

## **Concentration of aurora arc from viewpoint of Alfvén wave reflection at Ionosphere.**

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Although the ionospheric conductivity has one-peak annual variation, the decay time of given geomagnetic flux has different annual variation because the dissipation is proportional to the summation of conjugate points in winter and summer hemispheres. More precisely, we have to consider how Alfvén wave is reflected/absorbed at the ionosphere. Both the summation effect and the reflection effect prefers nightside field-aligned current maximum at equinox, predicting the famous semi-annual variation (seen in Kp and AL indices) of the nightside geomagnetic disturbances and annual variation of dayside activity even if we ignore the semi-annual variation of energy input from the solar wind by the geometrical effect (Russell-McPerron effect).