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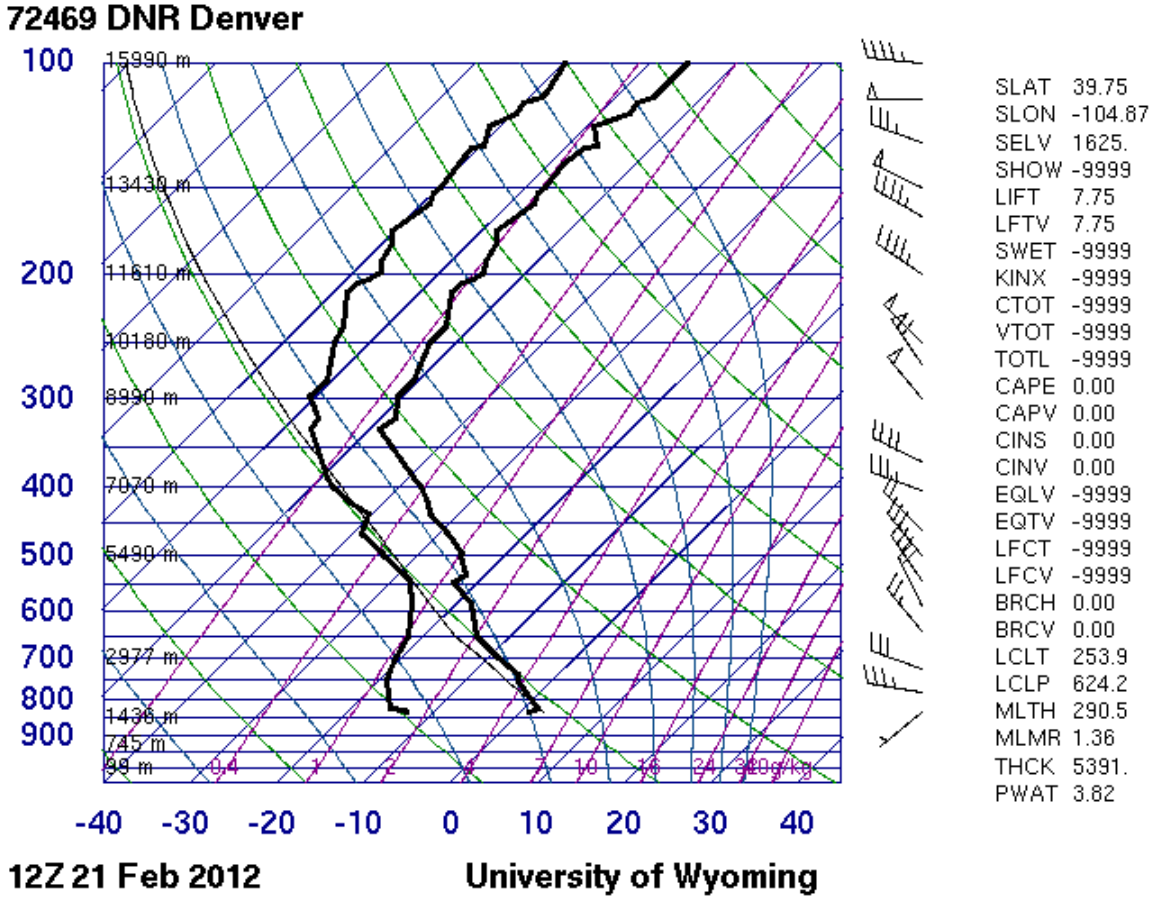
Cloud Image Report

For my cloud image I intended to depict the way the mountains and the clouds interact. The mountains tend to hold a cloud overtop and form waves of clouds as you extend east from the mountains. These mountain wave clouds can be attributed to convection as well as adiabatic heating in the atmosphere.

This image was taken on the outskirts of Boulder, Colorado. It is about 3 miles southeast of Boulder on a scenic pull off just off US highway 36. This image was taken facing west, which is very popular direction to capture interesting clouds when you are in Colorado because of the Rocky Mountain range. I was at about 5712 feet in elevation when I took this image resulting in a picture where the camera is near parallel to the ground. This was taken on February 21, 2012 at approximately 10:30 AM MST.

The main cloud in this picture (right center) is an altocumulus cloud. There is a mountain wave cloud, most likely a cumulus cloud, along the lining of the mountains. There is also a more "wispy" cloud in the upper left of the image that is beginning to resemble a cirrocumulus. It looks as if it is in the transition phase from an altocumulus to a cirrocumulus. The weather for February 21 was a mild Colorado day. It was an average of 39 degrees F with a dew point of 11 degrees F. It was also a somewhat windy day with a westerly wind at 23 MPH [1]. It was right between to small snowstorms and the humidity was at a low when compared to the surrounding days. The skew T plot, shown below, tells us a lot of information about what was going in the atmosphere that day.




The skew T plot tells us that it is a stable atmosphere since the CAPE is equal to 0. Also from the graph we can tell if we were to release a parcel of air at the approximate height of our cloud we would get a cooler temperature which would want to return to its original position thus making it stable. Typically, altocumulus clouds are at about 4 miles above the surface of the earth and cirrocumulus clouds are 6-7 miles high. From looking at my picture and basing my elevation estimation off the mountains behind my clouds I would estimate the main altocumulus cloud to be at 3-4 mi high and the cirrocumulus cloud to be 7-8 miles high. Altocumulus clouds typically consist of layers of smaller clouds, which form a larger cloud. They look somewhat rippled while still maintaining the layered effect as well. The

cirrocumulus clouds are a higher elevation cloud that gets broken up giving a very wispy looking cloud. In my image you can still see glimpses of the layers in the altocumulus cloud, which would typically transform into a cirrocumulus cloud as it elevated.

My image was taken on an iPhone 4, which has a 5.0 MP camera. It uses a focal length of 3.85 mm and a F number of 2.8. The ISO speed rating is 80 and the exposure is 1/887 seconds. Finally, the aperture value is 2.97. These are standards for all iPhone 4 pictures. In Photoshop I slightly changed the curves to get a full color spectrum for the image since there wasn't a lot of black. I also adjusted it to make the whitest part of the image a extreme white in order to bring out the brightness. I sharpened up the edges of the clouds, specifically, the altocumulus cloud to give it a more crisp look and make it the focus of the image. Overall, the colors the Colorado sky creates is incredible and its beauty can be seen with the human eye.

I really like the way that the clouds right off the mountains look. I would really have liked to do a time lapse of specifically that altocumulus cloud and see how it forms as well as how it dissipates. My favorite part about the image is the clear separation between the clouds and how it shows the effect of mountain wave clouds.

1. http://www.wunderground.com/history/airport/KBJC/2012/2/21/DailyHistory.html