

## **Polar Cap Boundary Layer Waves and Local Ion Heating**

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Intense broadband ELF and VLF waves have been detected near the Polar spacecraft apogee by the **PWI** experiment. There is both a magnetic and an electric component to these waves. It will be demonstrated that these waves are a permanent feature of the magnetosphere and are present 100% of the time. The property of the waves will be illustrated, a comparison to those within the low latitude boundary layer (**LLBL**) waves will be made, and potential generation mechanisms discussed.

Enhanced fluxes of  $H^+$ ,  $He^{++}$  and  $O^+$  ions are found to be collocated with these intense wave events. Local  $O^+$  heating by wave-particle interactions have been explored and will be discussed.

Energy deposition at the foot of the magnetic field will be explored using the UV imaging data,

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