



Spectrum of rapid cosmic ray fluctuations and its long-term changes

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Here we study the level of rapid cosmic ray fluctuations in the frequency range of $10^{-4} - 1.67 \cdot 10^{-3}$ Hz (periods from 10 min to about 3 h) using measurements by space-borne instruments for the period 1974–2004. We find that the level of these fluctuations varies over the solar cycle, but the phase of this variation depends on the energy of cosmic ray particles. While the fluctuation level for the higher energy channels (corresponding to galactic cosmic rays) changes in phase with the solar cycle, the fluctuation level for lower energy channels (predominantly of solar / interplanetary origin) is roughly in an opposite phase with the solar cycle. We present these new results and discuss a possible scenario explaining the observed energy-dependence.