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Astrophysical Ionizing Radiation Sources and Life on Earth[1]
BRIAN THOMAS, Washburn Unviersity — Astrophysical sources of ionizing radiation have been recognized as a potential threat to life on Earth, primarily through long-term depletion of stratospheric ozone, leading to greatly increased solar ultraviolet (UV) irradiance at the surface. It has been suggested that a gamma-ray burst, in particular, may have initiated the late Ordovician mass extinction - one of the "big five" known extinctions. I will describe the atmospheric impacts of ionizing radiation events and discuss estimates of biological damage under a severely depleted ozone layer. In particular, I will describe new and on-going work to quantify the impact of ionizing radiation events on primary producers in Earth's oceans.

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