

Study of anomalous events in the TUS experiment

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The TUS experiment was the first detector to measure the fluorescence and Cherenkov radiation of extensive air showers (EAS) in the Earth's atmosphere from space orbit. The main goal of the TUS experiment was to search for and study ultra high-energy cosmic rays with energies $E > 70 \text{ EeV}$. The TUS detector registered a number of unusual events, the origin of which is unclear with an anomalously large number of active pixels. To clarify the nature of these events, a more detailed analysis has been carried out and preliminary results are presented. Various variants of the nature of the appearance of anomalous events are discussed: cosmological gamma-ray bursts (GRB), synchrotron radiation of galactic electrons in the geomagnetic field, as well as reflection in the solar panels of the satellite of fluorescent and Cherenkov radiation of out-of-aperture EASs, accompanied by lightning discharges in the atmosphere.

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