



## **On the ubiquitous transmission of upstream waves to the magnetosphere: an analysis of case events.**

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Compressional magnetohydrodynamic waves detected in the magnetosphere and at ground stations in the Pc3-4 frequency range ( $f \approx 10\text{--}50$  mHz) are generally believed to be generated upstream of the Earth's bow-shock in reflected proton beams and are conventionally considered to be a dayside phenomenon. An analysis of case events reveals that such wave activity is simultaneously detected at very high latitudes in Antarctica (both in the morning and midnight sector) as well as at low latitude in the northern hemisphere in the dayside sector. It reveals that the observed ground activity was ubiquitously determined, by the same upstream activity, even on field lines stretched into the geomagnetic tail.