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Clouds One

The objective of this assignment is to photograph interesting formations of clouds which demonstrate atmospheric fluid dynamics. This assignment is unique in that there is no setup when photographing the sky; therefore one has to be very observant and always ready to shoot. After photographing clouds for some period of time, it was noticed that the most interesting shots were those taken from the side, rather than underneath as it produced a more dynamic range of light, details, and shadows.

This image was captured in Westminster, CO on February 15th, 2009 at approximately 4pm. The temperature was approximately 45 degrees and the wind was calm. Being only a few hours before sunset, the sun was fairly low in the sky and lit the clouds evenly as the photograph was taken facing the northwest. With the photograph being taken at approximately 5,000 ft and the clouds appearing so low, I estimate the altitude of the clouds to be 8,000-11,000 ft. The low altitude of the clouds resulted in a very "flat" shot as the camera was almost perfectly horizontal with the ground.

The observation of clouds can be very intriguing but classifying them is not always easy. Clouds are a great example of flow phenomenon with water vapor as the main ingredient. The clouds featured in my photograph are very low, spread out, and pillow-like which indicate that they are stratocumulus clouds. While typically an indicator of approaching bad weather, the small number and size of the clouds did not threaten the cool, but sunny day. The day's Skew-T plot also confirmed the stability of the weather: the air temperature line is significantly steeper than the adiabatic line; therefore as one follows the adiabatic line up in altitude, they end up in a colder region than the local air temperature, indicating stability. The plot indicates that the atmosphere is stable from approximately 3,000 m (9,800 ft) to 7,000 m (23,000 ft), encompassing the estimated altitude of the pictured clouds. Finally, the plot also indicates that there is slight wind blowing to the southeast.

The photograph was taken with a Sony Alpha-100 Digital SLR camera. The "kit" lens was used at a focal length of 35mm. A circular polarizer was employed to increase contrast between the sky and clouds and also gave the sky a nice uniform blue color. Light was waning, so an ISO of 400 was required to allow a wide aperture of F9 with a 1/400 shutter speed. The focal distance was manually set to almost infinity for a good focus. The original image was captured at 3872 x 2592 pixels (10 megapixels) but was vertically cropped to remove excess sky and emphasize the long, flat clouds. The white balance was set to AUTO and the flash did not fire. Adobe Lightroom was utilized to reduce some of the noise that made its way into the photograph due to the ISO of 400. In addition, the image was darkened slightly to further improve contrast and give the clouds more detail.

I was very intrigued by these clouds for many reasons, but especially because they were so isolated from any other clouds in the sky. I liked their soft, round shape and was fascinated by how flat they were with both being at almost exactly the same altitude. I also thought the clouds nicely

complemented those that were further in the background above the snow-capped mountains. However, it is very difficult to tell true depth of those clouds and it is unlikely that they were as far away as the mountains behind them. Finally, while I initially attempted to photograph the clouds only, I found that the plains-like color and texture of the ground added a great visual element that nicely contrasted the blue sky as well as effectively illustrated the low altitude of the clouds.