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3/1/10

Clouds 1

This report will document my cloud image taken for our first cloud assignment. While I had several cloud images, 3 or 4 which I really liked, I chose this one because I liked that it focused on a single solitary cloud. I believe it does a good job of demonstrating the phenomenon which is occurring and the cloud physics. The cloud is very wispy and offsets nicely from the sky which I find very aesthetically pleasing. I have classified this cloud as a cumulus fractus and I believe this is a good example due to the fact that the cloud is very wispy and appears to be breaking up. Through editing in Photoshop I created an extremely vibrant image with a high contrast that I really enjoy.

This image was taken on February first at 13:30 from the engineering center on the University of Colorado Boulder campus. I was facing south-west looking towards the southern part of the Flatirons. The cloud was relatively close to me and most likely somewhere over campus because my camera was approximately 70 degrees above the horizon when the image was taken.

My image is of a single cloud which I believe to be a cumulus fractus. When my picture was taken the sky was mostly clear except for several small clouds such as the one in my image. There were also some remnants of mountain wave clouds. The previous day had been cloudier with bands of mountain wave clouds. There was no apparent wind; the sky seemed very calm and clear. The February 1st 12Z skew T plot was not available. Therefore I have based my assumptions on the February 1st 00Z skew T plot and the February 2nd 00Z skew T plot which are provided below. Both these skew T plots show the atmosphere to be stable. Therefore since the atmosphere was stable both before and after I would assume it to have been stable at the time my image was taken. The February 1st 00Z skew T plot shows a high probability of clouds in the 1500-5000 m range while the February 2nd 00Z skew T plot shows that clouds would most likely be in the 3500-4000m range. Since the time my image was taken is closer to the February 2nd 00Z skew T plot I believe the clouds to be more in the 3500-4000m range which is on the edge of transition from low clouds to alto clouds. Because of this the clouds could be classified in either area. I will stick with my initial assessment that they were low level clouds.

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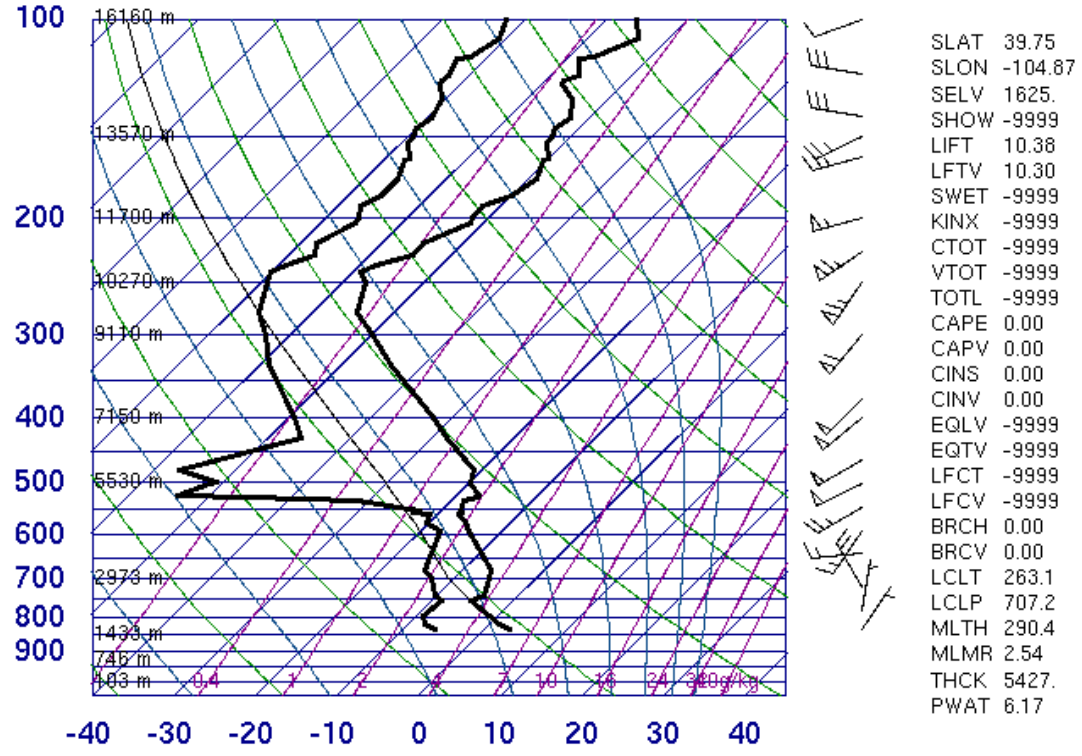

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CINV 0.00
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LFCT -9999
LFCV -9999
BRCH 0.00
BRCV 0.00
LCLT 263.1
LCLP 707.2
MLTH 290.4
MLMR 2.54
THCK 5427.
PWAT 6.17

