

Cloud First
MCEN 4151
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The image described in this report was taken for the first cloud assignment in MCEN 4151 at the University of Colorado. The purpose of the image was to portray the clouds exactly as they were witnessed the day the picture was taken. Also, the image was meant to show the viewer the glowing effect the clouds had on the very bright trees in the foreground. Many pictures were taken on this particular day that could have qualified for this assignment. This image depicts perfectly what it was like to be in the mountains looking at these cloud formations.

The image was taken on October 4, 2015 at approximately 2pm in Aspen, CO. The elevation was approximately 2500 m. The camera was facing west at about a 40-degree angle from the horizon.



Figure 1: Original Photograph



Figure 2: Edited Version

The Skew-T diagram shown in Figure 3 shows that the air was closest to the dew point at around 6760 m. Thus, the clouds were most likely at this altitude. Comparing this number with the common altitude of various cloud types, seen in Figure 4, along with the scattered puffy shape of the clouds makes clear that the clouds in the image are altocumulus. This altitude makes sense because the local mountains have an altitude of around 3000 m and the clouds seemed fairly far from the peaks. The rest of the sky was covered with this same type of cloud cover. There were breaks in cloud cover with clear blue skies in the background. This implies there were not many other types of clouds present on this particular day. The Skew-T shows that there may have been condensation around 8500 m, which implies there could have been cirrus or cirrocumulus clouds above the altocumulus clouds imaged, though they were not the focal point of the afternoon.

The weather reports do not show a weather front before or after this date, at least not close enough to this date to have any affect on the atmosphere photographed. The Skew-T suggests that the atmosphere was just barely unstable since there was a cape of 5.94. This could be interpreted either way since the value is so close to zero. The clouds were fairly similar the day before. In fact, the Skew-T from the day before was almost identical to the one included in this report, which suggests the atmosphere was about the same as well. There was a North facing wind at about 15 mph.²

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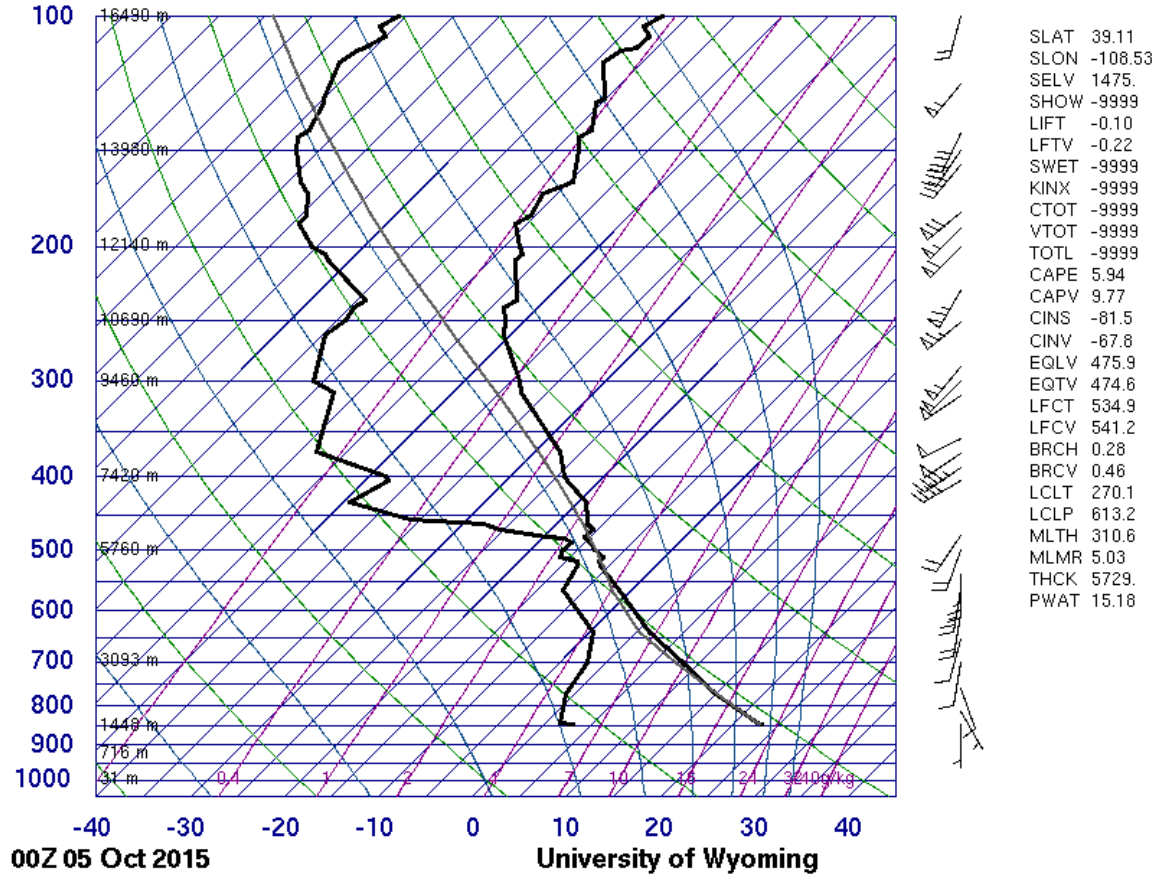


Figure 3: Skew-T Diagram of October 5, 2015 at 00Z (6pm October 4, 2015 MST) Grand Junction, CO.¹ This is the closest airport to Aspen, CO that collects weather balloon data.

