

Statistical study of the relationship between ion upflow and field-aligned current in the topside ionosphere for both hemispheres during disturbed and quiet times

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A statistical study of ion upflow and field-aligned currents (FACs) has been performed in the topside ionosphere of both hemispheres for magnetic quiet and disturbed times by using DMSP satellite observations from 2010-2013. Distributions in MLT/MLAT reveal that ion upflow shows a dawn-dusk asymmetry distribution that corresponds well with the region 1 field-aligned currents. In addition, there are highest occurrence regions near noon and within the near midnight auroral disturbance area. These correspond to cusp and nightside dynamical processes, respectively. Both the ion upflow occurrence and FAC regions expand equatorward to a wider area during disturbed times.

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