

The Ionospheric Conductance Distribution over the Auroral Region

Byung-Ho Ahn

Department of Earth Science Teachers College
Kyungpook National University

An attempt is made to construct an ionospheric conductance model over the auroral region based on empirical relationships between ground magnetic disturbance and ionospheric conductance. For this purpose ionospheric conductance data estimated from the Chatanika incoherent scatter radar and magnetic disturbance data simultaneously recorded from nearby College magnetometer are utilized. The entire data set obtained from 1977 to 1982 are binned by the signs of the two components of magnetic disturbance (ΔH , ΔZ) and magnetic local time (MLT). From this database empirical formulas between ionospheric conductance and horizontal magnetic disturbance (ΔH) for a total of 30 sectors in the auroral region are derived. The average energy and energy flux of precipitating particles over the region are also obtained by employing the empirical formulas proposed by Robinson *et al.* (1987) and are found that both quantities thus estimated are quite comparable with more direct particle measurements made by polar orbiting satellite (Hardy *et al.*, 1985).

Hardy *et al.*, 1985, *J. Geophys. Res.*, 90, 4229

Robinson *et al.*, 1987, *J. Geophys. Res.*, 92, 2565