

## **Cloud Assignment 2**



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The intent of the image was to capture several types of clouds in the same photograph. The field of view for the clouds made it easy to capture the various formations though the clouds are not near each other. After capturing several images, the final image was selected because of the clarity of the cloud and the contrast of the colors within the clouds. The clarity of the image was a major concern during shooting, but seemed to come out beautifully in the final image. The final image was captured on April 13, 2009 on the top of the parking structure, lot 436, at approximately 5 pm. The clouds were North West of the parking structure and the camera was approximately 30° from the horizon. The elevations of the clouds in the final image are just below approximately 1800 m for the cumulus fractus and 5500 m for the altostratus.

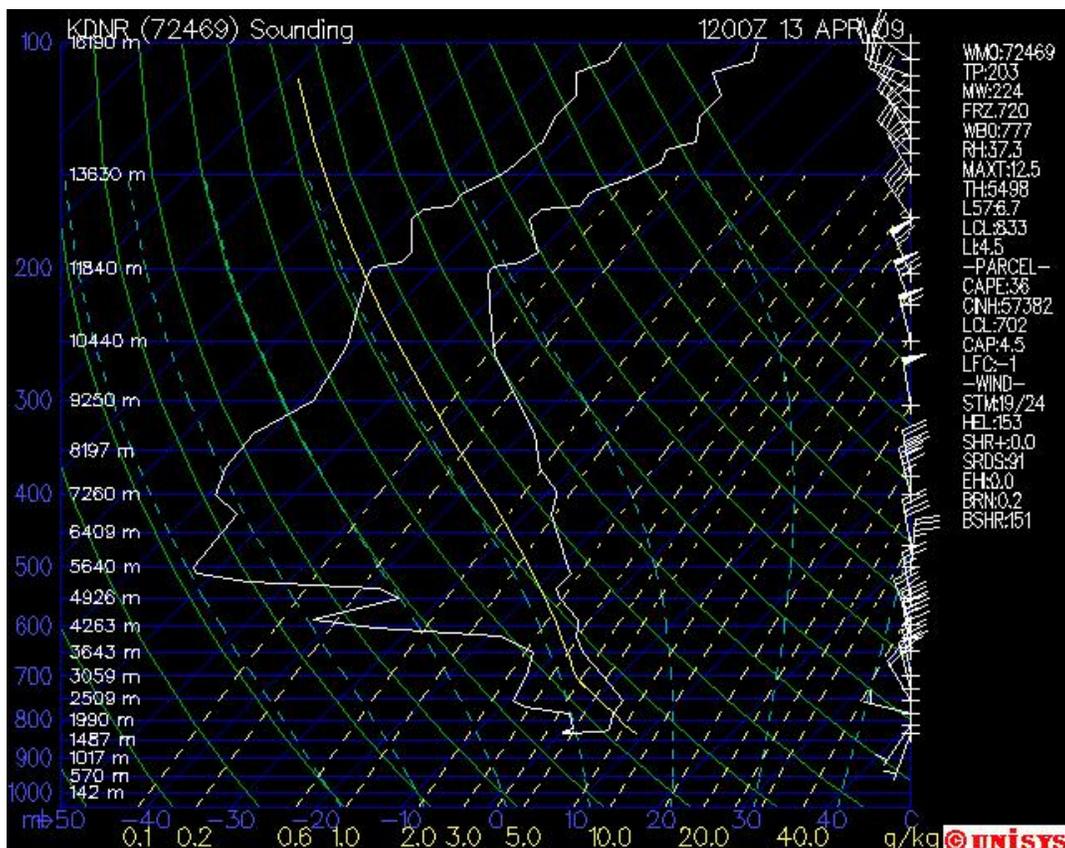


Figure 1: Skew-T plot for Denver on April 13, 2009

The clouds in the foreground of the image are cumulus fractus while the clouds in the background are altostratus. The rest of the sky was covered in altostratus clouds but it was odd

that the cumulus clouds were scarce elsewhere in the sky. The top of the clouds were bright with a very vivid white while the bottoms of the clouds were a deep blue. The Skew-T plot for atmospheric conditions shows that the atmosphere is stable from 2500 m to 3600m, 5600 m to 7000 m and above 7250 m. There are some areas in the atmosphere that are very unstable and seem to indicate precipitation, specifically 3600 m to 5600 m. This seems to confirm the thought that the clouds in the foreground of the image are cumulus fractus. Cumulus fractus are low altitude clouds that are usually below 2000 m, while the altostratus clouds in the background are 5500 m. The Skew-T plot shows that wind speeds are approximately 28-32 knots, which seems to agree with the cumulus fractus designation. The wind speed for the altostratus clouds is approximately 48-52 knots. There seems to be mountain wave on the day the image was taken. There was another cumulus fractus formation approximately 4000 m from the captured image due directly to the east.

The image was capture on April 13, 2009 using a Pentax ist DS. The pixel dimensions for the final image are X: 2438 by Y: 1436. Furthermore, the lens focal length was 80 mm. The aperture value and f-stop were both set at f/13. The ISO speed rating was 400 and the shutter speed was 1/500 sec. The field of view is approximately 4000 m by 2000 m. There were two photographic techniques used in the image. Curves was used to bring out the contrast of the clouds. The image was also cropped. The image was taken using natural light. The image was purposely captured later in the day to get the bright to dark contrast. The camera flash did not fire.

The final image was a very interesting contrast between light and dark. The cumulus fractus cloud in the foreground of the image is dark on the bottom but incredibly bright on the top. This effect is due to the positioning of the sun with respect to the cloud. The altostratus

clouds in the background of the image are very bright. The various levels in the image are very pleasing. The mountains on the bottom of the image have a great amount of detail and are very dark compared to the rest of the image. The image seems to fade from bottom to the top. The main cumulus fractus cloud in the center of the image seems grainy and that would be one area where the image could be improved. Another cumulus fractus cloud was apparent in the sky when this image was taken. Mountain wave seemed to separate these two cumulus clouds and it would have been cool to see both cloud formations in the image.



**Figure 2:** Original image

**References:**

1. [http://weather.unisys.com/upper\\_air/skew/details.html](http://weather.unisys.com/upper_air/skew/details.html)
2. Bleeker, W. International Cloud Atlas: Abridged Atlas. World Meteorological Organization, 1956. 6-14,19-21,27-29.