M26b HOW MANY FLARES OCCUR IN AN ACTIVE REGION? : Estimation of Flare Activity Level

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We constructed a catalog of active regions and their flare activities from 1986 through 1996 using sunspot region lists and X-ray flare lists of *Solar Geophysical Data*. We counted up all X-ray flares with NOAA active region number and X-ray flare class, and summarized the flare activity levels of all active regions. We estimated the flare activity level of each active region in the two ways, by number and by energy (i.e. sum of peak fluxes).

Main results are as follows :
(1) Most active regions (87 %) were non-delta regions and rarely produce flares.
(2) Almost all X-class flares (90 %) occurred in delta-type regions.
(3) Only 16 % of delta-type regions produced X-class flares.
(4) The double peaks of sunspot numbers and flare activity in the 22nd solar cycle were well correlated with the double peaks of delta-type region numbers.
(5) The energy of flares is a suitable indicator of flare activity level compared with the number of flares.

We propos for definition of the term 'flare-productive' : an active region whose sum of peak fluxes exceeds 10^{-2} [erg/cm^2/s] and 10^{-1} [erg/cm^2/s] should be called 'flare-productive' and 'highly flare-productive' region, respectively. According to this definition, 22 % of all active regions are 'flare-productive' and 7 % are 'highly flare-productive' regions.