Common Cloud Names, Shapes, and Altitudes:

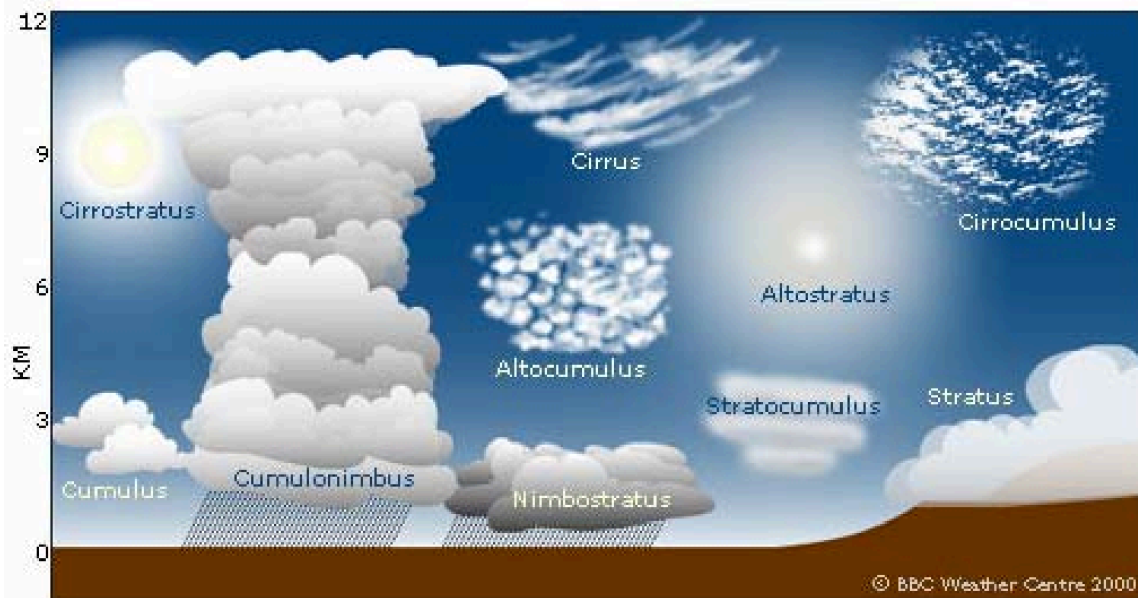


Figure 4³

The size of the field of view is approximately 400 m wide by 300 m tall. This is an estimate based off the base of the foothill shown in the foreground. The distance from the object, the altocumulus cloud section photographed, to the lens was about 6770 m or 4.2 miles. This calculation was done using the distance formula, assuming the peak of the foothill in the photo was 400 m away and the clouds were 6760 m above that peak. The camera used was a Nikon D5100. The lens used has a focal length of 18. The dimensions of the original photo are 4928 x 3264 pixels. The exposure specs are as follows: Aperture 5.6, shutter speed 1/1000 s, and ISO 450. The edited version was altered in 'Aperture.' Only the contrast of the image was increased.

The image reveals the reflective surroundings due to the lighting that the altocumulus clouds provided. The clouds appear to be crawling over the top of the peak of the foothills in the foreground. I like that the image includes a lot of the detail in the clouds in the right side of the frame. I like the bright colors in the foreground. This describes the lighting effect the clouds played at this time of day. I do not like that the top left of the image is washed out. Though it helps with the lighting of the foreground, it takes away some of the detail of the clouds. I would like to know more about ideal settings for photographing clouds. The various preferred settings for different atmospheres would be useful to study for future cloud pictures. I believe I fulfilled my intent of capturing the bright, warm nature of the surroundings. I also feel I captured the detail of the clouds in the majority of the frame, which was the point of the assignment. In future projects I will use weather forecasts to predict various camera settings that will work best for the type of atmosphere expected.

References

¹*Grand Junction Skew-T Diagram 00Z 05 Oct 2015*. University of Wyoming, 2015.

²Web. *Weather History for Sunday, October 4, 2015*. Aspen, CO: N.p., 2015. Web. Weather Underground.

³“Common Cloud Names, Shapes, and Altitudes.”