

tensive air shower event direction finding are sound. This correlation gives an independent method of assessing the pointing accuracy of extensive air shower arrays.

We concluded that the arrival direction determination of air showers by SPASE is better than previously estimated.

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Azimuthal variation of stellar magnitudes at the South Pole

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Photoelectric observations of eight stars were made in 1988 for determining atmospheric extinction at the Amundsen-Scott South Pole station (Chen et al. 1989). Starting at heliocentric Julian Day 2447295.34, these stars were observed during a 30-hour interval (13–15 May 1988). For the four stars, α Columbae (B7), γ Corvi (B8), γ Trianguli Australis (A1), and σ Sagittarii (B2.5), the observed visual magnitude, V , with neglect of color effect is given by

$$V = 8.28 + 0.141 \times \text{air mass} - 2.5 \log y$$

where y is the measured reading; while for the other four stars, β Columbae (K1.5), ϵ Corvi (K2.5), α Trianguli Australis (K2), and λ Sagittarii (K1),

$$V = 8.12 + 0.151 \times \text{air mass} - 2.5 \log y.$$

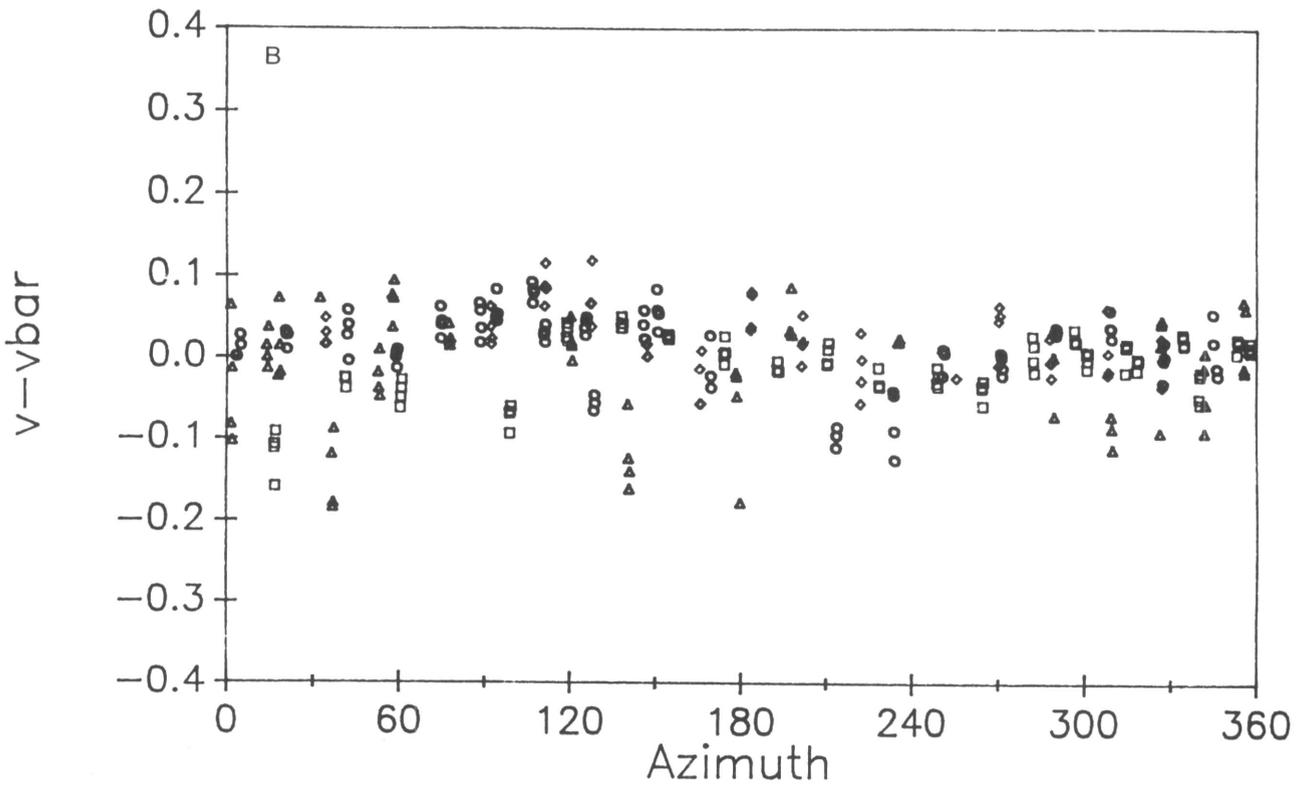
