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Flow Visualization
2/28/2010

Cloud Assignment #1

Post Photoshop

Pre Photoshop

For the flow visualization class the first cloud assignment was to photograph clouds. Clouds are a very beautiful and interesting flow visualizing. 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. The art of cloud photography shows how the atmosphere flows and the photos can be very appealing.

To capture the cloud image, I choose a location that would give very good views of the clouds. Gold Hill at an elevation of 8300 ft was a great location. Gold Hill is a 20 or 30 minute drive outside of Boulder, CO. After hiking for a few minutes a vantage point of the continental divide to the west was found. Since I was taking the picture at a high elevation, the view of the clouds was really good. I took the picture with the camera at an angle of 5-15 degrees from the horizon and was facing to the south west. The picture was taken on Feb 16, 2010 at 2:15pm.

The cumulus clouds in the picture were due to the mountains forcing air upward. Another name for these clouds is mountain form clouds. Along the continental divide was a line of these cumulus clouds that followed the mountain peaks. These clouds ran parallel to the mountain ridge. The rest of the sky was fairly clear except for a few cumulus clouds sparsely scatted. The atmosphere was stable according to the skew-T plot (see below). The weather was very calm on that day with no wind. A few days later a snow storm moved in but this had no effect on the clouds for the day I took this picture. The clouds are estimated at an elevation of 10000ft and were formed due to the mountains forcing the air upward.

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 1000ft. The focal length was 20.8mm. To capture the correct exposure an ISO rating of 64 was used with an exposure time of 1/492 sec and F-stop of 7.1. 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 2574x1716.

The image reveals how mountains form clouds by forcing air upward. I really like look of the cloud I photographed. The cloud looks really stormy but the sky is blue above. I also like the shading of the ground in the foreground. I still am unsure why it appears foggy under the cloud. I think that the bottom of the cloud was touching the mountain. 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.

72469 DNR Denver

12Z 16 Feb 2010

University of Wyoming
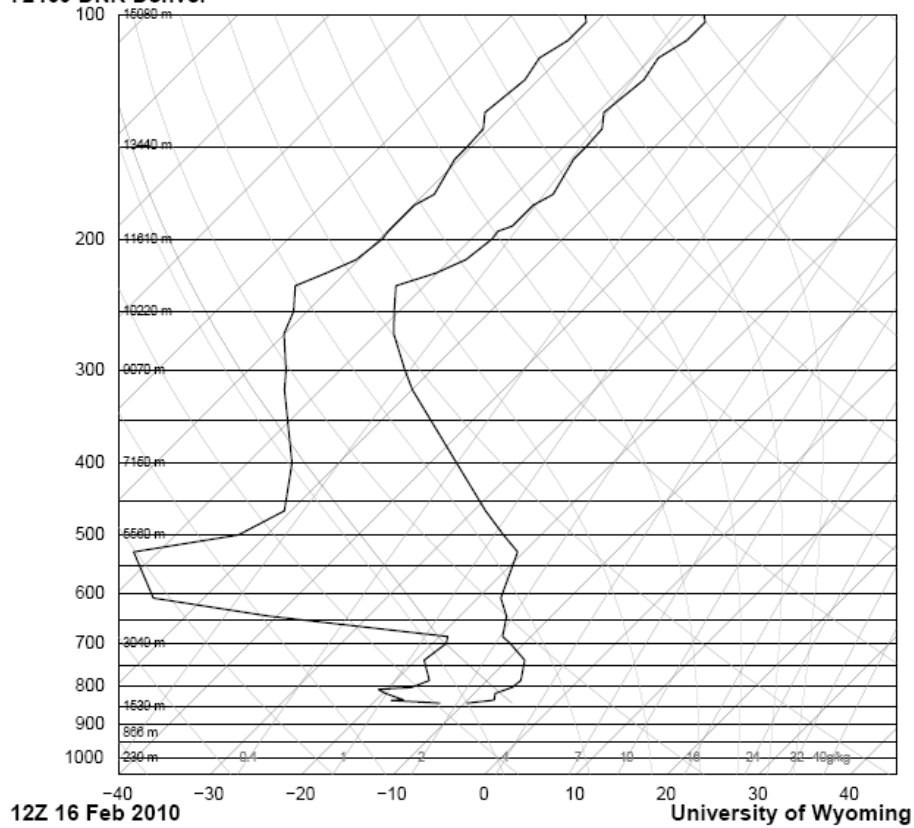
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SLON
SELV 1625.
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LIFT 15.64
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EQLV −9999
EQTV −9999
LFCT −9999
LFCV −9999
BRCH 0.00
BRCV 0.00
LCLT 253.0
LCLP 685.0
MLTH 281.9
MLMR 1.15
THCK 5321.
PWAT 2.48

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/