



Cloud First Report

Fire on the Water

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Flow Visualization: 4151-4200-001

Stratocumulus and altocumulus clouds above Loveland lake during sunrise in an early March. This was captured on Mar 8, 2018 at 6:36 AM on the drive back to Boulder. This image is named "Fire on the water." During sunrise on a sunny day, the morning provided a sky view of several clouds over the Loveland area. The atmosphere was calm and the wind was subtle. We were driving southbound towards boulder and the image was captured facing SE. The sunrise was to the East in the left side of the image. The image was selected from a live photo taken from an Iphone. The live photo samples and displays the best quality photo in a span of 2 seconds. The main focus of the image was the light emitted from the sunrise, although the picture also highlighted the light reflected from the lake, as well as the ominous darkness derived from the blackened road.

As stated before, this image was taken in the beginning of March during an early morning Sunrise in Loveland, CO. Specifically, this was captured while driving on Taft Ave southbound, facing over Lake Loveland. In figure 1, the image reveals the original image before post processing.



Figure 1: Original Unedited Image

There are several cloud types shown in the image above in Figure 1, however the main depicted cloud types are a form of stratocumulus and altocumulus clouds. The weather for March 8th was a high of 65 degrees with a low of 24 degrees predicted. In the morning the temperature was at 38 degrees at 6:36am with a slight wind, as it was still the beginning of the day. This temperature was a peak for the week as most days averaged in the mid 50s for the preceding week. The clouds before were fairly similar during the week before, showing a mixture of cumulus, stratocumulus, altocumulus, altostratus, and cumulonimbus. Precipitation was nonexistent on Mar. 8th as well as the days leading up. The skew-T diagram for Mar. 8th can be seen below in Figure 2.

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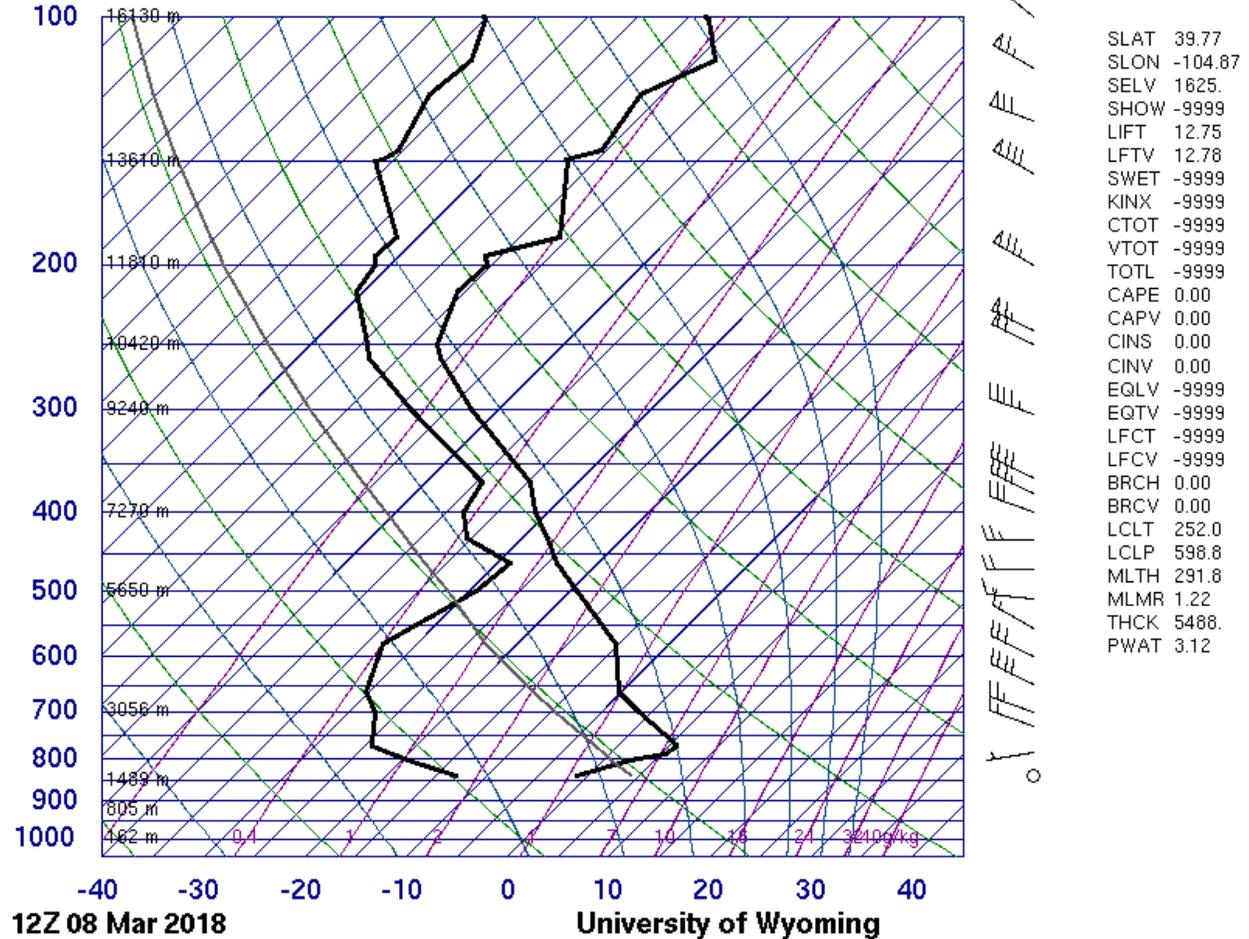


Figure 2: Skew-T for March 8th

I could determine that the atmosphere was stable based on the Skew-T diagram. The CAPE value was 0, indicating a stable atmosphere. There was not much difference in pressures, indicating that the temperatures were not too uneven. Although the atmosphere appeared stable, this data set was taken from the closest base (i.e. Denver) and therefore may skew results in terms of the atmospheric conditions for Loveland. The clouds revealed heavy humidity as they covered most of the sky. The clouds were thick and stayed in tact for the most part that morning. This cloud formation along with the light emitted and reflected from the sunlight made for an interesting and colorful image.

The image was captured using an Iphone 7. The image size is 4032 x 3024 pixels, and was cropped to 3601 x 3011. The focal length is 2.87mm and aperture is F2.2. These are standard parameters for this model Iphone as the camera attempts to optimize each parameter to produce the highest quality image. I approximate the field of view to be around 1200 feet with the distance of each cloud type varying from 4000 to 10000 feet.



Figure 3: Final Edited Image

I attempted to keep most of the natural colors, being cautious adjusting the contrast and brightness too far off center. I cropped the image and used shadows to darken the road and sway the focus towards the lake and the sky. These edits allowed for a more resolute photo, focusing in on the clouds effect on the rising sun. I got critiqued during class stating that my image was skewed from the horizontal. I did not notice this at first, however after reediting my photo, I realized that it was slightly off by 2 degrees. I would have also left the natural colors as these appeared just as beautiful and did not need post-processing. I was satisfied with the picture I captured as it displayed the sunrises we enjoy waking up to.

Sources:

[1] *Atmospheric Soundings*, weather.uwyo.edu/upperair/sounding.html