

## Study of ionospheric irregularities in the 'temperate' mid-latitude region using the SuperDARN radars

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The Super Dual Auroral Radar Network (SuperDARN) is a network of HF radars deployed in the high and middle latitude regions of both hemispheres. Characteristics of ionospheric irregularities is one of the important topics which can be dealt with, using the SuperDARN. Since this network covers a wide latitudinal range, it can assess generation of ionospheric irregularities under an extended range of conditions. The Hokkaido Pair (HOP) of radars, located in the Northern Japan, are the only SuperDARN installations monitoring irregularities below 50 deg of geomagnetic latitude, the region often referred to as 'temperate' mid-latitude region. Here irregularities are commonly ascribed to the generation of polarization electric fields inside the Medium-Scale Traveling Ionospheric Disturbances (MSTIDs), whereas some of them are embedded in the steady convection structures unrelated to MSTIDs. In this paper we review SuperDARN studies of the ionospheric irregularities at the temperate mid-latitudes over the past 10 years as well as discuss future perspectives.

Keywords: ionospheric irregularity, SuperDARN, mid-latitude