[구SS-15] Identifying the plasmapause locations for periods under unusually prolonged and weaker solar conditions

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The Earth's radiation belts consist of an inner belt and an outer belt, being separated by the slot region. It is well known that the variations of the inner edge of the outer belt and the location of the plasmapause (Lpp) are closely related to each other. Different waves exist inside and outside the plasmasphere, playing different roles in the particle dynamics. The plasmapause is well known to be influenced by solar wind conditions and geomagnetic disturbances. Therefore, it is important to precisely determine the location of the plasmapause and develop a prediction scheme. In this study, we identified the location of the plasmapause using the plasma density data from the Time History of Events and Macroscale Interactions During Substorms (THEMIS). The plasmapause is determined by requiring density gradient of a factor of 15 within L-change = 0.5. We statistically determined Lpp as a function of preceding geomagnetic indices. Also, we determined the relations between Lpp and preceding solar wind conditions by estimating correlation coefficients. These relations give us predicting models of Lpp as a function of preceding solar wind parameters and geomagnetic indices. As our database covers a period over the ascending phase from near-sunspot minimum, our statistical results differ somewhat from previous works that cover near-sunspot maximum. Finally, we give some comparative examples obtained from the Van Allen Probes data.

[구SS-16] Multi-Band Polarimetric Observations of the Lunar Surface

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Polarization of the light scattered by the lunar surface contains information on the mean particle size of the lunar regolith, which gradually decreases by continued micro-meteoroid impact over a long period and thus is an age indicator of the surface. We performed multi-band (U, B, V, R and I) polarimetric observations toward the whole near side of the Moon at the Lick observatory using a 15-cm reflecting telescope with 1.1km/pixel spatial resolution at the center of the lunar disk. We analyze the color dependence of the polarization properties of the lunar regolith and discuss its implication for the study of lunar swirls.