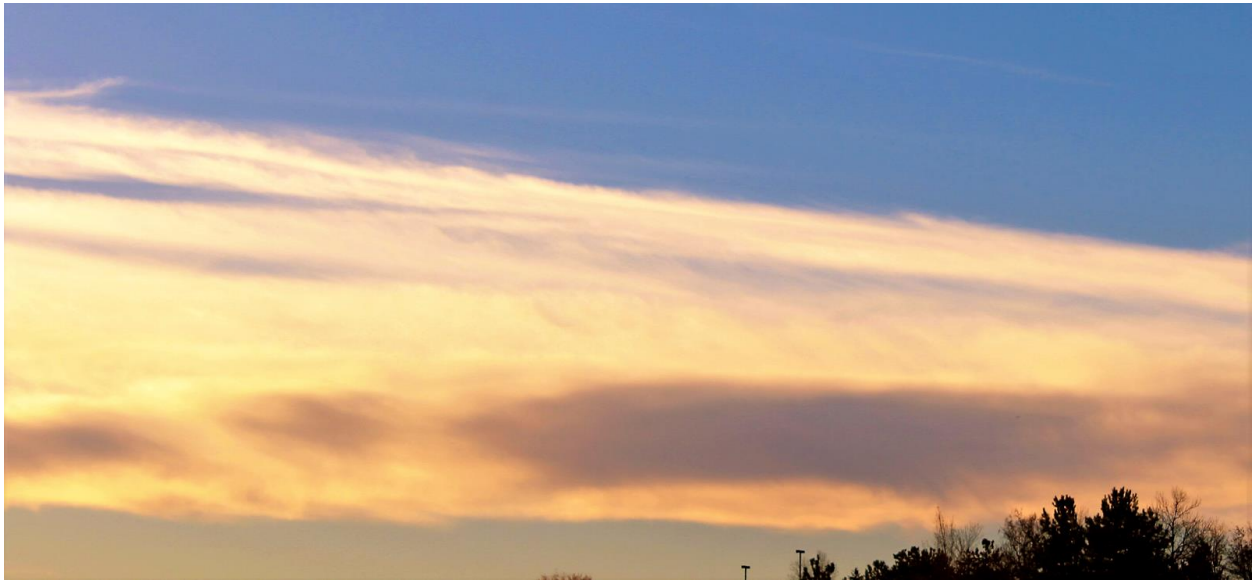


Cloud Second 2016

MCEN 4151: Flow Visualization

University of Colorado Boulder



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November 30, 2016

For the second cloud assignment, I saw many clouds that would have been amazing to capture, but unfortunately every time I did not have my camera with me. However, I could capture many images of different types of clouds. I found that the best cloud images to capture were at dusk and dawn. Early in the morning is an easy time for me to capture many cloud formations with my nice camera. The image I ended up with showed a low altostratus cloud that covered miles in the sky.

I woke up early on November 14th to some beautiful altostratus cloud formations hovering over west Denver. I noticed how slow the clouds were moving and thought it would be an interesting cloud to capture. I ran to grab my camera and went out back of my apartment complex to take the image. My apartment is in Broomfield, CO near the Broomfield airport. I took the image at a low angle compare to the horizon looking southeast toward downtown Denver. The original image taken is shown below in Figure 1.



Figure 1: Original Image of the Cloud Formation on November 14th, 2016

In the image, you can see one long altostratus cloud forming. There was no front moving in that morning. The high temperature for the day was 71 degrees Fahrenheit and the low was 39 degrees Fahrenheit. The mean temperature for the day was 55 degrees. There was no precipitation before or after the picture was taken. The dew point temperature in the morning was 24 degrees Fahrenheit. The actual temperature at the time the image was taken was 46 degrees Fahrenheit, with a dew point at 27 degrees Fahrenheit. There was no wind at the time

the picture was taken and began to gust at 7 mph an hour after in the west direction. The atmosphere was stable with a CAPE of 0.00 seen on the Skew T diagram in Figure 2.

