Chris Wilke
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Clouds #2

The purpose of the second clouds assignment was to view various atmospheric conditions and photograph different cloud formations that result from them. My intent for this assignment was to produce some beautiful cloud images. With this in mind, I tried to keep my camera with me at all times. The ever-changing nature of clouds made this necessary. Keeping my camera handy all the time proved difficult but I did manage to capture some stunning cloud formations.

The two pictures I am presenting for this assignment were taken from the parking lot of NCAR on October 14, 2004. NCAR sits up near the flatirons above Boulder, so distracting elements such as telephone wires, stoplights and houses were eliminated. Both of the pictures I submitted were taken on the same day at NCAR around sunset. An Asahi Pentax KM 35mm SLR camera was used to take the images. The lens focal length is 50 mm. FujiFlim 200-speed film was used and both of the images were taken with a red filter. The shutter speed was 1/125 second and the F-stop was between 1.4 and 2.8. The field of view is approximately 120 feet wide in the foreground of both pictures. There is no motion blur in either picture so they are both time and spatially resolved. The cloud speed was estimated to be less than 9 ft/s and 12 ft/s for the first and second image, respectively. This means that the clouds moved less than 1.2 inches during the exposure. The pictures were done with film so the prints were scanned into Photoshop, with a Hewlett Packer scanner, to produce digital copies. Both images were cropped in

Photoshop but no other changes were made. The number of pixels in the first image is 1656x1164 and the second image has 1166x512 pixels.

In the first picture, the clouds look to be fair weather cumulus clouds. They are low in the sky, most likely below 2 kilometers. These clouds occur in the boundary layer of the troposphere, which is greatly affected by the Earth's surface[1]. The second picture contains cumulus and stratocumulus clouds. The cloud layer in the picture has a sheet-like look to it but does not form a uniform layer. There is texture to the sheet, which seems to imply the clouds are stratocumulus. These clouds appear to be slightly above most of the cumulus clouds in the picture but still should be classified in the low-cloud group. The clouds on this day were a result of unstable air. Air near the ground is heated and begins to rise. As it rises, the air cools and expands. Once the air has reached a certain height it becomes saturated and forms the base of a cloud. The release of latent heat causes the air to rise more and creates the vertical development of the cloud[2].

I really like how both these images came out. I arrived at NCAR just as the sun was setting and captured a wide range of colors on the clouds. Both pictures were taken closer to the end of the sunset. The pinks and oranges in the clouds make them look like they are on fire. My favorite element of the pictures is in the first picture and it is not the clouds. I really like the foreground of trees in it, especially the dead looking tree to the left of center. Its silhouette against the bright sky is very nice. I could not get a great scan of either picture, so that could be an improvement. All of the pictures I scanned seemed to come out with some white dots and marks on them. I tried cleaning the scanner glass surface but could not fix the problem. On the whole, though, I think the pictures turned out well.

References:

[1] Houze, Robert A, Jr. Cloud Dynamics ISBN 0-12-356881-1.
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[2] "Biometeorology 2000 Atmospheric Stability & Clouds"
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