

STUDY OF SCHUMANN RESONANCE IN LOW LATITUDE INDIAN REGION

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Global electromagnetic modes, called Schumann resonances (SR) operating in the earth-ionosphere cavity in extremely low frequency (ELF) range are due to world-wide thunderstorm activities. The fundamental frequency of these modes is approximately 8 Hz and subsequent harmonics are separated nearly by 6 Hz. Though there are many observational and theoretical studies on these modes in the mid and high latitude regions, no systematic attempts have been made to study the phenomena at low and equatorial latitudes. In the present investigation, characteristics of amplitude and frequency of the fundamental SR mode at low latitude have been studied using data from searchcoil magnetometer installed at Shillong (Geog. Lat. $25^{\circ}34'$, Geog. Long. $81^{\circ}51'$ and Declination -0.474°). In the diurnal UT (Universal time) pattern of the amplitude, three major global thunderstorm regions were clearly identified. The investigation also revealed that the frequency variation has a pattern of dominant diurnal oscillations (periodicity ~ 24 hrs) contrary to the observations at mid and high latitudes where dominant semi-diurnal (periodicity ~ 24 hrs) pattern were reported. The paper also examines as to how SR amplitudes get affected by the terminator i.e. local sunrise and local sunset.

Schumann Resonances, ELF waves, Earth-ionosphere cavity

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