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SuperDARN Hokkaido radar: overview of 3-year observation and future perspectives

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Super Dual Auroral Radar Network (SuperDARN) is a powerful tool for studying magnetosphere-ionosphere-thermosphere coupling with various spatial temporal scales. Recent deployment of mid-latitude SuperDARN radars such as Wallops, Hokkaido, Blackstone and Kansas East / West has made it possible to study a great variety of processes at sub-auroral and middle latitudes as well as auroral latitudes. In this paper we will present overview of the SuperDARN Hokkaido radar, which is the 2nd mid-latitude SuperDARN radar and the only one in the Asian region. The SuperDARN Hokkaido radar began operation in November 2006, and has been working for more than 3 years. In the presentation we will show main scientific results using the radar, ranging from the magnetosphere, ionosphere to the thermosphere and upper mesosphere at mid- and subauroral latitudes. We will also present future perspectives, including plans of building new radars.

Keywords: SuperDARN Hokkaido radar, ionosphere-thermosphere-methosphere coupling, traveling ionospheric disturbances, SAPS / SAID, cusp latitude dynamics, mid-latitude irregularities