



Modelling of MAVEN observations of energetic ions in low altitude crustal field regions

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During several passages of the Mars Atmosphere and Volatile Evolution (MAVEN) mission through low altitude crustal field regions its onboard instruments Solar Wind Ion Analyzer (SWIA) and Solar Wind Electron Analyzer (SWEA) had detected unexpected co-marsward directed ions and electrons of broad energy range, including relatively high energy ions of several keV. To understand the origin and driving mechanisms of these fluxes, the particle tracing code was applied to simulate the observations of MAVEN instruments using the backwards tracing approach. Time-dependent multispecies single-fluid MHD model of plasma environment around Mars was taken as a base for the particle tracing. Simulation concerns H⁺, O⁺ and O₂⁺ ions. Here we would like to overview the data, that shows interesting keV-ion distribution, demonstrate the modelling technique and discuss the possible acceleration mechanism of those ions, their origin and probable ion energy dispersion in Martian crustal magnetic fields.