

**2019—2020 SPACE PHYSICS SEMINAR SERIES**

## **Global-scale Observations of the Limb and Disk (GOLD) Mission and Initial Science Results**

Understanding and predicting the rapid, global changes that occur in the Earth's thermosphere-ionosphere (T-I) system has been a challenge since before the space age. Most of the observations of this system are either ground based and lack a global context, or they are from low Earth orbiting satellites, which provide coverage at an approximately daily cadence. From these the climatology in the T-I system of Earth is understood. Advancing beyond climatology to weather in the T-I system becomes ever more important as capabilities in navigation and communications, as well as our dependence on them advance. An unprecedented NASA mission, Global-scale Observations of the Limb and Disk (GOLD), began observing the Earth's T-I system at "weather" time scales in October 2018. This mission flew an ultraviolet, spectrograph imager on the SES-14 satellite. Observations by this imager provide synoptic, global-scale views of the evolution of the thermosphere to geomagnetic storms and of large-scale atmospheric gravity waves in the daytime thermosphere. Nighttime observations are providing new insights into the evolution of  $F_2$  peak electron densities ( $N_m F_2$ ) in the Equatorial Ionization Anomaly (EIA) as well as the prevalence of ionospheric density depletions within the EIA and to magnetic conjugate effects at higher latitudes.

**Thursday, November 7th**

4:00-5:00 p.m.

725 Commonwealth Ave | Room 502

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