

Seasonal variation of upper mesospheric temperatures from the OH and O₂ nightglow over King Sejong Station, Antarctica

J. -H. Kim (1), Y. H. Kim (1) B. -K. Moon (1) J. -K. Chung (2) Y. -I. Won (3)

(1) Dept. of Astronomy and Space Science, Chungnam National University, Daejeon, Korea,

(2) National Center of Atmospheric Research, Bolder, USA (3) Embry-Riddle Aeronautical

University, Daytona Beach, USA (jh_kim02@cnu.ac.kr / Fax: +82-42-821-8891 / Phone:

+82-42-821-7492)

A spectral airglow temperature imager (SATI) was operated at King Sejong Station (62.22°S, 301.2°E), Korea Antarctic Research Station during a period of 2002 - 2005. Rotational temperatures from the OH(6-2) and O₂(0-1) band airglow were obtained for more than 600 nights during the 4 year operation. Both the OH and O₂ temperatures show similar seasonal variations, which change significantly year by year. A maximum temperature occurred early May in 2003 and 2004, whereas two maxima appeared in April and August in 2002. The 2005 data show only a broad and weak maximum during months of April and May. The data also show oscillations with periods of hours that seem to relate to tides and gravity waves, and fluctuations with timescales of days that could be due to planetary waves. Detailed analysis will be performed to the data set to identify major atmospheric oscillations or variation over hours, days and seasons.