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# Ionospheric travelling convection vortices observed by the Greenland magnetometer chain

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## Abstract

The Greenland magnetometer array continuously provides geomagnetic variometer data since the early eighties. With the polar cusp passing over it almost every day, the array is suitable to detect ionospheric traveling convection vortices (TCVs), which were first detected by *Friis-Christensen et al.* [1988]. A climatological assessment of their occurrence properties using Greenland data in 1996 has been presented by *Clauer and Petrov* [2002]. In our ongoing study, a detection algorithm for TCVs in Greenland magnetic data is being developed and the first results of their climatological assessment are discussed. Specifically, three years of magnetometer data, from 1986 to 1988, collected at seven stations at the West coast of Greenland are analysed and TCV events are identified and isolated. The events are classified with respect to their intensity, duration and time of occurrence and they are correlated with values of the interplanetary magnetic field (IMF), solar wind velocity and Kp index. The results indicate that TCVs occur usually around magnetic local noon with a typical duration of approximately 15 minutes. TCV detection is clearly facilitated during times of low geomagnetic background activity.

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