

オーロラブレイクアップの力学的解釈

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[1] なし

Mechanical characteristics of the magnetosphere; a case study of localized auroral intensifications

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[1] none

Localized auroral intensifications accompanied by a dip-equator Pi2 onset were recorded on January 17 and 24, 1986 by all-sky TV in central Canada and by magnetometers on board the geosynchronous satellites GOES 5 and GOES 6 at conjugate points. During both events, the auroral intensifications occurred in the meridians between GOES5 and GOES6, separated by two hours of local time, without poleward expansions during the January 17 event and with small poleward expansions on January 24. It was found from satellite magnetometers that auroral intensifications could be occurred in association with a bifurcation of field lines in the midnight sector. If we can interpret the present observation by a mechanical source model of auroral energy proposed by Sato [1982], the field line bifurcation might be caused by bifurcation of earthward fast plasma flow near geosynchronous altitudes. And also, the auroral intensification might be located on a meridian where earthward fast plasma flow was stagnant.

オーロラ全天カメラと静止衛星磁場データを比較すると、オーロラブレイクアップの経度的位置が静止衛星高度で見た Upward と Downward-FAC の中間に位置するケースがよくある。衛星磁場変化を FAC 効果というより、プラズマの変移によるものと捉えればオーロラブレイクアップは Earthward fast plasma flow をハンマーに例えて力学的に理解することが出来る。