

Outside Oz, GLINDA reports on tornado acoustics

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Credit: CC0 Public Domain

During tornado formation, sound waves are produced at very low frequencies. And if your name is GLINDA, you do not need to be in Oz to hear them.

Brandon White, at Oklahoma State University, is part of an engineering team that developed the Ground-based Local Infrasound Data Acquisition (GLINDA) system for the acoustic measurement of weather phenomena.

He will discuss its design and capabilities at the 179th Meeting of the Acoustical Society of America, which will be held virtually Dec. 7-10. The talk, "Infrasound measurement of [tornadoes](#) and other severe storm events at close range," will be presented at 1:10 p.m. Eastern (U.S.) on Monday, Dec. 7, as part of a session on infrasound, sounds below the human hearing range.

Many sources contribute to infrasound in the atmosphere, including earthquakes, oceanic events, and human activity. This makes it difficult to isolate the sounds of a tornado, which, once better understood, can help reduce false alarms in tornado warnings, the largest contributing factor to tornado deaths.

"From a fundamental point of view, we know that a vortex near a [solid surface](#) should produce a unique pressure fluctuation signature, which gives us good reason to expect the signature of a tornado to be unique to the structure of that tornado," said White.



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The device is small and light, making it easily installed in the backseat of a storm chaser truck and allowing for measurements to be taken as close to the tornado as possible. By using it at different distances from the vortex, the OSU infrasound team will improve their knowledge of tornado infrasound production.

"This is so we can get some measurements of the signature with [minimal impact](#) on the propagation," said White, since atmospheric conditions, like wind speed and direction, can affect the range of an [infrasound](#)

system.

GLINDA has already been used by media storm chasers in Oklahoma and Kansas to take data on multiple severe weather events throughout the 2020 storm season, with no encounters with the Wicked Witch of the West to note.

More information: acousticalsociety.org/technical-program/

Provided by Acoustical Society of America

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