# The fate of the outflowing suprathermal ions: Dependence on the magnetic field

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We investigate the role of the magnetic field on transport and ultimate fate of outflowing suprathermal ions by kinetic means using a full-particle tracing scheme. We launched H+, He+ and O+ ions in order to determine their final destination in terms of the magnetopause, the distant tail, the ring current region (L-shell of 5), and the atmosphere. The number of ions that reached each of the destinations was calculated quantitatively by employing an empirical model of the outflowing ion distribution based on long-term data from Akebono/SMS. For O+ ions, ˜4-7% of the outflowing ions that escape from the ionosphere return to the Earth under the quiet-time magnetic field configuration due to pitch angle scattering in the tail region, while only ˜0.6-0.8% return under the active-time magnetic field configuration. The ions tend to return to the Earth when we artificially increase the Earth's dipole moment. This result probably means that the strength of the main planetary field is one of the important parameters that determine the number of escaping ions from the planetary ionosphere to the interplanetary space. We also show a dependence of mass.