Radiation environment in the Heliosphere from galactic cosmic rays and radiation hazard for space-probes in dependence of their trajectories: integral multiplicity and coupling function for radiation dose, monitoring and forecasting

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On the basis of cosmic ray (CR) and solar activity (SA) data in the past for more than four solar cycles taking into account the theory of convection-diffusion and drift global modulation of galactic CR in the Heliosphere we determine the parameters of convection-diffusion and drift mechanisms of CR long term variation in dependence of particles energy. By using these results and published regularly elsewhere predictions of expected SA variation we may made prediction of expected in near future long-term variation of radiation environment in the Heliosphere owed by galactic CR. From other hand, we introduce new nominations: integral multiplicity and coupling function for radiation dose inside space-probe caused by galactic CR in dependence of shielding for different places in space-probe. By the method of coupling functions we estimate the connection between CR intensity long-term variation and radiation hazard for space-probes in dependence of their trajectories (distance from the Sun and helio-latitude). We show that by this way we may make monitoring and forecasting for several years ahead of expected differential (per unit of time) and integral radiation doze (per some interval of time) for future astronauts (e.g., on missions to Moon and Mars) and electronic systems due by galactic CR in the Heliosphere.