

Ionospheric Alfvén resonator and Pc1 geomagnetic pulsations observed at low-latitude ground station

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We started observations by an induction magnetometer at low-latitude station, Muroto (GMLAT=24.40 degree), in December 2013. Cadence of data is 64 Hz. We find that geomagnetic pulsations below 4 Hz are sometimes active even at low-latitude during nighttime and can be classified into the following three categories according to their features in dynamic power spectrum: (1) broad-band resonance structures with a frequency separation between adjacent bands (Δf) of approximately 0.5-1.0 Hz, (2) narrow-band resonance structures with $\Delta f \sim 0.1-0.3$ Hz, and (3) bursty unstructured enhancements around 0.5-2 Hz. We suppose that the pulsations of categories 1 and 2 are caused by the ionospheric Alfvén resonator, in which the shear Alfvén waves are trapped in the F region ionosphere that is bounded by sharp gradients of the Alfvén velocity. The pulsations in category 3 are considered to be low latitude Pc1 geomagnetic pulsations. We will examine statistical characteristics of these pulsations and discuss possible excitation mechanisms.