[포SE-44] Incorporation of Electromagnetic Ion cyclotron waveinto Radiation Belt environment model

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Radiation Belt Environment (RBE) model has developed to understand radiation belt dynamics as it considers whistler mode hiss and chorus waves which is responsible for relativistic electron acceleration and precipitation. Recently, many studies on electron loss by pitch-angle scattering have reported that elctromagnetic ion cyclotron (EMIC) wave is also responsible for main loss mechanism in dusk and equatorial regeion. Here, we attempt to incorporate EMIC into RBE model simulation code to understand more detailed physical dynamics in Radiation belt environemnt. We compare this developed model to data during storm events where both of electron loss and EMIC waves were detected

[포SE-45] Propagation characteristics of CMEs associated magnetic clouds and ejecta

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We have investigated the characteristics of magnetic cloud (MC) and ejecta (EJ) associated coronal mass ejections (CMEs) based on the assumption that all CMEs have a flux rope structure. For this, we used 54 CMEs and their interplanetary counter parts (interplanetary CMEs: ICMEs) that constitute the list of events used by the NASA/LWS Coordinated Data Analysis Workshop (CDAW) on CME flux ropes. We considered the location, angular width, and speed as well as the direction parameter, D. The direction parameter quantifies the degree of asymmetry of the CME shape, and shows how closely the CME propagation is directed to Earth. For the 54 CDAW events, we found several properties of the CMEs as follows: (1) the average value of D for the 23 MCs (0.62) is larger than that for the 31 EJs (0.49), which indicates that the MC-associated CMEs propagate more directly to the Earth than the EJ-associated CMEs; (2) comparison between the direction parameter and the source location shows that the majority of the MC-associated

CMEs are ejected along the radial direction, while many of the EJ-associated CMEs are ejected non-radially; (3) the mean speed of MC-associated CMEs (946 km/s) is faster than that of EJ-associated CMEs (771 km/s). For seven very fast CMEs (>1500 km/s), all CMEs with large D (>0.4) are associated with MCs and the CMEs with small D are associated with EJs. From the statistical analysis of CME parameters, we found the superiority of the direction parameter. Based on these results, we suggest that the CME trajectory essentially decides the observed ICME structure.