

NEUBrew - The NOAA/Environmental Protection Agency (EPA) Brewer Spectrophotometer Ultraviolet (UV)-Ozone Monitoring Network Update

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The NEUBrew network is a monitoring and research effort between NOAA's Global Monitoring Division and EPA's Office of Air Quality, Planning and Standards. 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. 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 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 because they 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. The Brewer makes spectral scans of an internal reference lamp on a daily basis. This data along with opening and closing calibrations, a correction algorithm has been developed to update the instrument's response file on a daily basis. Results of its implementation are shown here. Additionally, a climatologically-based correction algorithm has been developed to adjust the total column ozone retrieval for seasonal ozone height and temperature dependence.

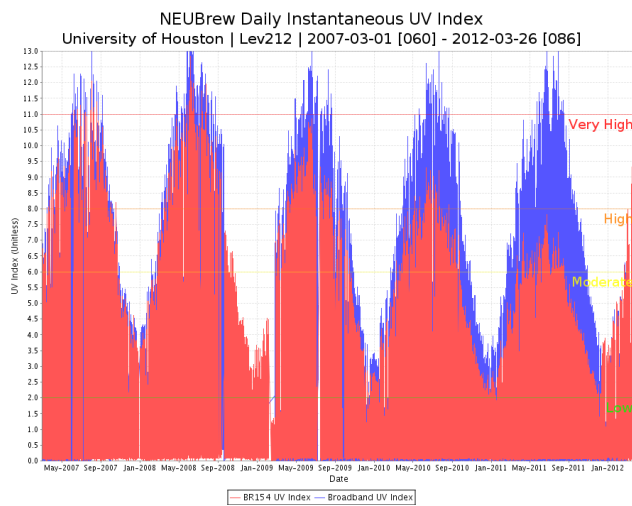


Figure 1. Brewer 154-Houston uncorrected UV index values from 2007 to 2011 compared to UV index from a collocated YES UVB-1.

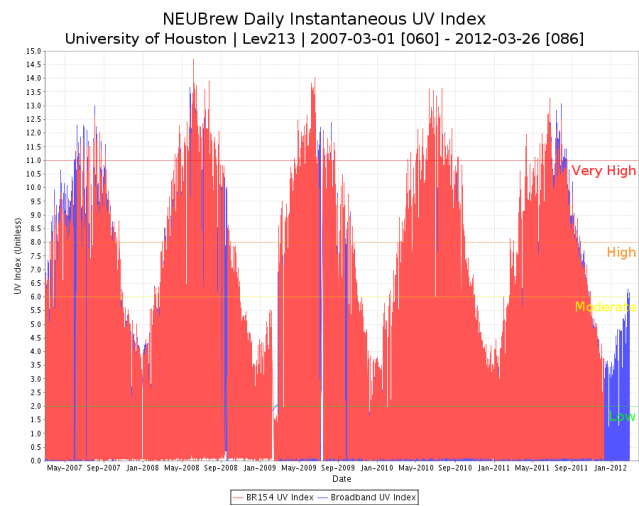


Figure 2. Corrected UV index values using an opening and closing calibration and incorporating a daily linear interpolation algorithm compared to UV index from a collocated YES UVB-1.