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## A Proton Flux Model Dedicated to Solar Arrays Degradations on Electric Orbit Raising Missions

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Electric Orbit Raising (EOR) for telecommunication satellites has allowed significant reduction in onboard fuel mass, at the price of extended transfer durations. These relatively long orbital transfers, which can take up to a few months, equatorially cross most of the radiation belts, resulting in significant exposure of the spacecraft to space radiations. Since there are not covered by many spacecrafts, the radiation environment of intermediate regions of the radiation belts is less known than on popular orbits such as LEO or GEO. In particular, there is a need for more specific models for the MeV energy range proton fluxes, responsible for solar arrays degradations. We present a model of proton fluxes dedicated for EOR missions that was developed as part of the ESA ARTES program. This model is able to estimate the average proton fluxes between 60 keV and 10MeV on arbitrary trajectories on the typical durations of EOR transfers. A global statistical model of the radiation belts was extracted from the Van Allen Probes (RBSP) RBSPICE data and enriched by simulation results from the Salammbô radiation belt model were used. A special care was taken to model the temporal dynamics of the proton belt, allowing to compute analytically the distribution of the average fluxes on arbitrary EOR missions.