

Under Development: 20 December 2013 (WFD)

Readme: Coronal Index of Solar Activity

Coronal Index

The activity index tabulated here measures the total energy emitted by the sun's outermost atmospheric layer (the corona) at a wavelength of 530.3 nanometers. It gives the radiant energy emitted by the entire visible corona within the Fe XIV spectral line which is the emission from excited, ionized iron atoms.

Supporting text from Mavromivhalaki et al. (2005): The coronal index of solar activity (CI) belongs to the indices characterizing the coronal activity of the “Sun as a star” and represents the total irradiance of the green corona emitted by the Sun's visible hemisphere. CI is calculated using homogenized Fe XIV 530.3 nm coronal emission line ground-based measurements from the worldwide net of the coronal stations (Rybansky', 1975; Rybansky' et al., 1994, 2001; Xanthakis et al., 1990). This index reflects the physical processes that take place in the interior of the Sun. The periodic character of coronal index shows a similar course with the solar cycle as, for instance, the Wolf's sunspot number. Except of the dominant 11-year periodicity, CI also contains many other periodicities (Rus'in and Zverko, 1990).

AVAILABLE DATASETS

Dataset: Slovak Coronal Index (1939 – 2008)

Description – Tables of daily, monthly, and yearly mean intensities are summarized for the years 1939-2008. These irradiances were computed from photometric patrol observations made at (as many as) 8 ground-based stations. All line emissions have been converted with a linear transformation to a common intensity scale by shifting position angles of the measurements and by comparing values taken at all the sites. Lomnický Peak in the Slovak Republic serves as the reference station for calculating the index.

Dataset provider: Astronomical Institute, Slovak Academy of Sciences, SK-059 60 Tatranska Lomnica Slovak Republic (POC: [Dr. Voyto Rusin](#))

- Daily coronal index values – [Tables: Listing](#) (1939-2008)
- Monthly coronal index values – [Table: Listing](#) (1939-2008)
- Years coronal index values – [Table: Listing](#) (1939-2008)

Note: The prominence observations and real-time photoelectric coronal line observations at the Lomnický Stit Observatory were discontinued in September 2009 due to personal changes.

Dataset Status: Inactive

Dataset: Lomnický Coronal Index (1939 – 1998)

Description – TBD. This dataset is similar to the Slovak Coronal Index although daily values are somewhat different. This may be the single station values for Lomnický as opposed to the comprehensive (multi-station) Slovak Coronal Index

Dataset provider: Astronomical Institute, Slovak Academy of Sciences, SK-059 60 Tatranska Lomnica Slovak Republic (POC: [Dr. Voyto Rusin](#))

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- Daily coronal index values – [Tables](#) (1939-1998)

Dataset Status: Inactive

References

Mavromichalaki, H., B. Petropoulos, C. Plainaki, O. Dionatos, I. Zouganelis (2005), Coronal index as a solar activity index applied to space weather, *Adv. Space Res.*, *35*, 410-415.

[Rybansky \(1975\)](#)

[Rybansky et al. \(2001\)](#)

Rybansky et al. (1994), Coronal Index of Solar Activity: Years 1939-1963, *Solar Phys.*, *152*, 153-159.

Rybansky et al. (1994), Coronal Index of Solar Activity VII, Years 1988-1991, *Solar Phys.*, *152*, 487-495.

[Xanthakis et al. \(1990\)](#)

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