

R009-23

A 会場 : 11/25 AM2 (11:05-12:35)

11:05~11:20:00

#原田 裕己¹⁾, Cravens Thomas E.²⁾, Brain David A.³⁾, Halekas Jasper S.⁴⁾, Luhmann Janet G.⁵⁾, Fowler Christopher M.⁶⁾, Hanley Gwen⁵⁾, McFadden James P.⁵⁾

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MAVEN Observations of Collisional Effects on Magnetic Reconnection in the Martian Ionosphere

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We study collisional effects on magnetic reconnection in the Martian ionosphere by analyzing MAVEN data. Although much work has been done regarding collisional reconnection in solar and laboratory plasmas, few studies, if any, have addressed collisional effects on magnetic reconnection with in-situ spacecraft measurements in space and planetary environments. Our results show that current sheets with large magnetic shear are frequently observed even in the collisional region of the Martian ionosphere, yet reconnection ion jets are rarely detected in the collisional regime. This suggests that reconnection ion jets could be slowed down by ion-neutral friction effects with increasing collisionality. Based on in-situ parameters measured by MAVEN, we propose that the Martian ionosphere allows us to explore multiple regimes of magnetic reconnection, thereby offering a unique natural laboratory to study the transition of reconnection processes from collisionless to collisional plasmas with in-situ spacecraft measurements.