SuperDARN 近距離エコーの再評価

＃行松 彰 [1]

[1] 国立極地研究所/総研大

Reassessment of SuperDARN near range echoes in SENSU data

Akira Sessai Yukimatu[1]

[1] NIPR/SOKENDAI

SuperDARN is a powerful and unique tool primarily contributed to space weather research by providing global (polar and mid-latitude) ionospheric plasma convection and electric field potential map in high temporal resolution of ˜1-2 min in quasi real time with its global coverage of international HF radars' FOVs. It also contributes to vertical coupling of ionised and neutral atmosphere in middle and upper atmosphere by observing TIDs (traveling ionospheric disturbances), neutral winds, and PMSE/PMWE etc in MLT (mesosphere and lower thermosphere) or MTI (mesosphere, thermosphere and ionosphere) regions.

SuperDARN near range echoes are the important targets especially for lower altitude echoes like those in D and E regions and those in MLT region. As typical range resolution of SuperDARN radars is rather coarse and HF ray paths bend in ionosphere, obtaining precise height/altitude information is key to understand the physics in the region correctly.

These years SuperDARN community tried to improve and re-establish the method of interferometer calibration (in several ways). Some radars have also started to try higher range resolution using imaging (SDI/FDI) and pulse coding technique etc.

We here try to re-calibrate the interferometer and elevation angles in our Antarctic Syowa SuperDARN SENSU radar data and to reassess the height information of the near range echoes.

Some recent papers related to this issue proposed near range echoes in summer midday obtained in Canadian SuperDARN radars data seems not from mesopause region altitude but from slightly higher altitude so those echoes might not be PMSEs. Results of reassessment of near range echoes in Syowa SENSU radars and origins of the echoes will be shown and discussed.