R006-06
A 会場 ：11/25　PM2 （15:30-18:15）
17:00～17:15

#三好 由純 [1], チェン ルイ [2], 田 采祐 [1], 栗田 怜 [3], 松田 昇也 [4], 齊藤 慎司 [5], 加藤 雄人 [6], 浅村 和史 [7], 寺本 万里子 [8], 山本 和弘 [1], Kumar Sandeep[1], Porunakatu Radhakrishna Shreedevi[1], 風間 洋一 [9], ウォング シャンユー [9], 堀 智昭 [1], 篠原 育 [7], 笠原 禎也 [4], 笠原 慧 [10], 横田 勝一郎 [11], 桂華 邦裕 [10], 三谷 烈史 [7], 高島 健 [7], 土屋 史紀 [6], 熊本 篤志 [6], 新堀 淳樹 [1], 松岡 彩子 [3]
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Origins of chorus waves in the inner magnetosphere

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Non-linear whistler mode waves, known as chorus waves, are commonly observed in the inner magnetosphere. These waves play a crucial role in the dynamics of energetic electrons, including their acceleration, which contributes to the formation of radiation belts, and the scattering of electrons across a wide energy range, leading to phenomena such as pulsating auroras and relativistic electron microbursts. Recent studies suggest that non-linear processes are significant in the generation of these waves, particularly through the formation of electron holes in phase space. Theoretical threshold amplitudes have been proposed as a proxy for estimating the conditions necessary to trigger these non-linear processes. In this study, we investigate the generation of chorus waves in the inner magnetosphere in association with 1) substorm injections, 2) Pc5 pulsations, and 3) solar wind dynamic pressure enhancements. Using data from the Arase satellite (LEPe/MEPe/HEP, PWE and MGF), we analyze the time variations in threshold amplitudes before and after chorus wave generation. In all three cases, it is expected that the linear growth rate increases due to temperature anisotropy resulting from betatron acceleration. A decrease in the threshold amplitude, which is essential for triggering the generation of chorus waves, is observed. This decrease is attributed to the enhancement of hot electron density through injections in case 1) and Pc5 modulation in case 2) and changes in field line topology in case 3). We conclude that both an increased linear growth rate and decreased threshold amplitudes contribute to the non-linear triggering of chorus waves.