Measurements of Thermospheric Temperatures using a Fabry-Perot Interferometer at King Sejong Station, Antarctica

BangYong Lee, Youngin Won
Polar Research Center
Korea Ocean Research and Development Institute
Ansan P.O. Box 29, Seoul 425-600 Korea
Tel) 0345-400-6416
Fax) 0345-408-5825
E-mail) bylee@sari.kordi.re.kr

Jai Soo Kim
Department of Atmospheric Science, State University of New York, Albany 1400 Washigton Avenue, Albany, New York, 12222, U.S.A.

A 15-cm high-resolution Fabry-Perot interferometer located at the King Sejong station (geographic: 62.2 S, 301.2 E; geomagnetic: 55.8 S, 19.2 E) has been used to determine dynamical and thermodynamical properties of the thermosphere. This system observes the red (6300 Angstrom) line emission features of the O(1D) nightglow in the upper thermosphere. The measurements of Doppler shifts and widths of the atomic oxygen emission provide means of determining neutral winds and temperatures at the peak of its emission layer, near 250 km. In this paper, the temperatures measured during February-March 1989 will be presented and compared with the prediction of the semi-empirical MSIS-93 and MSIS-86 models. The measured mean temperatures show unusually elevated values ranging between 1390 and 1293 K.