Monitoring and forecasting of radiation hazard from great SEP events by using CR data, 2. For satellites in dependence of their orbits in the Earth's magnetosphere

L.I. Dorman (1,2), I. Israel (3,4), Z. Kaplan (3), Yu. Ne'eman (4), L.A. Pustil'nik (1), A. Sternlieb (1), and I.G. Zukerman (1)

(1) Israel Cosmic Ray and Space Weather Center and Emilio Segre' Observatory affiliated to Tel Aviv University, Technion and Israel Space Agency, Israel,

(2) Cosmic Ray Department of IZMIRAN, Russian Academy of Science, Russia,

(3) Israel Space Agency, Israel, (4) Tel Aviv University, Israel (lid@physics.technion.ac.il / Fax: +972-4-6964952)

On the basis of results obtained in paper [1] for each step of determining by CR data of main parameters of SEP generation and propagation, we determine expected SEP fluxes out of the Earth's magnetosphere in dependence of energy and their variation with time. Then by using the method of coupling functions for radiation doze for people and/or electronic systems inside satellites in dependence of shielding we determine at each step the expected differential (per unit of time) and integral (during full time of SEP event) radiation dose for astronauts (e.g., in ISS) and electronics inside satellites in dependence of their orbits in the Earth's magnetosphere. If the radiation hazard is expected to be dangerous for some type of satellites, may be formatted and send special Alerts.

Reference:

[1]. Lev I. Dorman, Monitoring and forecasting of radiation hazard from great SEP events by using CR data, 1. For aircrafts in dependence of altitude and cutoff rigidity. Abstract for COSPAR-2006 A-01752 on Session PSW1.