

Recent advances on dayside diffuse aurora and throat aurora

*Han Desheng¹

1. School of Ocean and Earth Science, Tongji University

Svalbard Island located in north of Europe is one of a few points where can make longtime optical auroral observation at the cusp latitude on the dayside during the boreal winter season on Earth. Chinese Yellow River Station (YRS) is situated at Ny-Alesund in Svalbard. Since November 2003, an optical observation system consisting of three identical all-sky imagers supplied with the narrow band filters centered at 427.8 nm, 557.5 nm and 630.0 nm, has been continuously operated at YRS up to now. Based on these observations, we have obtained new results on two aspects. One is about dayside diffuse aurora and another is about a newly defined auroral form, called 'throat aurora'. These new results have shed new light on many topics, such as how the cold plasmas in the dayside outer magnetosphere are distributed, generated, and interacting with the magnetopause, and how the transient processes generated in the magnetosheath can affect the solar wind-magnetosphere coupling. Some new advances on these topics will be presented.

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