

Cloud Report 2 - MCEN 5151

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1 Die Fotos



Figure 1: Marginally Edited Photo



Figure 2: Final Image

2 Background

This is the second of two cloud reports for the Flow Visualization class. Wine and cheese in hand, I sat adjacent Morrow Rock, in, well, Morrow Bay on the central coast of California to watch the sunset. Struck by it's splendor I could not help but take a photo for the Flow Visualization class. Alas, in my reposed position I retrieved my camera, and shot this image. Such beautiful hues of crimson, scarlet, purple, blue, and orange I had never seen blended together. With the gentle hum of the coal power plant behind me, I was regaled by a sonorous display of hue; for one sweet hour, I was blind to the harsh banality of the universe. So that's pretty cool I guess.

3 Geographic Notes

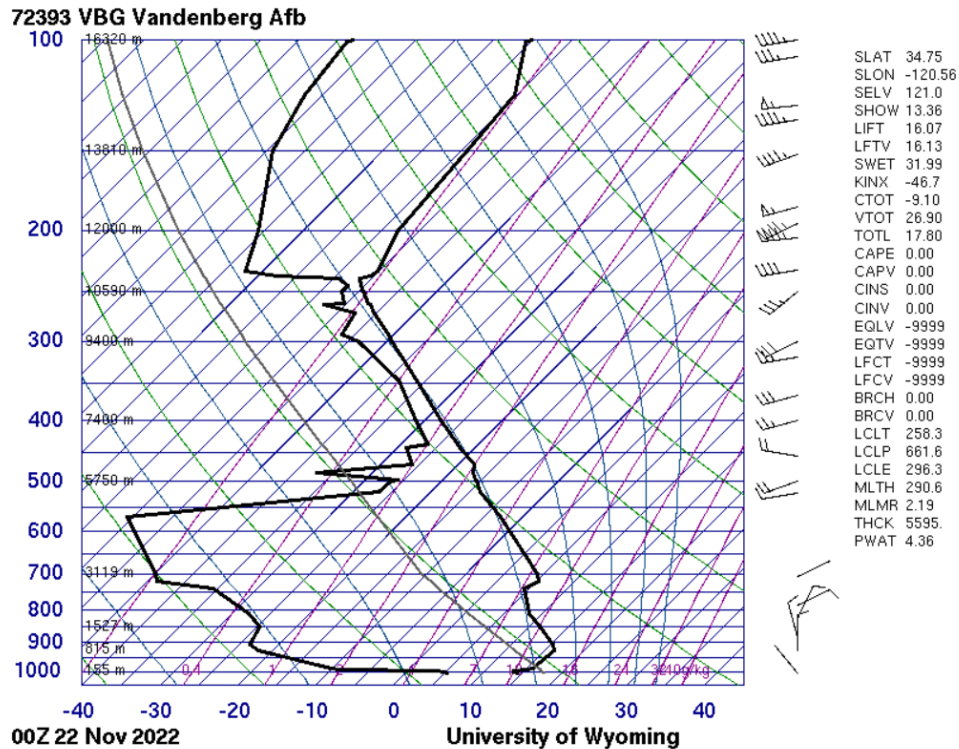
This image was taken in Morrow Bay, California. The date was November the 21st, right at 5:42 PST in the evening. The direction was directly west, at a heading of nearly 265° . The metadata on my phone places my elevation at $-.07$ feet. You could factor in the height at which I held the phone, which would put the elevation at a **solid** 5 feet. I would assume my angle upwards was something near 0° . Now, here is a table that displays all of this information in an accessible manner (realistically though, it is just to lengthen the report overall).

Location	Morro Bay, California
Heading	265 Degrees (Notionally)
Elevation	$-.07+5 \approx 5$
Angle above horizontal	0

Figure 3: The Least Useful Table in Kosovo

4 Cloud Analysis

The clouds pictured are distinctly cirrus. These clouds are sitting in the range of 8,000 to 10,000 meters in elevation, and have the wispy nature of cirrus clouds. The winds were largely in the prominent direction, which was an eastward heading over the mountain range. The weather was mostly clear, and the temperature was nearly 60 degrees Fahrenheit on the ground. There were no fronts coming through at the time, and there was no precipitation that day. Based on the Skew-T diagram, these cirrus clouds seemed to sit at the expected elevation, but some of them seemed to form at a lower elevation than expected for the humble cirrus. It is also worthwhile to note that these cirrus clouds are on the denser side, this is likely due to how they are generated over the ocean, as well as the fact that the atmosphere is beginning to cool. Here is the Skew-T below:



5 Photograph Parameters

The basic specifications and camera settings are listed in the table below. I shot this on an iPhone 13 Pro, with a relatively long exposure.

Camera Setting	Value
Aperture	f/1.5
Exposure Time (s)	1/2 second
ISO	1600
Raw Resolution (Width x Height)	4032 x 3024
Camera/Lens Model	iPhone 13 Pro
Distance From Object to Lens (m)	<u>A good ways!</u>
Lens Focal Length (mm)	6mm

The 35mm equivalent of the iPhone 13 Pro can be calculated knowing the focal length, sensor size, and aperture used. The 35mm focal equivalent of the iPhone at that focal length was 29mm.

It is quite difficult to get specific dimensions on the sensor size of the iPhone, thus calculating the horizontal field of view or the angle of view is more work than I want to do at 4 a.m. here at the engineering center.

I did very little in regards to the post-processing of this image. I cropped the bottom of it, in order to add more emphasis to the sunset. My phone did a fairly spectacular job of making this image. I barely had to touch the RGB curve.

6 Intended Image Ideals, and the Inevitable Shortcomings

I adore this image. It captures one of the most amazing sunsets I have seen in my life. The clouds carried the various hues and tones in such a spectacular way, I am exceedingly pleased with how the phone captured the colors. It feels like one of the few times an image accurately captures a natural phenomenon. I think it would be nice if some of the details on the beach could come out more, to add some texture to the image. There is not enough dynamic range on my monitor to adequately display such detail.