

***Solar Influences on the Earth's Atmosphere***

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This talk will provide a brief overview of solar influences on the Earth's atmosphere, focusing on the effects of impulsive solar events (ISEs) and, more generally, energetic particle precipitation (EPP). Solar energy input is a critical driver of the Earth's climate system, yet the climatic perturbations from solar and geomagnetic variability are poorly understood. The basic mechanisms by which EPP and ISEs are thought to impact the atmosphere will be reviewed. This will include the initial impacts on the ionosphere and upper neutral atmosphere as well as the consequent production of chemically reactive constituents and changes in temperatures and possibly circulation. Empirical evidence for solar variability influences on the atmosphere will be summarized, and will be compared to recent model calculations. Key outstanding questions in the field will be highlighted, and a new NASA Living With a Star focused science team project to address some of these questions, "Response of the Atmosphere to Impulsive Solar Events" (RAISE), will be described.