

2014年12月の連発CMEに対する極冠域電離圏の応答: 2台の全天イメージャによる5日間連続モニタリング
Responses of polar cap ionosphere to successive CMEs in Dec 2014: 5 days continuous monitoring with two all-sky imagers

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In December 2014, three coronal mass ejections (CMEs) occurred successively during 4 days interval from December 18 to 21. These CMEs arrived at the Earth respectively at December 21, 22 and 23 and caused a small magnetic storm (Dst \sim -50 nT). During this interval, two all-sky airglow imagers were operative in Longyearbyen, Norway (78.1N, 15.5E) and Resolute Bay, Canada (74.7N, 265.1E) and monitoring the polar cap ionosphere continuously for 5 days from December 20 to 24. The two all-sky imagers observed continuous generation/propagation of polar cap patches from the dayside towards the nightside across the polar cap region during a prolonged interval of southward IMF Bz. Such a continuous transportation of high-density plasma is visualized for the first time. At the time of the arrival of second CME, the IMF Bz was directed strongly northward. During this period, the polar cap shrank significantly, which implies that the magnetosphere was almost closed during such a strongly northward IMF condition. By using the 5 days continuous optical data in the polar cap region, we will discuss various responses of polar cap ionosphere to CME-induced solar wind disturbances.

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