

PROJECT 2; CLOUDS

scarred



By Jonathan Crenshaw

Image Completed 12 February 2011

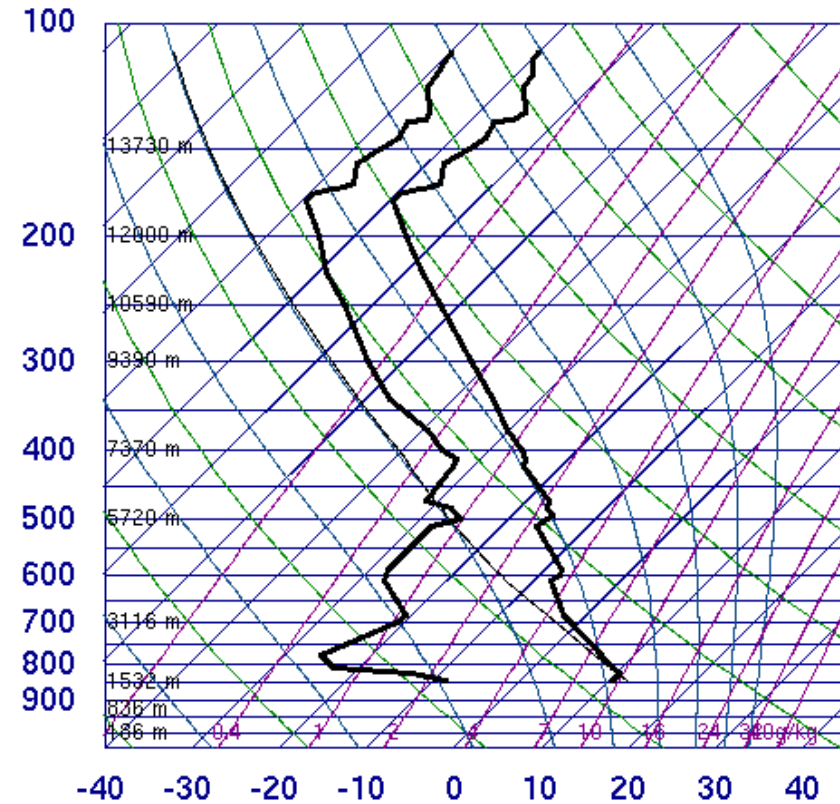
PURPOSE

The purpose of this assignment was to capture an interesting image of clouds accurately portraying a fluid dynamics phenomenon. The artist set out to capture the interaction of naturally formed clouds with the contrail of a jet. As with any artistic endeavor, a meaning is supposed to be captured and presented to the viewer for interpretation.

FLUID DYNAMICS

The primary flow phenomenon is observed in the contrail of the jet while a secondary flow phenomenon can be observed in the cirrus clouds. A jet contrail forms when “hot humid air from jet exhaust mixes with environmental air of low vapor pressure and low temperature.” As can be seen in the image, this contrail is exceptionally long. This was caused by the upper troposphere atmosphere being near saturation. In dryer atmospheres, the contrail will dissipate much faster (Ackerman). At 5:00PM on the 12th of February, there was no cloud formation according to the atmospheric data obtained from the skew-t plot shown below.

72469 DNR Denver



SLAT	39.75
SLON	-104.87
SELV	1625.
SHOW	-9999
LIFT	11.13
LFTV	11.15
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	250.7
LCLP	537.0
MLTH	299.5
MLMR	1.32
THCK	5534.
PWAT	4.02

00Z 13 Feb 2011

University of Wyoming

The angled blue lines suggest a high degree of saturation in the atmosphere which explains why the contrail remained visible for an extended period of time, allowing for the capture of a long stretch of it. The wind was travelling in an east/northeast direction. The jet was likely ascending and was around 20000 feet when the image was taken. Cirrus clouds typically form at 20000 feet or higher, and the contrail is seen below the clouds on the left side of the image and then on the right side. Commercial jets typically soar at between 31000 and 37000 feet so it can be assumed that the jet was still ascending. Because it came from the southeast, it is possible that this jet took off from DIA which would explain both the direction and altitude of the jet when the photo was taken.

The clouds in the image are cirrus clouds, identified by their thin and wispy nature. These are the most common type of high-level clouds and were at 20000 feet or higher. Cirrus clouds are “composed of ice crystals that originate from the freezing of supercooled water droplets.” (Hall)

VISUALIZATION TECHNIQUE USED

A Sony Cyber-Shot DSC-W50 camera was used. Focal length, exposure, depth of field and ISO sensitivity were determined by the camera at the time the photograph was taken; the exact information cannot be retrieved with Gimp photo editing software. Based on notes taken after a series of photographs were taken on February 22nd, it is estimated that this particular image had an F-stop of 9. The camera was on landscape mode.

METHODS USED

The photo was taken at 3:53PM on February 12th. The camera was on landscape mode. A series of photos were taken around this time, focusing primarily on the jet contrail featured in the chosen image. The artist considered displaying a progression of the jet as it travelled, but decided to show the single greatest span of the contrail without the jet in the image. No tripod was used. Due to the clarity of the contrail, no editing was done to the image in order to preserve the most realistic effect of a broad sky being chopped by the contrail.

ARTISTIC ELEMENTS

This image was inspired by a camping trip that the artist took over the 2010 summer. While in the woods the artist was living deliberately and fronting only the essential facts of life. While he was seeing if he could not learn what the woods had to teach, he looked up and saw a jet soaring over, shattering his proverbial solitude and reminding him that he could not completely escape to “the woods” because the long hand of mankind would shatter any perception of solitude anywhere. This particular image was chosen among many other jet contrail images because of its stark clarity and precision. It looks like an unnatural scar across the sky, giving the image the title “scarred.” No natural formation can create such a precise mark upon the heavens, reminding the viewer that we cannot even view the sky above without being interrupted by and reminded of the hand of man.

This image inspired the following untitled poem;

i stood in the forest
looking at the sky
perceiving solitude.

a jet cut the sky in two.

i went back to the city.

SOURCES

"72469 DNR Denver Sounding." *Wyoming Weather Web*. 12 Feb. 2011. Web. 03 Mar. 2011.

<[http://weather.uwyo.edu/cgi-](http://weather.uwyo.edu/cgi-bin/sounding?region=naconf&TYPE=GIF:SKEWT&YEAR=2011&MONTH=02&FROM=1300&TO=0312&STNM=72469)

[bin/sounding?region=naconf&TYPE=GIF:SKEWT&YEAR=2011&MONTH=02&FROM=1300&TO=0312&STNM=72469](http://weather.uwyo.edu/cgi-bin/sounding?region=naconf&TYPE=GIF:SKEWT&YEAR=2011&MONTH=02&FROM=1300&TO=0312&STNM=72469)>.

Ackerman, Steve. "Contrails." *Cooperative Institute for Meteorological Satellite Studies -- SSEC / UW-Madison*. Web. 04 Mar. 2011.

<<http://cimss.ssec.wisc.edu/wxwise/class/contrail.html>>.

Hall, Steven, Daniel Bramer, and David Wojtowicz. "Cirrus Clouds." *WW2010*. University of Illinois. Web. 3 Mar. 2011.

<<http://ww2010.atmos.uiuc.edu/%28Gh%29/guides/mtr/cld/cldtyp/hgh/crs.rxml>>.