Statistical results from the 1-year observation of the Doppler velocities by the SuperDARN Hokkaido radar

Nishitani, N., T. Ogawa, T. Kikuchi, H. Tsutsui, and A. Ichihara
Solar-Terrestrial Environment Laboratory, Nagoya University
Nagoya 464-8601, Japan
e-mail: nisitani@stelab.nagoya-u.ac.jp

SuperDARN Hokkaido HF radar at Rikubetsu, Hokkaido, Japan (geographic coordinates: 43.5° N, 143.6° E) has been operating for more than 1 year. In this paper we present initial statistical results from the Doppler velocity data of the Hokkaido radar, which covers the geomagnetic latitudinal range of about 38° to 80°. Most of the ionospheric echoes are located at geomagnetic latitudes lower than 60°, mainly at nighttime. We will show the overall pattern of the Doppler velocities of ionospheric irregularities mainly at mid-latitudes, which could not be obtained by using the existent SuperDARN radars in the polar region. It is found that at 45° geomagnetic latitude the statistical distribution of horizontal velocities of ionospheric irregularities are consistent with that of ion drift velocities obtained with the DE-2 satellite ([1]), indicating that the motion of irregularity structure is governed by E×B drift, as for the polar region. We will also report on the new algorithm of distinguishing ionospheric echoes from ground scatter echoes by using HF ray tracing technique.

[1] Heelis, R.A., and W.R. Coley, *J. Geophys. Res.*, *97*, 19461-19469, 1992.