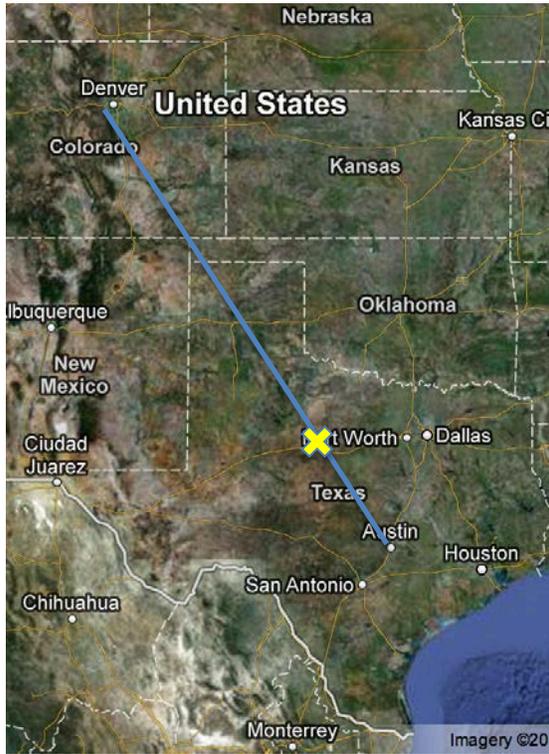


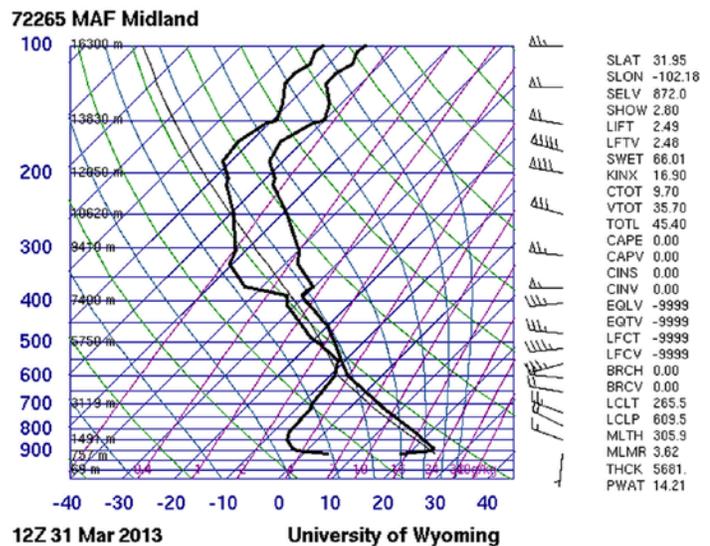
## Flow Visualization Essay – Clouds 2

This image was taken from the window of an airplane. It was important to sit in front of the wing of the aircraft so that a good image could be taken without the influence of the wing or engine on the quality of the image.



The cloud pictured is a cumulonimbus cloud. This is a cloud that is typically found at altitudes of about 60,000 ft. The characteristic tall puffy cloud formation is seen in the image. Because the image was taken in an aircraft, the exact location that the image was taken at is not as simple as other images. The image shown at the left shows the path taken by the airplane on my trip. I approximate that I took the image about a third of the way through the ride and that puts the clouds close to Midland, Texas.

The Skew-T diagram for Midland, Texas is shown to the right. The upper part of the Skew-T diagram indicates a stable atmosphere, while the lower portion (where the lines seem like they are going to intersect) indicates that the lower atmosphere is unstable. This is also indicated in the photo by the stable



cumulonimbus cloud is seen at a higher altitude than the less stable and more scattered clouds below.

It is also aesthetically pleasing that the cumulus clouds indicate a stable atmosphere while the clouds in the background indicate an unstable lower atmosphere because it brings a second element into the field of view.

The image was taken with a Cannon Powershot point-and-shoot camera. The ISO was set to 80. The shutter was 1/400. This was useful for taking an image with a lot of light. F8.0 was the aperture used for the image. The main edits made to the image were increasing the contrast to make the edges of the clouds more distinct. The blue was also enhanced and the other colors were muted.

I really like that this image has the two different types of clouds and there was not a problem with lighting the clouds. Occasionally when you are at the same altitude as the clouds, there is a problem with the sun being in the field of view and creating a glare. The sun was almost right about the aircraft as it was just after noon. This created great highlights on the clouds.

This image is one of my favorite images that I took in this class because it is simple but I was able to take this image in a unique setting that pertains to my major (Aerospace Engineering). In the future it would be interesting to take more clear images and compare the different kinds of clouds that are visible from the height of an aircraft. It would also be interesting to video a plane ride in the form of clouds (looking out the window again) and speed it up to see how the clouds change over different terrain (for example, mountains, plains, oceans, etc.).