

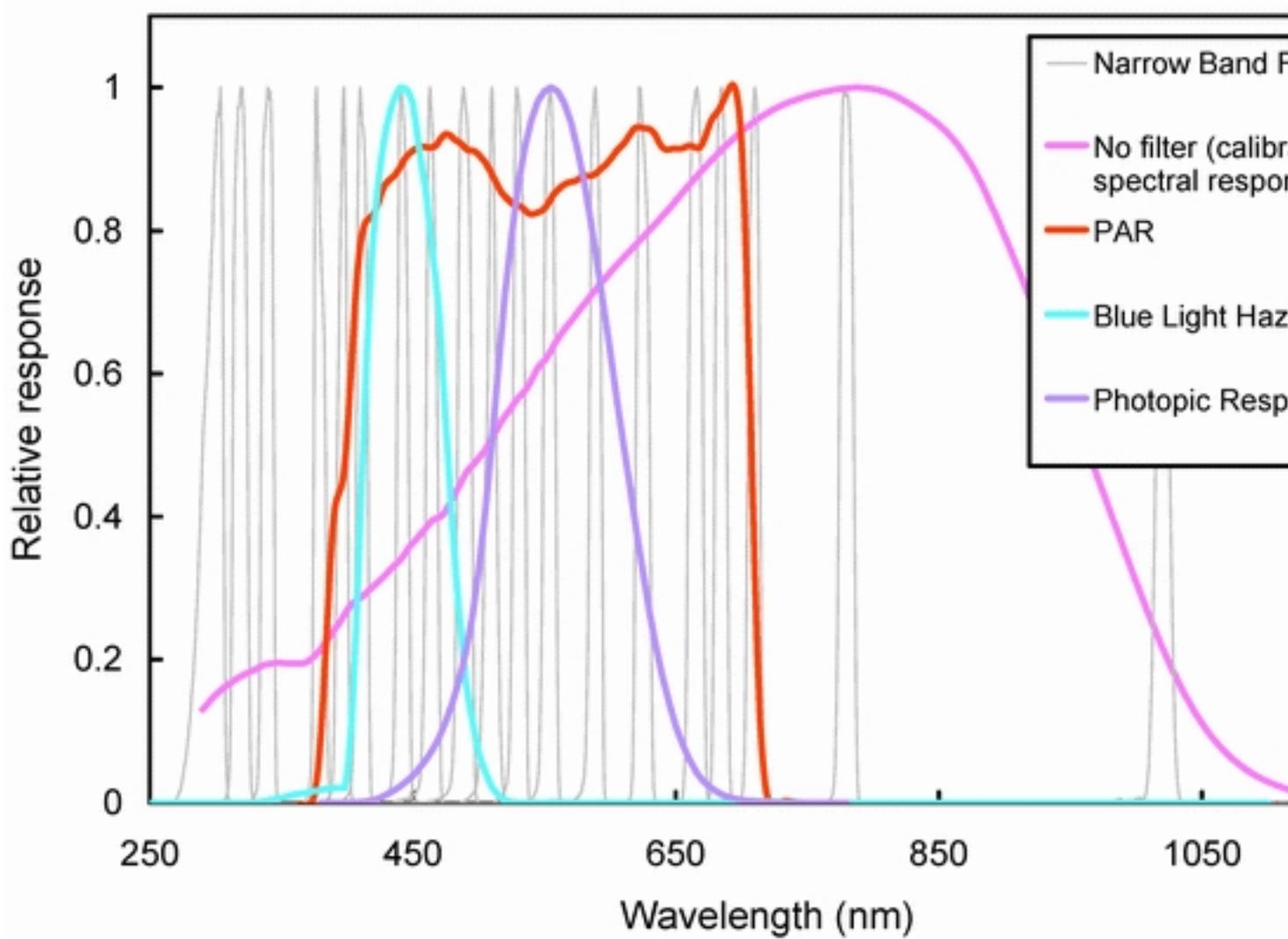
Spectral Response

Written by Rocky

Wednesday, 25 August 2010 07:57 - Last Updated Tuesday, 05 October 2010 07:31

Spectral Response refers to the level of response as a function of wavelength of a radiometer. Most radiometers offered by Biospherical Instruments either have a PAR response or a 10 nm wide narrow-band response which, when combined with an array of similar photodetectors across the spectrum, forms a spectroradiometer.

By default, [AMOUR](#) radiometers measure with the spectral response of a silicon photodiode (wide-band response between 250 and 1100 nm). If the wavelength distribution of the source being measured is known, and the instrument is ordered with a response function calibration, the optical flux can be measured.



The AMOUR radiometer features a selection of different filter assemblies that modify the spectral response of a silicon photodiode. The instruments can also be ordered with a large selection of filters, including narrow-band, and filters that mimic some physiological response

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function. These include:

- **Narrow-Band filters** (~10 nm bandwidth) are normally used when the source distribution is known and typically confined to a small region, such as a laser, or where it is combined in an ensemble of radiometers spaced through the spectral region of interest, such that the entire spectrum can be reconstructed.

- **PAR** (Photosynthetically Active Radiation), which is confined to the 400–700 nm spectral region and is weighted with a quantum response, as opposed to most weighted spectral responses. Calibration units include moles/(cm² s), einsteins/(cm² s), and quanta or photons/(cm² s), and their MKS variants.

- **Blue Light Hazard**, which is defined as the potential for a photochemical-induced retinal injury resulting from radiation exposure at wavelengths primarily between 400 nm and 500 nm.

- **Photometric Response**, which describes the perceived brightness to the human eye.
- **Erythema**, which describes the wavelength-dependent sensitivity of the human skin to sunburn.

Additional response functions, tailored to customer needs, are available.