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Long-term variation of the trapped proton flux measured by NOAA satellites

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Fluxes of trapped particles in the near-Earth environment undergo time variations caused by changes in the solar activity during the 11-year cycle due to the resulting heating and cooling of the upper atmosphere. However, variation of the trapped proton fluxes with the solar activity still cannot be accurately predicted. The AP8 model widely used for the practical purposes exists only in two variants for solar maximum and solar minimum. Nowadays there are an attempts to create new models (empirical, semi –empirical and theoretical) that are dependent on a solar activity. But despite on a significant progress in this work investigation of trapped proton fluxes measured on board modern satellites is still urgent for the improvement of the existing models.
In this work we present the results of the analysis of the fluxes of trapped protons measured onboard the NOAA-15 satellite during the 23rd solar activity cycle.
Comparing to similar experimental data obtained for 1976–1996, regularities of changes in the proton flux at low drift shells (L = 1.14–1.20) of the Earth's radiation belt caused by changes in the solar activity are discussed.