

JUNE 1987 GEOMAGNETIC INDICES BULLITIN(continued)

DST FOR JUNE 1987 has not been received, so we are printing without it. We will sent it out as soon as we receive it. Thank you for your patience.

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- Kp PLANETARY 3-HOUR RANGE INDEX. K-indices isolate solar particle effects on the Earth's magnetism by classifying into disturbance levels the range of variation of the most unsettled horizontal field component during a 3-hour period. Each activity level relates almost logarithmically to its corresponding amplitude. Three-hour indices discriminate conservatively between true magnetic field perturbations and the regular quiet-day variations produced by ionospheric currents.
- Ap PLANETARY A-INDEX. The A-index ranges from 0 to 400. A indices are daily averages of 'a' indices which convert K-values to a linear scale in field units--a scale that measures equivalent disturbance amplitude of a station at which K=9 has a lower limit of 500 nanotesla (nt). Ap is the daily average of A indices from a global array of observatories.
- Dst DISTURBANCE AMPLITUDE-STORM TIME. Dst tracks variations in the solar-induced electric currents flowing about 5.6 Earth radii above the planet's surface. Each hourly value is the average symmetric disturbance amplitude of the horizontal component recorded at four stations, reduced to equatorial changes. Values are given in nt, and they can be either positive or negative; during a storm they become strongly negative.
- Cp PLANETARY DAILY CHARACTER FIGURE. The Cp-figure is a standardized version of the Ci-figure formerly published and is derived from the indices Kp by converting the daily sum of ap into the range 0.0 (quiet) to 2.5 (highly disturbed).
- Jul JULIAN DAY or day of the year. This number resets to 1 after the end of the year, January 1=1.
- Bart DAY NUMBER OF BARTELS 27-DAY CYCLE. The recurrence of geomagnetic activity every 27 days reflects their solar source. J. Bartels defined a series of 27-day periods to track more easily times of unsettled magnetic conditions. He arbitrarily defined his sequence of 27-day intervals to begin in January 1833.
- Q/D MAGNETICALLY QUIET AND DISTURBED DAYS. The following criteria are used to rank selected days of the month from most (Q1) to the least quiet (Q10) and from most (D1) to least disturbed (D5). The following criteria are used in the ranking: the sum of the 8 Kps, the sum of the squares of the 8 Kps, and the greatest Kp.
- aa The aa indices are three-hourly indices computed from K indices of two antipodal observatories (invariant magnetic latitude 50) and provide a quantitative characterization of the magnetic activity. Half-daily and daily values give an estimation of the activity level very close to that obtained with "am" indices. Values are in nanotesla and correspond to the activity level at an invariant magnetic latitude of 50. The aa indices are computed for:

N = daily values for the northern Hemisphere,
S = daily values for the Southern Hemisphere,
M1, M2 = half-daily values of aa indices for Greenwich day.

What is an index and why are there so many for terrestrial magnetism? An index continuously summarizes a complex measurement; its discrete values simplify and clarify the variations. Ideally each geomagnetic index should follow a single class of magnetic disturbance; in reality few do. The bewildering array of magnetic indices reflects many past attempts to define measurements that isolate a single source of variation.

The subscript "p" means planetary and designates a global magnetic activity index. The following 13 observatories, which lie between 46 and 63 north and south geomagnetic latitude, now contribute to the planetary indices: Lerwick (UK), Eskdalemuir (UK), Hartland (UK), Ottawa (Canada), Fredericksburg (USA), Meanook (Canada), Sitka (USA), Eyrewell (New Zealand), Canberra (Australia), Lovo (Sweden), Rude Skov (Denmark), Wingst (Germany), and Witteveen (the Netherlands).

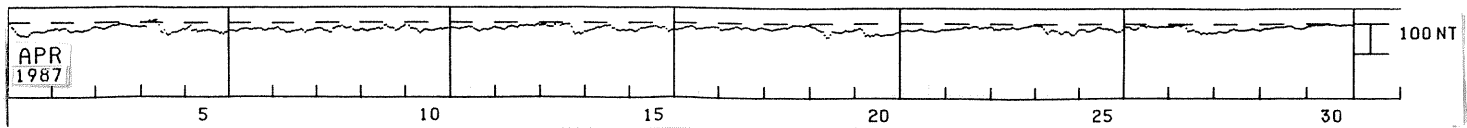
NEW ADDITIONS TO THE GEOMAGNETIC ARCHIVES:

The Data Center has received 1 minute data for the Canadian Observatories for 1986. These data are available on 1600BPI, 9 track magnetic tape.

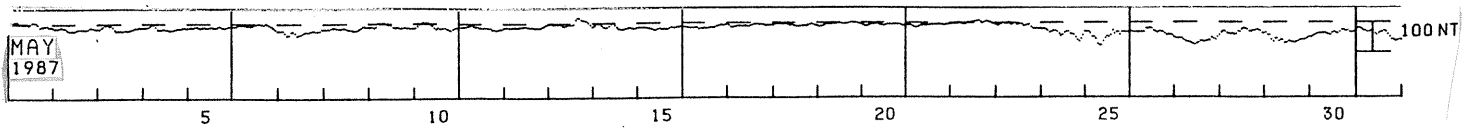
The charge for a 1-year subscription to this monthly bulletin, January through December, is \$20.00. To become a subscriber you may call (303) 497-6135 or write to the NATIONAL GEOPHYSICAL DATA CENTER, Solar-Terrestrial Physics Division (E/GC2), 325 Broadway, Boulder, Colorado 80303 USA. Please include with your written order a check or money order payable in U.S. currency to Department of Commerce, NOAA/NGDC. Payment may be made, also, through one of three credit cards: VISA, American Express, or MasterCard. To ensure prompt service provide your card number and expiration date and the name to which the card is issued.

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DST FOR APRIL 1987



DST FOR MAY 1987



Dr. Sugiura, who supplies us with the DST values and graph has transferred to the Kyoto University, Kyoto, Japan. During the time of his transfer we fell behind on the DST's. We will be publishing extra DST graphs as they become available until we are current. Thank you for your patience.