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Clouds 1 assignment
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This was the first clouds assignment, and for it I really wanted to capture a sunset photo. I love looking at clouds, especially sunsets and sunrises, and find them very beautiful. I ended up taking a lot of cloud photos, and ended up liking this mountain cloud the best.

This photo was taken in boulder on 17th and Pine from my 4th story balcony looking over the Flatirons. I took the photo facing west southwest and was the camera was relatively horizontal. This photo was taken on January 15, 2014 at 5:06 PM.

In this image it can be seen that the clouds are mountain wave clouds. It was a calm atmosphere as displayed by the CAPE value of 0 on the Skew-T diagram. There were several mountain wave clouds coming off of the mountains heading east that can't necessarily be seen in the image, but none were as formed and obvious as this one. This one formed a cool band that spanned probably 25 miles. Mountain wave clouds are formed when "Bouyancy perturbations develop when stably stratified air ascends a mountain barrier"[1]. The pressure difference that moves from behind the mountain gets disturbed as it moves over the mountain. "These perturbations trigger disturbances that propagate away from the mountain as gravity (or buoyancy) waves." From these disturbances several rows and types of clouds can form depending on the amplitude of the wave clouds. I took this image towards the beginning of the semester; so trying to remember/find any information on the

weather pattern at the time is rather difficult. However, from the Skew-T diagram and the cloud type I am confident that this was a stable atmosphere. I don't believe that there were any weather patterns moving through at the time, and I remember taking pictures for a decent amount of time and don't remember any high winds occurring.

The field of view here appears to be somewhere around 15 miles across, and that is based off of the range of the flatirons. The fact that this cloud was sitting on top of the Flatirons provided a good frame of reference. The cloud is approximately 10-15 miles away from the lens, and again this is based off of the distance from my house to the flatirons. I actually took this picture with my iPhone 5c camera. Surprisingly though the exposure settings are still included in the image even though there is no manual adjustment on the camera. The shudder speed was 1/158, the aperture setting was f/2.4, and the ISO speed was 50. The final image width and height in pixels was 3,263 X 2,015. The focal length of this particular image was 4.12 mm. The post-processing on this image was simple and straight-forward, and were performed in iPhoto. When editing the image there is an "adjust" image function, and in there you can do several things. For this image the only thing I did was change the Tint on the image all the way down towards the purple end of the spectrum. There is a blue/orange spectrum and a purple/green spectrum, and I only adjusted the purple/green one all the way towards the purple end of the spectrum.

I really like this image, and I feel it does a great job of displaying the mountain wave clouds. These types of clouds are quite common for us being here on the Front Range and display a great variety of clouds depending on the atmospheric conditions. I was happy that I was able to capture a cool sunset, and accentuate it via post-processing. If I had had my nicer Olympus EPL-5 at the time I believe I could've captured an even better image of this particular cloud phenomenon, but considering it came out as well as it did simply from an iPhone camera I think the image is great.

References

1) Durran, Dale R. *Lee Waves and Mountain Waves*. Tech. Seattle: Elsevier Sciences, 2003. Print