

Fig. 2. Upper panel: the SAO2010 irradiance reference spectrum ($\text{photons s}^{-1} \text{cm}^{-2} \text{nm}^{-1}$). Lower panel: irradiance on a logarithmic scale.

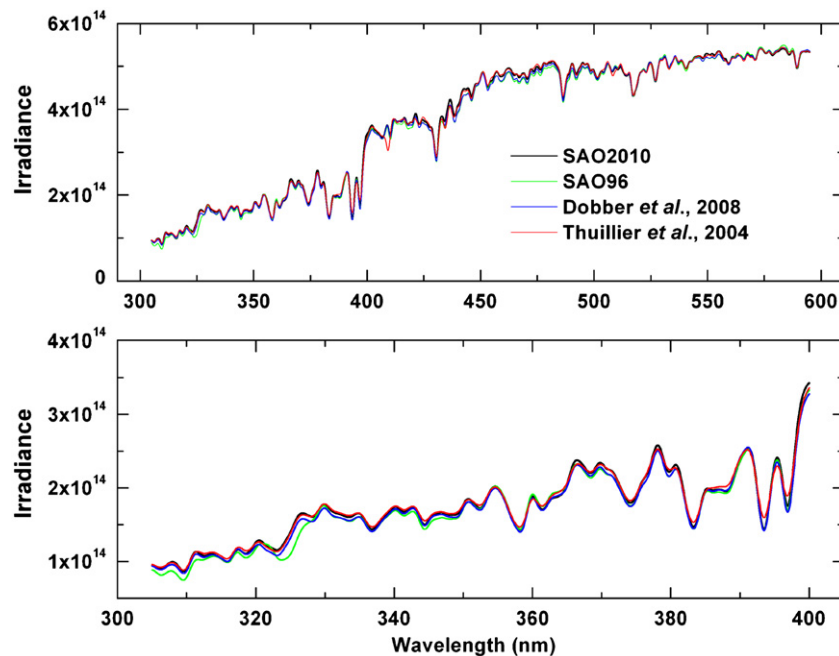


Fig. 3. Comparisons among irradiance spectra: the new SAO2010 spectrum, the SAO96 spectrum, the Dobber et al. [18] spectrum, and the extra-atmosphere Thuillier et al. [10] spectrum. Irradiances are in $\text{photons s}^{-1} \text{cm}^{-2} \text{nm}^{-1}$.

whose spectra vary at low spectral frequency, including aerosol and cloud content and surface albedo.

4.1. Wavelength and ITF calibration

Wavelength calibrations are performed using a cross-calibration procedure derived from the method developed

for fitting galactic redshifts [22]. Initially, segments of two spectra were cross-correlated in Fourier transform space by transforming, multiplying the transforms, and back-transforming the result. First studies on GOME-1 data [23] employed the XCSAO task of the RVSAO radial velocity package developed at the SAO Telescope Data Center (<http://tdc-www.harvard.edu/TDC.html>) for the