

Flow Visualization  
Clouds Project

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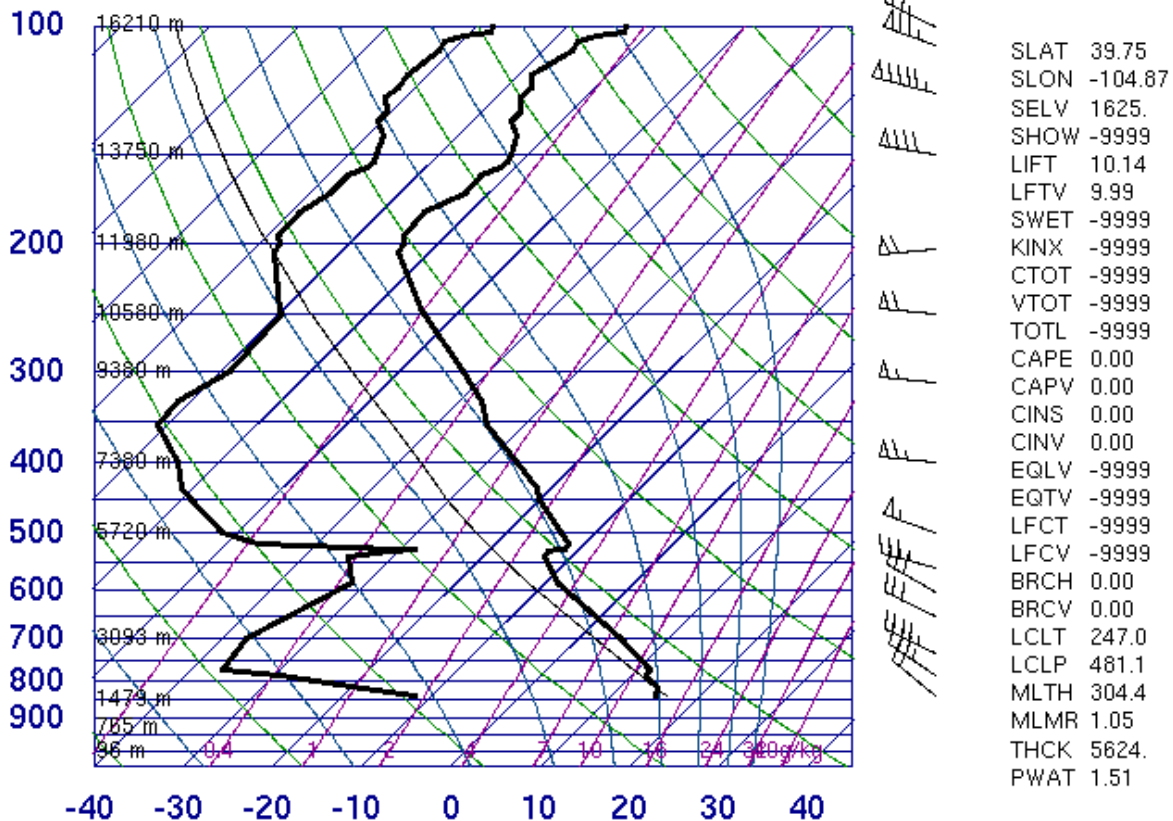
3/01/2011

The objective of this image was to capture cloud dynamics. The specific image that I captured demonstrated neutrally stable altostratus clouds. The wispy trails of these clouds grant a good deal of insight into the local air currents at the time. The boundaries of the clouds do a good job of roughly capturing isotherms (the constant temperature line at which the water vapor in the air precipitates out for form the cloud itself).

The image was taken from Scott Carpenter Park in Boulder Colorado. It was taken facing west at roughly a 45 degree angle. Based on a combination of that nights skew T plot and my own experience I guess that the clouds are at 15,000 ft. The skew-T plot certainly seems to agree with this though granted the skew-T plot is for an area a significant distance from my photo cite (Dever CO, rather than Boulder CO).

The weather for the past day or so before this photo was taken was roughly 40 degrees. Warm by February standards with a good amount of sun. There had been snow several days before but for the most part it had been a very temperate February day. The winds had varied in strength throughout the entire day though. Long periods of calm were punctuated by bursts of strong winds.

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The clouds seen in the image are interesting because they straddle the line between stable and unstable. The long arching trails lead one to think of a stable environment but it is clear that there are areas of instability as well.

Cloud field of view of this image was roughly 1 km. The cloud continued further in both directions however and occupied a large portion of the sky that day. The day itself was very bright which gave me the opportunity to use a very low ISO setting (only 80). I would suspect that the clouds themselves were 20-30 km away from me. The image was taken with a Canon SX130 Powershot point and shoot camera and was originally at 4000x3000. The image was taken with a short exposure time (1/320 s). The clouds were moving in the wind that day and so I used the short exposure time to reduce motion blur. I later took other images with a longer exposure time that did also turn out well however their overall composition was not as good. I used an f/8 fstop. The post process of the image included cropping out a small amount from the bottom of the image and slightly increasing the image contrast in gimp.

I think that the image turned out well though I find the overall impact to be less than inspiring. I think that in the future I'm going to try to catch clouds during either sunset or sunrise so that I have a broader color scheme to work with. The next big complaint that I have about my image is that it seem so flat. The clouds were thin and wispy and gave the observer no real feel for texture or composition.