R006-14
C 会場 ：11/5　PM2 （15:45-18:15）
17:30〜17:45

ホイッスラー波動強度が脈動オーロラ発光強度に与える影響

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Wave amplitude dependence of the pulsating aurora emissions

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The Pulsating aurora is a type of diffuse aurora, and pulsation periods are several seconds - several tens of seconds. The amplitudes of the optical emissions should be proportional to the downward energy flux inside the loss cone, so it is natural to consider that that optical emission increases when the wave amplitudes increase if we consider the quasi-liner process. Recent observations indicated that the non-linear wave-particle interactions are essential to cause the pulsating aurora, and it is expected that the relationship between the optical emissions and wave amplitude is not simple as expected from the quasi-linear theory. For example, the phase-trapping effect may suppress the precipitation flux if the wave amplitudes increase. In order to investigate how the precipitation flux changes with the wave amplitudes, we conduct a test-particle simulation about chorus wave-particle interactions using GEMSIS-RBW (Saito+, 2012). Besides non-linear wave-particle interaction processes, stochastic differential equations that is equivalent to the Fokker-Planck equation are included to realize stable precipitations as like the quasi-linear process. Using the simulated precipitating electron flux from the test-particle simulation, we calculate the optical emissions at different wavelength at the ionospheric altitudes. From the simulations, we found that both the intermittent precipitations by chorus wave particle interactions and steady precipitations by quasi-linear process are suppressed when chorus amplitude increases, which are not expected from the quasi-linear process.