Clear Creek Fog

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Clouds First
ATLS 4151 - Flow Visualization
Fog
Picture taken: 09/06/2019 4:20pm
Clear Creek Canyon
Report written: 10/28/2019

The purpose of the clouds first assignment was to be the first introduction to taking pictures of clouds. Instead of taking a picture of normal clouds way high up in the air, I decided to take a picture of fog because of how close you can actually get to the fog. I also wanted to capture fog for my clouds first image because I always enjoy the visual feeling of a gray foggy day, it's very comforting to me. This picture was captured as I was driving up from Boulder to Steamboat Springs to help my parents move houses. It was a very wet day in general, and this image was unknowingly taken just a mile away from a mudslide that blocked the entire road.

Image Circumstances

This picture was taken out the driver's window of a car while temporarily stopped in "stop-and-go traffic" on US Highway 6 west through clear creek canyon. The image was taken a quarter of a mile east of the intersection of US-6 and CO-119. The camera is pointing South-West in the picture at an angle of 0° from the horizon. It was in the middle of the afternoon, at 4:20, when the picture was taken.

Cloud Types

The main focus of this image is on the fog, which is a cloud type. This type of cloud forms really close to the ground when the air is stable at the low altitudes. It typically only forms when it is very humid, so the air temperature low to the ground is at or close to the dew point. The reason the fog is present in my image is because it was indeed very humid that day, and there was a creek right below the fog, feeding it moisture. A very large weather system had just finished passing through with a significant rainfall just less than an hour before. It was so wet, and enough rain fell, that there was a massive landslide just a mile away from where this image was taken. This wetness can be seen in the skew-T plot (figure 1) which shows the temperature and dew point both incredibly close to each other for all altitudes. The skew-T diagram also shows that there should definitely be clouds forming from 600 mb to 500 mb with some slight instability. Because of that, these are likely either stratocumulus clouds or nimbostratus clouds. These clouds were not the subject of the main image, but they can actually still be seen in the background of the picture. This is much easier to see with the original image (figure 2).
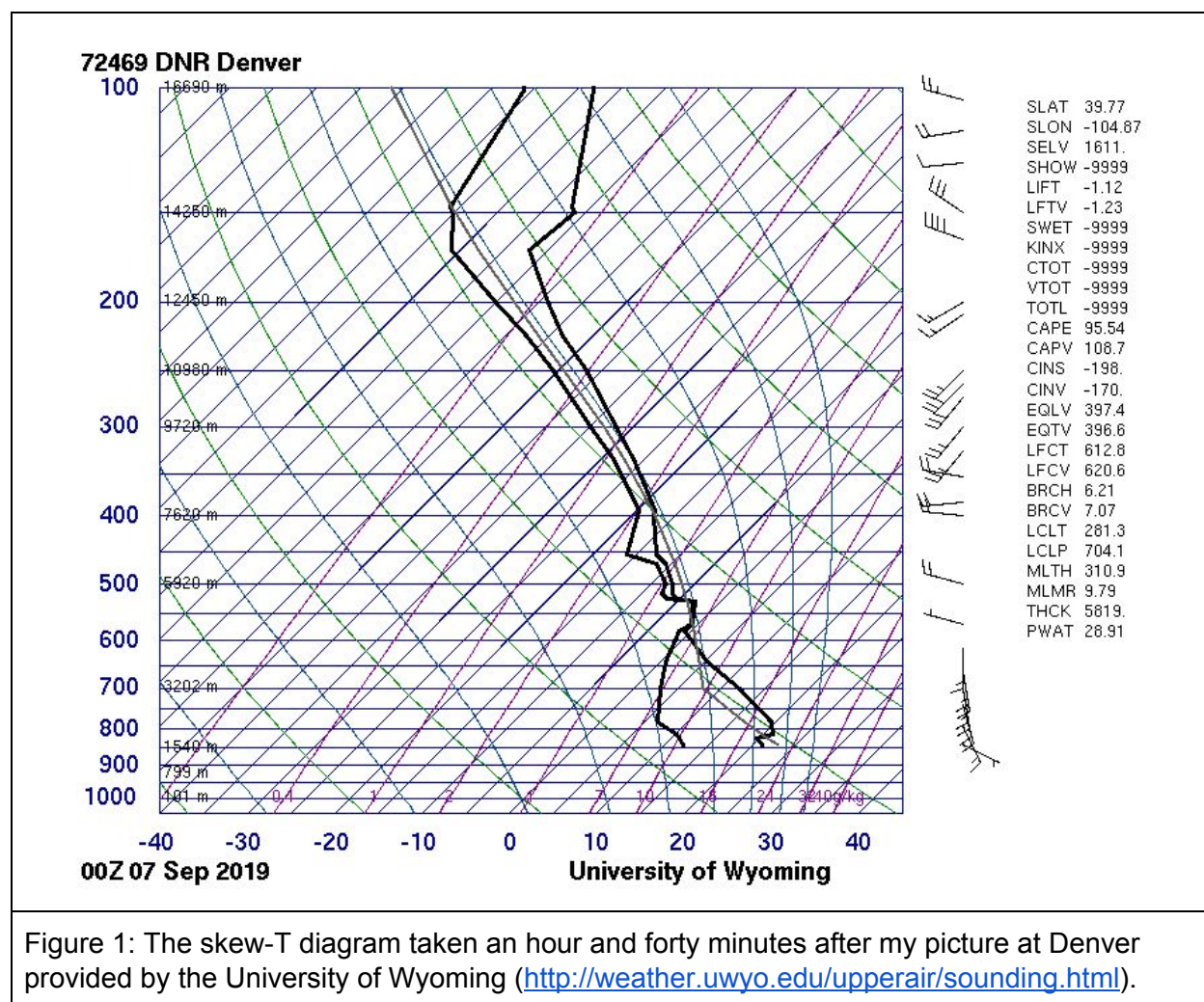

Figure 1: The skew-T diagram taken an hour and forty minutes after my picture at Denver provided by the University of Wyoming (http://weather.uwyo.edu/upperair/sounding.html).

Photographic Technique

For an estimation of the field of view, the power line can be traced, and is about 100 feet long in the image. That is not the direct field of view however because the image was taken at an angle relative to the power line, about 45°. The cloud was about 60 feet away from the image, making it unusually close for a clouds assignment in this class. I took the picture with my phone, a Google Pixel 2, with automatic camera settings resulting in: aperture f/1.8, shutter speed 1/334 seconds, focal length 4.459 mm, and ISO 53. I then took the picture into photoshop to increase the contrast by "70" and the brightness by "45" as well as cropping the top and bottom of the picture and rotating it slightly for alignment. The original 4032x3024 photo is shown in figure 2 for comparison. The reason I increased the brightness and contrast so much is because of how dull and gray the lighting naturally is on such an overcast day. My picture lacked contrast to start out with inherently just from the environment the picture was taken in, and the post processing makes up for this and makes the subject of the image more easily visible.

Figure 2: The original image before any editing.

Conclusions

The fog here looked great in my head before taking the picture, but in the picture it only looks okay. I think the main reason for this is the trees in the foreground causing a distraction and getting in the way of the image. These distractions are easily filtered out by our eyes and brains when experiencing real life, but they stick out like a sore thumb in a picture. They aren't totally bad, and do provide depth for the image, which is something that was mentioned during critique sessions, but I still think overall the image would be a lot better if it had less distractions. It does show what I want it to show overall though, which is a nice piece of foggy cloud sitting in a river canyon.