

Calibrating Space Radiometers to Ground-based TSI Standards

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PMOD/WRC has a long tradition of maintaining standards for ground-based solar irradiance measurements, such as the World Radiometric Reference (WRR). The radiometric scale defined by the WRR has also been transferred to several space radiometers, including the PMO6 on SOVA2, VIRGO, and SOVIM. Special care needs to be taken when transferring the WRR scale to space, as the sensitivity of the radiometer might change in vacuum. On the other hand, using the sun as a source for the calibration reduces the uncertainty of cross-channel calibrations. Moreover, if properly set up the calibration procedure implicitly includes corrections for diffraction, scattering, and spectral sensitivity. We will describe the calibration facilities at PMOD/WRC, present the calibration procedures, as well as discuss its advantages and how it can complement laboratory experiments to calibrate space TSI radiometers.