

Chris Bonilha
MCEN 5228
Clouds 2 – Sunset

Flow visualization is often inspired by flow phenomena that is often taken for granted; the wind's interaction with the clouds in the sky. The change in seasons, geographical location and even the pollution created from cities effect the clouds we see in the sky. All these elements combined together can create a beautiful display of art in the sky.

The image Sunset was captured in the late evening of March 1st, 2009 at approximately 7:30 pm while driving west in east Denver. There was a lot of action in the skies that evening as can be seen by the image. According to Skew-T plots of the region the wind over the plains were not uniform and underwent both a large change in direction and intensity over a 12 hour period.

The first cloud type that is located closest to the photographer is Altocumulus Undulates with winds approaching from the southwest direction at about 8 knots. A second layer of clouds are visible behind the first and are Cirrocumulus. Their icy texture is a quality of the cirrus family. These clouds exist at an elevation above 6000 m where on this day the winds were approaching from the northwest at velocities greater than 32 knots. In both layers of clouds, there are lateral waves that form across the wind direction due to the motion the wind takes on as it crosses the mountains. This data was collected from station 72469 DNR Denver Observations on 12Z 1 Mar 2009 and 00Z 2 Mar 2009.

Top capture this image I had to find a way to filter the sunlight from the image. By focusing on the sun first, an automatic filter was applied to the lens through the camera. The length of the Altocumulus clouds was about two dozen miles. The focal length was at 6mm on my CASIO EX-Z700, focused for objects at infinite distance. The F-Number was automatically set at f/4.3, and the shutter speed was 1/2000 to compensate for the strong sunlight. Alterations were done to the image in attempts to enhance its quality. First the image was cropped to eliminate much of the surrounding neighborhood, but still included many roof tops and streetlights. In an attempt to take the focus on these objects and put it on the clouds and sun, trees were inserted to the lower half of the image. This was to give an anchoring effect as well as set the sun into the valley between the tree line.

This image was chosen because of the multiple layers visible within the frame. The trees placed on the bottom of the image possibly could be considered distracting but are believed to be better than the alternative of the surrounding neighborhood. If this image was to be taken again, taking it from a higher elevation will most definitely be a priority.

VE Larson, AJ Smith, MJ Falk, KE Kotenberg, *What determines altocumulus dissipation time* - J. Geophys. Res, 2006