

## UV Products from NOAA-EPA Brewer (NEUBrew) Network

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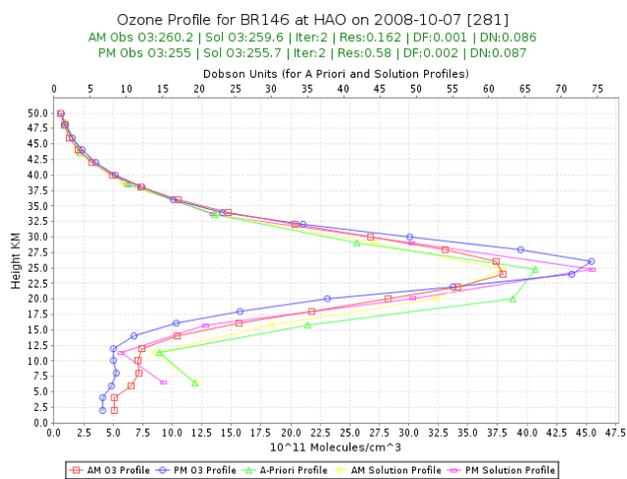
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The NEUBrew network is a collaborative monitoring and research effort between NOAA ESRL and EPA's Office of Air Quality, Planning and Standards (OAQPS). The network was established in the last half of 2006 by deploying MKIV Brewer spectroradiometers at six sites throughout the U.S. (University of Houston, TX, Table Mt., Boulder, CO, University of Colorado's Mountain Research Station, Niwot Ridge, CO, Raleigh, NC, Bondville, IL, and Ft. Peck, MT). Each spectroradiometer was calibrated radiometrically and calibrated for the ozone retrieval. An optimized schedule to obtain the maximal duty cycle was developed. It includes measurements of O<sub>3</sub> and SO<sub>2</sub> columns from direct sun and zenith radiance; dawn and dusk Umkehr measurements, zenith radiance NO<sub>2</sub> measurements and UV global irradiance scans in the 286.5 - 363.0 nm range. Data processing includes extensive automated diagnostic tools. The results in graphical form are available via the web page<sup>1</sup> and the text files via the public ftp site<sup>2</sup>. UV irradiance went through first two levels of quality control: irradiances are radiometrically calibrated with CUCF lamps, corrected for artifacts and corrected for internal stray light. Irradiances are used to calculate erythema and UV index.

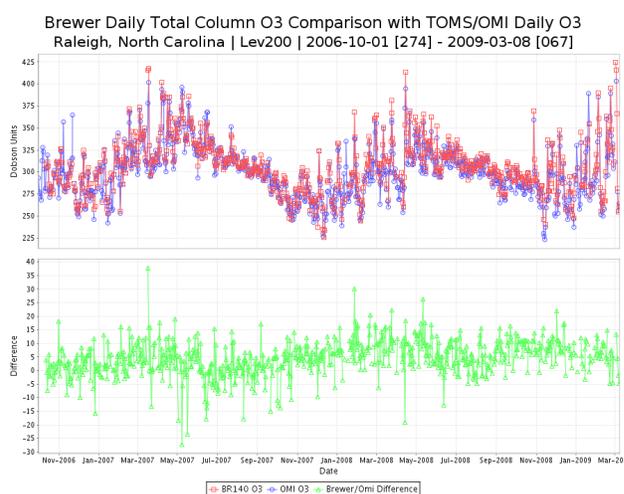
The UV index is compared with the 5-day forecast from the National Climate Prediction Center (NCEP). Umkehr data are processed daily to retrieve up to two (AM and PM) ozone vertical profiles. An additional extrapolation method was implemented to assess inter-annual ozone variability in troposphere. Ozone column level 2 data use a correction of the extraterrestrial constant (ETC) based on daily internal lamp measurements. Results are compared with daily OMI ozone. For some instruments that exhibited throughput drift of solar blind NiSO<sub>4</sub> filter, the correction is significant. Additionally, the ETC is verified against results from Langley plots. Raw data from O<sub>3</sub> and NO<sub>2</sub> measurements will also be used to retrieve aerosol optical depth (AOD) in 310 – 320-nm region and in 430-nm region.

<sup>1</sup> <http://esrl.noaa.gov/gmd/grad/neubrew/>

<sup>2</sup> <ftp://ftp.srrb.noaa.gov/pub/data/neubrew/data/products/>



**Figure 1.** Ozone vertical profile retrieved with Umkehr method.



**Figure 2.** Daily average ozone column level 2 compared with OMI ozone.