Comparison of ionospheric wave-like structures observed by SuperDARN radar and EISCAT radar

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http://gwave.ice.uec.ac.jp/index.html

Super Dual Auroral Radar Network (SuperDARN) is an international collaborative project based on the network of coherent HF radars located in the high-latitude zones of the northern and southern hemispheres. Wave-like structures, whose period is about 1 hour, are often seen in the time series of the echo power of the ground-backscattered signals. These structures are believed to be a manifestation of the traveling ionospheric disturbances (TIDs) at the F-region altitudes. EISCAT radar is an incoherent scattering radar located in the Scandinavian Peninsula, which can provide several ionospheric parameters such as electron density, plasma temperature and ion velocity along its vertical beam.

EISCAT radar detects wave-like structures similar to those observed by the SuperDARN radar, which is also believed to be TIDs. The fields-of-view of the SuperDARN Hankasalmi radar in Finland and EISCAT Tromso UHF system are overlapping each other. Therefore, it would be possible to observe the same wave-like structure with these two radar systems. In this study, we have compared temporal and spatial variations of the wave-like structures observed with the SuperDARN radar and EISCAT radar simultaneously.