



A statistical study of flux ropes in the Martian ionosphere

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We develop a procedure to identify magnetic flux ropes in Martian ionosphere using the MAVEN observations of magnetic field. Preliminary results show that the terminator play an important role on the distribution of flux ropes. On the dayside they are observed from 130 km to 300 km altitude and more frequently observed around ~ 170 km altitude. The flux ropes near the terminator are much denser than that in the sub-solar region. On the nightside ($SZA > 100$ deg), flux ropes are sparser and only observed below ~ 180 km altitude. This distribution suggest Kelvin-Helmholtz instability could be an important source of the flux ropes in the ionosphere. The characteristics of the ropes, such as field amplitude and diameter will be identified in subsequent study.