Black and White (B/W) Pyranometer- Eppley Lab

Usage: designed to measure broadband solar irradiance
Spectral range: 0.2 – 3.6 um (with Infrasil II quartz dome)
Remarks: different construction than PSP; used without ventilation for comparison to historical measurements

Website: http://www.eppleylab.com/
Lab:
SMART

CGR4 Pyrgeometer- Kipp & Zonen

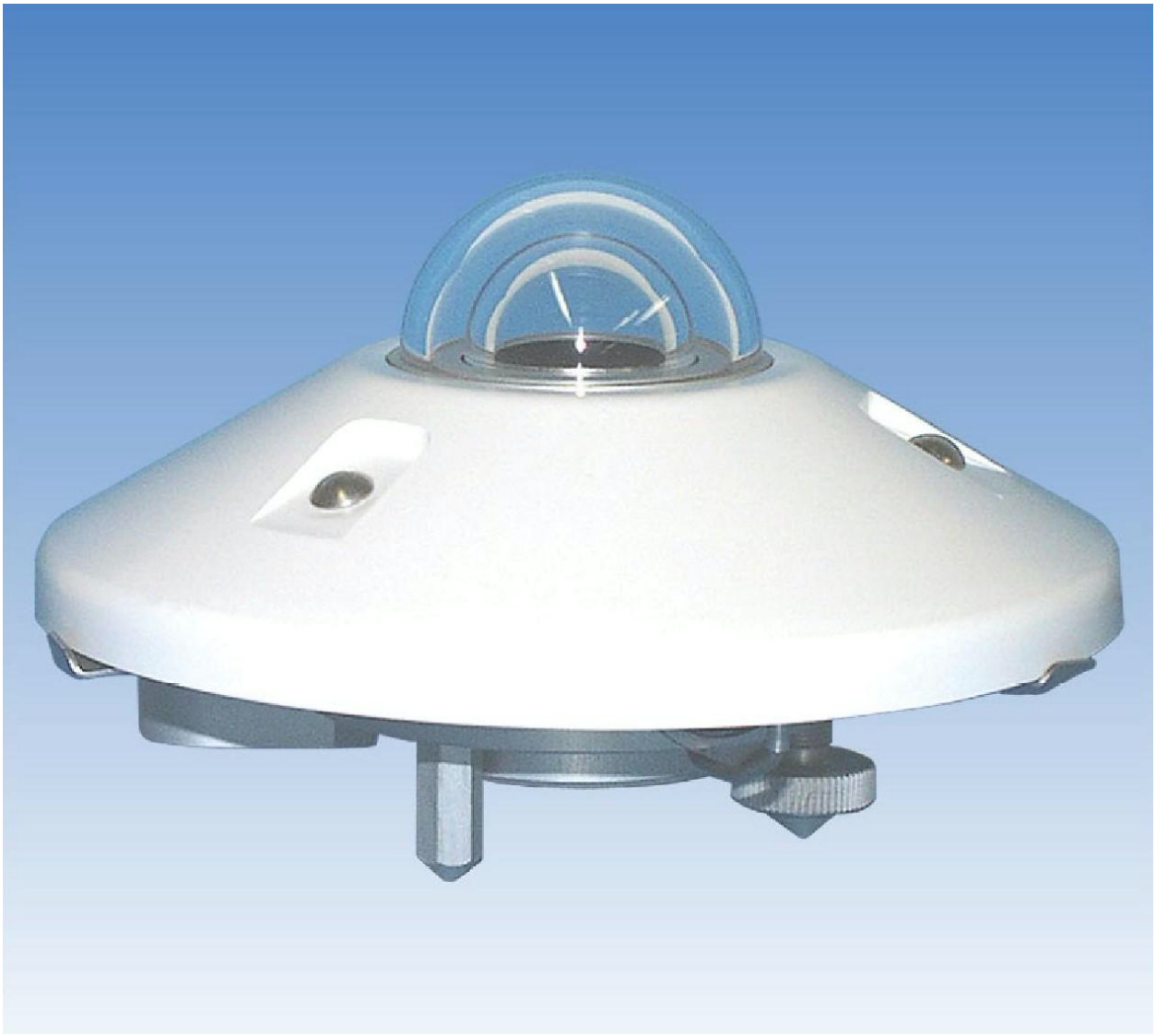
Usage: designed for measuring broadband infrared irradiance
Spectral range: 4.5 to 42 µm

Website: http://www.kippzonen.com
Lab:
SMART

CH1 Pyrheliometer- Kipp & Zonen

Usage: designed to measure broadband direct solar irradiance
Spectral range: 0.2 – 4 µm
Remarks: mounted on a solar tracker

