

## Recurrent and propagating SAPS/ SAID structures observed by the SuperDARN Hokkaido radar

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We study two events of the recurrent propagating SAPS/SAID structures at magnetic latitudes of  $\sim 60^\circ$ , which were observed by the Hokkaido radar at 0830 - 0930 UT (1730 - 1830 MLT) on April 23, 2008 and at 1100-1500 UT on March 1, 2011. Both events occurred during the main phases of moderate geomagnetic storms with minimum Dst about -37 nT and -75 nT respectively. The IMF was southward and turned to northward just prior to the first event, whereas it was constantly southward for the second event. For both events the period, velocity of westward progression and wavelength are 30 min, 700 m/s and 1200 km respectively. They have similar characteristics to those of the 'auroral giant undulation' at the equatorward edge of the auroral oval although some numbers, for example the periods, are slightly different. The radar data presented strongly support an idea that the recurrent SAPS / SAID structures are generated through internal processes in the inner magnetosphere, due to probably some kind of plasma instability, rather than due to externally-driven processes.

Keywords: Hokkaido HF radar, SuperDARN, SAPS / SAID, plasma instability in the inner magnetosphere