39th COSPAR Scientific Assembly 2012

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)
Advances in Research of Extra-Terrestrial Forcing on the Middle Atmosphere and Lower Ionosphere (C2.3)

STUDY OF PULSED ENERGY FLUCTUATIONS AND SOLAR UV VARIATIONS BY DATA OF SPECTRAL MEASUREMENTS IN ZENITH OF FREE ATMOSPHERE AT NOVOLAZAREVSKAYA STATION (ANTARCTICA)

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Study of pulsed energy fluctuations and solar UV variations by data of spectral measurements in zenith of free atmosphere at Novolazarevskaya station (Antarctica)

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Spectrometer AvaSpec-2048 (Fiber Optic Spectrometer, Avantes, www.avantes.com)) has been used at Novolazarevskaya to measure the energy equivalent for frequency oscillations in the UV range of zenith atmosphere. The method and software has been developed to detect the synchronous measurements of the UV irradiation intensity and energy fluctuations at the fixed frequency in the nanometer range (named as nm-fluctuations). Results of observations during the polar days (September–February) for 2006-2011 demonstrate relation of nm-fluctuations in range of 303-305 nm to such solar factors, as solar cosmic rays (SCR) and solar radio emission. Statistical analysis shows dependence of some parameters in the upper mesosphere (ice mass, water ice, water vapour and ozone content) on solar radioemission in range 245 – 8800 Hz, the emission of 610 Hz being played the main influence on processes in upper mesosphere and mesopause. The intra-diurnal variations with periodicity from 5 to 100 min related possibly to p-g solar oscillation modes have been revealed for radioemission in range 300 nm - 330 nm.