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Session 11A Paper 2

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Early results and ionospheric observations from LITES on the ISS

The Limb-Imaging Ionospheric and Thermospheric Extreme-Ultraviolet Spectrograph (LITES) is an imaging spectrograph designed to measure extreme- and far-ultraviolet airglow emissions that originate from photochemicial processes in the ionosphere and thermosphere. During the daytime, LITES observes the bright O+ 83.4 nm emission from which the ionospheric profile can be inferred. At night, recombination emissions at 91.1 and 135.6 nm provide a direct measure of the electron content along the line of sight.

LITES was launched and installed on the International Space Station (ISS) in late February 2017 and has recently begun operations along with the highly complementary GPS Radio Occultation and Ultraviolet Photometery – Colocated (GROUP-C) experiment.

We will present an overview of the LITES experiment and some early results from the first few months of operations, the challenges and opportunities presented by making ionospheric measurements from the ISS, and the advantages in calibration and validation that are possible through a combination of LITES measurements, GROUP-C measurements, and ground-based optical and radar systems.