

New Categories for our Spectral Irradiance data is coming in April!

We will be replacing the:

### **Measured Irradiance**

- UV (Langley Calibrated)
- UV (Lamp Calibrated)
- Visible (Langley Calibrated)

With:

### **Spectral Irradiance Data**

- In Situ calibrated
- MLO calibrated
- Historical Lamp calibrated

The basic radiometric responsivity of the YES UVMFRSR, which is the main UV instrument in the network, was provided in two ways historically. A lamp-based responsivity was provided by CUCF (Central UV Calibration Facility, NOAA, Boulder) and an in situ responsivity, using the Langley method, was derived from measurements once the instruments had been deployed. The lamp calibrated data are recommended only when the in situ calibrated data are unavailable. It takes several days of cloud free mornings to establish a Langley calibration. The Langley calibration is updated as more cloud free data are gathered and is thought to be superior because it should account for soiling or cleansing of the diffuser surface. However, at more northern sites or sites with frequent cloudiness, in situ calibration is difficult, and thus, lamp responsivities are used when needed.

Due to budget downsizing, UVMRP could no longer fund the CUCF at NOAA to provide the lamp-based responsivity and the UV and Visible (Lamp Calibrated) data are out of date. Users will be allowed to only get data when the lamp-based responsivity is active under the new [Historical Lamp calibrated link](#).

Already underway is a process of using the high altitude site at MLO (Mauna Loa Observatory) to provide a substitute for the CUCF lamp derived responsivity. This method involves deployment of the UVMFRSR instrument at MLO, usually for a period of about a month, and applying the Langley technique. The responsivity derived in this way is fully equivalent to the basic lamp responsivity formerly provided by CUCF. The method is now being used operationally, under the [MLO calibrated link](#).

Only the locations that have been cycled through MLO are available, but that number will be increasing, as each site is visited by UVMRP personnel.

The [in situ calibrated](#) or Langley calibration process is basically a regression of a simplified Beer's law model of the transfer of the radiation through the atmosphere. In this method, no laboratory equipment is required although precise filter function information is needed. All the locations and data should be available under the In Situ calibrated link. The In Situ data will use the MLO calibrated responsivity at the beginning, until enough cloud free data is available for the on going Langley calibration.