

SOLAR FLUX ATLAS FROM 296 TO 1300 nm

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ABSTRACT: The solar flux atlas is presented and some basic information on the observations is given.

The "Solar Flux Atlas from 296 to 1300 nm" by Kurucz, Furenlid, Brault and Testerman (1984) is a high S/N spectrum of integrated sunlight, produced mainly to serve as a reference in stellar spectroscopy. The Fourier transform spectrometer of the McMath solar telescope at Kitt Peak offered an almost ideal instrument for such a purpose; a relatively short observing time could give a large wavelength coverage at extremely high S/N and spectral resolution. Observations for the atlas were carried out in the later part of 1980 and the first half of 1981. The efforts of Dr. Kurucz were crucial in bringing the atlas to completion and in obtaining the funding commitment needed to produce the printed version.

The S/N at continuum level of the full resolution atlas is probably not less than 2000 at any point longward of 303 nm and is typically somewhat less than 3000. The resolution ranges from around 350 000 in the UV to around 500 000 in the near IR. Being a FTS spectrum, the instrumental profile is essentially perfect with no stray light present; an uncertainty in the zero point at the 0.2% level in UV and visual mimics a corresponding possible level of scattered light. Another concern in very high S/N work is the absorption by ozone, which extends through the visible part of the spectrum.

The flux spectrum has been ratioed to the adopted continuum before being plotted. The continuum has been determined by global fits to high points in the original FTS scans, each fit covering from around 30 nm in the UV to around 300 nm in the IR. The continuum determination is thus entirely empirical and yields strictly speaking a quasi-continuum. Deviations from the true solar flux continuum are of course particularly marked in the UV and blue part of the visible.

When the atlas is used as a reference in stellar work it is important to strive for consistency between solar and stellar spectra, for instance in continuum location. The absence of stray light in the atlas has no significant impact on equivalent widths for most applic-

ations but must be considered in profile work.

The printed version of the atlas may well be used as a note pad for recording various data concerning individual spectral lines; at a price of \$13.00 this seems a perfectly reasonable suggestion!

The Solar Flux Atlas can be purchased for US \$13.00 from:
National Solar Observatory
Sunspot, New Mexico 88349, U.S.A.

A tape version can be obtained by sending a 2400-foot tape to:
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