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First results on transient atmospheric events from Tracking Ultraviolet Set-up (TUS) on board of Lomonosov satellite

Study of Transient Atmospheric Events (TAE) is started by new space instrument TUS -an imaging detector with large area mirror concentrator (2 m^2) and 256 pixels-photo multipliers in its focal plane. Its covering area in the atmosphere is $80 \times 80 = 6400 \text{ km}^2$. TAE in range of wavelengths 240-420 nm is registered by trigger command selecting several "hited" pixels with signals over a threshold. To compare with visual cameras used in previous experiments for measurement of bright transients called TLE (Transient Luminous Events) TUS instrument measures orders of magnitude less bright transients due to large optical aperture. Detector has several modes of operation with different temporal resolution (0.8 ps, 25.6 ps, 0.4 ms and 6.6 ms) which allow to measure TAE in various time scales. Lomonosov satellite was launched on 28 April 2016 and during first months of its operation several hundreds of TAE were measured. In comparison with previous MSU experiments on board Tatiana and Vernov satellite TUS detector has a spatial resolution, which gives the opportunity for more reliable classification of the TAE types based on their temporal development and spatial structure. In this talk preliminary data on TAE measurements are presented. Results on background atmosphere UV radiation and various classes of TAE from new detector are discussed. The work is partially supported by RFBR grants B-15-35-21038 and 16-29-13065.