

[EE] Evening Poster | P (Space and Planetary Sciences) | P-EM Solar-Terrestrial Sciences, Space Electromagnetism & Space Environment

[P-EM10]Coupling Processes in the Atmosphere-Ionosphere System

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Vertical coupling mechanisms throughout the whole atmosphere are critical to understanding the near Earth space environment, as well as its sensitivity to the solar, geomagnetic, and atmospheric drivers. This international session focuses on physical/chemical processes occurring in the mesosphere, thermosphere, and ionosphere (MTI) from both the poles to the equatorial region. Both quiet and disturbed states in response to lower atmospheric forcing or solar forcing are important for understanding the MTI system and its coupling to other regions. We invite presentations of observations and observational concepts with ground-based and/or space-borne instruments, theoretical studies, numerical simulations, and development of data analysis systems for various kinds of temporal and spatial variations in MTI system.

[PEM10-P07]D-region ionospheric oscillations associated with eruptions of Sakurajima volcano, Japan, using LF transmitter signals

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Several studies for the F-region ionosphere associated with volcano eruptions based on GPS-TEC data have been reported so far (e.g., Heki, 2006; Dautermann et al., 2009; Heki et al., 2010). These studies reported that acoustic waves excited by volcano eruptions reach up to the F-region ionosphere, and caused F-region perturbations. After earthquakes, acoustic resonance (the period: 1-5 min.) between the Earth's surface and lower thermosphere was reported based on TEC data (e.g., Saito et al., 2011). However, little studies on the D-region ionosphere associated with volcano eruptions have been reported. In this study, we investigate the D-region variations related to eruptions of Sakurajima volcano (31.59N, 130.66E), Japan, at 04:11 UT on June 6, 2014, using intensity of LF transmitter signals. The LF propagation paths are JJY (JJY 60 kHz) - Tainan (TNN, Taiwan), and BPC (68.5 kHz) - TNN. Based on wavelet spectra, the both LF intensities had a period of 3-5 minutes during 04:12-04:20 UT after the eruptions (04:11 UT). On the JJY 60kHz-TNN path, the period became long to be about 6 min. gradually. We compared the LF intensities with atmospheric pressure data obtained by an infrasonic meter observed by Sakurajima Volcano Research Center, Kyoto University, and seismic waves in the NIED F-net data (FUK, STM, and SBR) located close to the Sakurajima volcano. The atmospheric pressure and vertical velocity of the seismic waves had the similar periods of 3-5 min. and 2-5 min. during 04:18-04:42 UT and 04:12-04:47 UT, respectively. In the presentation, we will discuss the possibility of acoustic resonance in more detail.