

## HF radar and satellite observations of Pc5 magnetic pulsations

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Although MHD waves with long period (Pc5) have been observed in the early morning sector, the generation and transmission of the waves are not fully explained. One of the reasons is that earlier studies have concentrated on ground observations in limited area. Therefore, this study extends the earlier studies by using data from global radar network (SuperDARN) covering regions over a wide range of latitudes and longitudes. Data obtained from a satellite is also used to investigate the transmission of the wave energy from the space to the ground. The results provide the detailed distributions of amplitude and phase of the Pc5 waves at high latitudes.