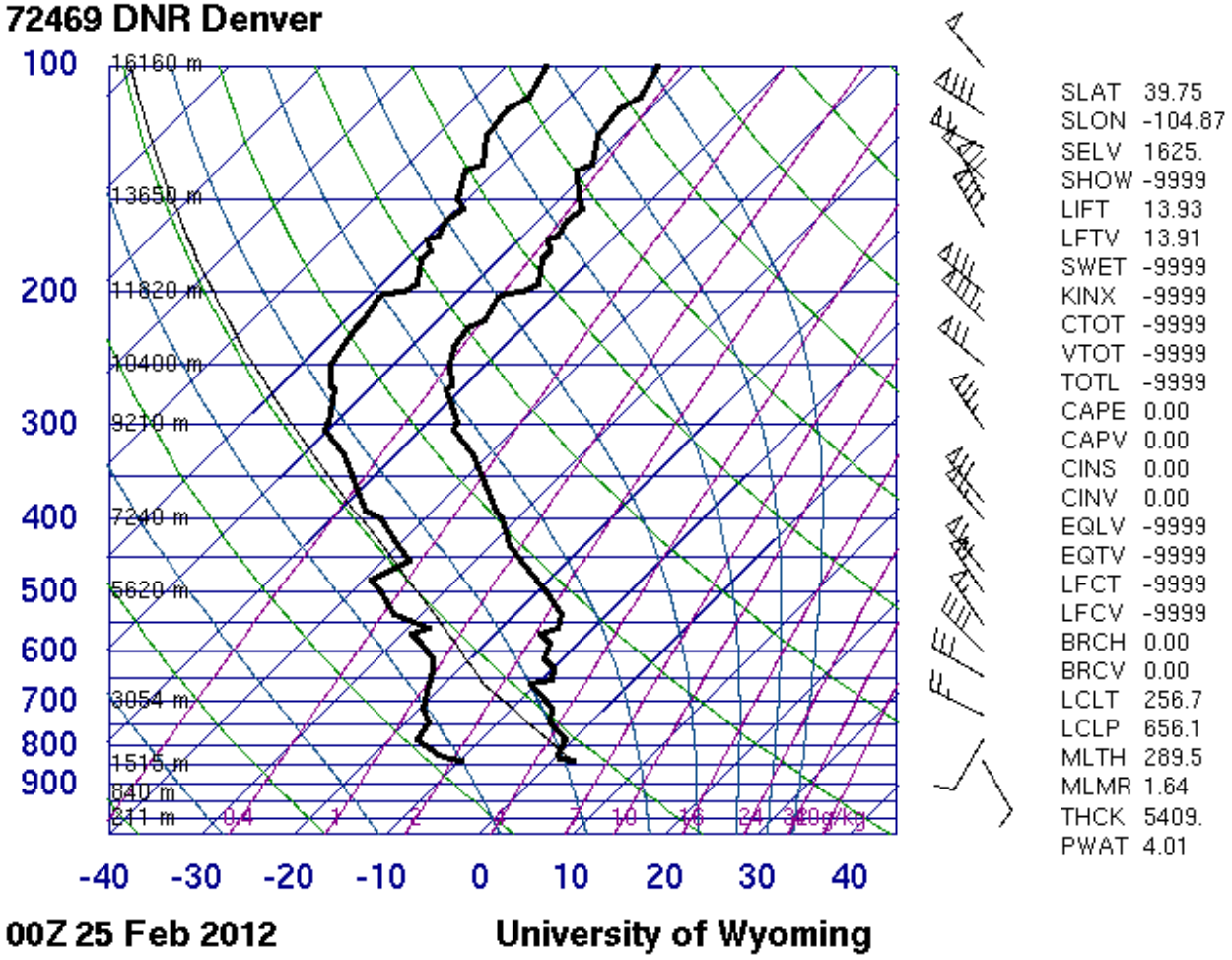
Cloud Image # 2 Report

This report describes the second cloud assignment of the spring 2012 Flow Visualization course. The intent of this image was to build upon the first cloud assignment and find a new type of cloud image that was still visually appealing and demonstrated yet another cloud formation and its unique characteristics. Many different types of clouds and formations were observed, some were similar to clouds seen in the first round of pictures and some were very different. The final image submitted for this assignment demonstrates a formation of a few different clouds, with a nice visual effect that I found to be very appealing. The procedures that lead to the image below are documented in the following report.

The image was taken early in the morning in Boulder, CO, at approximately 6:21 AM on the 25th of February. The image was taken from a balcony on the fourth floor of my apartment building, located at 26th and Canyon and looking out to the East. The camera was angled approximately 15 degrees up from the horizontal for the shot.

This image has a cloud at the center of focus; however the image is about more than just a single could. There are several pockets of cloud formation in the image, and I believe they all add a little something to the overall effect of the picture. Some of the clouds have the effect of a bit of motion blur, such as the middle and top formations, and some clouds are very clearly defined, such as the groups at the bottom of the photo. The cloud formations shown are stratocumulus clouds, a cloud that is formed at a mid-level altitude often during stable weather

conditions. This image was taken at a time where the atmosphere was very stable, with very little weather effects to alter the cloud formations. It can be seen in the image that the bottom portion of the shot is significantly lighter than the top. This is not an effect that was created by any alterations, but rather the effect of the sunrise in the early morning. The Skew-T Diagram from 6:00 AM on the morning of this image is shown below:



From visual inspection of this plot, this seems to be a very stable atmosphere, as would be expected from the weather patterns of the day of the image. The CAPE value on the plot reads at a flat 0, which supports this assessment. There are several clouds in this image and they vary in altitude, however I would predict that the majority of the clouds fall within the 4500-6000 m range. This diagram shows how so many stratocumulus clouds were able to form at varying locations that morning, with such stable conditions it was possible to observe several smaller formations.

This picture was taken with a Canon PowerShot SX 130 IS. The F-stop was set to 4.0; the ISO was set at 80, with a Focal Length of 5 mm and a Shutter Speed of 1/250 sec. Due to the image being so stable, a very low ISO was possible and allowed the clear focus seen in the

image. The final Pixel Dimensions were 3197 and 1446 in the X and Y directions, respectively. Very little post processing was done on the image, with very minor enhancements and color adjustments being the only modifications, as well as cropping to properly frame the image. The original image can be seen below:

Overall I was very pleased with this image, there are several unique effects occurring and it is a wonderful example of multiple examples of a certain type of cloud. I think the physics of cloud formation are very present in this shot, and there is a lot that can be interpreted from the varying individual specimens observed. The only improvement I would have made would have been possibly finding a better location to take the shot, allowing for the original to be more consumed by the clouds and less by the surrounding area, however I am very happy with the overall result.

References

http://weather.uwyo.edu/cgi-bin/sounding?region=naconf&TYPE=GIF%3ASKEWT&YEAR=2012&MONTH=02&FROM=2500&TO=2500&STNM=72469