

ロングイアビン・オーロラスペクトログラフによるオーロラ・大気光の長期分光観測

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Long-term spectral observations of aurora and airglow in Longyearbyen, Svalbard

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Auroral/airglow spectrograph (ASG) observations in Longyearbyen Svalbard have been conducted since October 2000. The ASG consists of a large fish-eye lens, a slit which passes the light from the sky along geomagnetic meridian direction, a grism with 600 gr/mm, and a cooled CCD camera. The ASG covers a wavelength of about 420-760 nm with spectral bandwidth of 1.5-2.0 nm. Analysis of the ASG data over 1 solar cycle shows that intensity of 630.0 nm emission exceeds that of 557.7 nm around 12 MLT during high solar activity, whereas intensity of 630.0 nm emission is weaker than that of 557.7 nm even in the dayside during low solar activity. They would be related to the relative locations of the cusp and ASG. In addition, there is a weak peak of H beta emission (486 nm) around 14 MLT. In this paper, we give an overview of the spectral observations and statistical results of auroral intensity at each wavelength over 1 solar cycle.

Table 1. Summary of the auroral spectrograph observations in Longyearbyen, Svalbard.

Start year & month	End year & month	Number of images	Wavelength (nm)
2000-10	2001-02	39000	450-760
2001-10	2002-03	33000	450-760
2003-01	2003-03	21000	425-735
2004-01	2004-03	22000	450-760
2004-12	-	2000	450-760
2005-11	2005-12	8000	450-760
2007-12	2008-03	17000	420-730
2008-11	-	4000	420-730
2009-12	2010-03	46000	430-740
2010-10	2011-03	81000	420-730
2011-10	2012-03	78000	420-730
2012-10	2013-03	99000	420-730
2013-10	2014-03	84000	420-730