Clouds Second Report]

Mountain Wave Cloud on December 7th at 10:25 Am

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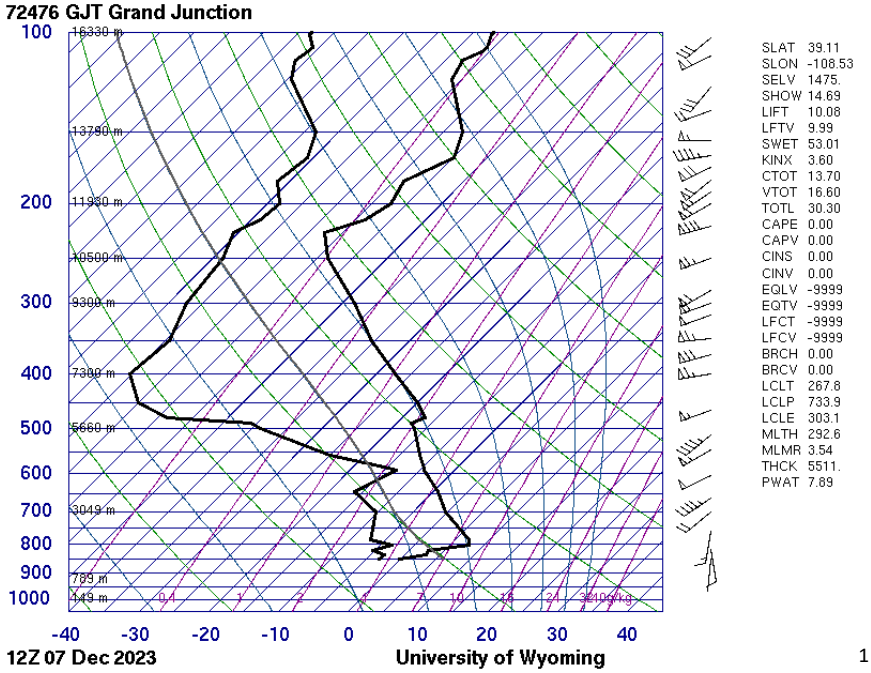
The clouds second image is intended to display how the beauty of flow visualization can be found in nature. My second cloud image was captured on December 7th at 10:25 AM on CU Boulder's East Campus. I thought that the clouds were striking and looked great with the clear blue sky behind them.

These clouds were captured after one of my classes on East Campus in Boulder, CO, at 10:25 AM. The camera was pointed to the south and elevated about 30 degrees.

The clouds in my image are rotor clouds formed by the mountain-wave effect. As winds blow over the Rockies into Boulder, the air bounces over the mountain and causes clouds to form in these areas. Often, this effect causes altocumulus lenticularis clouds, but it can also cause puffier, turbulent rotor clouds in certain areas. These aren't purely cumulous clouds because the atmosphere was stable on the day I captured the photo. Looking at the skew-T plot

of the day the photo was taken, The CAPE was 0, indicating a stable atmosphere.

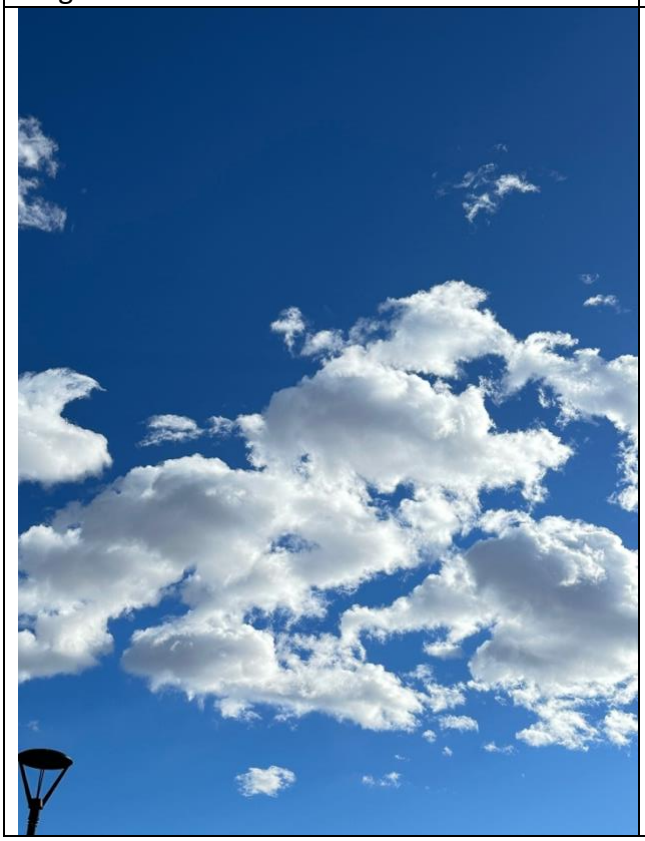


[1]

On the day that the photo was taken, it was a little bit breezy and there was a trail of clouds parallel to the Flatiron Range connected to the clouds that I photographed. The clouds weren't super high in the sky because the mountain wave rotor clouds tend to form in the lower areas of the "bouncing" air. There was no rain or snow on the day of the picture, but we did have a big snowstorm a few days after the photo was taken.

I used my iPhone 14 pro with a focal length of 43 mm, an aperture of 1.78, an ISO of 80, and a shutter speed of 1/7042 seconds to photograph these clouds. The original photo was 3024x4032 pixels, but I cropped it to be 3017x2775 pixels. To edit the image in post, I first cropped the image and used a spot removal tool to get rid of a light post that was in my photo. Then I adjusted the exposure by -3 and increased the brilliance by 13. I also reduced the highlights, increased the shadows, and increased the contrast to make the details in the cloud easier to see. Finally I decreased the brightness by 14, increased the black point by 6 and raised the sharpness and definition to make the photo look better.

[1] University of Wyoming Sounding Data of Grand Junction Colorado.

Original	Edited
	

My image captures the beauty of clouds while also providing some valuable insight as to how and why different types of clouds form. All the details of the cloud are visible including the whisps created by the turbulent air caused by the mountain wave effect. If I were to go back in time and change the way that I photographed this cloud, I would probably try to capture the large trail of clouds spanning parallel to the Flatirons to make it easy to see how these are mountain wave clouds.