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Flow Visualization
MCEN 4151

Clouds II Image Report

The objective of the Clouds II assignment was to capture as many images of clouds as possible between the dates February 22 and April 11, 2011. For each cloud photo session, the information of when and where the photo was captured was recorded. With this information, the atmospheric sounding data was then looked-up the physics within the cloud was analyzed.

The picture I captured is shown below in Figure 1 and was taken on March 24, 2011, at approximately noon mountain standard time. The photograph was taken from Keystone Ski Resort's North Peak facing east. The mountain below the cloud is Independence Peak, thus the angle could be approximated at 15 degrees above the horizon.

Figure 1: Clouds II Assignment photo

These clouds were observed on a fair weather day above the Rocky Moutains, which leads to the conclusion that they are Cumulus humilis clouds. Moreover, a storm was moving into Summit County in the following days, and Cumulus humilis couds often indicate there will be stormy weather in the future.[ii]

The skew-t plot for the Denver location, shown in Figure 2, provides the useful information necessary to describe the physics of the clouds on the day and time the picture was taken. There was a stable atmosphere on the 24th of March, indicated by the CAPE, which was zero on that day. The lines of the T-Curve and Dew Point Curve come nearest each other at approximately 3100 m, so it is expected that clouds will form nearest this elevation[i].

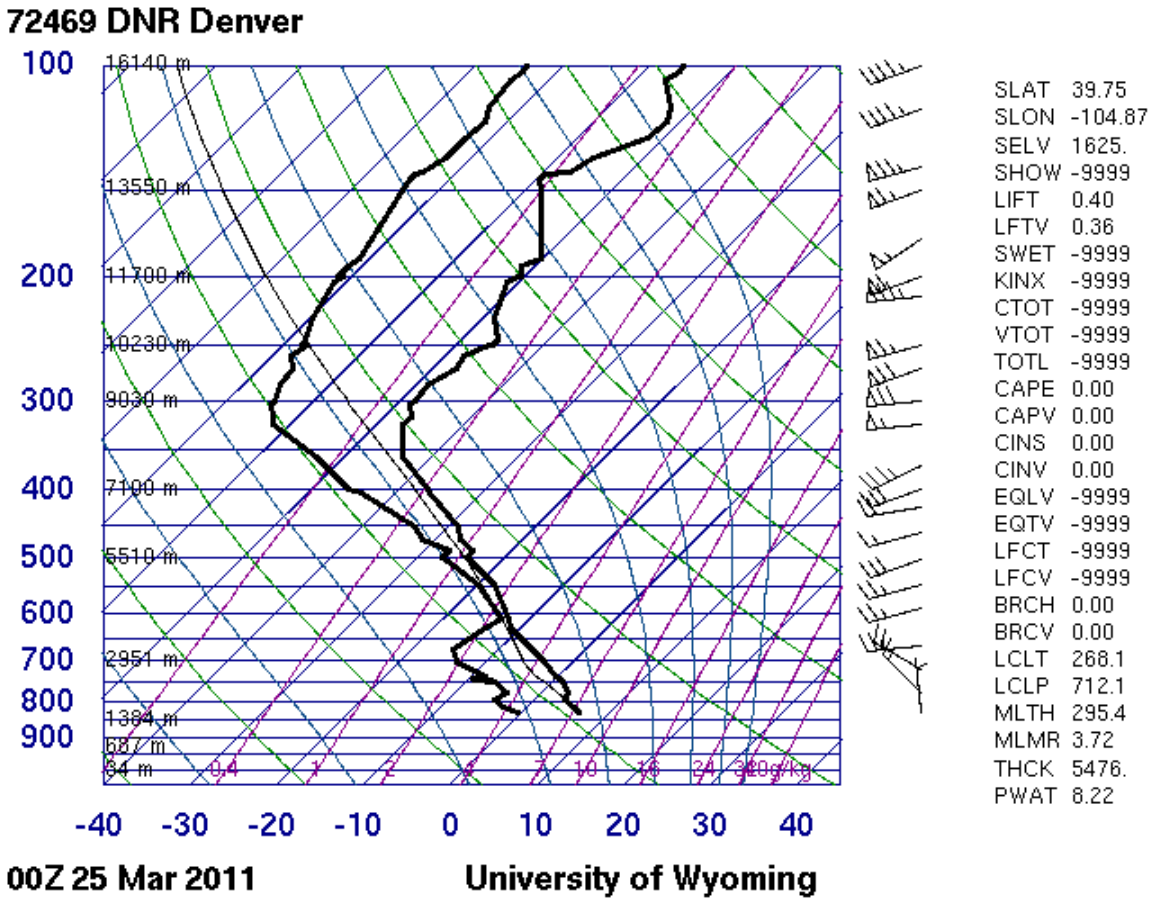

Figure 2: Skew-t plot for March 25, 2011 00Z

Because I was snowboarding when I saw this cloud, the picture was taken with my point and shoot Nikon Coolpix s3000 12-megapixel camera. I imported the image into Photoshop where I then increased the contrast to make the picture more dramatic. I also cropped the picture so that the mountains composed the lower third of the photograph and the sky and clouds composed the upper two thirds.

I am very pleased with how this photo turned out. I especially enjoy how the mountains' profiles seem to be mimicked by the cloud hovering above.
I feel that I did a good job in Adobe Photoshop the make a beautiful picture.

References

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[i] "Atmospheric Soundings." *Wyoming Weather Web*. University of Wyoming. Web. 21 Feb. 2011. <http://weather.uwyo.edu/upperair/sounding.html>.

[ii] Zillman, John. "Cumulus Humilis." *Airline Pilots Forum and Resource*. 9 Sept. 2008 Web. 21 Apr. 2011. <http://www.theairlinepilots.com/met/cumulushumilis.htm>.