

# **Modulation of Aurora by Pc 5 ULF Waves**

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## **Abstract**

On September 9, 1999, a high-speed solar wind stream ( $\sim 700$  km/s) associated with a corrotating interaction region (CIR) made its way to the Earth at  $\sim 1900$  UT. During the passage of the CIR high solar wind dynamic pressure region, spectacular auroral displays in the dawn and dusk ovals were generated. Toward the end of the high solar wind pressure crossing, magnetic pulsations in the Pc 5 wave band (2-7 mHz) were observed by the ground magnetometers. Surprisingly, the aurora in the dawn sector was modulated by the Pc 5 waves. Based on a series of global auroral images acquired from the far ultraviolet imager (UVI) on-board the Polar spacecraft, these temporally modulated auroras also showed propagating anti-sunward. Magnetic field and plasma measurements made by Geotail in the dawn sector of the magnetotail indicate a compressed signature of the magnetic field and modulated plasma sheet particles. The speed of the anti-sunward propagation is consistent with the propagation speed of the Pc 5 waves and solar wind, suggesting a solar wind-driven phenomenon. In this presentation we will report detailed analysis results and discuss possible mechanisms.