Homogeneous data set of coronal line intensities: additions for 1939 - 1963 and 1991

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Abstract. Additions for the period 1939 (the beginning of the emission corona observations) - 1963, and for the year 1991 have been made to the homogeneous coronal data set (HDS) for the period 1964 - 1990 (Rybanský and Rušin 1992). The data are available on PC diskettes.

Key words: the Sun – solar corona

1. Observations and results

As we recently reported (Rybanský and Rušin 1992) the homogeneous coronal data set (HDS) for the period 1964-1990 is available on PC diskettes. In 1993, we extended the coronal index of solar activity (CI) for the period 1939-1963 (Rybanský et al. 1994b) and for the years 1988 - 1991 (Rybanský et al. 1994a). The CI for the entire period 1939 - 1991 is shown in Figure 1.

The CI computations are based on the HDS for the same period. To prepare the HDS we used coronal data nearly from all coronal stations world-wide. The data for the 1939-1946 period were taken from Waldmeier (1951), and the data from Pic du Midi were provided by courtesy of Dr. J. C. Leroy on PC diskettes. The data from other coronal stations were adopted from the "Quarterly Bulletin on Solar Activity". The method of homogenizing the data has been described in earlier papers, and their complete list is being published by Rybanský et al. (1994a), together with the 1988 - 1991 CI. The HDS and CI are available on PC diskettes for the entire period 1939 - 1991.

Apart from the CI computation, the HDS can be used for many other studies, e.g. the time-latitudinal distribution (and development) of the solar corona brightness over a solar cycle activity and its connection with other features of solar activity. In earlier papers we discussed the advantages and disadvantages of CI. Similarly, we demonstrated the different ways in which HDS could be used, e.g. to determine the distribution of the green corona brightness in front of the solar disk which could replace X-ray images of the Sun in the period before these data became available from the satellite. Besides, if the monthly means of CI over the period 1939-1991 are correct, and we have no reason to believe they

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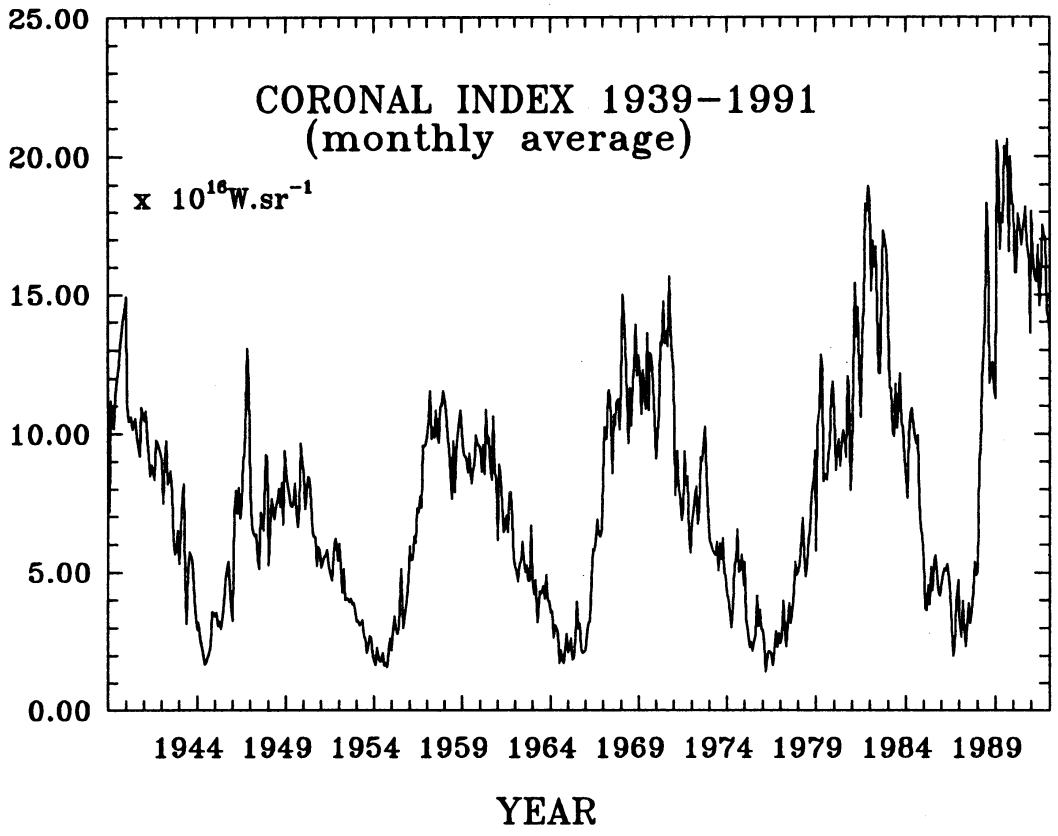

Figure 1. The CI course (monthly means) over the entire period 1939-1991

are not, than the green corona emission has increased in the maxima of solar cycles nearly twice over the period in question.

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