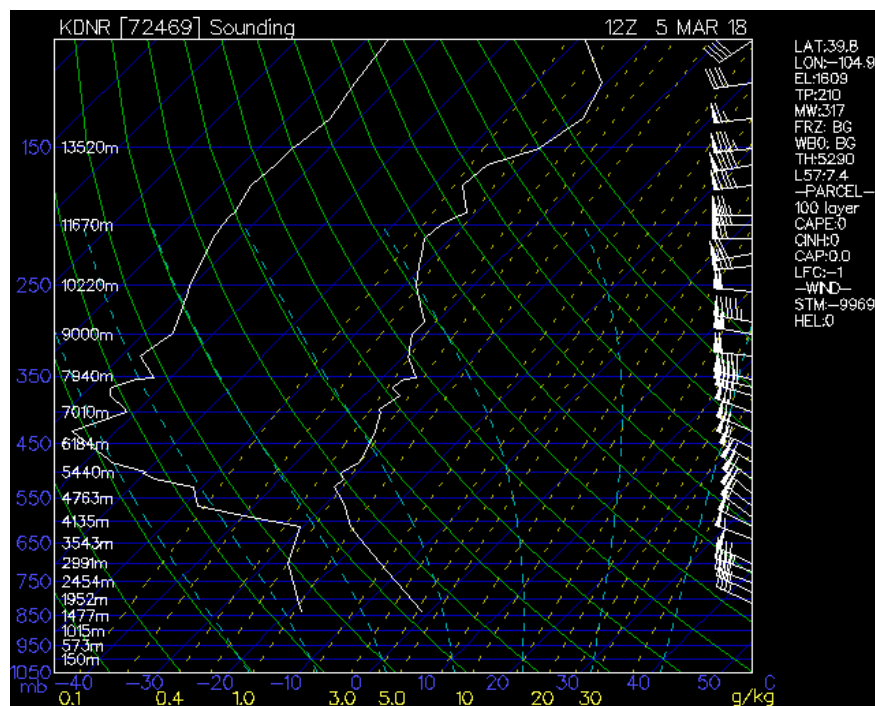


Figure 2. The Skew-T plot of Denver on March 5th 2018

Visualization Technique

The image was taken with Samsung Galaxy 8 with 4.25 mm of focal distance, aperture of F.17, exposure time of 1/8264 seconds, and ISO of 50. The photo was taken at the Flagstaff mountain at around 11 A.M.

Conclusion

The image contained a good physics and aesthetic vision of the flow visualization. The wind was perfect enough to produce a great see-through of Cumulus and Stratus clouds. The weather was also nice that showed the artistic intent of the photograph.