Mountain Wave Clouds

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Clouds 1
MCEN 4151
Flow Visualization
Mar. 4, 2014

The purpose of this clouds assignment is to photograph clouds. To obtain the best picture of clouds, a good weather and climate condition is necessary as well as a pleasant location.

I shot this image at a parking lot which is located at Table Mesa between 5 pm and 6 pm on February 18, 2014. I tried to capture the characteristic of clouds during sunset time. I chose to face west direction and photographed the wave clouds which are just above mountain because the mountain locates at west and the sun set behind the hill. That is the reason why the bottom is the brightest part of this picture. I checked the weather before going out to make sure that the circumstance of taking pictures is the best. The approximate elevation in Boulder is 5,430 ft and the angle of the camera was approximately 45° to the horizontal.

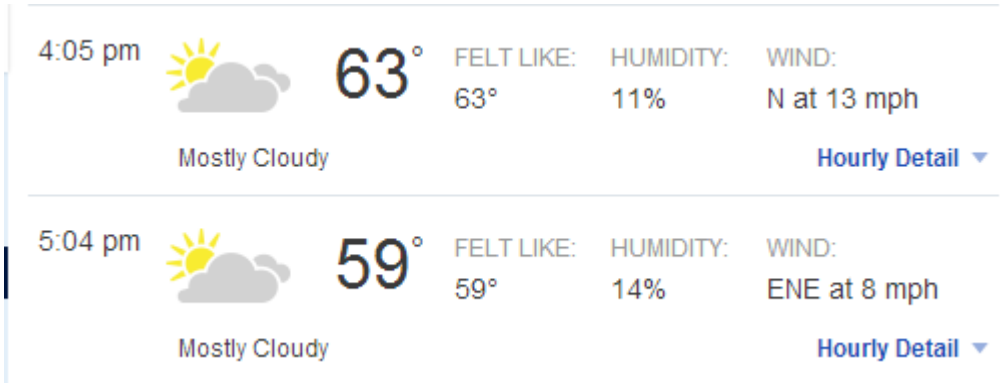

Figure 1 Weather report on February 18, 2014

Figure 2 Mountain wave clouds (unedited)

The clouds in the final image are altocumulus lenticularis according to the shape of the clouds. The skew-T plot in Figure 2 provides the useful information to describe the physics of the clouds at that time. Because the unstable winds blow between elevation of 5660m and 7200m. The clouds which are located at this height became lenticularis and wave-shaped.

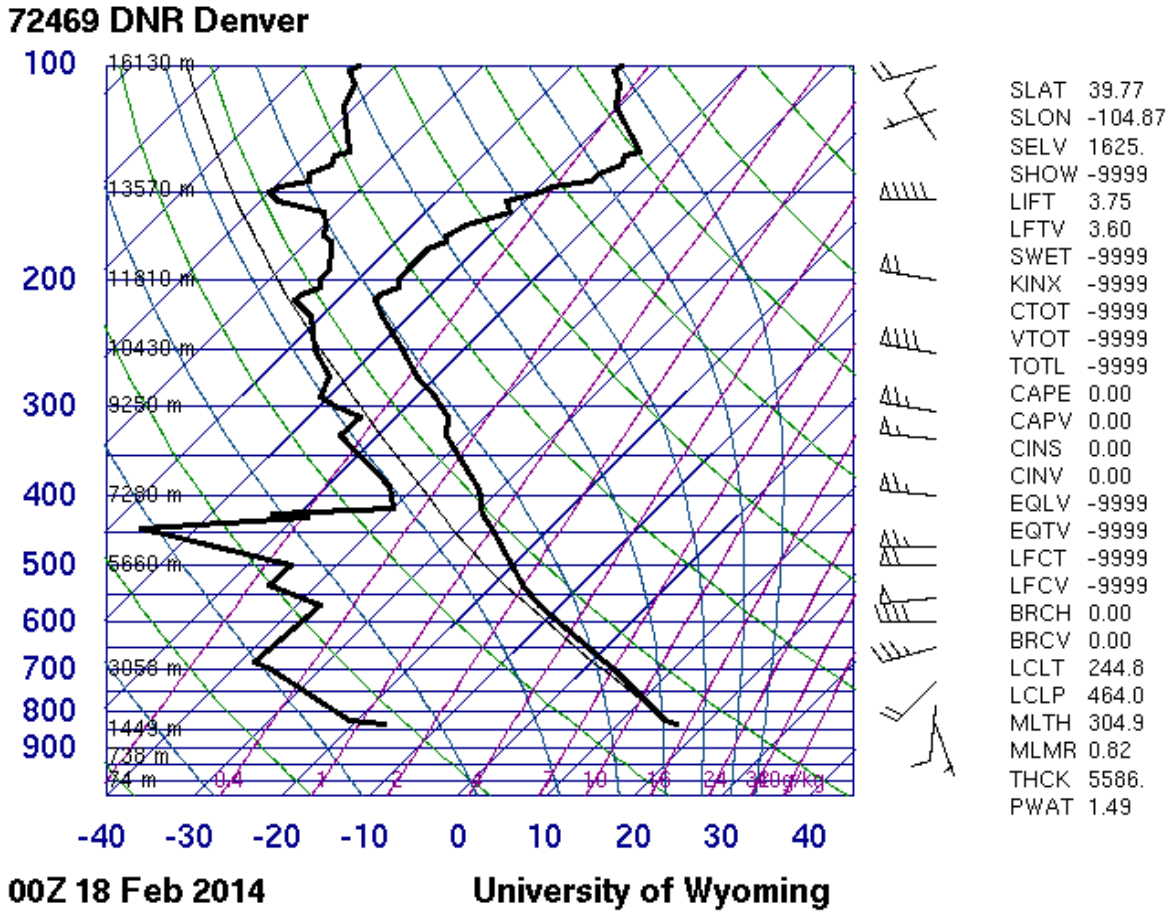

Figure 3 Skew-T plot for February 18, 2014

I use Photoshop to increase the contrast so that the sun light at the bottom of the picture can be more highlighted. The clouds are approximately 20 km away from me. I used Nikon D200 camera. The size is 2896x1944 pixels. The exposure time is 1/640 seconds and ISO speed is 1000 with the focal length of 27 mm.

I think the one defect of this picture is that I did not avoid the street light on the left-bottom corner. Next time, I will crop a little to avoid the unnecessary objects in the final picture.

Reference

[1] Weather report. The Weather Channel.

http://www.weather.com/weather/today/80301:4:US

[2] Skew-T plot. University of Wyoming.

http://weather.uwyo.edu/cgibin/sounding?region=naconf&TYPE=GIF%3ASKEWT&YEAR=2014&MONTH=02&FROM=1800&TO=1912&STNM=72469