

## **IONOSPHERIC DISTURBANCES IN NORTH-EASTERN REGION OF ASIA DURING SUDDEN STRATOSPHERIC WARMINGS**

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This paper presents an investigation of the subauroral and mid-latitude ionosphere variations in the north eastern region of Asia during stratospheric warming in 2008 and 2009. We used the data from network of vertical and oblique-incidence sounding ionosondes, Irkutsk incoherent scatter (IS) radar and optic instruments of ISTP SB RAS. Irkutsk chirp-sounder and IS radar ran every 1 minute on 24-hour basis from the 18<sup>th</sup> January until the 17<sup>th</sup> February, 2008 and from the 22<sup>nd</sup> January until the 21<sup>st</sup> February, 2008 to study small-scale and medium-scale disturbances. Observation of airglow near Irkutsk was provided by the zenith photometer that measured intensities of 557.7 nm and 630.0 nm atomic oxygen emissions. Airglow observations were conducted over 2 weeks off the new moon. The experiments on the radio paths Magadan-Irkutsk and Norilsk –Irkutsk were conducted every 4 minutes on 24-hour basis on January 22 – February 21, 2009. The frequency range was from 4 to 30 MHz, the sweep rate used 500 kHz/sec. Vertical sounding stations operated in standard regime. To identify the stratospheric warming events the Berlin Meteorological University data (<http://strat-www.met.fu-berlin.de>) on stratospheric warming at standard isobaric levels and the atmospheric temperature height profiles measured by the Microwave Limb Sounder (MLS) aboard the EOS Aura spacecraft were used. The increase of wave activity recorded both in low and in upper ionosphere during sudden stratospheric warming. Spectrums of multi-scale variations were derived from the data obtained during the prolonged experiments. We used the spectral analysis based on a modified Fourier transform with varying upper limit. The possible reasons of the ionospheric disturbances and their intensity spatial distribution are discussed. This work was supported by Russian Foundation for Basic Research (grant 08-05-00658).

stratospheric warming, disturbance

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