

NOTES

Study of VHF signals received from distant TV stations during some major meteor shower periods

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VHF signals from distant TV stations have been received and recorded on a strip-chart recorder. It has been observed that the strength of the received signals is more during the major meteor shower periods than during the non-shower periods. The strength of the signal received has been found to be increasing from Perseids (weak shower) to Geminids (strong shower).

Propagation of VHF signals over long distances (about 2000 km) has been reported by many workers^{1,2}. It is well established that meteors can produce ionization in ionospheric regions³⁻⁶ and their contribution to total electron content of the ionosphere is very significant^{7,8}.

In the light of these findings, an attempt has been made to study the increase in the strength of signals received from distant TV stations during some major meteor shower periods at Warangal (17.9° N, 79.5° E) during the year 1990-91.

TV signals from distant stations like Pidurutalagala (Sri Lanka) (7.5° N, 80.6° E) and Abudabi (24.5° N, 54.51° E) were received at Warangal and recorded on a strip-chart recorder both during some major meteor shower periods and some non-shower periods, for comparison. The commercial TV receivers, viz., Crown (portable) and Bush V 10 (table model) were used for receiving the signals. Most of the observations were carried out between 06.00 p.m. and 11.00 p.m. in the evenings as the transmissions are invariably available during these hours. The signals from the IF stage of the receiver were fed to the recorder after passing them through an amplifier.

Taking two days on either side of the peak day, the observations were carried out for five days for each shower — Perseid, Orionid, Leonid, and Geminid.

From the observations it is found that during Geminid meteor shower period (11-15 Dec. 1990), the strength of the received signal was high compared to those during other shower periods. The signal

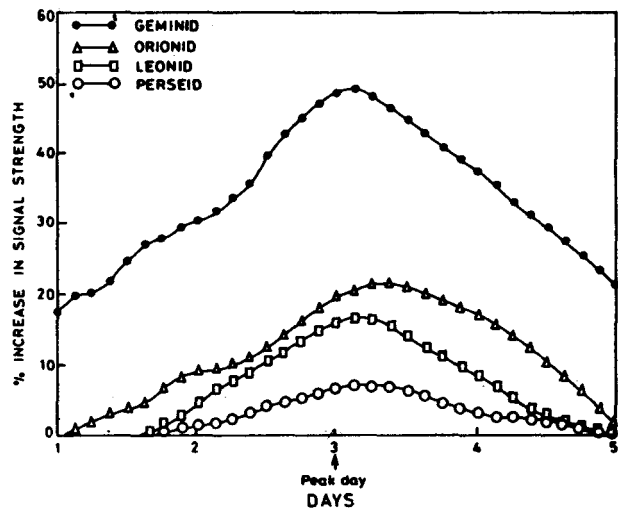


Fig. 1. Variation in signal strength during various shower days.

strength was high on peak day and moderate on all other days. This indicates the prominence and stableness of the shower.

During the Perseid meteor shower period (10-14 Aug. 1991), the strength of the signal was very less. The echoes were slightly greater than the noise level on the peak day, and almost coincided with noise on all other days during the shower period.

It is also seen that the percentage increase in the strength of the received signals during Orionid shower period (19-23 Oct. 1991) and during Leonid shower period (14-18 Nov. 1991) was almost the same.

The percentage increase in signal strength during various shower periods is shown in Fig.1.

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