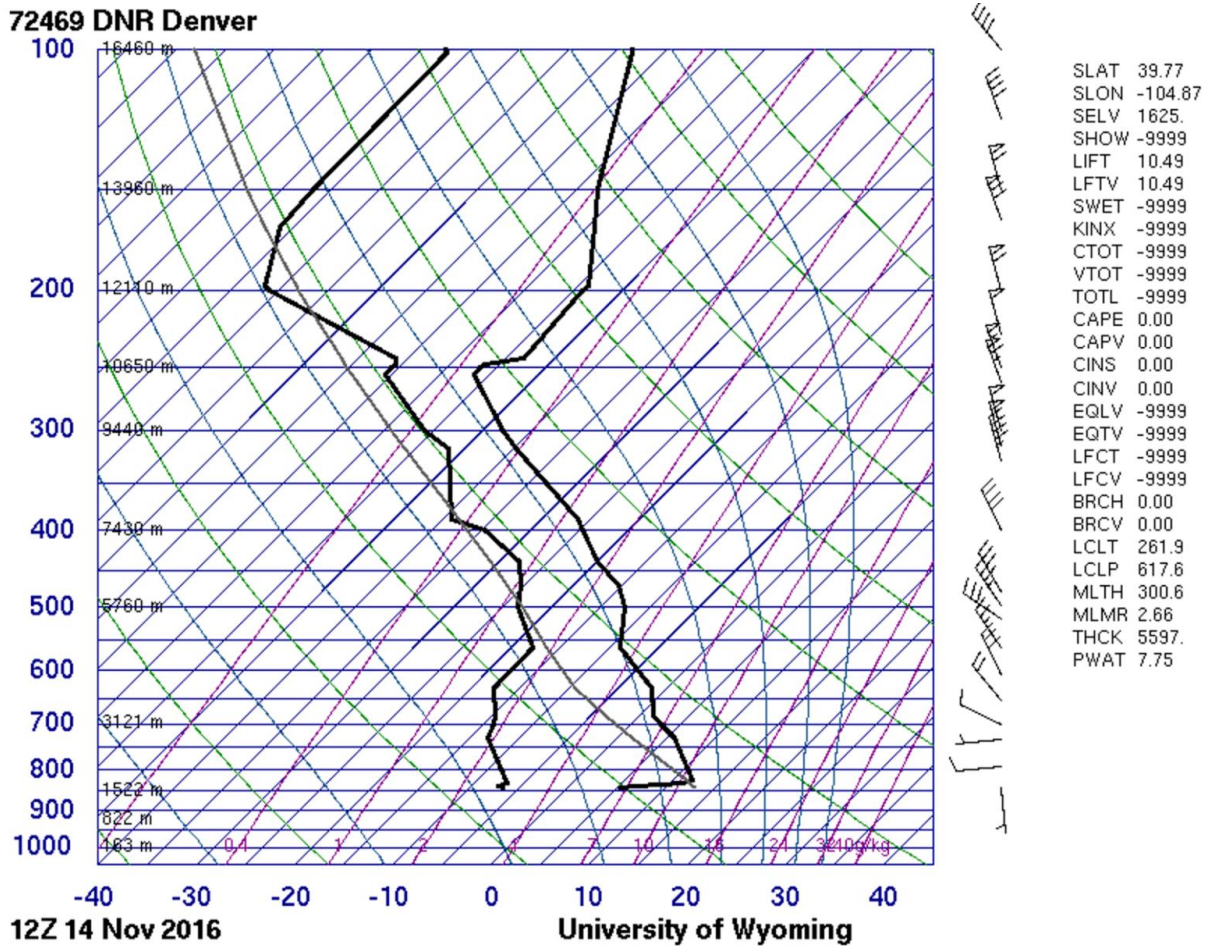


Figure 2: Skew T Diagram for November 14th, 2016 at 6 am

The clouds look low with a height of 3,000 - 4,000 feet in altitude, meaning the clouds in the image are altostratus. Since the atmosphere was stable the clouds were calm and moved slowly in a uniform structure to the northeast.

The camera I used to take the image was a Canon EOS Rebel T5 with an 18-55mm lenses. The ISO was set to 100 and a f stop of f/250. Since the f stop was small I could get a relatively large depth of field. The cloud spans 3-4 miles wide in the image. The original image size was 5184 x 3456 pixels. The lens focal length was set to 55mm. The edited image had a

pixel size of 3479 x 1605. Below in Figure 3 is the edited image I made using the GIMP software.



Figure 3: Edited Image of the Cloud Formation on November 14th, 2016

I slightly changed the contrast and color settings to bring out more texture in the clouds. I cropped out most of the terrain at the bottom to draw more attention to the clouds.

The image reveals how calm a cloud formation can feel. The low slow moving cloud formation was very relaxing to watch as it slowly dissipated after the image was taken. It is interesting how many different cloud formations can change the mood of the sky. If I recaptured the image I would take a time lapse of the cloud to show more of the movement. It would have been cool to watch the cloud slowly evaporate into the atmosphere. I would also use a larger depth of field to capture more of the cloud formation in the sky.