R005-22
A 会場 ：11/25　AM1 （9:00-10:15）
10:00〜10:15

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D-region ionospheric response to the 2024 Noto Peninsula earthquake using OCTAVE LF transmitter signals

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In the D-region ionosphere, oscillations of LF (low frequency, 30-300 kHz) transmitter signals with a period of 100 s were reported about five minutes after mainshock of the 2011 Tohoku earthquake (Ohya et al., 2018). During the 2015 Nepal earthquake, variations in LF amplitudes with a period of 100-200 s were reported (Akashi et al., 2021). These variations were caused by acoustic waves excited by Rayleigh waves. However, detailed coupling between earthquakes and the D-region ionosphere has not been revealed. In this study, we investigate the D-region ionospheric variations associated with the 2024 Noto earthquake using OCTAVE (Observation of CondiTion of ionized Atmosphere by VLF Experiment) LF transmitter signals. We have built the OCTAVE observation network in Asia, Europe, and America for monitoring the ionosphere and magnetosphere. Intensity and phase were observed with a sampling time of 0.1 s. The mainshock of the Noto earthquake (Mw 7.5) occurred at 07:10 UT on 1 January, 2024. When the propagation velocity of the Rayleigh wave was assumed to be ˜3.5 km/s, we calculated the propagation time of acoustic wave between the Earth's surface and reflection height of the LF waves (about ˜90 km height). Variations in LF amplitudes and phase were seen in JJY40kHz-RKB and JJY60kHz-RKB paths. The amplitude and phase variations were 0.6-1.8 dB and 1.8 degrees, respectively. There was no change in JJI-RKB amplitude. The period of the LF variations was 60 − 300 s. The longer period of vertical seismic velocity observed at Wajima (WJM) was similar to that of the LF amplitudes (10 − 300 s). Acoustic waves with the similar periods of the seismic waves might propagated from the closest path point to the D-region height vertically. In this presentation, we will show the detailed phenomena in detail.