FIGURE CAPTIONS

Fig. 2.1 Ionospheric regions as a function of height above Earth's surface. (Ref. CCIR, 1982)

Fig. 3.1 Block diagram of Phase Lock Receiving System.

Fig. 3.2a Block diagram of Electronically Simulated Rotating Antenna type Polarimeter

Fig. 3.3 A sample of Amplitude and Phase recorded with the receivers.

Fig. 4.4 Geometry of the co-ordinate system for satellite and receiver for determining the initial polarization.

Fig. 4.2 Plot of relative Faraday rotation versus \((f_0F_2)^2\) for the month of July 1976 (assumption \(Q_{\text{min}} = 0.37\pi\)).

Fig. 4.3 Same as above except \(Q_{\text{min}} = 1.37\pi\).

Fig. 4.4 Plot of Faraday rotation versus \((f_0F_2)^2\) for July 1976 (assumption \(Q_{\text{min}} = 1.0\pi\)).

Fig. 4.5 ATS-6 satellite receiver geometry for Delhi.

Fig. 5.1a Diurnal plots of IEC for quiet days of Oct., Nov. and Dec. 1975 and Jan. and Feb. 1976.

Fig. 5.1b Diurnal plots of IEC for quiet days of May, June and July 1976.

Fig. 5.2 Average diurnal plots of IEC for the months of Dec. 1975 and Jan. 1976 at Guwahati.

Fig. 5.3 Average diurnal plots of IEC for the months of June & July 1976.

Fig. 5.4 Average diurnal plots of IEC for the months of Nov. 1975 & May. 1976.

Fig. 5.5 Nighttime plots of IEC for some representative days in equinox, winter and summer months at Delhi.

Fig. 5.6 Day to day variation of base content.

Fig. 5.7 Day to day variation of effective loss coefficient.

Fig. 5.8 Seasonal variation of effective loss coefficient.

Fig. 5.9 Illustrating the two methods of estimating flux

(a) eq.(4) is fitted through the observed points during the initial decay period.

(b) eq.(4) is fitted through all the observed points.

Fig. 6.1 The geographical location of three, three station networks.

Fig. 6.2 Seasonal occurrence of TIDs during the years of 1976, 1978, 1979, and 1980. (a) Summer (b) Winter.

Fig. 6.3 The average TID occurrence per day as a function of TID period during (a) Summer (b) Winter of 1976, 1978, 1979, 1980.

Fig. 6.4 The average period of TIDs observed as a function of local time.
Fig. 6.5 Frequency occurrence of TIDs as a function of solar activity in (a) summer, and (b) winter.

Fig. 6.6 Triangulation method of determining TID velocity and direction.

Fig. 6.7 An example of isolated medium scale irregularity.

Fig. 6.8 Velocity distribution of medium scale TIDs during (a) nighttime (b) daytime.

Fig. 6.9 An example of medium scale TID wave.

Fig. 6.10 Faraday rotation plot (a) before passing through the filter (b) after passing through filter.

Fig. 6.11 Occurrence of TIDs as a function of velocity.

Fig. 6.12 Occurrence of TIDs as a function of azimuth.

Fig. 6.13 Polar plot of nighttime irregularities.

Fig. 6.14 Polar plot of TIDs observed on 7.5.85.

Fig. 6.15 Polar plot of TIDs observed on 24.5.85.

Fig. 6.16 Polar plot of TIDs with amplitude above (a) .01\(\pi\)(b) .02\(\pi\) radians.

Fig. 6.17 Frequency occurrence of TIDs as a function of (a) local time (b) period (c) velocity (d) azimuth and (e) wavelength.

Fig. 6.18 Diurnal variation of TID (a) period (b) velocity (c) azimuth (d) wavelength.

Fig. 6.19 Frequency occurrence of TIDs as a function of (a) local time (b) period (c) velocity (d) azimuth and (e) wavelength.

Fig. 6.20 Diurnal variation of TID (a) period (b) velocity (c) azimuth (d) wavelength.

Fig. 6.21a Dispersion of TIDs observed at Delhi.

Fig. 6.21b Dispersion of TIDs observed at Hyderabad.

Fig. 7.1 Fractional perturbation in Faraday rotation as a function of propagation angle (a) for different ionospheric heights (b) for different wave periods (c) for different wave velocities and (d) for different azimuths.

Fig. 7.1e Gravity wave amplitude variation as a function of height for different propagation angles.

Fig. 7.1f Gravity wave vertical wavenumber (real \(k_z\)) variation as a function of height for different propagation angles.

Fig. 7.2 Perturbation in Faraday rotation due to a 20 min period gravity wave at different ionospheric heights.

Fig. 7.3 Perturbation in Faraday rotation due to a 40 min period gravity wave at different ionospheric heights.
Fig. 7.4  Perturbation in Faraday rotation due to a 60 min period gravity wave at different ionospheric heights.

Fig. 7.5  Azimuthal variation of fractional perturbation in Faraday rotation due to a 60 min period gravity wave for propagation angles of 40, 60, 70, 75 and 80 degrees
(a) at a height of 150 km with winds.
(b) at a height of 150 km without winds.
(c) at a height of 250 km with winds.
(d) at a height of 250 km without winds.
(e) at a height of 350 km with winds.
(f) at a height of 350 km without winds.

Fig. 7.6  Same as for Fig. 7.5 but for 40 min period.

Fig. 7.7  Same as for Fig. 7.5 but for 60 min period.

Fig. 7.8a  Height variation of perturbation in Faraday rotation for Delhi ATS6 raypath for a gravity wave of 20 minute period and for azimuths of 60, 150, 240 and 330 degrees. No wind case.

Fig. 7.8b  Same as in Fig. 7.8a but including winds.

Fig. 7.9  Perturbation in Faraday rotation representing vertical electron content due to a 20 min gravity wave (a) as a function of propagation angle with and without winds. (b) As a function of azimuth for propagation angles of 0 and 78 degree.

Fig. 7.10  Same as for Fig. 7.9 but for Delhi-ATS6 raypath.

Fig. 7.11  Same as for Fig. 7.9 but for Delhi-ETS2 raypath.

Fig. 7.12  Perturbation in Faraday rotation for Delhi-ATS6 raypath due to a 20 min period gravity wave (azimuth 90 deg) when its spatial extent is varied along (a) x-axis (b) y-axis and (c) z-axis.

Fig. 8.1  Path of totality and the geographic locations (●) of radio beacon observing stations and their sub-ionospheric points (●) during the eclipse of Feb. 16, 1980.

Fig. 8.2  Path of totality of solar eclipse of July 31, 1981.

Fig. 8.3  Transfer function of numerical filter used.

Fig. 8.4  IEC plot after passing through numerical filter.

Fig. 8.5  IEC plot after passing through numerical filter.

Fig. 8.6  IEC plot after passing through numerical filter.

Fig. 8.7  Geographical location of the path of totality for the solar eclipse of Feb. 16, 1980. The two stations are indicated respectively as AA (Addis Ababa) and DM (Debre Marcos).
(Ref. Haniuse et al. JATP, 44, 963, 1982.)