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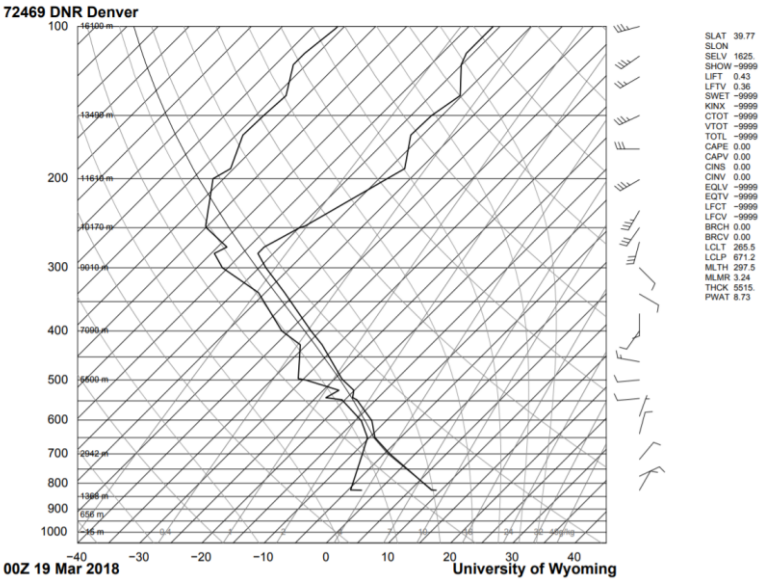
Clouds 2nd Report: Smoky Skies

Cumulus clouds, Boulder CO, 19 Mar 2018, 12:20 PM

This photo entitled "Smoky Skies" is meant to show the clouds forming over the Rockies, and give a nice view of the CU Boulder campus. On this particular day, snow was freshly laid on the mountains as seen in the background, and a few clouds lingered in the sky. Earlier I had taken a picture with the sky 100% full of clouds, and it came out an uninteresting white mass. To better capture the clouds, I waited until the sky was about 50% clouds, and took another picute, which shows much more detail.

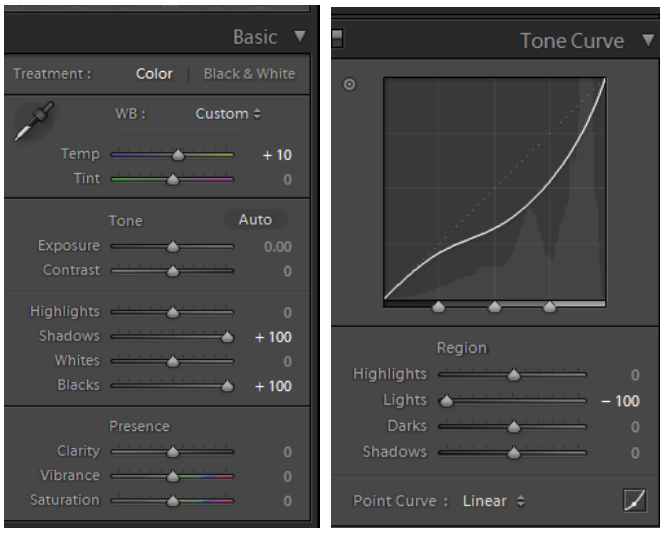
The picture was taken on the CU Boulder campus next to the engineering center, with the business building and C4C nicely framed in the image. The main focal point is the mountain line and the striking clouds above them. The photo was taken at 12:20 PM, meaning that the sun was almost directly overhead giving an even tone to the image. Lastly, the image is shot about 10° above horizontal, getting a bit more of the clouds in the image.



The skew T diagram is seen above. As seen, the atmosphere that day was stable because the cape was 0.00. It snowed earlier that day and there were significantly more clouds at that time, however it did not provide a great picture. As such the picture was taken a few hours later when most of the clouds had dissipated, with the snow left behind. The winds were low, resulting in the cumulus clouds shown. [1] The physics making these clouds is the residual moisture from the precipitation rolling over the mountains and making fluffy, irregular clouds.

The picture was taken with a Canon 6D DSLR camera. The original picture resolution is 5472 x 3648 pixels. The field of view is approximately three quarter miles, and the distance to the mountains is about 1.5 miles. The lens used was a Tamron 24-70 mm lens, shot at 46mm and f/22. The exposure time is 1/320 seconds, and ISO 500.

The original, unedited image is shown above. All post processing was done in Adobe Lightroom. First, the image was cropped to remove the bulk of the grass, as it added nothing to the image. Next, the color temp was increased to make the image more yellow, and give a more daytime feel. The shadows were brought out and the lights were decreased dramatically to give greater contrast. Lastly, the tone curve was adjusted to take down the brighter sections, in an effort to give more clarity. These alterations are shown below.



Overall the image fulfilled it's intent and gives a good representation of clouds, all while visually interesting. The fluid physics are shown fairly well by the puffy clouds and the mountains. If redone, I would like to get a slightly sharper image with better color; unfortunately in mid day sun it can be difficult to capture striking colors. If I developed this further, I would like to take a time lapse of the clouds rolling over the mountains.

References

1 - A. Meij, JF. Vinuesa, V. Maupas, " GHI calculation sensitivity on microphysics, land- and cumulus parameterization in WRF over the Reunion Island," May 15 2018

2 - S. Singh, S. Bonthu, R. Purvaja, RS. Robin, B. Kannan, R. Ramesh, " Prediction of heavy rainfall over Chennai Metropolitan City, Tamil Nadu, India: Impact of microphysical parameterization schemes," Apr 1 2018