

# Sensors to measure 'fan quakes' at Michigan-Ohio State game

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Ohio Stadium is sure to be rocking on Saturday when Ohio State and Michigan take the football field, and geologists will find out just how much through the use of seismographs.

Ohio State and Miami University professors teamed up with the Ohio Department of Natural Resources to devise the "FanQuakes Magnitude Scale," and have planted sensors around the stadium this year to measure the [seismic activity](#) created by fans.

The scale converts the shaking coming from fans into the perceived magnitude of a naturally occurring earthquake. Ohio State's stadium seats nearly 105,000.

So far this season, the biggest quake came after Curtis Samuel's touchdown catch at the beginning of the second half against Nebraska. The shaking lasted more than two minutes and reached a FanQuake Magnitude of 5.2.

Researchers said they expect fans at Saturday's game between No. 2-ranked Ohio State and third-ranked Michigan to "take it to another level."

The project was conceived as a way to help students understand concepts in geology that are sometimes hard to grasp, according to a statement from Ohio State.

"We'll feature the measurements in classes, so that undergraduates can engage with real-world data and connect it to an experience many of them have had in person," said project leader Derek Sawyer, assistant professor of earth sciences at Ohio State. "At a more advanced level, we'll use the data to teach data reduction and collection as well as wave propagation, earthquakes and the local geology."

Researchers say they have been surprised by the effects of music from Ohio State's marching band.

"We expected that the most exciting plays would make the biggest fan quakes, and that's true," Miami University geologist Michael Brudzinski said in a statement. "But sometimes the fan quakes grow even larger after the play is done, because the music starts. The music helps the fans to jump in unison, which leads to even stronger shaking of the stands."

Jeffrey Fox, a seismologist at the Ohio Department of Natural Resources, said fan quakes present a good opportunity to get people thinking about earthquake hazards in general.

"As more and more people move to and live in earthquake-prone areas, they should be aware of seismic risk," Fox said. "Even in areas such as Ohio, where the risk is low, it's not zero."

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