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Ground response of seasonal Pc5 power to varying solar wind conditions

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Pc5 waves are a sub-group of ultra-low frequency (ULF) waves in the magnetosphere. We determine the Pc5 wave power from ground magnetometer measurements in IMAGE network and statistically study their dependence on solar wind conditions, like solar wind speed and dynamic pressure, separating them from the solar phase and solar conditions in a statistical sense.

Pc5 power is dependent on the magnetic local time, season, and magnetic latitude. We show that while it is always heavily modulated by solar wind speed, the intensity of its ground response also varies over time. Particularly, the ground response is usually the strongest in the morning and midnight hours, while a minor maximum can sometimes be found in the midday or afternoon hours.