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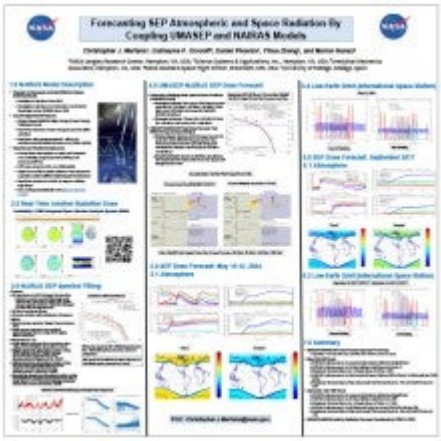
Poster
The Nowcast of Aerospace Ionizing RAdiation System (NAIRAS) model predicts the radiation environment from the Earth's surface to free-space. The model output provides dosimetric and particle flux quantities required to assess the radiation impacts to human health and adverse effects on vehicle electronic systems. The four sources of ionizing radiation included in NAIRAS are galactic cosmic rays (GCR), solar energetic particles (SEP), trapped protons (TRP-p), and trapped electrons (TRP-e). The focus of this presentation is the development of a new SEP dose forecast approach by coupling integral proton flux forecast products provided by the University of Malaga Solar particle Event Predictor (UMASEP) model to the input data stream of the NAIRAS model. The UMASEP-NAIRAS SEP dose forecasts approach is demonstrated by analyzing the September 2017 and the recent Jenn Gannon (May 10-11) 2024 SEP events. The model forecast bias is characterized at commercial and military aviation altitudes and at low-Earth orbit (LEO) trajectories similar to the International Space Station (ISS) orbit. The analysis of the two SEP events is encouraging and bolster the viability of this forecast approach. The UMASEP-NAIRAS SEP dose forecast products will soon be available in real-time at the Community Coordinated Modeling Center (CCMC) integrated Space Weather Analysis (iSWA) Web-based dissemination system.



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