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MCEN 5151

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Cloud Image Report

This image was taken for the "Cloud Image" project, and was done alone. The original intent was to capture a photograph of clouds in the night sky, preferably covering the moon so only a slight shadow was visible. Multiple attempts were made on multiple days to achieve this, but unfortunately, there were no good available shots of this during the time I was outside. Additionally, the moon did not show up well and there was a lot of glare, even with the ISO turned all the way down. There were many failed images of the moon as well as a couple of extremely boring images of clouds in the night sky. It was not until I was studying next to a window at the engineering building at the onset of twilight on Saturday, February 19, 2011 that I realized that the perfect lighting for my purpose would come after the last traces of sunlight hid behind the mountains. I waited for the right moment when the yellow street lamps would begin to light up and took about twenty pictures from various locations while looking at the sky. The silhouette of the trees added perfectly to the mood I was trying to capture: a dark, lonely mood.

As previously mentioned, this image was taken outside of the CU Boulder Engineering Center on Saturday, February 19, 2011. Fortunately, due to the perfect lighting at the time, very little Photoshop work was required since the lighting was perfect to begin with; the only thing that needed editing was a couple of things that needed to be cropped out. The angle of elevation was approximately 60^{o} and the time was 7:07 PM. The elevation was so shallow for a cloud picture specifically to incorporate the trees, which I feel added a lot to the image.

The clouds were decently low to the ground, definitely lower than 5000 feet (I would estimate between 3000 and 4000 feet high). Additionally, the clouds were very soft and not solid; upon visual inspection, the proper classification for them would be Stratus Fractus Translucidus Praecipitatio [2]. While there was no rain during the image, it rained an hour or less following the picture being taken. Regarding the cloud conditions at the time, there were patches of clouds scattered around farther from the mountains (to the east) but much more concentrated clouds near the mountains (west). The Skew-T plot can be seen in figure 1 below; it is apparent from the plot that the atmosphere was relatively stable that day as seen in the 0 CAPE (meaning that despite rain, there was definitely no electrical discharge in the atmosphere) [1]. It is also apparent that the clouds are most prominent at about 550 millibars of pressure and at about 10 degrees celcius (as seen by the behavior of the dark black pressure and dew point lines) [1].

