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April 30, 2012

Flow Visualization

Cloud Report 2

Sunrise Over Cumulus

It was about five in the morning and I was high over the front range, climbing at about 13,000 feet. I had just summited Mt. Meeker, and was attempting to cross the ridge towards Long's Peak. Since I couldn't sleep I started climbing around two. So there I was, huddling in the rocks to find meager shelter from the blasting winds as first light appeared in the sky. I had been climbing by headlamp, which was going fine, but wanted more light before I attempted the technical knife's edge traverse ahead of me. Through the darkness I could see the city lights to the east, and the massive dome of Long's to the northwest; it was the only thing above me. As I waited and tried to munch a frozen Cliff bar, the sky turned from purple to pink to salmon. The wind was very strong that morning, so strong I had to scramble on hands and feet if I encountered its full force. It had begun to blow around 10 PM that previous night. It was going to dawn bright and clear that morning, there were hardly any clouds in the sky. The day before was clear and warm, and I knew from the weather report that it was going to be unseasonably warm again at the ranger station for early April.

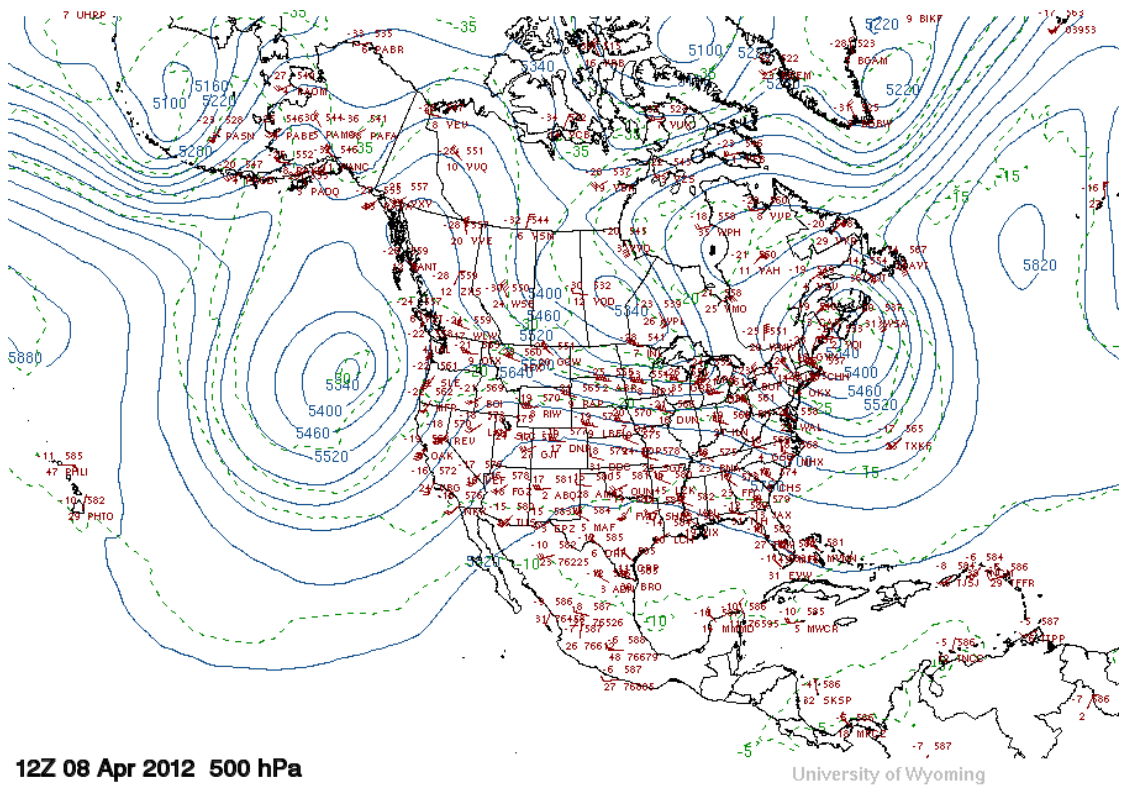
As I was saying I took care crossing the ridge, even pausing to take my gloves off for a section of vertical down-climbing along the way. As I progressed the sun began to peek over the horizon. Luckily, by this time I was able to run to get a better vantage point of its rising beauty. I had carried my camera this whole way so I could get a picture of the alpenglow on the sparse morning clouds. What I saw as the sun rose at 5:25 AM were a few Cumulus clouds huddled together. These were just the remnants of some moisture in the atmosphere, being blown out over the plains by the high, dry winds. At the time I was probably at 12,500 feet, as I was descending from the ridge and about to cross the flat 'beaver' towards Longs. The photo I got is facing the sun, so it was towards the Northeast. The clouds look to be about at my level over the plains, so maybe 8,000 feet in altitude, or 13,000 feet from sea level.

As it had been clear the day before and was clear again this day, there was definitely a prevailing high pressure zone over Colorado. For the most part these cumulus clouds were the only clouds in the area, but there were also a few cirrocumulus clouds in the distance to the south. Data from the University of Wyoming confirms this observation. I managed to climb this mountain right in the middle of a very stable time for the front range mountains. The skew-T plot from the University of Wyoming also indicates that the atmosphere is mostly stable at the time. The cape for that morning was zero. The plot indicates a very small region of instability at 5700 meters, or 18,700 feet. This would support the observance of clouds just above the level where I was that day. From the picture and level of cloud stability, it is likely that the clouds I saw can be identified as cumulus clouds; they are puffy like popcorn, and grouped together.

For this show I was not totally focused on photographic technique, when the wind is blowing like that I just wanted to make sure I could eke out a quality shot. To ensure a stable shot I used a quick shutter of 1/80s and paired that with an aperture of 1/20 to get the most in

focus possible. The light was getting bright, and as I was looking directly at the sun I knew I could use a relatively low ISO, so I chose 500. I like that I managed to get an accurate portrait of the light over the front range, letting the small lakes there mirror the clouds above. To get this shot I used the full extension of the lens at 70mm. This shot is unaltered with regard to size and photoshop. Unfortunately, only later did I realize that there were some small defects in the image, but I suppose it makes the image more authentic with regard to the conditions at the time. I used my trusty Nikon D70 for this shot, with 6.1 MP in the frame.

I think this image reveals how special the sunrise is for me. It took a lot of effort to get to where I was that day, and I am proud that I climbed higher than anyone else in Colorado at that time. Next time I hike to get some cloud shots I will be sure to try and get some of the big summer thunderheads that gather there in the afternoon. I imagine that would look really impressive from Chasm lake at the base of Long's Peak. Since turning in the image I have edited a bit to bring out the color contrast and softened the clouds to give more of an impressionistic feel. Also, I don't think I'll climb any more mountains in the winter for a while.



Figure