

Review of the mid-latitude SuperDARN and the future of the SuperDARN

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The Super Dual Auroral Radar Network (SuperDARN) is a powerful tool for monitoring ionospheric plasma convection and electron density changes. The SuperDARN began its official operation in 1995. For the first few years, the SuperDARN field of view (FOV) was limited to high latitudes. About ten years later, the first purpose-built mid-latitude SuperDARN radars started operation at sites in Virginia and Hokkaido in 2005 and 2006, respectively. Subsequent construction of additional radars at mid-latitudes have greatly expanded the SuperDARN FOV, and made accessible a range of research topics that are distinctive to the subauroral and mid-latitude ionosphere. In this paper we review the accomplishments of the mid-latitude SuperDARN in several scientific and technical areas, as well as the history of the mid-latitude SuperDARN. We also discuss the future directions of the SuperDARN, including the expansion of SuperDARN FOV to even lower latitudes up to the equatorial region.

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