Clouds 1

Flow Visualization

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2/25/2009

Introduction

The assignment is to photograph a cloud. As I have found out, it is much easier said than done. Often, I would see some beautiful clouds in the sky when I drive and I would want to take a picture of it but I would realize that I do not have a camera with me. Other times when I have a camera with me, the sky is clear and not a cloud in site. When I finally get a chance to take a photograph of a cloud, the image does not come out like what the eye can see. Therefore, I have tried my best to capture a cloud that is a close representation to what I see.

Image Setup

The image is taken in Denver, Colorado on February 23, 2009 around 2:00 PM. The camera was facing southwest and approximately 75 degrees from the horizon. The camera was mounted on a tripod to keep the camera as stable as possible.

Cloud Science

The clouds in the image should be cumulus humilis clouds. The sky to the north of the clouds was clear and there are many clouds similar to the ones in the image more to the southwest and south region. The satiability of the atmosphere can be predicted with a Skew-T plot, shown in Figure 1. The atmosphere on this day should be stable looking at the adiabatic line and the actual temperature from the weather balloon. The estimated elevation of the clouds should be around 4,000 to 7,000 meter looking at the skew-t plot because that is where the dew point line is really close to the actual air temperature. Therefore, only a slight amount of cooling will allow clouds to
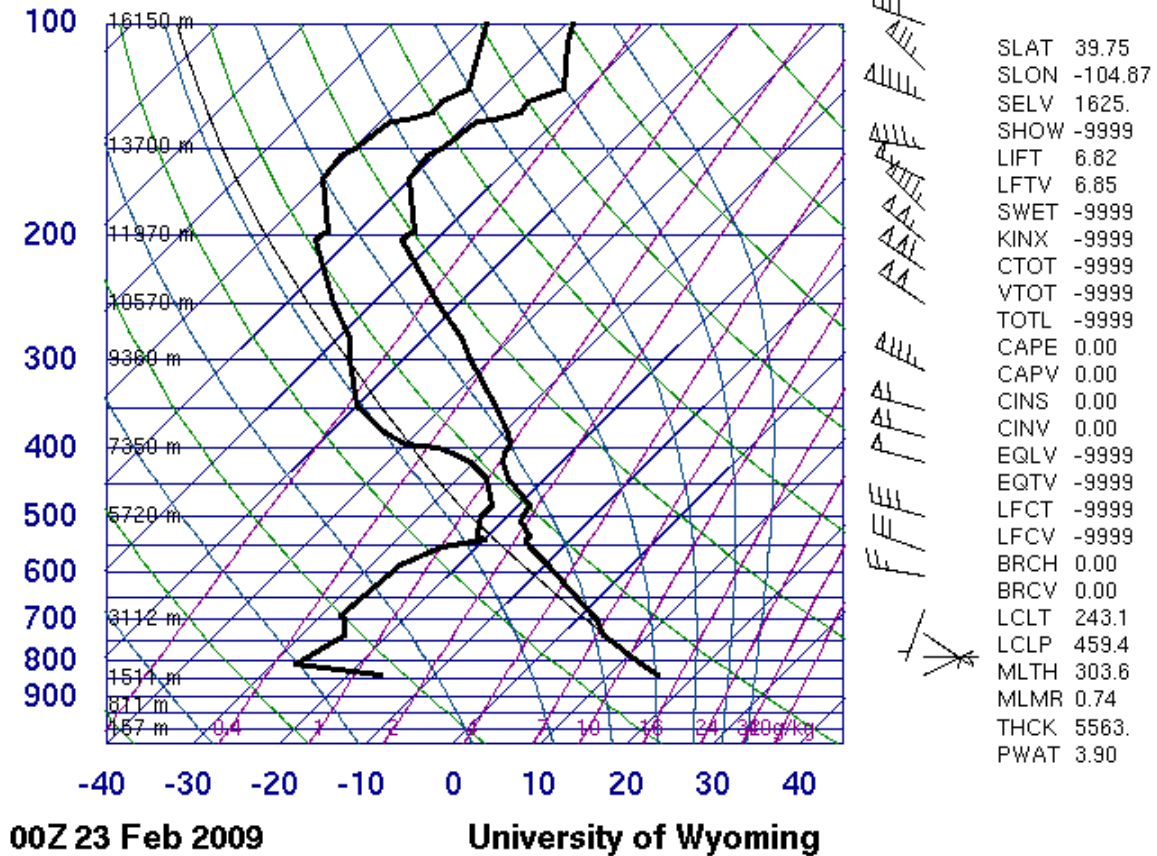
form.

72469 DNR Denver

SLAT 39.75
SLON -104.87
SELV 1625.
SHOW -9999
LIFT 6.82
LFTV 6.85
SWET -9999
KINX -9999
CTOT -9999
VTOT -9999
TOTL -9999
CAPE 0.00
CAPV 0.00
CINS 0.00
CINV 0.00
EQLV -9999
EQTV -9999
LFCT -9999
LFCV -9999
BRCH 0.00
BRCV 0.00
LCLT 243.1
LCLP 459.4
MLTH 303.6
MLMR 0.74
THCK 5563.
PWAT 3.90

00Z 23 Feb 2009   University of Wyoming

Figure 1: Skew-T Plot February 23, 2009: 00Z

Photographic Technique

The image was captured using a 12.2 mega pixel Canon Rebel Xsi digital signal-lens reflex (DSLR) camera with no flash. An 18-55mm image stabilizing lens with was mounted on camera. The depth of field was as large as possible because the aperture setting was set to the largest value, F22, it can achieve with that focal length, 55.0 mm. The ISO speed was set at the lowest setting since the image was captured in broad daylight. The shutter speed was set to 1/60 of a sec and the white balance was set at daylight. The image size is 4272 x 2848 and the image quality was set at the highest possible, RAW format. I decided to not crop the picture and leave the tree visible to show the distance of the clouds compared to the branches of the tree.

Conclusion

The image that I captured was not the best because I wanted to capture more but the more I zoomed out, the more objects became visible. I wish I had a wide angle lens because that would have been able to capture what I have seen. The part of the image I like is the fluffiness of the clouds; it looks very comfortable as if someone can sleep on it. It also kind of resembles sea foam that can be seen at the beach. For the next image, I will try to find a hill or somewhere that is open so I can zoon out and capture an image resembling what the eye can see.

References

Skew-T : University of Wyoming, College of Engineering: Atmospheric Sounding <http://weather.uwyo.edu/cgi-bin/sounding?region=naconf&TYPE=GIF%3ASKEWT&YEAR=2009&MONTH=02&FROM=2300&TO=2300&STNM=72469>