

PEM031-12

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## Relation between drift oscillations of auroral patches in the morning sector and ULF pulsations

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In this study, we investigate a relation among oscillations in drift of auroral patches, ULF pulsations, and propagating auroral arcs simultaneously observed in the morning sector and discuss the physical processes of these phenomena. We have studied Quasi-Stationary Auroral Patches (QSAPs) observed at the South Pole Station (-74.3CGLAT) in the interval 9-14 MLT on July 8, 2004, that were characterized as stable auroral form, location, and luminosity for up to several hours (Ebihara et al., 2007). In this interval, the QSAPs showed oscillations in their eastward drift velocity and the oscillations were accompanied by Poleward Moving Auroral Arcs (PMAAs) and Pc 5 pulsations. It was further demonstrated from the detailed analysis that all the three phenomena had the same period as Pc 5 pulsations and regular phase relation among them.

There are a few previous studies on the correlation between the drift oscillations of the auroral patches and ULF pulsations, in which the oscillations were deduced to be the ionospheric perturbations due to the coupling between the propagating compressional waves and the shear Alfvén waves in the magnetosphere. Furthermore, we calculated the magnetosphere-ionosphere coupling process by the numerical simulation assuming that the field-line resonance (FLR) occurred in the magnetosphere. As a result, the oscillations of QSAPs, PMAAs, and Pc 5 pulsations can be interpreted as the various aspects of the FLR phenomena.

Such drift oscillations of auroral patches can be observed occasionally by the color digital camera at Tromsø (66.7CGLAT), Norway, in the early morning and are coincident with ULF pulsations. In the presentation, we will also report the characteristics of the auroral patches observed at Tromsø comparing with ULF pulsations from the IMAGE magnetometer network.

### References:

Ebihara, Y., Y.-M. Tanaka, S. Takasaki, A. T. Weatherwax, and M. Taguchi, Quasi-stationary auroral patches observed at the South Pole Station, *J. Geophys. Res.*, 112, A01201, doi:10.1029/2006JA012087, 2007.

Oguti T., R. Nakamura, and T. Yamamoto, Oscillations in drifts of auroral patches, *J. Geomagn. Geoelectr.*, 39, 609-624, 1987.

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