Cloud Image Assessment 2

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The intent of this image was to capture the interaction between sunlight and clouds. As shown in the picture, sunlight was gleaming through portions of a dissipating cumulus cloud. Because the cloud was blocking the sun from the field of view, the outline of the cloud is extremely prominent. Though this type of photograph shows excellent interaction between sunlight and clouds, it is often difficult to capture a cloud blocking the sun. Therefore, reproducing a similar image may take patience and persistence.

This image was taken at the edge of the foothills in Boulder, CO on April 9, 2010 at 4:35 PM. The camera was aimed almost directly towards the sky, approximately 80 degrees from the horizon. Though there was no precipitation in Boulder on this particular day, which may indicate atmospheric stability. However, a closer analysis of the skew-T plots from April 9 will show the contrary.

Because there was a large variety in cloud species present in the atmosphere on this day, it is difficult to classify the photographed cloud. The cloud was approximately 5,000 ft from ground level, and about 1,000 ft wide. Based on its cotton-like shape, size, and distance from the ground, it is appropriate to classify this cloud as a cumulus. Also, the cloud seems to be breaking apart, as highlighted by the backlighting from the sun. This dissipative nature would signify that the observed cloud is a cumulus fractus. Because the mountains are so near to Boulder, highly dissipated cumulus clouds are quite common.

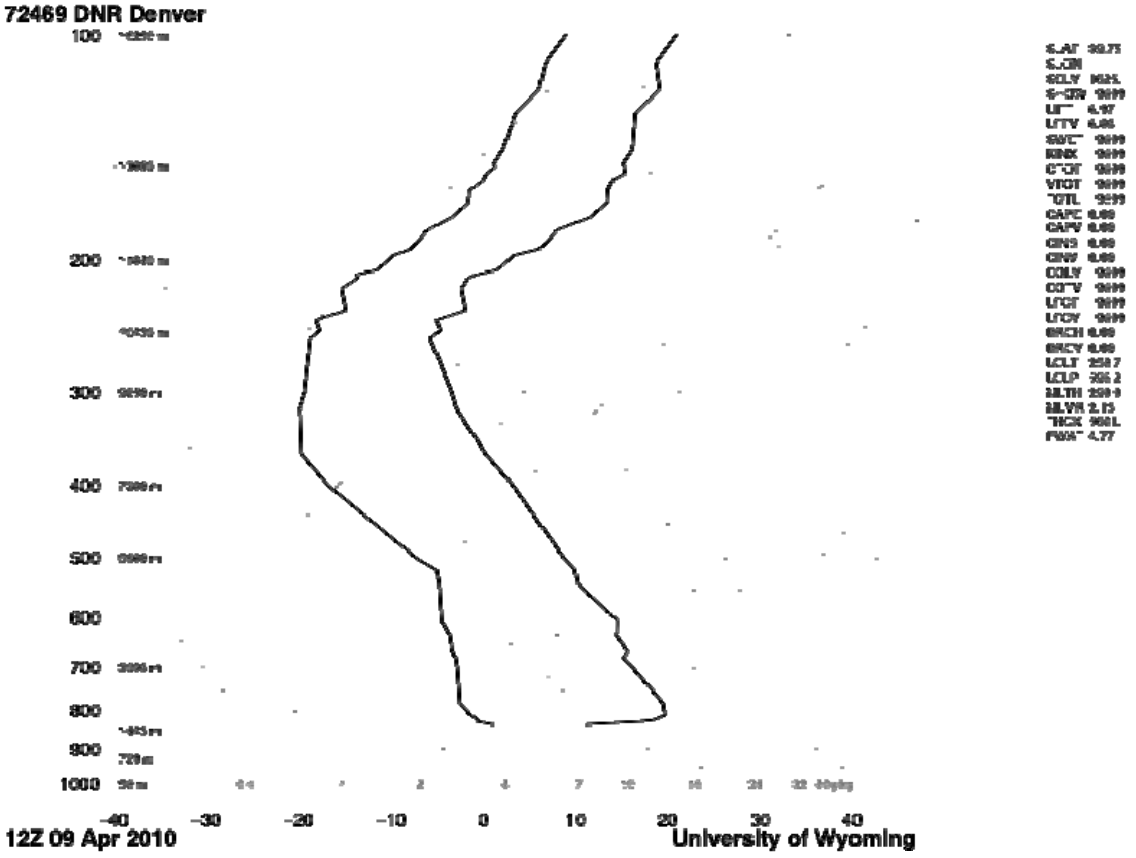
The skew-T plots from April 9 (figures below) show interesting, but not surprising, results. Looking at the plot with a timestamp of 12Z April 9,2010, it is quite evident that the atmosphere was stable in the morning. However, when comparing this to the skew-T plot with a timestamp of 00Z April 10,2010, a shift in atmospheric stability is observed. The parcel line shows drastic variations with increasing height, especially between 2000 and 7000 meters. The convective available potenial energy (CAPE) was zero in the morning, indicating a stable atmosphere. Just twelve hours later the CAPE increased to 27.55, which shows that the atmosphere became less stable throughout the day. Also, these skew-T plots show cloud formation occurring at approximately 5,000 ft, which is in strong agreement with the previous prediction of cloud height.

