

Note: It is recommended that it would be appropriate courtesy to acknowledge in publications that the flare index data were calculated by the staff of Kandilli Observatory. The following statement is suggested: "Flare Index Data used in this study were calculated by T.Atac and A.Ozguc from Bogazici University Kandilli Observatory, Istanbul, Turkey"

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FLARE INDEX

Kleczek (1952) first introduced the quantity "Q = i x t" to quantify the daily flare activity over 24 hours per day. He assumed that this relationship gives roughly the total energy emitted by the flares. In this relation, "i" represents the intensity scale of importance and "t" the duration (in minutes) of the flare. Some reviews of flare activity using Kleczek's method are given for each day from 1936 to 2000 by Kleczek (1952), Knoska and Letfus (unpublished), Knoska and Petrusek (1984), Atac (1987) and Atac and Ozguc (1998). The daily flare index of the 21,22,23 Solar Cycles was determined by using the final grouped solar flares which are compiled by NGDC (National Geophysical Data Center). It is calculated for each flare using the formula:

$$Q = (i \times t)$$

where "i" is the importance coefficient of the flare as shown in Table 1, and "t" is the duration of the flare in minutes.

Table 1

Importance	i	Importance	i
SF,SN,SB	0.5	2B	2.5
1F,1N	1.0	3N,3F,4F	3.0
1B	1.5	3B,4N	3.5
2F,2N	2.0	4B	4.0

To obtain final daily values, the daily sums of the index for the northern and southern hemispheres and for the total surface are divided by the total time of observation of that day calculated from Solar-Geophysical Data, Comprehensive Reports.

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References

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Atac, T.: 1987, *Astrophys. Space Sci.* 135, 201.
Ozguc, A. and Atac, T.: 1989, *Solar Phys.*, 123, 357-365
Ozguc, A. and Atac, T.: 1994, *Solar Phys.*, 150, 339-346, 1994
Ozguc, A. and Atac, T.: 1996, *Solar Phys.*, 163, 183-191, 1996
Atac, T., and Ozguc, A.: 1996, *Solar Phys.*, 166, 201-208, 1996
Atac, T., and Ozguc, A.: 1998, *Solar Phys.*, 180, 397-407
Kleczeck, J.: 1952, *Publ. Inst. Centr. Astron.*, No. 22, Prague.
Knoska, S and Petrasek, J.: 1984, *Contr. Astron. Obs. Skalnaté Pleso* 12, 165.

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