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ISUAL 630nm Observations of Lightning-Induced Transient Emissions (LITEs)

Tai-Yin Huang (1), Cheng-Ling Kuo (2), Chih-Yu Chiang (2), Alfred Chen (2), Han-Tzong Su (2), and Rue-Ron Hsu (2)

(1) Penn State Lehigh Valley, Science Division, Physics, Center Valley, United States (tuh4@psu.edu, 610 2855220), (2) National Cheng Kung University, Tainan, Taiwan

We report the 630-nm observations of lightning-induced transient emissions (LITEs) in the OH airglow layer made by the narrowband 630-nm filter on the Imager of Sprites and Upper Atmospheric Lightning (ISUAL) onboard the FORMOSAT-II satellite. We present two events collected during the period of December 2009 – January 2010. The results of our data analysis using both the CCD image and spectrometer data in conjunction with an ELVE model show that there is about 65% - 53 % of N21P emissions in the LITEs. Our analysis indicates that there is still somewhat considerable intensity enhancement ($\sim$ 1.25 kR) unaccounted for after the N21P contribution is removed. Our study suggests that there might be OH emissions in ELVES and that OH species might also be involved in the lightning-induced process to contribute to the intensity enhancements that we observed. Our study sheds light on the role lightning plays in the lightning-induced intensity enhancements in the MLT region.