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# 低緯度・赤道MAGDAS観測点でのPc5周期帯電場・磁場変動

# Ionospheric Electric and Ground Magnetic Pc 5 Variations at Low-latitude and Equatorial MAGDAS Stations

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Pc 5 pulsations (1 - 6.7 mHz) are observed globally in dayside by the ground-based magnetic network. In particular, low-latitude and equatorial Pc 5 pulsations have been attributed to DP 2 type current system in the ionosphere. However, observations in the ionosphere are not so much reported. We believe that more extensive use of HF radars will lead to a better understanding of Pc 5 pulsations in the ionosphere and magnetosphere.

The present study is based on the data from FM-CW radars located at Sasaguri, Japan (SAS; M. Lat. = 23.2 degree, M. Lon. = 199.6 degree, LT = UT + 9.5 hrs), Paratunka, Russia (PTK: M. Lat. = 45.8, M. Lon. = 221.6), and Manila Philippines (MNL: M. Lat. = 4.2, M.Lon. = 192.4). The FM-CW radar is a type of HF radar that can measure the range of target as well as Doppler shift for reflected radio waves from the target (e.g., ionized layer). From the observed Doppler shift, we can estimate east-west electric field in the ionosphere.

On 30 October 2003, a Pc 5 pulsation was detected in the horizontal component (H) at a daytime equatorial station (YAP) with large amplitude of 30 - 50 nT. Also an oscillation of the Doppler velocity (V) (about 25m/s) in the range of Pc 5 was detected at daytime-station SAS. The ground Pc 5 magnetic variation may be caused by the ionospheric electric fields.

The phase difference between the equatorial H and V at SAS was about -30 degree at the pulsation frequency of 2 mHz. The phase difference decreased with increasing the frequency. At 8 mHz, the phase delay between the H and V was about -90 degree. These phase relation may be explained by using the induction effect, because of high ionospheric conductivity in the dayside equator.