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Poster

Radiation hazards at commercial aviation altitudes up to suborbital space have been known for decades including those from galactic cosmic rays (GCRs), solar energetic particles (SEPs), and more recently phenomena associated with radiation belt particle precipitation (RBPP). The complex radiation field that derives from these primary particle sources creates safety concerns for aerospace crew and passengers. Because of this safety hazard, the Automated Radiation Measurements for Aerospace Safety (ARMAS) program was developed to provide global aerospace radiation environment monitoring. The ARMAS operational system has now achieved monitoring from the surface of the Earth into Low Earth Orbit (LEO) with aircraft, high altitude balloon, suborbital vehicle, satellite and ISS flights over the past year. We present the latest results from i) the various flight domains (ISS in 2022 with 24 underflight aircraft conjunctions); ii) the calibrations of the ARMAS system with the Tissue Equivalent Proportional Counter (TEPC); iii) the ongoing real-time data assimilation of ARMAS data into the RADIANT system using NAIRAS v3 baseline global data and CARI-7 verifications; and iv) the development of an online ARMAS global database for scientific research. We also describe progress towards 24/7 atmospheric monitoring from both the perspective of new sensor development as well as new stratospheric monitoring platforms. We present this talk in the context of validation and performance assessment for radiation monitoring and its transition to operations.

Poster category:

Poster category

Aviation Radiation Research and Applications

Poster session day

Tuesday, April 16, 2024

Poster location

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Meeting homepage

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