

## Solar wind proton deceleration at higher altitude above lunar magnetic anomalies

# Masaki N Nishino[1]; Masaki Fujimoto[2]; Yoshifumi Saito[3]; Shoichiro Yokota[3]; Hideo Tsunakawa[4]; Masaki Matsushima[5]; Hidetoshi Shibuya[6]; Hisayoshi Shimizu[7]; Futoshi Takahashi[8]

[1] ISAS/JAXA; [2] ISAS, JAXA; [3] ISAS; [4] Dept. Earth Planet. Sci., Tokyo TECH; [5] Dept Earth & Planetary Sciences, Tokyo Tech; [6] Dep't Earth & Env., Kumamoto Univ.; [7] ERI, University of Tokyo; [8] TITech

We study interaction between the solar wind (SW) flow and lunar magnetic anomalies using SELENE (Kaguya) data. Our recent study showed that incident SW protons are decelerated at low altitude (say, ~25 km) above strong magnetic anomalies, and that SW protons are less or not affected by the magnetic anomalies at higher altitude (~100 km). Here we report that SW protons are decelerated above strong and wide magnetic anomaly region even at the higher altitude under specific SW conditions of high density and strong interplanetary magnetic field (IMF). One might imagine that the high dynamic pressure of the SW flow compresses the magnetic anomalies on the lunar dayside to make them less effective at higher altitude. However, what is often observed there under the high SW dynamic pressure and strong IMF is magnetic enhancement that is at times accompanied by the deceleration of the incident SW protons. We will discuss mechanisms of magnetic pile-up above the magnetic anomalies and SW proton deceleration at the higher altitude.