



Empirical relations between heliospheric parameters and cosmic ray modulation

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The monthly values of the heliospheric modulation potential were recently reconstructed for the neutron monitor era 1951-2004 by Usoskin et al. (JGR, 110, A12108, 2005). Here we study empirical relations between the modulation potential and the most important heliospheric parameters for cosmic ray modulation: the intensity B and the polarity P of the heliospheric magnetic field, the tilt angle α of the heliospheric current sheet, and the solar wind velocity. We show that a combination of the parameters B , P and α provides a good correlation with the modulation potential, while solar wind velocity plays a smaller role. This approach allows us to convert the obtained modulation potential into count rates of individual neutron monitors, and to evaluate the cosmic ray terrestrial effects for the last 30 years.