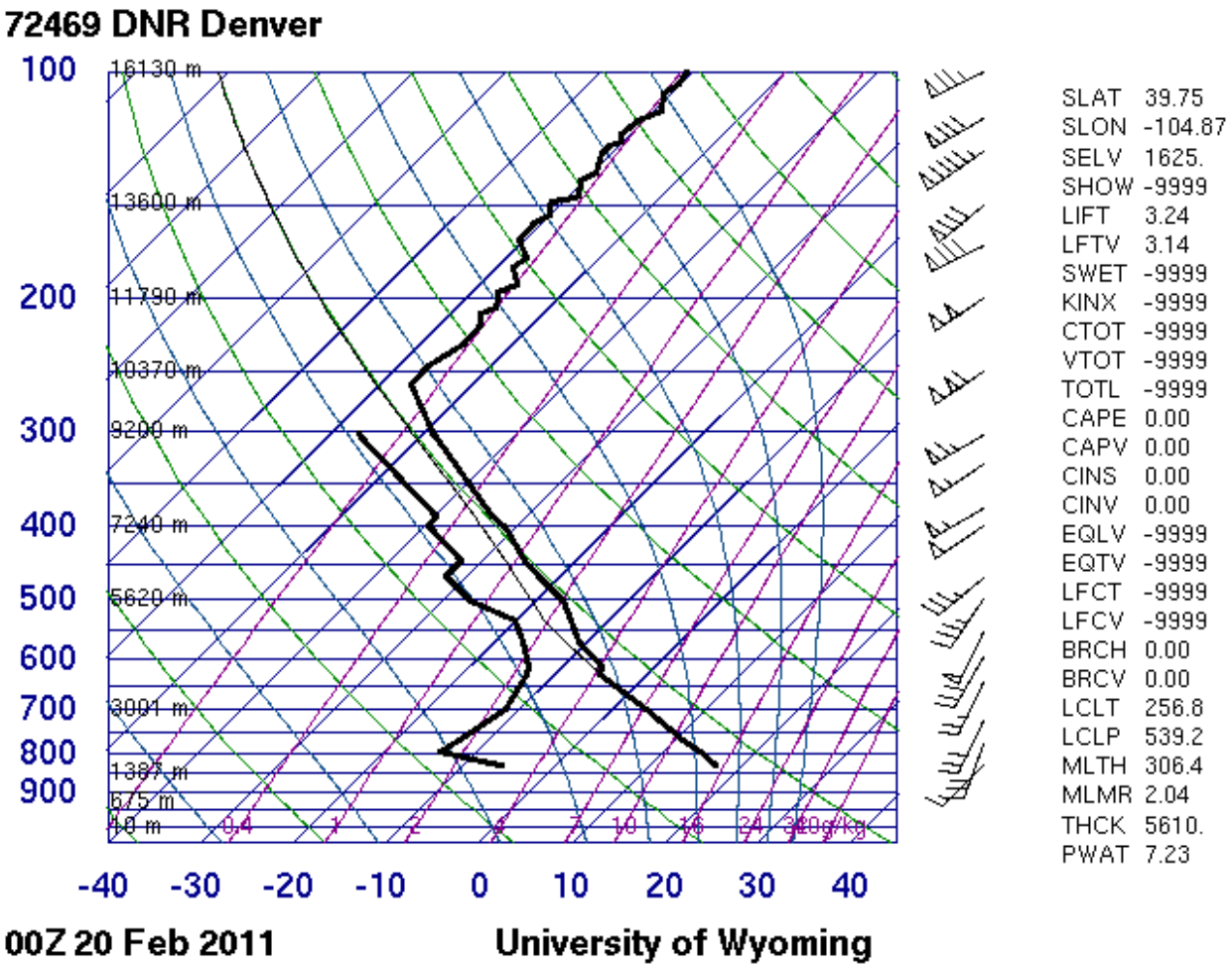

Figure 1. Skew T plot for the Denver weather station on February 19, 2011 at 6:00 PM local time [1].

The only external lighting aside from natural light coming from the sky was a series of yellow street lamps to the right of the boundary of the image. Aside from that, nothing was used to manipulate the subject of the image. The goal, as far as the trees in the background went, was to capture them as silhouettes rather than tangible objects, but I also wanted to illuminate the tree in the foreground for reasons that are explained later in the report.

The field of view was approximately 7.5 m (assuming the field of view is around where the background trees are) and the distance from the object to lens was approximately 20 m (same assumption). The lens focal length was 6 mm with an ISO speed of ISO-400. The exposure time was 1/5 seconds and the max aperture was 3.4375. A Sony DSC-W180 digital camera was used to capture the image. The pixel width x height is 2736 x 3040. Photoshop was used to crop the original image (original dimensions were 2736 x 3648).

I wanted to create a feeling of relaxed solitude but with a foreboding feeling (as signified by the warmer colors in the foreground and progressively darker colors in the background). The main thing I like about

the image is how much the warm colors in the foreground contrast with the overall cool color scheme. The trees in the background look a little out of focus, but it is hard to tell since they are completely black. The fluid physics (atmospheric condensation that results in clouds) are shown decently well since such an interesting cloud was captured. I feel like, though I didn't get my moon picture, I still achieved the feeling that I originally set out to portray. It would be nice to have a more controlled environment for this image, but it is not terribly necessary. To further develop this idea, it would probably be a good idea to take multiple pictures over the course of the night to see what kind of shots I can get using moonlight shadows.

References:

[1]University of Wyoming (2011), http://weather.uwyo.edu/upperair/indices.html#CAPE

[2]Cloud Appreciation Society (2009), http://cloudappreciationsociety.org/

[3]Hamblyn, Richard. *The Invention of Clouds: How an Amateur Meteorologist Forged the Language of the Skies*. New York: Picador, 2002.