

Omega band pulsating auroras observed simultaneously onboard THEMIS and on the ground

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Omega band auroras were observed with the THEMIS ground based All-Sky Imagers array at SNKQ in Canada at ~0230 MLT on 1st March 2011. We could find almost whole processes of the generation of omega band aurora from the initial growth phase to the declining phase through enhancement phase. Scale size of the omega band aurora during the maximum phase was ~500 km and ~200 km for north-south and east-west direction, respectively. Growth of omega band-like structure started in the western sky of SNKQ field of view. Then the auroras enhanced their intensity and drifted eastward with speed of 0.15 km/sec. Fine structure of the omega band aurora consists of intense pulsating auroras with ON-OFF period of about 10 sec. Ps 6 magnetic pulsations with a period of ~600 sec were observed in association with the omega band auroras. Footprint of THEMIS-D spacecraft crossed poleward part of the omega band aurora. THEMIS-D observed significant signatures on electromagnetic field and particles in association with the time when the spacecraft crossed the omega band pulsating aurora. In particular it is very interesting and important that DC electric field intensity modulated with almost the same period of optical pulsating auroras. In this presentation we will demonstrate characteristics of optical features of omega band pulsating aurora obtained by all-sky imagers and also particle and field signatures onboard spacecraft when the footprint of THEMIS-D crossed the omega band aurora.

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