

Exploring the validation results of ASPECS within ADVISOR

Athanasios Papaioannou¹, George Vasalos¹, Kathryn Whitman², Philip Quinn³, Anastasios Anastasiadis¹, Markus Leila Mays⁴, Janet Barzilla³, Chinwe Didigu⁴, Christopher Light⁴, Claudio Corti⁴, Joycelyn Jones⁴, Anna Chulaki⁴, Hannah Hermann⁴, Edward Semones⁵

¹*National Observatory of Athens/IAASARS, Athens, Greece*

²*KBR, 2400 NASA Pkwy, Houston, TX 77058, USA*

³*Leidos, 555 Forge River Rd, Webster, TX 77598, USA*

⁴*NASA Goddard Space Flight Center, 8800 Greenbelt Rd, Greenbelt, MD 20771, USA*

⁵*NASA Johnson Space Center, 2101 E NASA Pkwy, Houston, TX 77058, USA*

Solar Energetic Particle (SEP) events can adversely affect space and ground-based systems. Space weather effects associated with SEP events can impact include communication and navigation systems, spacecraft electronics and operations, space power systems, crewed space missions, and commercial aircraft operations. In preparation for human exploration missions, such as Artemis, a clear need for transitioning SEP prediction models to operational readiness has emerged. In this work, the outputs of the validation of the different components/modules of the newly updated version of the ASPECS (Advanced Solar Particle Event Casting System) tool based on the SEPVAL (SEP Model Validation) 2023 sample are being presented. Emphasis is given on the comparison of the different inputs/catalogs and the resulting performance of the tool. Metrics such as the Probability of Detection (POD), the False Alarm Rate (FAR), the Percent Correct (PC), the Heidke Skill Score (HSS) and the True Skill Score (TSS) are generated for each of the different flavors of the newly implemented version of ASPECS. Comparisons between the predicted and observed peak proton fluxes, and SEP time profiles at E>10 MeV and E>100 MeV are put forth and discussed.

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