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Black aurora studies in the ionosphere.

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Black auroras are small regions of reduced optical emissions, embedded in the much brighter diffuse background aurora. They are usually seen drifting eastward during the substorm recovery phase, post-magnetic midnight. Although several theories have been proposed to explain the decrease in precipitating electron flux in these localised regions, the underlying mechanism is as yet unknown. This phenomenon has been studied before using optical observations. Uniquely, we study the black aurora using the EISCAT incoherent scatter radar in Tromso, Norway, in conjunction with dual-wavelength optical observations at 427.8 and 844.6 nm. From these data, the characteristic electron energy inside and outside the black aurora can be estimated. First results are presented here.

Summary

First results are shown of characteristic energies of both inside and outside the black aurora using optical and radar methods. Future work using satellite data are also discussed.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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SANSA Space Science

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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