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Compact representations of high-latitude ionospheric outflows[1]
JAMES HORWITZ, WEN ZENG, Department of Physics, The University of Texas at Arlington, Arlington, TX 76019 — Realistic compact representations of the ionospheric outflow bulk parameters and their relationships to putative drivers are needed for global magnetospheric modeling. Recent satellite data analyses have obtained formula fits for the measurement-based relationships of the outflows levels to parameterizations for electron precipitation and Poynting fluxes, which are expected to be among the principal drivers for the ionospheric outflows. Here, an extensive set of systematic simulation runs with our Dynamic Fluid Kinetic (DyFK) simulation code for ionospheric plasma field-aligned transport is employed to obtain O^+ and H^+ densities and flow velocities at altitudes corresponding to typical inner boundary levels for prominent current global magnetospheric models. These O^+ and H^+ densities and parallel flow velocities are represented versus parameterizations for precipitation electrons, the BBELF waves which transversely heat ionospheric ions, and solar zenith angle.

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