**R006-P32**
**ポスター 1：11/25　AM1/AM2（9:15-12:35）**

#今城 峻 [1)], 三好 由純 [2)], 笠原 慧 [3)], 横田 勝一郎 [4)], 松岡 彩子 [5)], 桂華 邦裕 [3)], 堀 智昭 [6)], 篠原 育 [7)], 塩川 和夫 [2)], 山本 和弘 [8)], 寺本 万里子 [9)]
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# First evidence of field line curvature scattering effect on heavy ion species: property of isotropic distribution boundaries

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This study provides the first observational evidence of the field line curvature (FLC) scattering effect on heavy ion species (He+, He++, and O+) in the inner magnetosphere. FLC scattering theory predicts that, for a given energy per charge, ions with a higher mass-per-charge ratio have larger gyroradii and will thus become isotropic on more dipolar magnetic field lines closer to Earth. To verify this prediction, we used Arase satellite data to determine the L-shell of the isotropic distribution boundary (IDB) for each ion species and compared their locations relative to the proton IDB. We found that the observed order of the IDBs (O+, He+, He++, H+ from lowest to highest L-shell) was consistent with FLC scattering predictions, particularly under specific conditions: high proton IDB L-shells (L $>$7), higher energies (80 – 180 keV/q), and in the postmidnight sector. However, the order deviates from theory at lower L-shells, lower energies, and premidnight, suggesting that other isotropization processes may become dominant in these conditions. These results indicate that FLC scattering is an important mechanism for the loss of energetic heavy ions from the outer ring current region via isotropization and subsequent precipitation into the atmosphere.