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Flow Visualization
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Cloud Assignment #2

Post-Photoshop

Pre-Photoshop

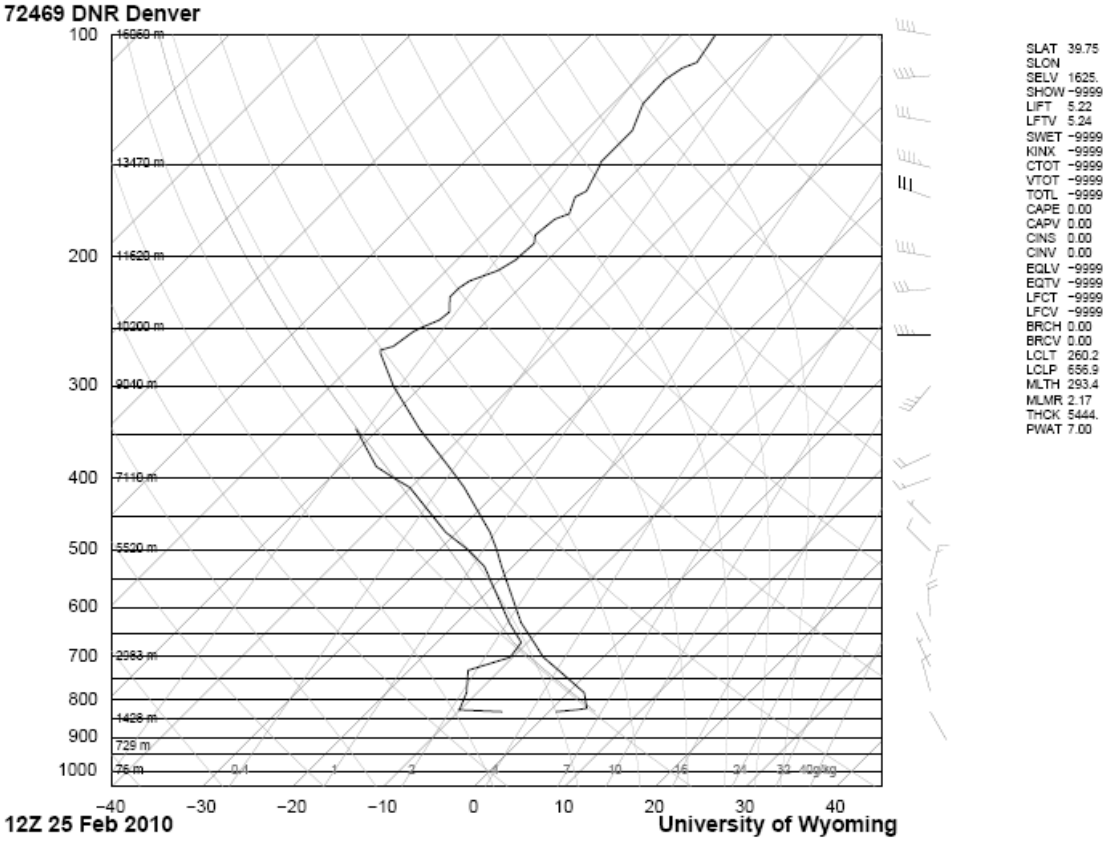
For the flow visualization class, the second cloud assignment was to photograph clouds. Clouds are very beautiful and interesting flow visualizations. Studying clouds can tell us a lot about our atmosphere. Clouds form due to certain atmospheric conditions. Evaporated moisture in the air rises due to pressure differences and cools to the condensation point. At the condensation point the water vapor condensates on particles thus forming clouds (Pretor-Pinney). The art of cloud photography shows how the atmosphere flows and the photos can be very appealing.

To capture the cloud image, I was driving on Highway 9 just south of Kremmling, CO. Kremmling is located north of Silverthorne, CO. I pulled off the highway onto a dirt road on February 25, 2010 just as the sun was setting behind the mountains in the distance. The sunset peaking through the dark clouds gave for very interesting and powerful digital pictures. Kremmling is at an elevation of 7362 ft and the mountains in the distance were estimated at an elevation of 8300 ft. I took the picture with the camera at an angle of 5-15 degrees from the horizon and facing to the west. The sunset cloud image is a very powerful image.

The nimbostratus clouds in the picture were due to a storm front moving in on the area. As I continued driving down the road it started snowing very hard and became foggy. The clouds in the image produced snow. The atmosphere was stable according to the skew-T plot (see below). The weather consisted of isolated snow showers. In some locations it was snowing and in other locations it was fairly clear. The wind was blowing from west to east at an estimated average of 5 mph. The clouds in the storm front were very interesting and it allowed for a cool cloud picture.

To capture the cloud image a Nikon Coolpix P90 digital camera was used to capture a still image. The estimated distance from the camera to the cloud was about 1 mile. The field of view was approximately 1 mile. The focal length was 4.6mm. To capture the correct exposure an ISO rating of 64 was used with an exposure time of 1/108 sec and F-stop of 3.2. The photo was produce in Photoshop 2.0. The image was cropped and the color level was adjusted. Before Photoshop the image size was 6000x4000 pixels and the post Photoshop size is 3738 x 2492 pixels.

The image reveals a mountain sunset peeking through a storm front. I really like look of the sun coming through the clouds. The clouds look really stormy and powerful. I also think the fence and road in the foreground adds perspective. I would like to improve the focus of the clouds and the foreground. To develop the cloud photography technique further I would like to take pictures at different distances and elevations.



Reference:

"University of Wyoming, College of Engineering, Department of Atmospheric Sciences." http://weather.uwyo.edu/upperair/sounding.html

Pretor-Pinney. " Cloudspotter's Guide" Cloud Appreciation Society. 2006 http://cloudappreciationsociety.org/cloudspotters-guide/