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**Can magnetic waves in aurorae transform into acoustic waves?** JADA MAXWELL, E.J. ZITA, The Evergreen State College — Acoustic waves from the Sun's photosphere transform into magnetic waves in the chromosphere (Johnson et al., 2001; Bogdan et al., 2000, 2002, 2003). While there is no clear evidence of audible sound in aurorae (e.g. northern & southern lights), infrasound (acoustic waves below 20 Hertz) emanating from aurorae has been detected. How are these auroral acoustic waves created? Alfvén waves in the Earth's magnetosphere have been observed to arise from solar magnetic storms. Can these magnetic waves similarly transform into acoustic waves? On the Sun, this acoustic-to-magnetic wave transformation occurs where the atmospheric pressure and the magnetic pressure are comparable (beta $\sim$ 1), in the chromosphere. This wave transformation is crucial for transporting photospheric energy to the hot corona. We investigate evidence and mechanisms for magnetic-to-acoustic wave transformation in the Earth's ionosphere, where beta $\sim$ 1.

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