

Collecting Upper Air Data

by PCAMS News editors Peg Zenko and Brian Hulse

On 2006/02/13 we had the opportunity to observe the launch of a weather balloon at sunset from the “inflation station” at the NWS Green Bay Office at 2485 South Point Road. The balloon launches are at 05:00 and 17:00 CST, 06:00 and 18:00 CDT. The inflation and launch were done by Scott Cultice, a hydrometeorological technician for upper air and area climatology. The following is a synopsis of *Upper Air Observations* from NOAA’s National Weather Service Forecast Office web page.

Twice a day, seven days a week hundreds of stations around the world release weather balloons into the atmosphere to obtain upper air weather information. Under the helium or hydrogen-filled balloon a small instrument, called a radiosonde, dangles on a string broadcasting continuous weather data back to the launch site.

The radiosonde consists of a radio transmitter, temperature sensor (called a thermistor), humidity sensor (called a hygistor), and pressure sensor. The winds aloft can be computed from the measured elevations and azimuth of the radiosonde at a given pressure (recall pressure decreases with elevation). The height of the balloon can also be calculated. So, from this simple instrument, the complete temperature, moisture, wind and pressure field in the vicinity of the launch station can be obtained. Data up to 100,000 feet can be collected.

The radiosonde instrument is visible as a small white box. The object just below the balloon is the parachute, which allows the instrument to float safely back to earth. Some are found and returned to the NWS for refurbishing so that the instrument can be re-used. Many, though, fall harmlessly into a forest or a large body of water. The data collected by the network of radiosonde stations is the basic ingredient in producing the forecast charts from which all forecasts are derived. The radiosonde data is transmitted over computer networks to all NWS stations, and to weather stations across the world.

<http://www.crh.noaa.gov/grb/>



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The release is a successful one against the darkening sky. Scott and Brian (right) discuss the launch as the balloon drifts out of sight.

