

Abstract Submitted
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Infrasonic Influences of Tornadoes and Cyclonic Weather Systems

TESSA COOK, Hendrix College — Infrasound waves travel through the air at approximately 340 m/s at sea level, while experiencing low levels of friction, allowing the waves to travel over larger distances. When seismic waves travel through unconsolidated soil, the waves slow down to approximately 340 m/s. Because the speeds of waves in the air and ground are similar, a more effective transfer of energy from the atmosphere to the ground can occur. Large ring lasers can be utilized for detecting sources of infrasound traveling through the ground by measuring anomalies in the frequency difference between their two counter-rotating beams. Sources of infrasound include tornadoes and other cyclonic weather systems. The way systems create waves that transfer to the ground is unknown and will be continued in further research; this research has focused on attempting to isolate the time that the ring laser detected anomalies in order to investigate if these anomalies may be contributed to isolatable weather systems. Furthermore, this research analyzed the frequencies detected in each of the anomalies and compared the frequencies with various characteristics of each weather system, such as tornado width, wind speeds, and system development. This research may be beneficial for monitoring gravity waves and weather systems.

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