00Z 01 Feb 2010 **University of Wyoming**

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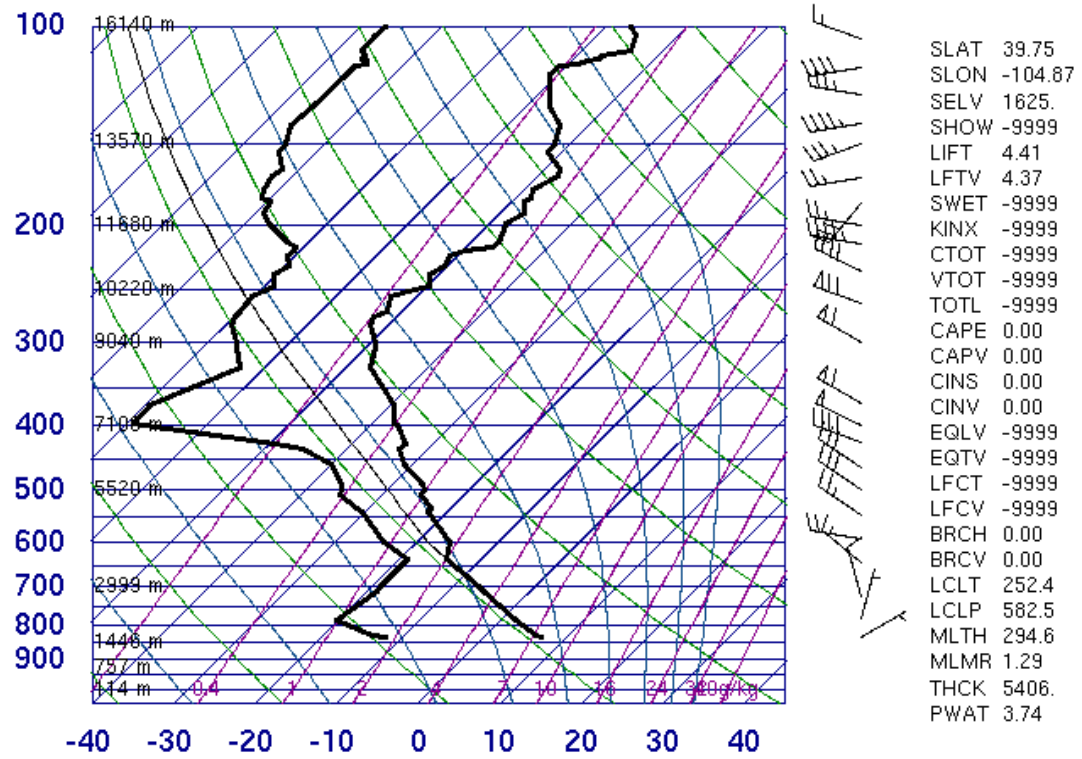

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TOTL -9999
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CAPV 0.00
CINS 0.00
CINV 0.00
EQLV -9999
EQTV -9999
LFCT -9999
LFCV -9999
BRCH 0.00
BRCV 0.00
LCLT 252.4
LCLP 582.5
MLTH 294.6
MLMR 1.29
THCK 5406.
PWAT 3.74

00Z 02 Feb 2010 **University of Wyoming**

The most likely scenario is that my image is a dying leftover from a mountain wave cloud although I find it impossible to be certain this is the case and that it is not a cumulus cloud like I had originally thought. I base my assumption on the fact that there were clearly visible mountain wave clouds the day before and at the time of my picture it was clear there were still remnants of some of them. The mountain wave clouds would have been formed as warm humid air was pushed up over the mountains causing the water vapor to condense and form a cloud. Once these clouds passed over the mountain they would come back down to lower warmed altitudes and slowly disappear because there is no apparent large radiative heating to keep them at the higher elevations. As the clouds dissolve and die they become wispy and poorly defined as seen in my image. This can make it harder to identify them as they may all start to look the same.

I chose to focus my image on a single cloud due to the fact that there weren't that many clouds in the sky. I like the shape of the cloud I photographed and I thought it demonstrated the clouds physics well. Assuming my camera was at an angle of 70 degrees from the horizon and the cloud was at a height of 3500m the cloud would have been 3725m away from me. The lens focal length was 9.079mm because I adjusted the zoom until the cloud appeared to be in focus. To take the picture I used my digital point and shoot camera which is a Cannon PowerShot SX200 IS. I set my camera for maximum resolution and compression. The original image was 4000 x 3000 pixels and the final image is 3659 x 3000 pixels. The resolution is 180 pixels/in. I let my camera choose the exposure and lens speed setting since I still haven't mastered controlling them all manually. The f-stop and aperture value were both f/5.6. The ISO was 80 and the shutter speed 1/2000s.

In Photoshop I cropped the right side of the image slightly to create a tighter image of the cloud. I then used the sharpen tool to account for lens blur and increased this to 150% with a 3 pixel radius in order to sharpen the fibrous edges of the cloud. I then used the curves tool to increase the contrast being careful to increase it more by darkening it so as not to overexpose the clouds and lose definition in the little details. Afterwards I used the shadows/highlights tool and increased shadows to 20% and highlights to 30% to brighten the image back up. Using brightness/contrast I increased brightness to 20 to make the image even brighter. Using hue/saturation I changed the master hue to 20 to give it a bluer tint and increased saturation to 10. I then used color balance setting shadows to -20,020, midtones to 0,-20,0 and highlights to 10/-10/30. This made the sky a very deep blue color while making the clouds a very slight red, magenta color and bringing out the cyan along the edges slightly. Finally, using vibrance I increased vibrance to 20 and saturation to 40 to obtain my final image. Shown below is my original and final image.

My image shows a cloud at the end of its life, a dying cloud known as fractus because it is coming apart as it fades away. I love the colors and contrast in my image. I like how vibrant the colors are even though they aren't realistic. I think the stark contrast between the crisp bright blue sky and the white slightly red tinted clouds really brings them to life and helps define the wispier more indistinct parts. I wish I could have made the edges more cyan colored to bring them out more. Some people pointed out that the clouds appeared a little grainy which I hadn't originally noticed. I think this may have happened from increasing the color saturation so much or possibly from sharpening the image. I believe this image is a great example of what happens to clouds at the end of their lifecycles and the wispy undefined edges of the cloud clearly demonstrates this. I wish I was better able to tell if this was a cumulus fractus or part of a mountain wave cloud. I think a good way to have possibly shown this and provided a better idea of what else was going on in the sky would have been to take several pictures and stitch them together.