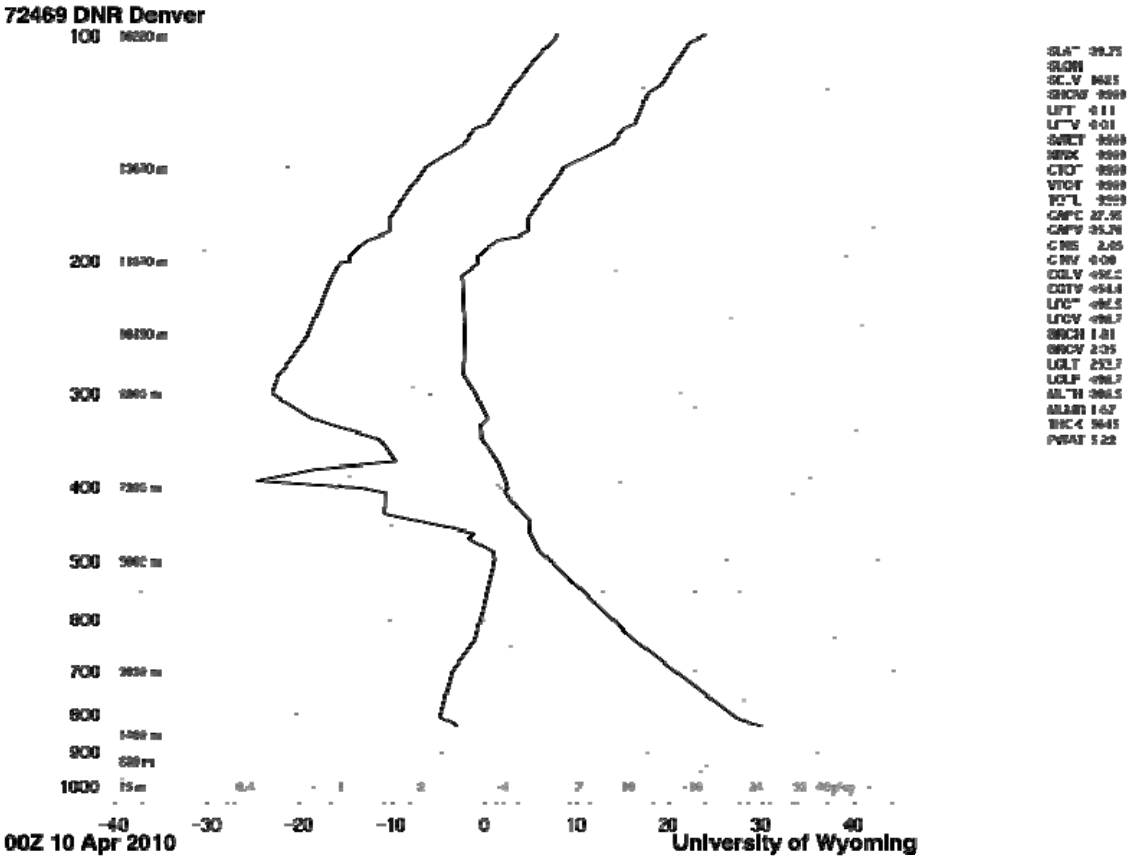
Many of the photographic techniques employed were based on the concentrated areas of light. Also, the picture was cropped in order to remove any distracting elements, where the final field of view was about 1000 square feet. The resulting image had a height and width (in pixels) of 640x480. To capture the intended image, I used a Canon SD780IS digital camera and set the following exposure specifications: ISO setting – 80, aperture – F11, and shutter speed – 1/500. The coupling of the low sensitivity with the larger f-stop allowed for an accurate and effective photograph of sunlight peering through a dissipative cumulus cloud. Using iPhoto, the contrast and highlights of the silver lining around the cloud, as well as the shadows, were enhanced.

The intent of this image was to portray the heavenly aesthetics created by a simple cumulus cloud blocking the sun. Though these pictures are limited by the

position of the photographer relative to the clouds and sun, they are beautiful when properly captured. I feel this picture not only displayed this heaven-like effect, but also showed the dissipative behavior of this cumulus cloud. Not only does the image represent a physical phenomenon in an interesting manner, but also has artistic relevance.

Skew-T Plots for April 9, 2010

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