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Early Results and Ionospheric Observations from GROUP-C on the ISS

The GPS Radio Occultation and Ultraviolet Photometer Co-located (GROUP-C) experiment launched to the International Space Station on February 19, 2017 as part of the Space Test Program Houston #5 payload (STP-H5). Installation and activation of STP-H5 occurred in late February, and testing and commissioning of the GROUP-C experiment commissioning completed in March.

GROUP-C includes a high-sensitivity far-ultraviolet photometer measuring horizontal ionospheric gradients and an advanced GPS receiver providing ionospheric electron density profiles and scintillation measurements. These sensors in combination with a companion experiment, the Limb-Imaging Ionospheric and Thermospheric Extreme-Ultraviolet Spectrograph (LITES), offer a unique capability to study spatial and temporal variability of the thermosphere and ionosphere using multi-sensor approaches, including ionospheric tomography.

The instrument suite provides technical development and risk-reduction for future space weather sensors suitable for ionospheric specification, space situational awareness, and data products for global ionosphere assimilative models. We present an experiment overview, early on-orbit observational results, and discuss the opportunities for using these new data to help address questions regarding the complex and dynamic features of the low and middle latitude ionosphere-thermosphere.

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