Nathan Amack

Clouds 2

MCEN 4151
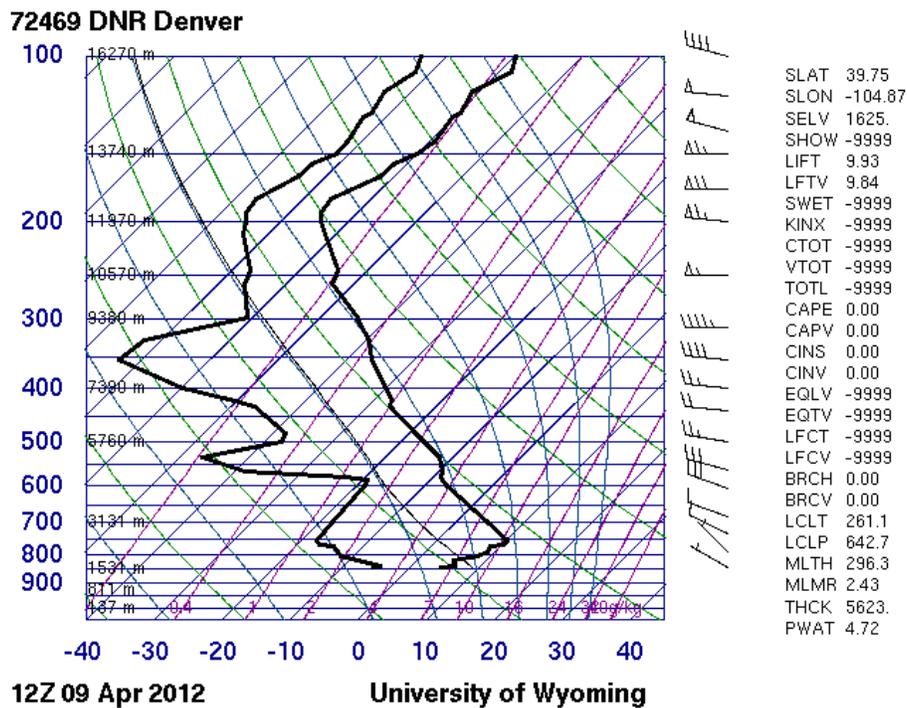
Trail Wisp Clouds

Clouds present an interesting example of flow visualization, as the earth's

atmosphere is one of the largest and complex systems available for immediate

analysis. The many different clouds that are produced as a result of such a

complex system provide insight to the state of the local atmosphere, and

sometimes a looming prediction of weather patterns that are yet to arrive. The

premise of this image is the capturing of various cloud types, and analyzing how

they formed.

The captured clouds in this image represent the weather on a typical

sunny Colorado morning. There were relatively few clouds in the sky at the time;

more specifically there were no large, voluminous clouds blocking the sun's rays

from basking the Colorado mountains. This photo took place in Littleton,

Colorado on April 9th, 2012, when the winds and average humidity were

relatively low with values of 7 mph and 35%, respectively. There was no

precipitation on this day, and the average temperature was 52°F (Wunderground

History). The image was taken at ground level facing north, at approximately 10

AM. A rough estimate of the angle at which the camera was facing while

capturing the image produces a range of 75°- 80° from the horizon.

The week of April 9th produced relatively low precipitation, as the week's

total precipitation reached .51 inches. The SkewT plot for the time nearest to the

time the picture was taken shows stable cloud formations, as the CAPE value is 0.00. The wet and dry bulb temperature plots are closest around 600 mbar, indicating clouds at around 4,000 m. There also seems to be a possible cloud region near the 500 mbar (8,000 m), however this is less likely than the previous cloud altitude measurement. Based on the altitude and brightness of the clouds, the best estimation of the type of cloud is most likely the altocumulus type. Since the clouds are not extremely feathery and more grouped, the species type is most likely cirrostratus undulatus (Cloud Appreciation).

72469 DNR Denver

SLAT	39.75
SLON	-104.87
SELV	1625.
SHOW	-9999
LIFT	9.93
LFTV	9.84
SWET	-9999
KINX	-9999
CTOT	-9999
VTOT	-9999
TOTL	-9999
CAPE	0.00
CAPV	0.00
CINS	0.00
CINV	0.00
EQLV	-9999
EQTV	-9999
LFCT	-9999
LFCV	-9999
BRCH	0.00
BRCV	0.00
LCLT	261.1
LCLP	642.7
MLTH	296.3
MLMR	2.43
THCK	5623.
PWAT	4.72

12Z 09 Apr 2012   University of Wyoming

The observation of clouds requires one to be continuously viewing the sky. This requires access to a camera at all times, and luckily the camera iPhone 4s provides excellent quality and accessibility. A major shortcoming, however, is the ability to control many aspects of photography via a simple point and shoot interface. However, for images of very large and distant objects, especially

clouds, the resulting hindrance experienced while capturing the image was minimal. An ISO of 64, as well as an f value of f/2.4 was used to capture this cloud image, with an exposure of 1/1381. In order to provide the largest possible range of viewing, there was no image cropping done resulting in the dimensions of 2,048 pixels wide by 1,536 pixels tall. My intent with this photo was to require as little post processing as possible by capturing the clouds with lighting that provided vivid and rich contrast in the image. This goal was almost successful, however there was some minimal post processing in the form of contrast and saturation control necessary.

This image provides an excellent example of the typical cool, clear and sunny Colorado day. Although most of these typical days do not include the presence of clouds, it seems as though they were brought out to enjoy the day before the sun had a chance to evaporate them away. This image could have improved had some rays of the sun been captured as they cut through the clouds, thus strengthening the feeling of warmth in the image. The Colorado mountains provide a great source of weather and cloud disruption, making it the perfect place for cloud images.

Figure 1 : Edited Image

Figure 2 : Original Image

References:

["Weather Underground History." *Highlands Ranch Colorado*. Web. 24 Apr. 2012.
<http://www.wunderground.com/history/airport/KAPA/2012/4/9/DailyHistory.ht
ml?req_city=Highlands+Ranch&req_state=CO&req_statename=Colorado>

["The Cloud Collector's Reference - About Cloud Classifications." *The Cloud
Collector's Reference - About Cloud Classifications*. Web. 24 Apr. 2012.
<http://cloudappreciationsociety.org/collecting/tina-moore/>.]