PRELIMINARY ANALYSIS OF IMAGES FROM THE THERMOSPHERIC TEMPERATURE IMAGER ON FAST, AFFORDABLE, SCIENCE AND TECHNOLOGY SATELLITE (FASTSAT)

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ABSTRACT: The Thermospheric Temperature Imager (TTI) on Fast, Affordable, Science and Technology SATellite (FASTSAT) measures the upper atmospheric atomic oxygen emission at 135.6 nm and the molecular nitrogen LBH emission at 135.4 nm to determine the atmospheric O/N2 density ratio. Observations of variations in this thermosheric ratio correspond to electron density variations in the ionosphere. The TTI design makes use of a Fabry-Perot interferometer to measure Doppler widened atmospheric emissions to determine neutral atmospheric temperature from low Earth orbit. FASTSAT launched November 10, 2010 and TTI is currently observing geomagnetic signatures in the aurora and airglow. This work is supported by NASA.