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Syowa SENSU SuperDARN imaging radar and the future perspective

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SENSU Syowa HF radars are important ocmponents of SuperDARN, the international HF radars network since 1995 and have significantly contributed to understanding not only magnetosphere ? ionosphere system and their couplings but also MLT region dynamics. As SuperDARN radars were originally designed to reveal global polar plasma convection patterns in both hemispheres in real time, its spatial resolution has been relatively low. As the number of new scientific targets like comparison with mid and small scale aurora phenomena and fine height profile of neutral wind distributions have been increasing, higher spatial (and temporal) resolution obvervations have been essentially desired. Imaging radar technique has been tried to be applied and developed to overcome this issue. We show the current status of our preparation of the SENSU imaging radar system, and will discuss particularly on the scientific targets and the future perspectives which can be revealed by this new technique using SuperDARN.

Keywords: SuperDARN, Syowa, imaging, MLT region dynamics, MI coupling, aurora