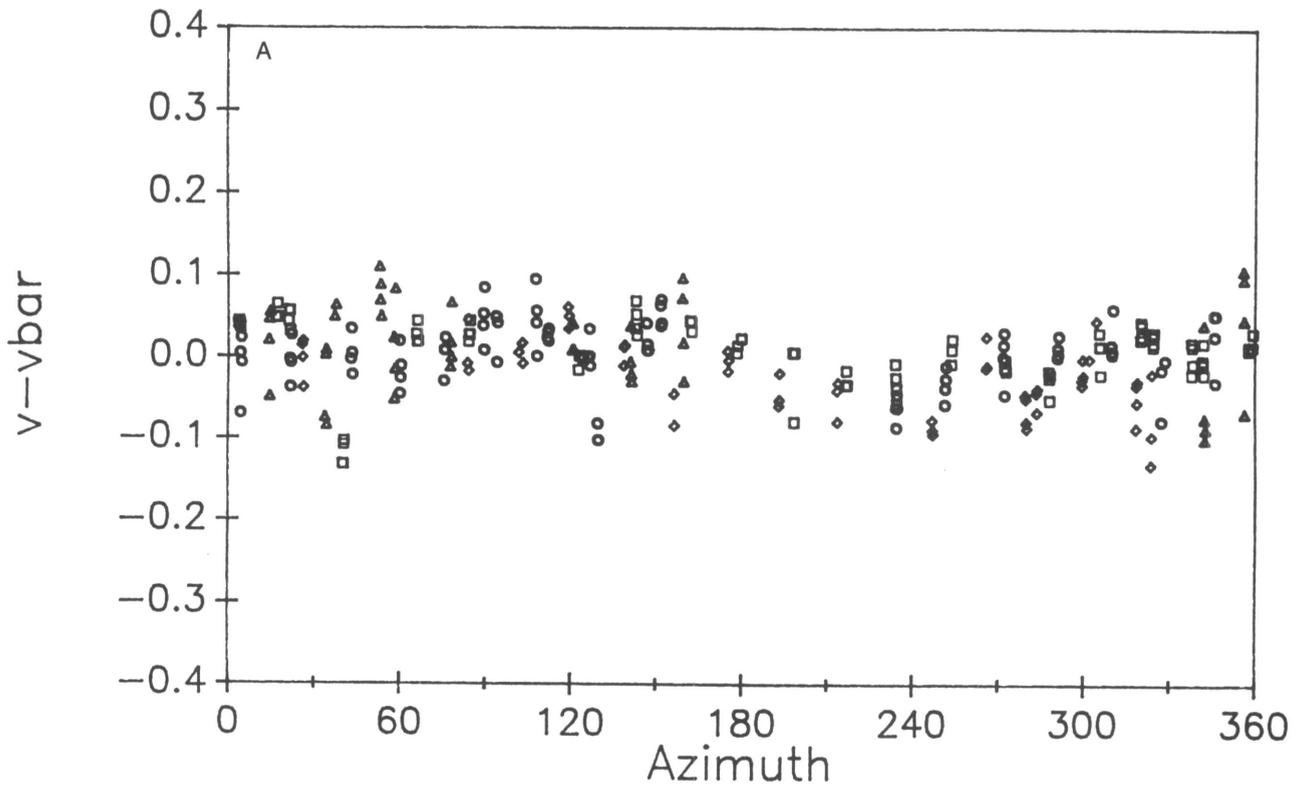
The average value, \bar{V} for each star was calculated, and then the difference ($V - \bar{V}$) for each measurement was obtained. The plot of the values of ($V - \bar{V}$) vs. the azimuths for the stars of spectral B-and A-type is depicted (figure, block A); and that for the stars of spectral K-type in the figure (block B).

It is seen that there is an azimuthal variation of the visual magnitude. Stars appeared to be fainter around the azimuth of 120° . The environmental situation of the observation is now considered. The 1988 antarctic surface weather data were given by Keller et al. (1989); during the 30-hour interval centered at noon of 14 May, the average wind speed was 3.10 ± 0.57 meters per second and the wind direction was $99.50 \pm 11.38^\circ$ (east by southeast). The telescope was located 300 meters in the direction slightly east of grid north from the main station. Thus it seems that the exhaust gas from the station power generator was the likely cause of this variation.

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Variation of visual magnitudes with azimuths: A. For the four stars of spectral B- and A-type. B. For the four stars of spectral K-type.