

Clouds 1 Report

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Image Purpose

This image of clouds from an airplane was taken for the first clouds assignment. It was created with the intention of revealing a different perspective of clouds. This image in particular (compared to the many others taken on the flight) showcased two different types of clouds and also had an otherworldly feel, satisfying both the scientific and artistic aspects of the assignment.

Location

Because the image was captured from the plane, the exact location of the photo was extrapolated from the time and flight records. The image was taken on February 2, 2014 at 2:48 PM CST (3:48 PM EST) and the coordinates and elevation were taken from Southwest Airline's flight information, shown below.

Table 1: Flight Information ("Live Flight Tracking")

EST	Latitude	Longitude	Course	Direction	KTS	MPH	feet	Rate	Location/Type
03:48PM	35.0831	-99.8761	131°	Southeast	482	555	39,000		📍 Albuquerque Center

The plane was 39,000 ft above southwestern Oklahoma, nearest to the town of Erick. The exact location is shown in Google Maps in Figure 1.



Figure 1: Plane Location ("Google Maps")

Cloud Type and Weather

There are two types of clouds shown in this image: cirrostratus and stratocumulus. The cirrostratus clouds are thin and wispy and above the plane, therefore they must be higher than 39,000 ft. This information coupled with their appearance indicates that they are cirrostratus clouds. The clouds below the plane are likely stratocumulus clouds because they are below the plane and the cloud ceiling was reported to be around 4400 ft (see appendix). The altitude of stratocumulus clouds is below 8,000 ft (“A”), so this, as well as their large cloud elements, matches the description of a stratocumulus cloud. Additionally, they often accompany cold fronts (“Cloud Types”), which the area was experiencing at the time (see appendix).

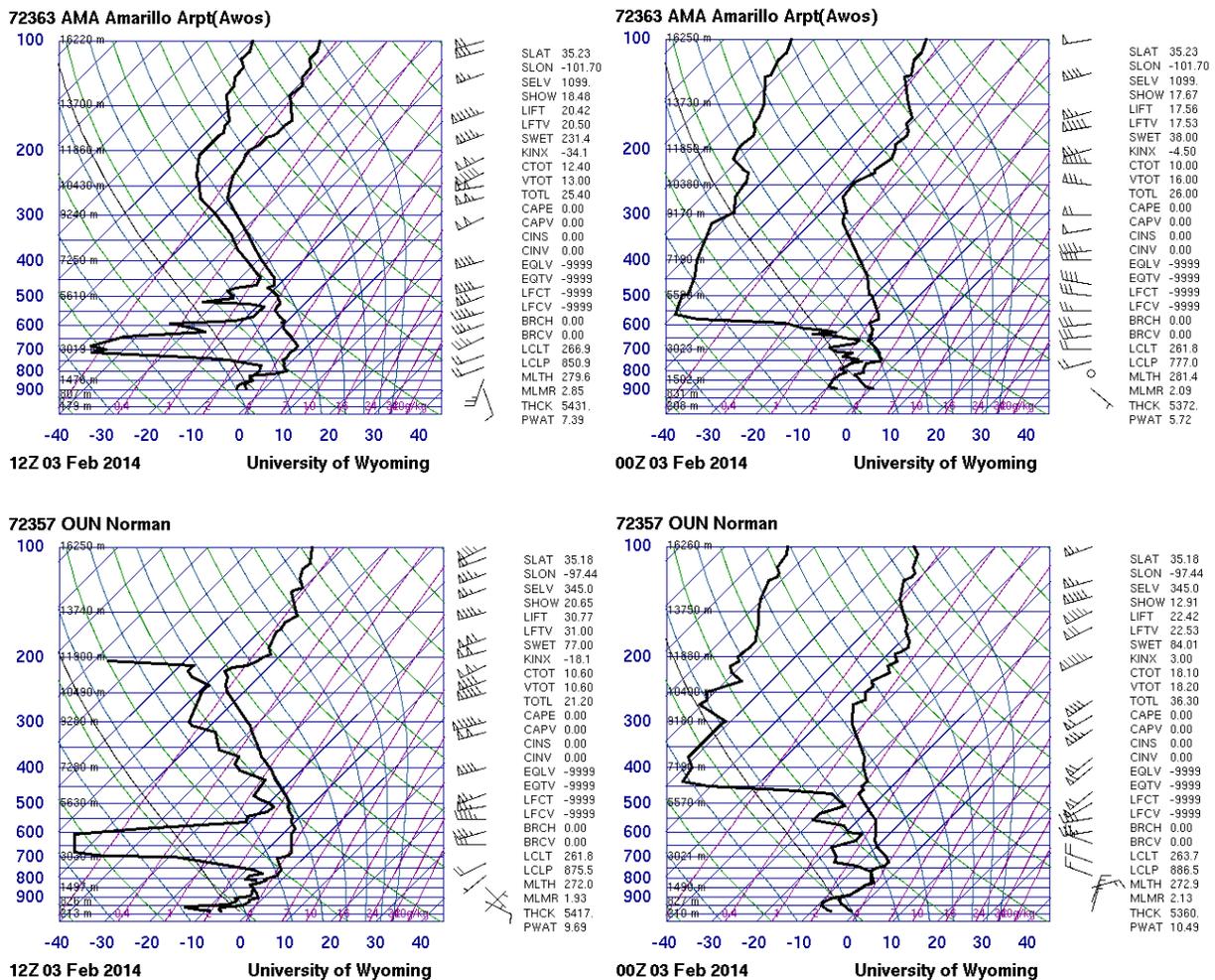


Figure 2: Skew-T diagrams (“Atmospheric Soundings”)

The Skew-T diagrams shown above indicate that the atmosphere was a stable atmosphere in the morning, with warm air over cold air and a CAPE of zero. The atmosphere appears to be unstable in the evening, with cool air over warm air (although the CAPE is still zero). The image was taken in the afternoon, so it was likely that the atmosphere was unstable during that time. Cumulus clouds are created in unstable atmospheres, so this further supports the stratocumulus identification.

Photographic Technique

This photo was taken on a Samsung Galaxy S4 phone camera with the automatic camera settings. There was a focal length of 4.2 mm, aperture of 2.2, exposure time of 1/2944, and ISO of 50 selected by the camera. The resolution of the photo is 3264 x 1836 pixels. The original image taken by the camera is shown below.



Figure 3: Original Image

The image was edited in photoshop using curves and unsharp mask to lighten the image and bring out the details in the clouds. It was also cropped to create a more expansive feel.

Reflection

This image fulfilled the artistic intent of challenging the observer's imagination. It also revealed clouds from a different perspective, which was interesting scientifically. The challenge with taking the image from the plane was that it was difficult to gauge the elevations of the clouds. This made it more difficult to identify the cloud type, particularly of the bottom cloud. Also, this image was taken with a phone camera, so the quality could have been improved by using a better camera with manual settings.

Works Cited

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Appendix

