

Brock Derby

Clouds 1

Flow Visualization, CU Boulder

Oct 5, 2015

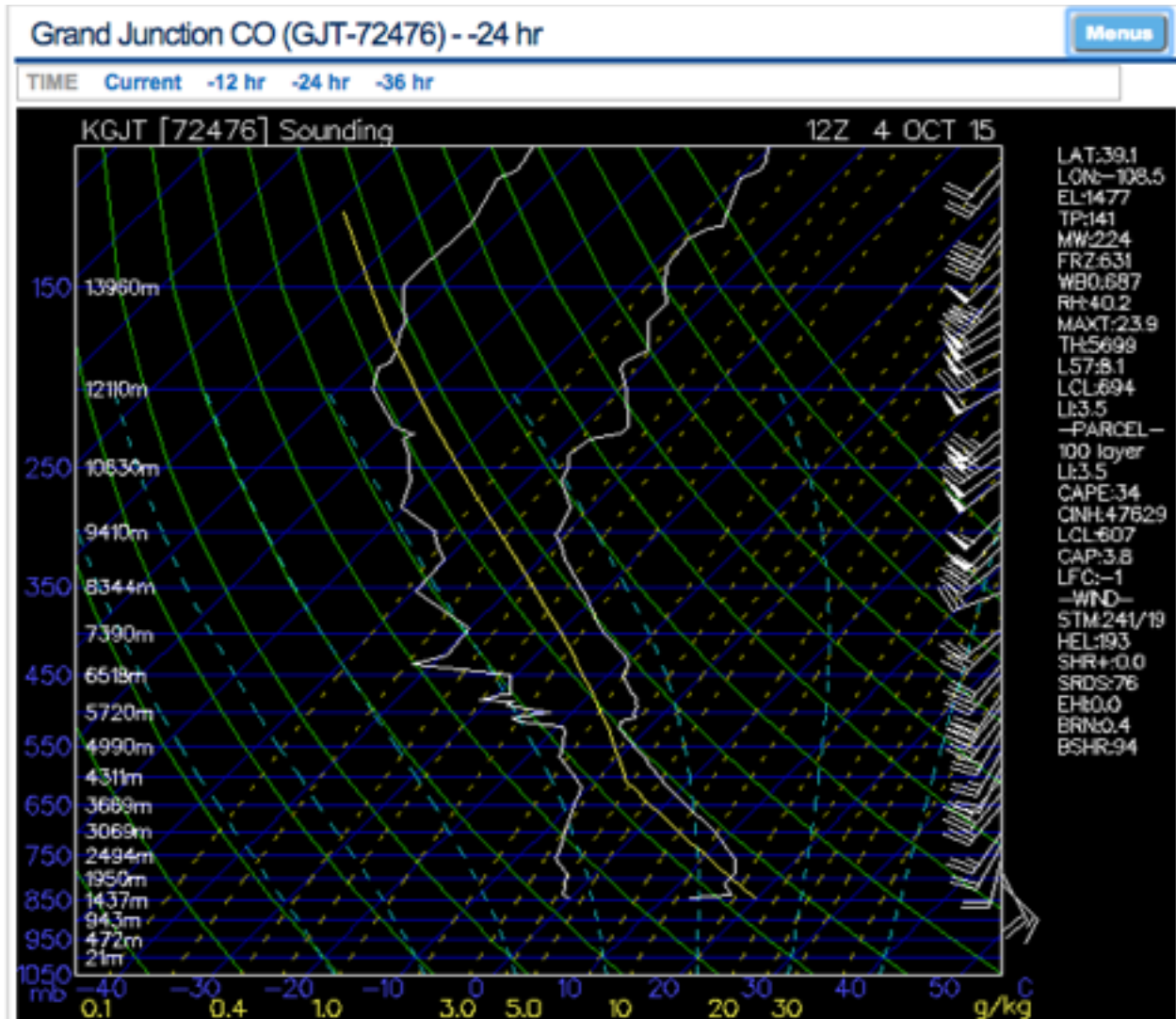


This image was taken for the first clouds project in Flow Visualization at CU Boulder. The goal was to capture interesting or beautiful cloud formations in our Fall Colorado skies. Even though I believe I succeeded in capturing a gorgeous view with wonderful clouds, a time lapse would have better shown the clouds as they gracefully and quickly passed across the valley. However, using “Mirror Pond” helped give perspective and added to the beauty of these cumulus clouds as they traverse the valley.

The location was just south of Hunter Peak and Conundrum hot springs, near Aspen Colorado. This is a horizontal south facing view, taken at an elevation of roughly 9,500 feet. Hunter Peak is visible on the left and crests at 13,615 feet, over 4,100 feet above my position. The shot was taken on October 5th, 2015 at 10:18 am.

These clouds were Identified as Genus Cumulus due to their appearance and relatively low formation height of roughly 6000 feet above ground level. Genus Cumulus clouds are described as a fair weather clouds, generally wider than they are tall. Genus Cumulus are similar to Stratocumulus but are more detached from one another and have a skinnier base.<sup>1</sup> You may notice the clouds do not appear as if they are detached from one another, this is a result of the angle at which the shot was taken. The rest of the sky consisted of Genus cumulus clouds moving rapidly across the valley towards the east. Despite the rapidly moving clouds, the valley must have shielded the wind resulting in no or very little wind. These clouds are often the product of an unstable atmosphere which does not agree with the low CAPE of 34 on the skew T chart below. This could be because the weather conditions in Grand Junction were different. In fact the skew T suggest clouds may form around 5000 meters above the ground which is not

consistent with the lower cumulus clouds, known for floating below 2,000 meters. About thirty minutes after the shot was taken, as the cloud formations became more dense, a short lasted, intermittent drizzle of rain began to fall.



*Skew T chart of Grand Junction CO on Oct 4, 2015. <sup>2</sup>*

I decided to take this shot in this direction to add contrast to the clouds with the mountains, trees, and pond. The small pond in the image is rightfully named “Mirror Pond” and along with the valley itself, posed as great foreground in the image. The image was taken using

an Android phone with an image size of  $960 \times 720$  pixels and an image DPI of 72 pixels/inch. Other camera settings such as shutter speed were not listed in the image info. Some post processing was done to the color curves to help make the colors more vibrant and bright.



Original Image with no processing

This image was taken to show the effects of unstable atmosphere from these jagged mountains on cloud formation. I would have liked to capture the clouds at a better angle to show them as the separate entities they were. However, changing the angle would eliminate much of the mountain scenery in the foreground which makes this image so appealing. The fluid physics taking place would be more easily seen with a steeper angle, and the dynamics could have been

shown with a time lapse. Given the time and equipment, a time lapse would have shown just how quickly these clouds were moving and how much they changed across the valley.

### **Works Cited**

<sup>1</sup> "List of Cloud Types." Wikipedia. Wikimedia Foundation. Web. 4 Dec. 2015. <[https://en.wikipedia.org/wiki/List\\_of\\_cloud\\_types](https://en.wikipedia.org/wiki/List_of_cloud_types)>.

<sup>2</sup> Unisys Weather <[http://weather.unisys.com/upper\\_air/skew/ua\\_sound.php?type=no&city=kgjt&ion=sw&t=cur](http://weather.unisys.com/upper_air/skew/ua_sound.php?type=no&city=kgjt&ion=sw&t=cur)>.