# Experimental and modeling study of the 27-day variations of the galactic cosmic ray intensity and anisotropy

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We study the 27-day variations of the galactic cosmic ray (GCR) intensity and anisotropy using worldwide network of the neutron monitors data for the maxima and minima epochs of solar activity in different positive ($A>0$) and negative ($A<0$) polarity periods of the Sun's global magnetic field. Also we consider the relationships of the 27-day variations of the galactic cosmic ray intensity and anisotropy with the similar variations of the solar wind (SW) velocity, Wolf number Rz and the magnitudes of the interplanetary magnetic field. We manifest an existence of the stable long - lived active region of the longitudes on the Sun which is the source of the 27-day variations of the SW velocity. We find that these long-lived active region of the heliolongitudes can be considered as the general cause of the 27-day variations of the GCR intensity and anisotropy. Taking into account an important role of the 27-day variation of the SW velocity in drift effect of the 27-day variations of the GCR intensity and anisotropy we develop a new model based on the Parker's transport equation. We show that only due to existence of the 27-day variation of the SW velocity is possible to obtain a distinction between the amplitudes of the 27-day variations of the GCR intensity and anisotropy for the $A>0$ and the $A<0$ polarity periods in the minima epoch of solar activity. We also show that these distinction significantly diminishes in maxima epochs of solar activity due to diffusion dominated character of GCR modulation.