

**LONG-TERM COSMIC RAY EXPERIMENT IN THE ATMOSPHERE:
ENERGETIC ELECTRON PRECIPITATION EVENTS DURING
THE 20-23 SOLAR ACTIVITY CYCLES.**

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More than 400 energetic electron precipitation events (EPEs) were observed in the Earth's polar atmosphere (Murmansk region, 68.95 N, 33.05 E and Mirny, Antarctica, 66.57 S, 33.05 E) during the long-term cosmic ray balloon experiment from 1957 up to now. The significant X-ray fluxes caused by the precipitating electrons at the top of the atmosphere sometimes penetrated down to the atmospheric depth of 60 g/cm² during EPEs. It means that energy of precipitating electrons was more than 3 MeV. We present the characteristics of the energetic electron precipitation events recorded during the 20-23 solar activity cycles. We discuss the results of the analyses of the interplanetary and geomagnetic conditions related to these EPEs in the atmosphere.