

## CORONAL HOLES AND 27-DAY RECURRING MAGNETIC STORMS ?

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Although the interplanetary causes of geomagnetic storms occurring during solar maximum have been thoroughly studied, very little has been done to understand the causes of geomagnetic activity during solar minimum. We therefore have examined 3 years (1973-1976) of data to determine the causes of geomagnetic storms and substorms during the descending phase of solar cycle 20. We find that corotating streams, the dominant source of interplanetary activity during solar minimum, do not cause major storms with  $Dst < -100$  nT. Corotating streams very often have little or no effect on the Earth's ring current ( $Dst > -25$  nT). They can also cause moderate ( $-100 \text{ nT} < Dst < -60$  nT) and weak ( $-60 < Dst < -25$  nT) recurring storms. When storms are present, the southward IMF's occur in the region where the corotating stream interacts with the heliospheric current sheet and its plasma sheet. A model for this interaction will be presented. The most dramatic geomagnetic response to corotating streams are continuous auroral activity called HILDCAAs. Each of these 27-day recurring events can last 10 days or more. The presence of long duration HILDCAAs in 1974 is the reason why the AE index is higher this year than in 1979, a year of solar maximum. A schematic illustrating the interplanetary regions causing storms, HILDCAAs, geomagnetic quiet and positive Dst intervals will be provided.