



This image was taken for the second cloud assignment in the University of Colorado's Flow Visualization course. For this assignment I was trying to capture a lenticular cloud. I had been trying to capture one for a while when I was rewarded with this image.

This image was captured shortly after sunrise (0648 MST) on February 18, 2014. I took it from the balcony of my apartment in Boulder, Colorado. I was facing west, towards the mountains, and aiming approximately 32 degrees from horizontal.

The cloud in this image is a lenticular cloud (*altocumulus lenticularis*). Lenticular clouds often form on the downwind side of a mountain range as stable moist air flows over the range and the temperature drops to the dew point<sup>1</sup>. The rest of the sky was mostly clear with few scattered wispy clouds. The atmosphere was stable, as can be seen in the skew-T plot shown below in figure 1.

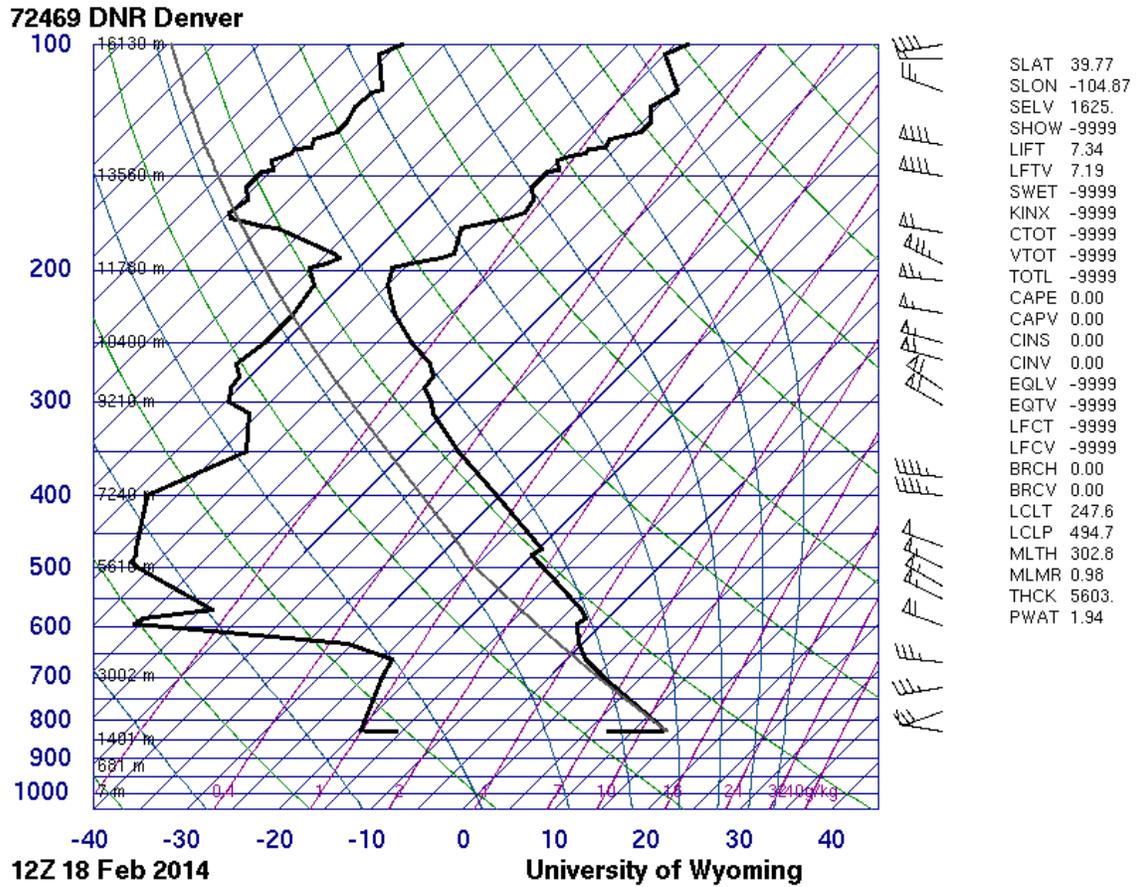


Figure 1: Denver skew-T chart- University of Wyoming<sup>2</sup>

This data was generated from a sounding only 48 minutes before the photo was taken. It shows a relatively stable atmosphere, with a convective available potential energy (CAPE) of zero.

The distance from object to lens is about 12,400 feet. The focal length of the lens used was 24 mm. Aperture was set to f/5. Exposure time was 1/125 sec at ISO-100. The camera used was a Nikon D3200 DSLR. The image was cropped from 6016x4000 pixels down to 5978x2318 pixels. Contrast was increased to give the cloud more color. The original image is shown below.



Figure 2: Original Cloud Image

This image clearly shows moist air flowing over the ridge and condensing on the Boulder side. I appreciate it because it clearly displays the physics of what is going on. I fulfilled my intent of capturing an image of a lenticular cloud. I'd like to take this idea further by compiling an entire album of different lenticular clouds seen near Boulder, Colorado.

### Citations

1. "Lenticular Cloud." Wikipedia. N.p., 15 Apr. 2014. Web. 16 Apr. 2014. <<http://www.wikipedia.org/>>.
2. Oolman, Larry. "Atmospheric Soundings." *University of Wyoming*. University of Wyoming, College of Engineering, Department of Atmospheric Science, 18 Feb. 2014. Web. 16 Apr. 2014. <<http://weather.uwyo.edu/upperair/sounding.html>>.