

Flow Visualization

Cloud 2 - Report
MCEN 5151

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Introduction

The assignment is to take a type of cloud. I decided to capture clouds and with sunset. The photography took at Nov 15th around 5:30pm. The image has a sharp contrast along the mountain and building' contour.

Circumstances of Image

The photograph took at US 36 highway, close to Boulder, Colorado. The date of the photo is Nov 15th, 5:30 pm. During the shot, the camera placed on a tripod with around 45-50 degree facing toward the mountain. The height of the tripod is about 1.2m.

Cloud Info

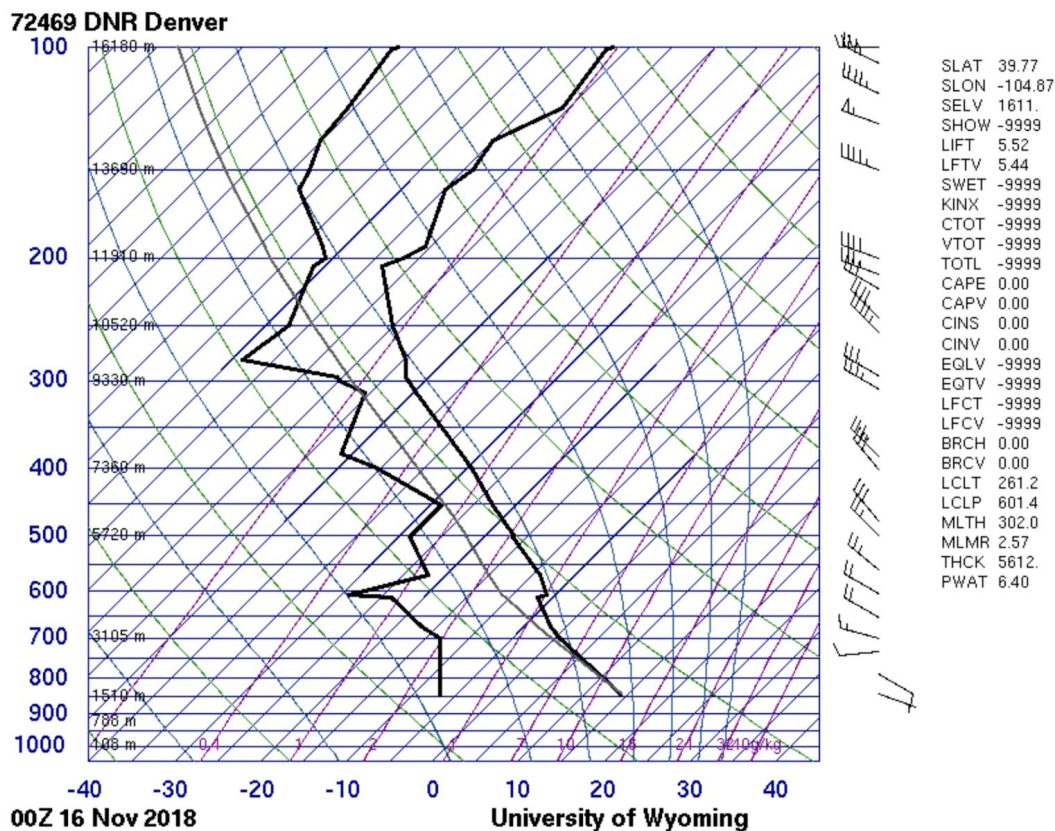


Figure 1. SkewT on Nov 15th, 5:30pm [1]

Based on figure 1 SkewT on the same date, I found CAPE is about 0. Because CAPE value is zero, the cloud is stable. Based on the observation of cloud shape, the type is stratocumulus.

This also matches with the height of the cloud (~5000 ft) and the stability of the cloud shown in SkewT. The weather on the previous day and next day are pretty good. No dramatic weather changes during these dates. In addition, no rainy or snow happens.

Photographic Technique

The size of the field of view is about Xmm * Xmm. Distance from object to the lens is about 5000 ft. I used a Sony A7III camera. Sony A7III is a mirrorless camera, which released in 2018. The lens model is FE 28-70mm, F3.5-5.6 OSS. Focal length is 49mm. The aperture is F29, with shutter speed 1/250s and IOS 12800. The exposure compensation is 0EV. The original image's resolution is 6000*4000. I used "PhotoScape X" software to do image processing on MacBook Pro.

The image processing includes adding a color filter to highlight the mountain contour, sharpen the clouds, shrinking the size down and converting the format (.raw to .png). Because the cloud in original image is little bit lighter, so I increased the contrast on those clouds

Image Reveal

The photography well presented the cloud type, especially at sunset. I really like the mountain and building contour provide an special sharpness compared with clouds shape. However, the image has little bit noise due to the high IOS. In the future image, I would like to improve that issue.

Reference

[1] SkewT graph:

<http://weather.uwyo.edu/upperair/sounding.html>