Clouds Second

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MCEN 5151-003

Original Photo

Edited Photo

For the second cloud image assignment as part of this flow visualization class, I had been on the lookout for interesting cloud formations, but was not seeing what I was looking for. The days leading into included some cold weather and light snow, but overall sunny and somewhat turbulent weather. I took this photo and began to research what kind of cloud this was and how it related to the weather and overall atmospheric conditions.

This photo was taken at the following 1045 Regent Dr, Boulder, CO 80302 (40.003808 (Latitude) and -105.267500 (Longitude)) facing just West of due South. The photo was taken on the ground with an elevation angle of approximately 20 degrees. The photo was taken on December 10th at 1:25pm.

The days leading up to me taking this photo involved some light snow after a quick shift from very warm weather to cold weather 2 days prior. The sun had been shining but not warming up the ground or air. The day of this photo the entire sky had clouds similar to those shown in the photo. The cloud shown in the image is a Cumulus Cloud (Types of Clouds 1) which does not necessarily mean weather only cloudiness, but cumulonimbus clouds could quickly follow which would lead to storms. My estimate for the cloud's elevation is about 3500 ft as it seemed to be about 2 times the height of the flatirons which stand about 1800 ft above Boulder's ground level.

72672 RIW Riverton

00Z 11 Dec 2024   University of Wyoming
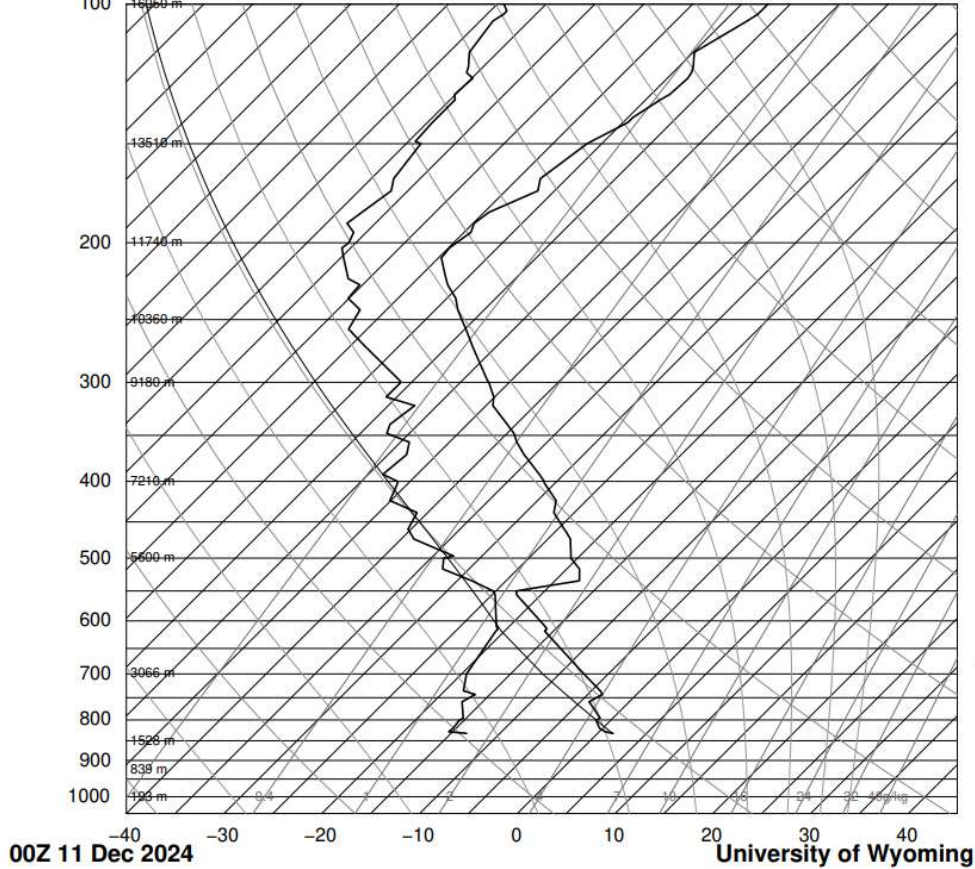
SLAT	43.06
SLON	
SELV	1703.
SHOW	–9999
LIFT	12.57
LFTV	12.57
SWET	–9999
KINX	–9999
CTOT	–9999
VTOT	–9999
TOTL	–9999
CAPE	0.00
CAPV	0.00
CINS	0.00
CINV	0.00
EQLV	–9999
EQTV	–9999
LFCT	–9999
LFCV	–9999
BRCH	0.00
BRCV	0.00
LCLT	255.0
LCLP	641.6
LCLE	293.9
MLTH	289.5
MLMR	1.44
THCK	5407.
PWAT	4.24

Image from Atmospheric Surroundings - University of Wyoming

These skew-T plots can be used to determine the cloud heights expected and which clouds would be expected from the stability of the general weather. By reading the skew-T plot we can see that the line is moving to the right of the dry adiabatic lapse rate which means that the atmosphere is unstable. This would mean that we are likely to see cumulus-type clouds or cumulonimbus clouds coming soon which matches what we have. We did see cumulus-type clouds the next day but nothing formed into cumulonimbus clouds. I estimated the elevation directly from the Skew-T Plot which gave us a calculated elevation of around 2000 ft. This was lower than my guess but not too surprising and appropriate for a Cumulus cloud. Given the Skew-T Plot and other information, I would make assumptions that the following weather would stay the same temperature and perhaps come with large cumulonimbus clouds which led to rain.

This photo was taken using a Canon EOS R100. Some specific specifications for the settings include: Shutter Speed (1/800), Aperture Value (F11), ISO speed (ISO100), Exposure (-1.0) and a Lens Focal Length (87mm). The shutter speed was relatively fast to capture the shadows of the clouds as well as possible. Both the ISO speed and aperture value were selected to allow a good amount of light which looked the best. The photo field size is difficult to estimate but it covered approximately 300-500 ft x 450-750 ft. In editing, the contrast was increased,

saturation was increased to make the sky look more blue and prominent, and the brightness was increased due to the dull day.

This image shows what I would consider a pretty standard sky in Boulder Colorado. It tells us that there could be weather coming with cumulonimbus clouds, but those also may not form. Given our Skew-T graph, I would guess that we will not be seeing any cumulonimbus clouds in the next few days.The fluid and movement of the water in the clouds is clear in my image as I was able to get one cloud fully inside the frame. I like how the photo focuses on a relatively small cloud which would normally not catch my attention. It brings my attention towards it and shows that even the small clouds are just as complex as larger ones. I do not like the angle where I took this photo and would have liked to be at an elevated location. To develop this idea further, I would love to take photos of different cumulus clouds on different days and compare them to see if we can find patterns in their appearance and the weather that precedes it and follows it.

Work Cited

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