

Simultaneous observations of Quasi-Periodic optical aurora and HF radars in the vicinity of the cusp/cleft region

Yozo Murata[1], Natsuo Sato[2], Hisao Yamagishi[3], Akira Sessai Yukimatu[4], Masayuki Kikuchi[2], Kazuo Makita[5], Tadahiko Ogawa[6], Huigen Yang[2], Ruiyuan Liu[7], SuperDARN Group PIs R.A. Greenwald

[1] Department of Polar Sci., the Graduate Univ. for Advanced Studies, [2] NIPR, [3] Upper Atmos. Phys., Natl. Inst. Polar Res., [4] UAP, NIPR, [5] Engineering, Takushoku Univ., [6] STE Lab., Nagoya Univ, [7] PRIC

The field of view of Syowa East HF Radar covers over Zhongshan Station. Quasi-periodic(QP) structure of HF radar echoes with period of ~5-10 minutes was found in the time interval of 1210 UT - 1350 UT (1328 MLT - to 1508 MLT) on 3 August 1997. Fortunately interesting QP optical auroras were observed simultaneously using all-sky TV cameras and scanning photometers at Zhongshan. One of the most interesting characteristics of visible auroras is that the QP variation in the intensity and/or spatial variation of optical aurora has one to one correlation with the QP variations of HF radar backscatter powers though the region, where QP backscatter was found, located lower latitude than that of QP optical aurora.

The field of view of Syowa East HF Radar covers over Zhongshan Station. Quasi-periodic(QP) structure of HF radar echoes with period of ~5-10 minutes was found in the time interval of 1210 UT - 1350 UT (1328 MLT - to 1508 MLT) on 3 August 1997. Fortunately interesting QP optical auroras were observed simultaneously using all-sky TV cameras and scanning photometers at Zhongshan. One of the most interesting characteristics of visible auroras is that the QP variation in the intensity and/or spatial variation of optical aurora has one to one correlation with the QP variations of HF radar backscatter powers though the region, where QP backscatter was found, located lower latitude than that of QP optical aurora.