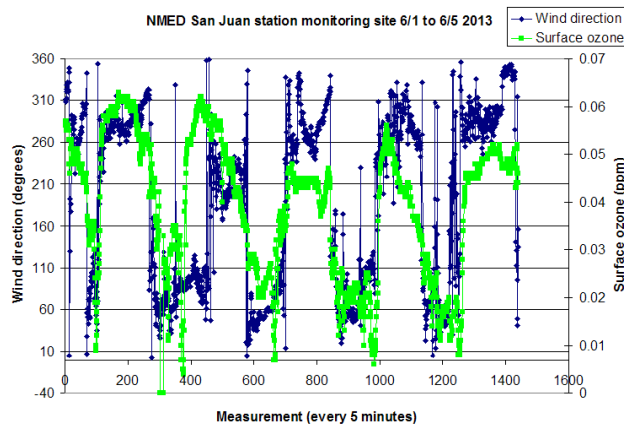


# Brewer 131 Calibration at 4-corners New Mexico Environment Department Site: Measurement and Calibration Issues

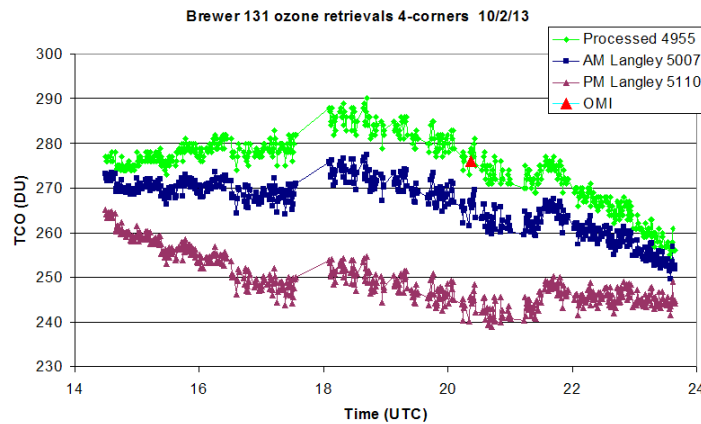
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The GMD NEUBrew Brewer #131 has been operating at the New Mexico Environmental Department's (NMED) San Juan power station monitoring site since July 2013. Large diurnal variations in retrieved total column ozone have been observed since the deployment of the Brewer. Validation of the World Meteorological Organization-traceable ozone calibration by comparing it to the derived extra-terrestrial calibration constant (ETC) by the Langley regression technique has uncovered an interesting daily pollution-dependent atmospheric condition. The pollution condition is most likely caused by two coal-fired electrical generating stations in the area. Preliminary Langleys show a considerable difference between the AM and PM ETCs, more than what might have been expected due to normal daytime evolution of the atmosphere. Large diel changes in surface ozone measurements are strongly correlated to surface wind direction. We study how changes in surface ozone might contribute to the large diurnal variation in the total column ozone measured by the Brewer.



**Figure 1.** The surface ozone exhibits a strong dependence on the diurnal wind direction at the 4-corners monitoring site.



**Figure 2.** The total column ozone measured with Brewer 131 for the normal processing ETC, the AM Langley ETC, and the PM Langley ETC. Note the decrease in total column ozone in the late afternoon. Total column ozone measured by Ozone Measuring Instrument during its overpass is denoted by the red triangle.