CORRELATION OF THE 27-DAY VARIATION OF COSMIC RAYS TO THE INTERPLANETARY MAGNETIC FIELD STRENGTH

I. Sabbah
Department of Science, Faculty of Education, Kuwait
sabbahsom@yahoo.com

We analyze cosmic ray data as well as interplanetary magnetic field (IMF) data, to examine the relation and correlation between their 27-day variations during the time interval 1965-1997. The amplitude of the 27-day variation of galactic cosmic rays is linearly correlated with: the IMF strength (B), the z-component (Bz) of the IMF and the product of the solar wind speed (V) times B (VB.) It is well correlated with the heliospheric current sheet tilt angle as well. The cross-correlation function of the 27-day cosmic ray variation versus the solar wind speed shows a negative correlation. The solar wind speed leads the cosmic ray variation by 2 years. The 27-day variation of cosmic rays is correlated with both x and y-components of the IMF. They reach their maximum after solar activity does, by 3-5 years.