

Characterization of Different Radiation Environments as a Result of Different Planetary Atmospheric Configurations.

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Different planetary atmospheric scenarios entail different surface radiation environments. The characterization of these different environments is crucial for the understanding of the habitability parameter space of the planet/body.

By running simulations on our 1-d radiative-convective climate models we create stable realistic planetary atmospheres. We then use these results to transport several space radiation environments through the atmospheres by making use of the NASA HZETRN (a Heavy Ion/Nucleon Transport Code for Space Radiation) highly specialized simulation code and see how the surface radiation environments vary. The cases for the Moon (no atmosphere), Mars (taking into account several stages implied in atmospheric evolution as well as differences due to current topography gradients), Venus and some moons with significant atmospheres such as Titan are reviewed, compared and its implications for habitability issues discussed.