MCEN 4151: Cloud Second

Ziwei Zhao

12/15/2018

In Cloud Second, we were attempting to capture a good high-quality picture of clouds. The purpose of this assignment was to introduce us to the course as well as having an image to analyze in degerming cloud types and other physics of clouds.

For this assignment, I took a photo in CU Boulder campus at 4:36 pm on September 17th using Pentax K-3 II. The camera was facing north with an approximate angle from the horizontal of 45°.

Aperture: ƒ/14

Exposure time: 1/200 sec

ISO: 100

In order to further find out the relationship between the clouds in the picture and the weather data, I screenshotted the Skew-T Map at that day which is shown below.
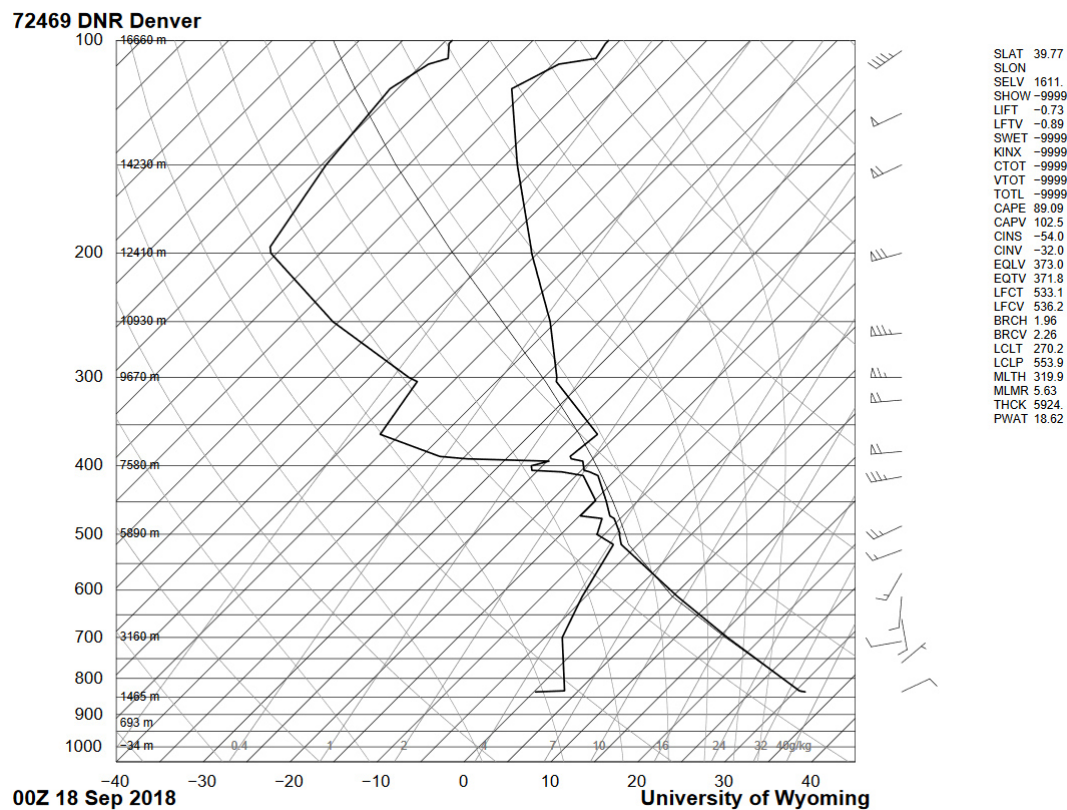
As can be seen in the Skew-T map, the altitude of the cloud is around 6800m. The CAPE is 89.09, it's in unstable atmosphere. According to the height and the unstable atmosphere, it shows that the cloud could be a cumulus. The cumulus forms by the rising convection of the air, the air condensation into cumulus due to adiabatic cooling. Generally, the cumulus clouds are in a sunny state.

During post processing, I increased the saturation to highlight the good weather, the blue sky

and white clouds formed a sharp contrast in the picture.

Reference

•   Skew-T Map, University of Wyoming

•   Parameterization Schemes, Ch.6, David Stensrud and "An Overview of Convection Parameterization" a 2012 presentation given by David Stensrud