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Flow Vis Spring 2014  
Clouds Assignment #1



**Clouds above South Boulder Feb. 13th 2014 2:00 PM MST**

This photograph of the clouds above south Boulder was taken from the bottom of Chautauqua Park in Boulder, CO. It was a very warm February day with plenty of sun, blue skies and a decent amount of wind. As clouds came over the mountains, they scattered into the beautiful structures seen in the photo above. The reason I liked this photo so much was because of the way that the clouds dispersed into many different structures after passing over the mountain range. Also, it can easily be seen that there are two separate cloud layers, meaning two different types of clouds. I love the way that this image looks like a painting instead of a picture

This photo was shot using my Olympus Pen E-PL5 point and shoot camera, resulting in a 4608 x 3456 pixel image. A shutter speed of 1/640s, an aperture of f11, and an ISO of 200 were used by the camera. The camera

contains several different modes including a Dramatic effect, which was used in taking the picture. I also used PhotoShop CS5 to do a small amount of editing. In order to highlight the two cloud layers, I increased the sharpness of the photo, which made the clouds pop out of the image a little more than in the original picture. The main reason that I used the dramatic effect on the camera was because it was very bright outside and the setting made the sky look a lot darker and more ominous rather than the piercing blue that actually took place. This is, in fact, the reason I became so endeared to this photo. It captures beautiful clouds but also has a darker more sinister feeling at the same time. I also love how the top of the photo is a very dark sky while the middle and bottom portions of the photo look lighter and more peaceful. It gives a sense of a brief calmness before a storm.

The main cloud types seen in this particular image are stratocumulus lenticularis and altostratus clouds. The reason we know that these are lenticular clouds is due to the fact that the sky directly in front of the mountains was completely blue, with no clouds, while all the clouds seen in the image were further out from the mountains creating formations known as “wave clouds.” The area that was completely blue is known as a foehn gap. This gap results from the strong sinking motion on the lee side of a mountain barrier during a foehn or Chinook. It seems fairly evident that a small Chinook occurred during this time frame since the temperature went from 14 degrees on Monday February 10 to 55 degrees on Thursday February 13 and the winds throughout this time period were very strong as the skew T<sup>1</sup> shown below indicates. The skew T diagram also illustrates the fact that the atmosphere was stable during the time this picture was taken since the CAPE number is zero. The cloud height was estimated by comparing the clouds to the flat irons behind. Most of the clouds actually touched the mountains or floated right over the top of them. It is hard to tell from the skew t where the two lines come closest together, but an argument could be made for 3029 meters, which is right at the upper limit of the stratocumulus clouds. One other important thing to note is that the clouds on this day looked like they were sitting in between wave crests as can be seen from their linearity in the picture. This is another good indicator that the clouds were lenticular in nature and were forming from rotors.

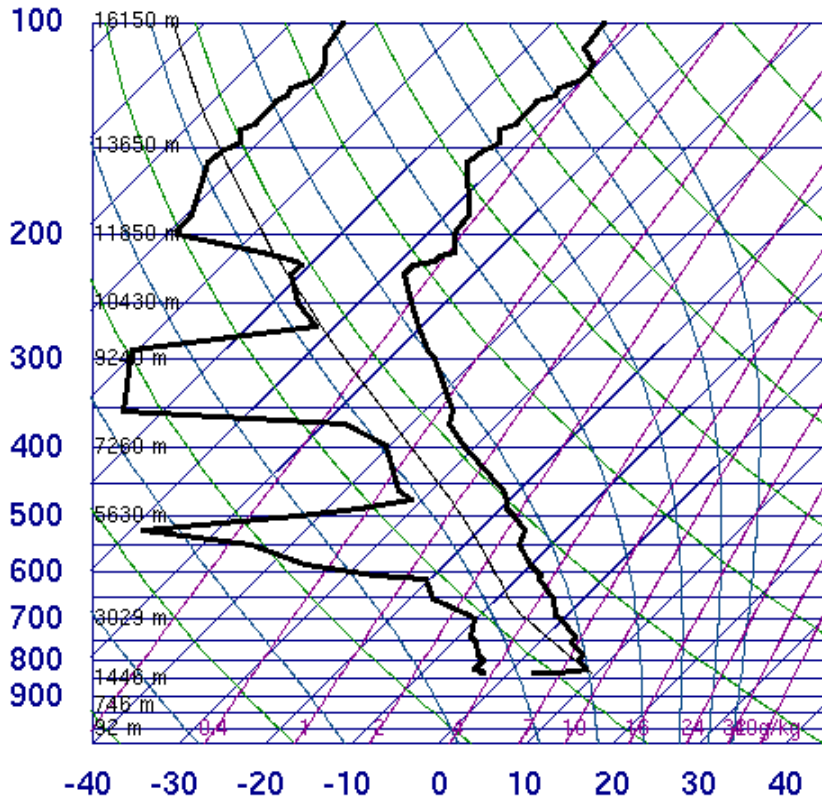
In general, I am very pleased with how the image turned out. It reminds me of how beautiful and relaxing the day was. I loved taking pictures of all the clouds as they slowly blew by over my head. The way

that they are always changing and assuming new forms is fascinating and fun to watch. I already had a decent working knowledge of mountain cloud formation, but this has given me even more insight into the beauty and complexity of weather.



Unedited Image

**72469 DNR Denver**



SLAT	39.77
SLON	-104.87
SELV	1625.
SHOW	-9999
LIFT	6.06
LFTV	5.92
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	266.1
LCLP	675.7
MLTH	297.7
MLMR	3.38
THCK	5538.
PWAT	6.41

**12Z 13 Feb 2014**

**University of Wyoming**  
**Skew-T: Denver 12Z Feb 13 2014**

Reference:

[1] "Atmospheric Soundings." *Wyoming Weather Web*. Web. 26 Feb. 2014.

<<http://weather.uwyo.edu/upperair/sounding.html>>.