

## THE PERIODICITY OF THE SOLAR FLARE PRODUCTION DURING THE ACTIVITY CYCLE 22

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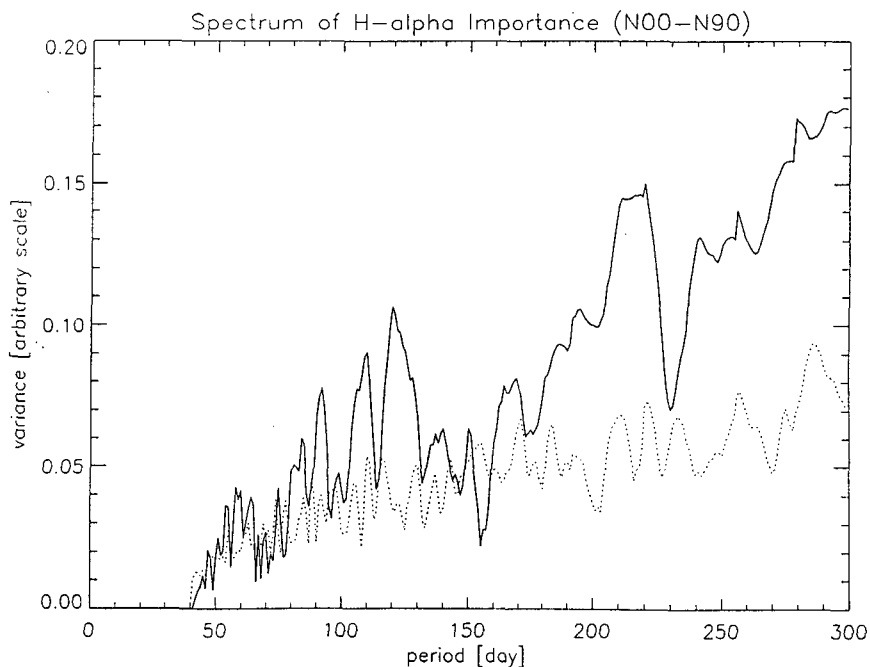
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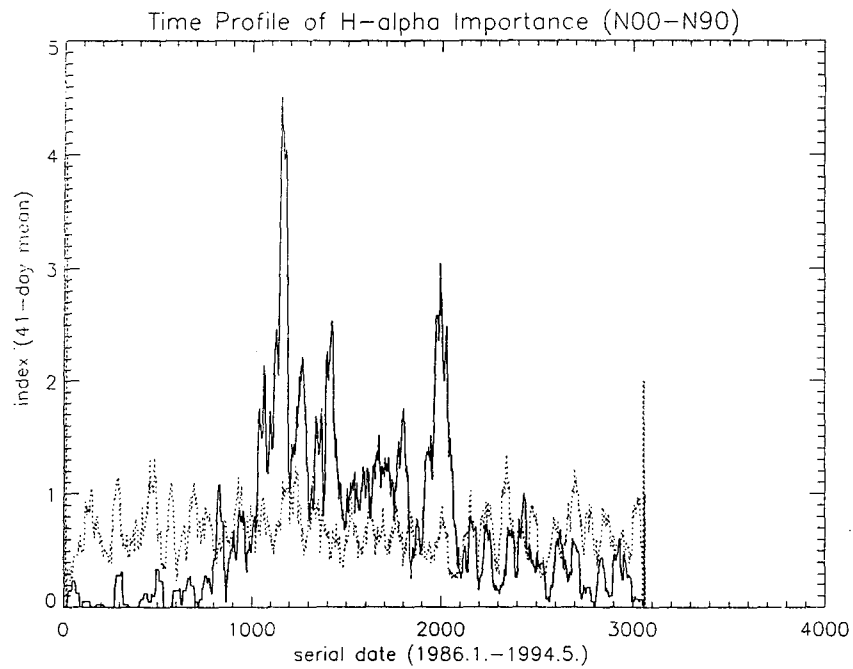
### ABSTRACT

Using the data on the occurrences of the  $H\alpha$  and soft X-ray flares for the time interval of January 1, 1986-May 31, 1994, we have studied the middle term(30-300days) periodicities of the solar flare production during the activity cycle 22. Power analysis of the time series of daily  $H\alpha$  flare index in the northern hemisphere shows prominent periodicities at 220, 120, 109, and 92 days(see Figures 1(a) and 1(b)), while in the southern hemisphere, those at 267,213,183,167, and 107 days are apparent, though their peaks are not so distinct as those in the northern hemisphere. Periodogram of daily soft X-ray flare index also reveal the periodicities at 279, 205, 164, 117, and 91 days in the northern hemisphere, and at 266, 220, 199, 162, 120, and 100 days in the southern hemisphere. However, the 155-day periodicity reported for the earlier cycles, 19, 20, and 21, could not be confirmed in our analysis. (to be submitted to Solar Physics; an extended abstract)

*Key Words* : Sun: activity, Sun:flare, Sun:periodicity



**Fig. 1a.**— Time variation of 41-dat running average of the  $H\alpha$  daily index of flare occurrences in the northern hemisphere during January 1986 to May 1994. For comparison, time variation of the "randomized data" (dotted line) is superimposed on that of the actual data(solid line).



**Fig. 1b.**— Power spectrum of Fig.1(a). The spectrum of the randomized data (dotted line) is superimposed on that of the actual data for comparison(solid line).