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# A Comparative Study of Cosmic Ray Radiations through the Different Observation in the Solar System

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Abstract: The innovative problems of cosmic rays observation that considers to association of various radiations in solar activities. The cosmic ray consideration for the observation of comparative study that we are use two category of cosmic rays, primary and secondary cosmic ray. The cosmic ray radiation that coming outer surface the influence of interplanetary magnetic field is also known as primary cosmic rays. The spectral plots between intensity and energy of  $\alpha$  - particles and other heavier nuclei are close to those of plot of protons also. This means that the relative abundances of cosmic rays with the graphical observation through some examples. The modulation of cosmic ray varies with solar activity and anti associated glowing. When the cosmic ray arrived by the side of surface of earth, the geomagnetic field of cosmic rays that deflects but some cosmic ray arrives through the poles. In the radiance and chromo-spheres which appear through solar flares in the solar cosmic ray environments are fluxes of high-energy-charged particles that accelerated. The value of geomagnetic cut-off rigidity is maximum at equator and minimum at north and south poles. This research we are analyzing many different comparative observations for cosmic ray activities with various solar particles and detection methods.

Keywords: Cosmic Ray, Flux Cosmic rays, GLE, CRI, GCR, EAS, HEL, Milky Way, etc

## REFERENCES

[1]. Baade, W, Zwicky, F, (1934), Cosmic Rays from Supernovae. *Proceedings of the National Academy of Sciences of the United States of America*, 20 (5): pp. 259263,

[2]. Belov, A. V., E. A. Eroshenko, H. Mavromichalaki, C. Plainaki, and V. Yanke (2005), Solar cosmic rays during the extremely high ground level enhancement on 23 February1956, Ann. Geophys., 23, 2281–2291. Bieber, J. W., J. Clem, P. Evenson, and R. Pyle (2005), Relativistic solar neutrons and protons on 28 October 2003, Geophys. Res.

[3]. Park, P. N. (1957), Acceleration of cosmic rays in solar flares, Phys. Rev., 107, 830–836. Reames, D. V. (1995), solar energetic particles: A paradigm shift, U.S. Natl. Rep. Int. Union Geod. Geophys. 1991-1994, Rev. Geophys., 33, 585–591.

[4]. Braun, I., et al. (2005), solar modulation of cosmic rays in the range from 10 to 20 GeV, Conf. Pap. Int. Cosmic Ray Conf. XXIX, 2, 135–138. Cliver, E. W. (2006), The unusual relativistic solar proton events of 1979 August 21 and 1981 May 10, Astrophys. J., 639, 1206–1217.

[5]. Cilek, Vaclav, ed. (2009), "Cosmic Influences on the Earth". Earth System: History and Natural Variability, Vol. I. Eolss Publishers, p. 165. ISBN 978-1-84826-104-4.

[6]. Duldig, M. L. (2001), Australian cosmic ray modulation research, Publ. Astron. Soc. Aust., 18, 12-40.

[7]. Firoz, K. A. (2008), On cosmic ray diurnal variations: Disturbed and quiet days, in WDS'08 Proceedings of Contributed Papers, part II: Physics of Plasmas and Ionized Media, edited by J. Safrankova and J. Pavlu, pp. 183–188, Matfyzpress, Prague.

[8]. Christian, Eric, (2012), "Are cosmic rays electromagnetic radiation?". NASA. Archived from the original on 31 May 2000.

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[9]. Dembinski, H.; et al. (2018), "Data-driven model of the cosmic-ray flux and mass composition from 10 GeV to 10^11 GeV", Proceedings of Science. ICRC2017: 533.

[10]. Dorman, L. I., and L. A. Pustil'nik (2005), On the probability of solar cosmic ray fluency during SEP event in dependence of the level of solar activity, Conf. Paper Int. Cosmic Ray Conf. XXIX, 2, 331–334.

[11]. Dorman, L. I., and D. Venkatesan (1993), Solar cosmic rays, Space Sci. Rev., 64, 183–362. Duldig, M. L. (1994), Cosmic ray transient variations observed from the Earth, Publ. Astron. Soc. Aust., 11(2), 110–115.

[12]. Firoz, K. A., and K. Kudela (2007), Cosmic rays and low energy particle fluxes, in WDS'07 Proceedings of Contributed Papers, part II: Physics of Plasmas and Ionized Media, edited by J. Safrankova and J. Pavlu, pp. 106–110, Matfyzpress, Prague.

[13]. Gopalswamy, N., S. Yashiro, S. Krucker, G. Stenborg, and R. A. Howard (2004), Intensity variation of large solar energetic particle events associated with coronal mass ejections, J. Geophys. Res., 109, A12105.

[14]. Kaushik, S. C. and Shriastava, P.K. (1999), An investigation of two types of interplanetary transient disturbances and their effects on cosmic ray intensity in relation with solar wind plasma parameters, Indian Journal of Radio and Space Physics, 203-210.

[15]. Anchordoqui, L.; Paul, T.; Reucroft, S.; Swain, J. (2003). "Ultrahigh energy cosmic rays: The state of the art before the Auger Observatory". International Journal of Modern Physics A. 18 (13): 2229–2366.

[16]. Nave, Carl R. (2013), "Cosmic rays". Physics and Astronomy Department. HyperPhysics. Georgia State University.

[17]. Firoz, K. A., D. V. Phani Kumar, and K.-S. Cho (2009), On the relationship of cosmic ray intensity with solar, interplanetary and geophysical parameters, Astrophys. Space Sci., 325(2), 185–193.

[18]. Mavromichalaki, H., et al. (2007), GLEs as a warning tool for radiation effects on electronics and systems, a new alert system based on real- time neutron monitors, IEEE Trans. Nuclear Sci., 54(4), 1082–1088.

[19]. Hess, V.F. (1936), "Unsolved Problems in Physics: Tasks for the Immediate Future in Cosmic Ray Studies", Nobel Lectures, the Nobel Foundation.

[20]. Shea, M. A and D. F. Smart (1990), A summary of major solar events, solar physics, 127, 297-320 8. Shriastava, P.K., and Agarwal S P, ; Proc. Basic Plasma Processes on the Sun, Kluwar Academy Press, Holland, p.259, 1990.

[21]. Gaisser, T. K. (1990), Cosmic Rays and Particle Physics, Cambridge Univ. Press, Cambridge, U. K.

[22]. S.I. Akasofu (1983), "Solar-wind disturbances and the solar wind-magnetosphere energy coupling function," Space Sci. Rev., 34, 173-183.

[23]. Lakhina G.S. (1994), "solar wind-magnetosphere-ionosphere coupling and chaotic dynamics", Surveys in Geophysics, Vol 15, No.6/Nov, pp 703-754 DOI: 10.1007/ BF00666091.

[24]. W. D. Gonzalez, J. A. Joselyn, Y. Kamide, H. W. Kroehl, G. Rostoker, B. T. Tsurutani, V. M. Vasyliunas (1994), "What is A Geomagnetic Storm?," J. Geophys. Res., 99, 5771-5792.

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