Biospherical Instruments Inc.

Optical Instruments for Environmental Monitoring

GUV-511 and GUV-541 Ground-based Ultraviolet Radiometer Systems

Typical deployment of GUV-511 / 541

Biospherical Instruments' GUV-511 and GUV-541 Ground-based Ultraviolet (UV) Radiometer Systems are designed to monitor UV radiation, providing key UV wavelength data for biological exposure studies. These data also allow the extraction of cloud optical thickness and total column ozone—two critical variables used in modeling the solar spectrum.

Biospherical Instruments has pioneered efforts in designing and manufacturing ground-based and underwater UV radiation instruments. We are currently responsible for the design and maintenance of the United States National Science Foundation (NSF) UV Radiation Monitoring Network (Booth et al., 1994: Stamnes et al., 1991; Lubin et al., 1989). The heart of the network is BSI's SUV-100, a double monochromator-based spectroradio-meter system designed for high spectral resolution measurements of UV radiation. The SUV-100 has proven itself at three sites in Antarctica, one site in Argentina, and two sites in the United States (Barrow, Alaska and San Diego, California).

The GUV instruments, developed with funding from the Office of Naval Research SBIR Program, are an economical and portable alternative to the SUV-100 for ground-based monitoring of key UV wave-lengths.

Originally introduced in 1992, the GUV radiometers are now well established in the field. The systems can be deployed individually or in networks and are being used to monitor geographic variations in UV exposure in countries such as Argentina, Norway, and the United States.

Key Features

* Measures 5 channels of surface UV irradiance (305, 320, 340, and 380 nm, and either Photosyn-thetically Active Radiation (PAR: 400-700 nm) or 313 nm

* Specialized, highly accurate, low-noise sensors with optimized interference filters detect radiation in the UV-B (290-320 nm) and UV-A (320-400 nm) regions of the spectrum, as well as PAR

* Aluminum housing that can be mounted on a mast for long-term UV monitoring

* Environmentally sealed and temperature-stabilized for long-term operation in harsh environ-ments

* Internal sensor that measures photodiode array temperature

* RS-232 serial output for connection to a PC

* Can be easily deployed individually or in networks