

are usually considered as harmonics in a resonant standing-wave structure of long-period waves on the closed Earth's magnetic field lines (Cahill et al. 1984). Their presence near the cusp, and therefore near the outer boundary of closed field lines, is surprising. The occurrence of these pulsations is strongly correlated with the x component of the interplanetary magnetic field. The Pc 3 pulsations are seen when the interplanetary field is within 45° of alignment with the Earth-Sun line. In addition, the pulsation period varies inversely with the magnitude of the interplanetary field, from 12 seconds when the field is 15 nanoTeslas to 40 seconds when it is 4 nanoTeslas.

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## Keogram camera and zenithal photometer measurements from South Pole and McMurdo Stations

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I operated three optical instruments in Antarctica during the 1985 austral winter.

*Keogram camera (South Pole Station).* This is a dual-channel, intensified monochromatic slit camera, which records the position and intensity of two auroral emissions along the geomagnetic north-south meridian through South Pole Station. The data are color coded onto 35-millimeter color film (see Eather 1981). Data are distributed to other researchers in the form of color prints, and the last two seasons' operations resulted in 62 days of good data (free of cloud cover and strong moonlight contamination) for the 1983 winter and 58 for 1984. Analysis of these keograms led to two published papers (Eather 1984, 1985) describing various aspects of dayside auroral behavior and the effects interplanetary conditions. In addition, the keograms have been used in numerous correlative studies (Hones et al. 1985; Arnody et al. 1986; Wu et al. 1986).

*Zenithal photometer (South Pole Station.)* This is a dual-channel instrument (4278N<sub>2</sub><sup>+</sup> and 63000I) with a field of view (55°) matched to that of the riometers. Data are digitally recorded on the University of Maryland data logging system and distributed to all investigators on request. These data have been and con-

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tinue to be used in various riometer studies, ultra-low-frequency magnetic pulsation studies (Arnody et al. 1986), morphological studies in conjunction with satellite data (Hones et al. 1985), and coordinated studies with Dynamics Explorer satellite auroral images (work in progress) and satellite X-ray images (Misera et al. in preparation).

*Zenithal photometer (McMurdo Station).* This instrument is identical to the one at the South Pole Station and was installed in the new Arrival Heights laboratory in January 1985, operating through the 1985 austral winter. Data are logged on the University of Maryland data logger and will be used in correlative riometer and very-low-frequency and ultra-low-frequency studies.

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