Homogeneous data set of coronal green line intensities over the period 1964–1990

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Abstract. Daily values of the green corona (530.3 nm, Fe XIV) line intensities over the period 1964-1990 are available on a PC diskette.

Key words: The Sun-solar corona

1. Observations and results

The intensity of the green coronal line is routinely measured at several coronal stations around the world. Each set of measurements includes a series of limb observations with a lag of 5° in the positional angle, beginning at the north solar pole towards the east. The results obtained at one coronal station may differ from those obtained at another because the measurement techniques differ, for example, in photometry methods, the height of observation above the solar limb, or which result from their natural changes (a rotation, rapid changes above the very active photospheric region), etc.

The homogeneous coronal green line data set, presented here, was created according to Rybansky's method (1975), using values from different coronal stations, reduced to the Lomnický Peak photometric scale. The Lomnický Peak coronal intensities are measured at a height of 40″ (1.04 $R_\odot$) above the sun's limb and expressed in absolute coronal units (one coronal unit is expressed as the equivalent width of 10^{-16} m of the solar disk center continuum at the same wavelength as has the coronal being measured). The absolute values of intensities are obtained by calibrating the instument using a disk center measurement at the same wavelength just before and after the observation. This homogeneous coronal data set is used, e.g. for calculating the coronal index of solar activity-CI (Rybanský 1975), which is now available over the period 1964-1991 (Figure 1).

Daily green line intensities of the homogeneous data set, covering the period 1971-1985, have already been published (c.f. Table 1 in Rybanský 1979, 1980,

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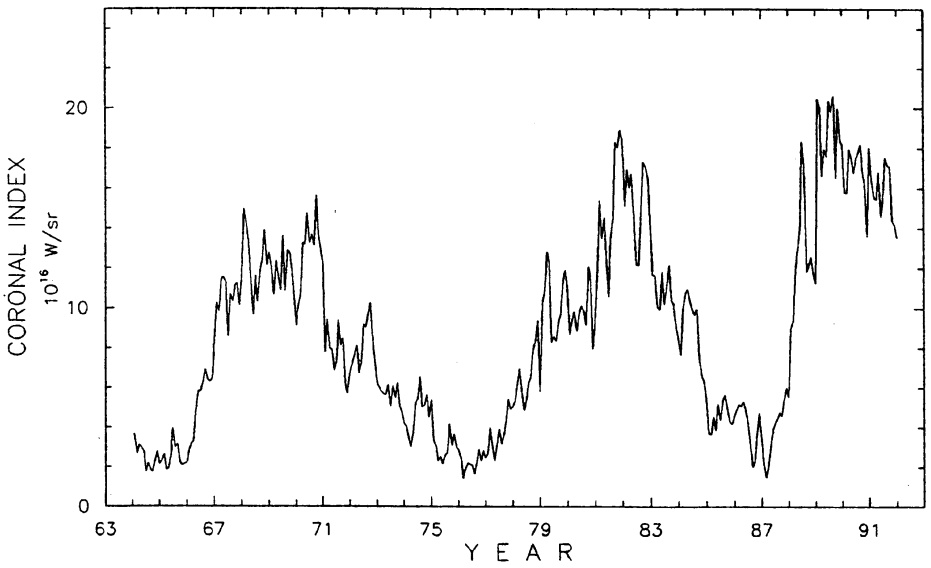

Figure 1. Monthly means plot of CI over the period 1964-1991

1983, 1986, Rybanský, Rušin and Dzifčáková 1991 and references therein) as supplements to the CI papers, e.g. Rybanský, Rušin and Dzifčáková (1988 and references therein).

In the present paper, homogeneous green line intensities, covering the period 1964-1990, are available on a PC diskette, distributed via Solar Geophysical Data (Boulder, USA), or directly by the authors. How to use the data is explained directly on the diskette.

The average values of intensities for a given heliographic latitude and day, published in the supplements mentioned above as Table 2, e.g. Rybanský et al. (1991 and references therein), will be prepared in the same way later on.

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