

Cloud Second

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12/13/24

Flow Visualization: The Physics and Art of Fluid Flow

The goal of this project was to capture cloud phenomena and analyse the different metrics of the cloud. This includes things such as Skew-T charts, CAPE values, the state of the clouds, the time the cloud picture was taken, and what type of cloud is being shown. My previous cloud image was very slightly unstable and was a very dark color. So for inspiration of this cloud image I wanted to capture something different.



Fig. 2: Original Image

On this particular day I decided to spontaneously take a picture of the clouds at sunset on my way from Boulder to Denver. Due to the seasons changing and clouds becoming more stable during the early stages of winter this was common to see. The clouds in this particular image appear to be mountain wave clouds in which stable air is forced up and over mountains creating this soft and round shape that can be seen in some of the clouds. The CAPE on the Skew-T diagram below confirms this with a 0.00 value which indicates that the air was stable on this date and time. The chart itself is indicative of clouds at low to mid range elevation and also agree with the image of the clouds above.

The cloud picture was taken at roughly 5:00 pm which is why you can see the vibrant orange coloring from the sunset. The contrast from dark to light on some of the clouds is a perfect way to show the elevation in the different clouds. Towards the top of the image you can see that the higher altitude clouds that are not as well shaped are not being hit by the sun and being blocked by the lower elevation clouds.

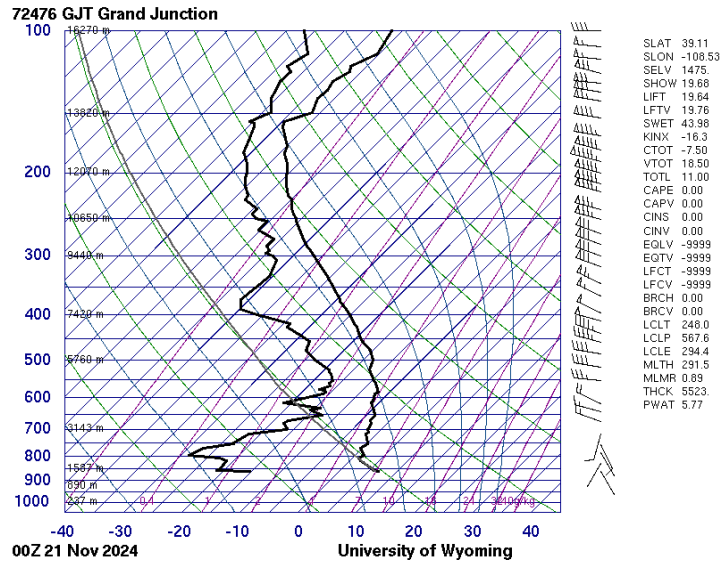


Fig. 2: Skew-T Diagram for Nov 22, 2024

The original image was taken on my iPhone 14 camera and used the automatic settings of 1/25000 shutter speed, f/1.6 f-stop, 5.1mm zoom, and 40 ISO. The image size was 4032x3024 pixels by default on the camera app. This ended up being the main thing that I edited in post. In the critique for Clouds First, most of the people were pointing out that the cityscape at the bottom of the picture was rather distracting and ended up taking away from the photo. For this photo I ended up cropping the city and mountains out fully to focus on the clouds only. The image below is showing that edited image which created almost a panoramic looking photo because of the wide pixel count.

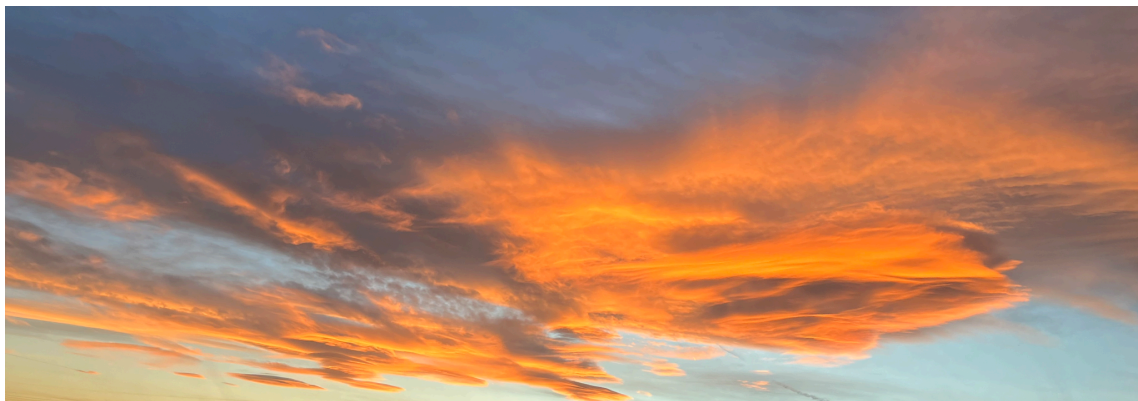


Fig. 3: Edited Image

I opted to not make any edits on the coloring of the image because I think that the natural orange and blue coloring was already very vibrant. If I were to change this I think it would make the picture look too unrealistic and the natural colors from the image already look too good to be true. Overall, I am happy with the second cloud image that I took and I think I improved upon feedback made from the first image.