

NEUBrew - The NOAA EPA Brewer Spectrophotometer UV Monitoring Network

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NEUBrew is a collaborative monitoring and research effort between NOAA ESRL and EPA's Office of Air Quality, Planning and Standards (OAQPS). The six station network is comprised of Brewer Mark IV spectrophotometers, chosen for their multi-function measurement capability. Presently the network is producing spectral UV irradiance, total column ozone, and ozone profile. Future data products will include UV-aerosol optical depths and total column abundance of NO₂ and SO₂. The NEUBrew network was established in 2006 with stations located at Ft. Peck, MT, Table Mtn, Boulder, CO, the University of Colorado's Mountain Research Station (MRS) lab at Niwot Ridge, CO, the University of Houston, Houston, TX, the Bondville Environmental and Atmospheric Research Site at Bondville, IL and the North Carolina State University's agriculture field site at Raleigh, NC. The sites were chosen with specific research goals and represent a mixture of clean, mildly polluted and heavily polluted locations. In addition to the Brewer Mark IV spectrophotometers each site is equipped with considerable ancillary instrumentation that allows for expanded research opportunities.



Figure 1. NEUBrew Network Stations

The NEUBrew website provides access to calibrated network data, data products, and on-line graphics displays for data and diagnostics. Daily Total Column Ozone (Figure 2), Instantaneous UV Index and Daily Erythemal Dose (Figure 3), Ozone Vertical Profiles, and Instantaneous UV Irradiance are examples of the data products currently available through the website.

Some research goals of the network are how tropospheric pollution (ozone and fine particles) affects surface UV levels, what effects clouds and other meteorological conditions have on surface UV levels, how surface UV levels are affected by stratospheric ozone concentrations, and how surface UV levels and total column ozone levels compare to similar ground-based systems as well as satellite measurements.

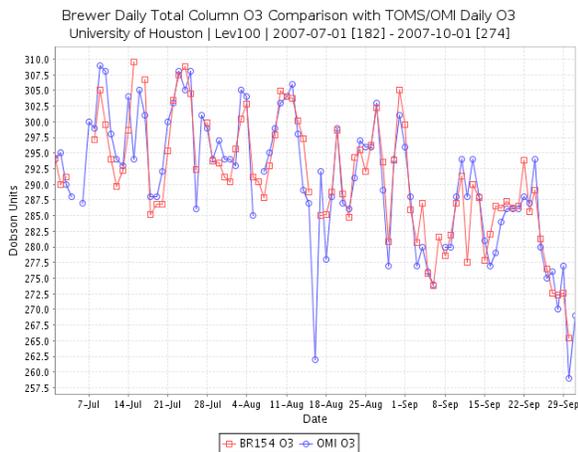


Figure 2. NEUBrew O₃ data comparison with OMI satellite data.

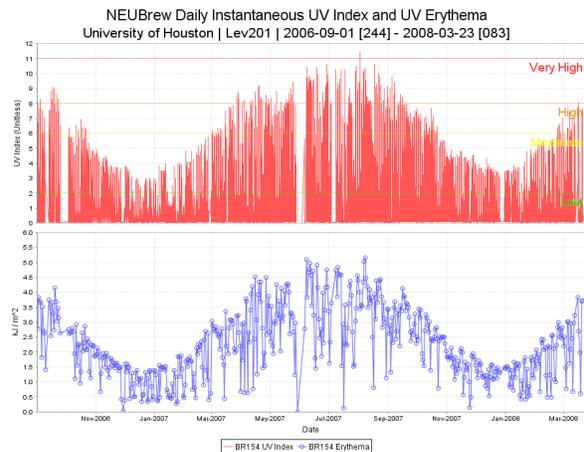


Figure 3. Long term NEUBrew UV Irradiance and Daily Erythemal Dose data.