Matt Weber
Flow Visualization
Clouds Assignment
November 17th 2004

This assignment focuses on observing and documenting cloud phenomena and it's applicable fluid physics. The intent of my final picture is to show how certain atmospheric instabilities and wind patterns can create wonderful images as well as demonstrate fluid physics.

This project did not require the use of a specific flow apparatus. Instead, like most clouds, the fluid flow was naturally occurring. Therefore, the visualization technique was simple. No flash or additional camera features were used, as it was outside. The light levels were low in comparison with laboratory conditions. It was four minutes before the sun set to the there was low to moderate light levels at this point in the evening.

This image incorporates the following technical specifications, flow descriptions, and necessary comprehensive values:

- Net horizon capture was about 45 degrees. The image(s) were shot in the southwest direction around 5:17 pm on November 5th 2004.
- An Eastman Kodak DX3600 2.2 Megapixel Digital Camera was used with shutter speed of 1/125 second.
- ISO setting of 100. The lens is 35-70mm.
- F-Number: 34/10
- Shutter Speed Value: 70/10
- Aperture Value: 35/10
- Focal Length: 56/10
- Time resolution: During this picture the cloud moved approximately 0.024 meters, and was a significant distance away from the lens, therefore the image clarity is (or at least should be) quite good.
- The only Photoshop processing that was done was an Auto Leveling command.
- The weather report for that day included the following:

Max Temperature	73 F
Min Temperature	41 F
Average Humidity	21
Pressure	30.23in / 1024 kPa
Average Wind Speed	7 mph / 11 km/h (WNW)
Sunset time this day	5:21 pm MDT (my images was taken right before sunset at 5:17 pm)

Fortunately, this image worked a lot better than I originally thought it was going to. I wish I were able to capture the cloud from directly under it rather than from an angle. I'm not sure if that would have made it more artistic, but at least it would have shown the particular irregularities in the cloud. The image has lots of contrast, and seems clear. I really enjoy it, as it reminds me of the great weather that we have here in Boulder, something that I will miss upon graduation.

The cloud in the picture, according to the cloud handout is an *altocumulus stratiformus* in the form of a cellular clump. It is a midlevel cloud consisting of thin flat layers broken up into distinct elements. For sure, my intent was fulfilled, as I more research in the origin of these type of clouds, and was glad to be able to photograph it. An aspect that I would like to improve include focusing directly on a portion of the image to bring out the contrast and detail of the image. To take this idea further, I would get a stronger lens and get up close and personal sort of speak with the cloud.