Website: http://www.kippzonen.com
Lab:
SMART



CM21 Pyranometer- Kipp & Zonen

Usage: designed to measure broadband solar irradiance
Spectral range: 0.295 – 2.8, 0.4 – 2.75 and 0.695 – 2.75 µm (filters can be changed for different cutoffs. We use Schott Glass Filters)
Remarks: mounted on a solar tracker

Website: http://www.kippzonen.com
Lab:
SMART

Micro Pulse Lidar (MPL)- Sigma Space

Usage: designed for aerosol and cloud detection and ranging
Wavelength: 523 nm
Remarks: eye–safe, vertically oriented for determining the altitude distribution of aerosols and clouds, as part of the global Micro–Pulse Lidar NETwork (MPLNET)

Website: http://mplnet.gsfc.nasa.gov/
Lab:
SMART

Microtops II Sun Photometer- Solar Light Company

Usage: designed to measure aerosol optical depth and column water vapor
Spectral channels: 440, 500, 675, 870, 936 nm
Remarks: handheld with factory configurable channels (340, 380, 440, 500, 675, 870, 936, 1020 nm), supplements CIMEL data

Website: http://www.solarlight.com/products/sunphoto.html
Lab:
SMART

Multi-Filter Rotating Shadowband Radiometer (MFRSR)- Yankee Environmental Systems

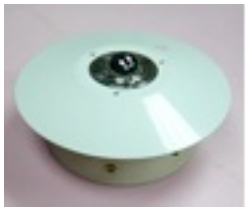
Usage: designed to measure global, diffuse, and direct-normal components of spectral solar irradiance
Spectral channels and range: 415, 500, 615, 670, 870, 940 nm (bandwidth: ~10nm) and 300 – 1100 nm.

Website: http://www.yesinc.com/
Lab:
SMART

Normal Incidence Pyrheliometer (NIP)- Eppley Lab

Usage: designed to measure direct solar irradiance.
Spectral range: 0.295 – 2.8, 0.4 – 2.75 and 0.695 – 2.75 μm (filters can be changed for different cutoffs. We use Schott Glass Filters)
Remarks: mounted on a solar tracker

Website: http://www.eppleylab.com/
Lab:
SMART



Precision Infrared Radiometer (PIR)- Eppley Lab

- Measures broadband infrared irradiance
- These radiometers operate alongside our modified PSP radiometers, which will help us to correct for the dark offset in historical datasets
- **Spectral range:** 3.5 – 50 μm
- **Website:** http://www.eppleylab.com/

Lab:
SMART

Precision Spectral Pyranometer (PSP) - Eppley Lab

- Measures broadband solar irradiance data
- We have modified several of these instruments to monitor pressure inside the sealed glass domes in an attempt to correct for the well-known dark offset (the presence of a voltage at night, due to thermal graidents across the instrument, that are not physically real); we call this the Thermal Dome Effect (TDE) correction
- **Spectral range:** 0.295 – 2.8, 0.4 – 2.75 and 0.695 – 2.75 μm
- **Website:** **http://www.eppleylab.com/**

Lab:
SMART

Solar Spectrometer (ASD FS3)- Analytical Spectral Devices

Usage: designed to measure spectral solar radiance/irradiance or reflectance
Spectral range: 350–2500 nm
Remarks: operated in two automated deployment modes – sun photometry mode whilst mounted to a solar tracker; ground surface reflectance mode when mounted to an automated robot (can be operated in additional modes due to its high portability)

Website: http://www.asdi.com/
Lab:
SMART

Solar Tracker- Kipp & Zonen

Usage: all-weather, reliable and affordable tracking and positioning instrument

Website: http://www.kippzonen.com/
Lab:
SMART

Total Sky Imager (TSI)- Yankee Environmental Systems

- Collects 360-degree images of sky conditions
- We use this simple but clever instrument to visually confirm if what the radars are telling us is true
- **Website:** http://www.yesinc.com/

Lab:
SMART
COMMIT

Total Solar Pyranometer (TSP)- Yankee Environmental Systems

Usage: designed to measure broadband solar irradiance
Spectral range: 0.3 – 3 µm
Remarks: non–thermopile design

Website: http://www.yesinc.com/
Lab:
SMART

UV Irradiance Meter (NILU - UV)- Norwegian Institute for Air Research

Usage: designed to measure narrowband/broadband UV irradiance
Spectral channels and range: 305, 312, 320, 340, 380 nm (bandwidth: ~10nm) and 400 – 700 nm

Website: http://www.nilu.no/
Lab:
SMART

UV-Vis Spectrometer (PANDORA)

Usage: designed to measure sun and sky radiance in the UV/visible spectrum
Spectral ranges: 265–500 nm (spectral resolution 0.42–0.52 nm)
Remarks: used to retrieve total column amounts of O3, SO2, NO2, HCHO, and H2O, vertical profiles of NO2 and O3, as well as aerosol information

Website: http://acdb-ext.gsfc.nasa.gov/Projects/Pandora/index.html
Lab:
SMART