



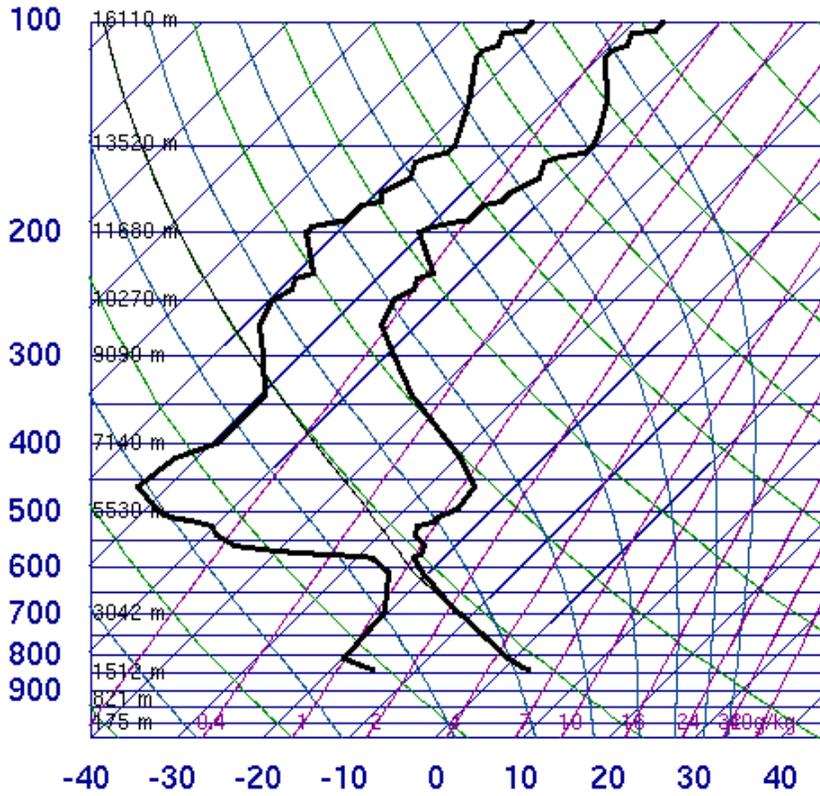
For the first cloud assignment, I simply took as many pictures of clouds as I could. Although I was unable to capture some of the more spectacular cloud structures I saw over the course of this assignment, I'm somewhat pleased with the image I managed to take. For the second cloud assignment I'm already making a point to carry my camera with me more often, particularly at sunset, in order to capture a more stunning image than this one. For this assignment, I simply picked a cloud that I thought was interesting enough to write about. This was accomplished by picking a unique cloud; this cloud was the only cloud in the sky at the time of capture.

This cloud image was taken on January 24th at 3:50 PM in Boulder, just outside the ITLL to the south of the building. Although multiple cloud images were captured for this assignment, I found this image to be particularly intriguing, as the cloud in the picture was the only cloud visible in any direction from Boulder at that time. Indeed, looking up weather conditions on weather underground one finds the cloudiness at this time listed as "Clear". The cloud itself was fairly small. Looking directly south of campus towards the flatirons, a small boulder can be seen jutting out from the edge of the

mountain, and it was over this rock that the cloud was positioned. The size of the clouds was about three to four times the size of that boulder, which is about the size of my pinky at arm's length, from campus. I would estimate the angle from horizontal at which the camera was positioned to be only about fifteen to twenty degrees. This leads me to believe the cloud was between one and two miles high.

All of these facts lead me to believe that this cloud is a Stratocumulus Lenticularis. It's relatively low altitude and very defined shape, along it's with proximity to the mountains eliminated most other possibilities. It was probably formed earlier in the day and had since been broken up by turbulent winds common in the low troposphere. This image was taken during a week of nice weather, with no fronts approaching and no

72469 DNR Denver



SLAT	39.75
SLON	-104.87
SELV	1625.
SHOW	-9999
LIFT	9.65
LFTV	9.59
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	251.3
LCLP	609.2
MLTH	289.5
MLMR	1.11
THCK	5355.
PWAT	2.89

00Z 25 Jan 2011

University of Wyoming

Figure 1: Skew-T Plot for January 24th at 6 PM

precipitation occurring within days of the cloud formation. The skew-t plot for this day is shown in Figure 1. The first piece of information gathered from this plot is the stability of the atmosphere at about 3000 meters, the estimated height of the cloud. Here, the slope of the temperature curve closely follows that of the dry adiabat, indicating stability in this region of the atmosphere.¹ At around and slightly above this height, the air temperature closely approaches the dew point, whereas everywhere else the two are widely separated. This further supports the observation of this particular cloud being the only one in the whole sky; at all other altitudes the air temperature is far too high compared to the dew point for condensation to occur. Winds at this altitude were low and their directions were quite variable, which is shown in the light scattering within the cloud itself in the picture.

I would estimate the distance of the cloud from the lens to be between five and seven miles. The focal length was 42 mm, the exposure time was 1/640 seconds, and the f-stop was 5.6. The ISO was merely 80, as this was a bright day and the image was getting oversaturated at higher ISO values. The camera used was a Pentax X90 DSLR, and the original image was 3000 pixels high and 4000 pixels wide. The image was cropped down to 2004 pixels high and 3756 pixels wide to eliminate a part of the flatirons in the original image. Photoshop was not used to process the image in any way other than cropping. The field of view is hard to estimate, although I would guess that it's approximately 500 meters tall and 1000 meters across in the plane of the cloud.

If I could retake this picture, I would include more of the surroundings and pay closer attention to the atmosphere during the rest of the day. I would increase the contrast to make the sky a bit darker to highlight the details of the edges of the cloud. Overall I'm mildly satisfied with how my picture turned out, however I'm motivated to capture

something more interesting on the next clouds assignment after seeing the amazing images my classmates produced. I'd like to capture an image of a non-lenticularis cloud, as those seemed quite popular given our location; although my lenticularis, being of the stratocumulus genus, looked quite different from most of the others.

¹ http://www.atmos.millersville.edu/~lead/SkewT_Stability.html