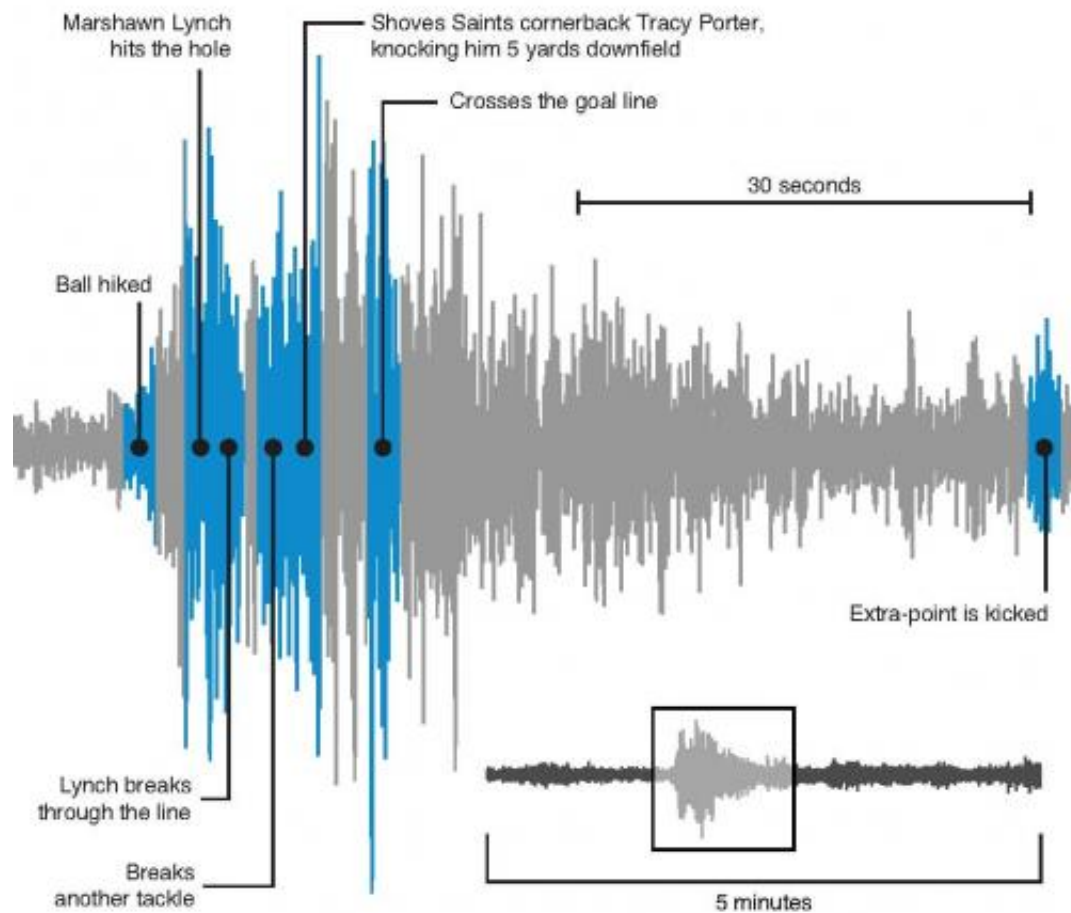


Scientists to observe seismic energy from Seahawks' '12th man' quakes

January 10 2014, by Bill Steele



Seismic waves created during the 2011 “Beast Quake” traveled through the soft soils of the neighborhood near CenturyLink Field. John Vidale, a UW professor of Earth and space sciences, noticed the unique signal from the strong-motion station near the stadium and plotted a seismogram, adding notations on when specific events occurred within the stadium.

(Phys.org) —University of Washington seismologists this week installed two strong-motion seismometers at CenturyLink Field in Seattle to augment an existing station in recording shaking from "earthquakes" expected on Saturday during the NFC divisional game between the Seattle Seahawks and New Orleans Saints.

The Pacific Northwest Seismic Network is preparing a special website at www.pnsn.org/seahawks for the game to display seismograms from all three [seismic stations](#) in near-real time, and seismologists will also be available to explain interesting signals. Seismologists also will highlight interesting signals in tweets (@PNSN1) and on Facebook (thePNSN).

Seahawks fans, collectively known as "the 12th man," have a well-known reputation for generating noise and shaking in the stadium during games. Perhaps the best-known example occurred on Jan. 8, 2011, during a 67-yard touchdown run by the Seahawks Marshawn Lynch that helped Seattle defeat New Orleans in an NFC Wild Card game.

Scientists hope to record similar shaking during Saturday's game to better understand how the stadium responds to the activity, and to measure the energy transmitted to the ground within the stadium and within the surrounding neighborhood.

The experiment provides a test of equipment that will be used to monitor aftershocks following a traditional earthquake and will provide technical training for staff of the UW-based Pacific Northwest Seismic Network.

"Because the fault ruptures that generate earthquake waves are almost always buried by miles of rocks, scientists aren't sure about the action at the source that results in seismic shaking. In a way, the Seahawks' 12th man provides us an opportunity to get inside the source that's generating seismic waves," said [seismic network](#) operations manager Paul Bodin, a UW research associate professor of Earth and space sciences.

"While the basic mechanics are quite different – earthquakes release energy stored in rocks by frictional sliding on a fault while the fans produce energy by excited jumping in reaction to events on the field – both of those processes produce organized seismic waves that may travel long distances and have similar characteristics," Bodin said.

"We think that it's actually the CenturyLink stadium structure itself that acts as the organized seismic source, energized by the excited, although disorganized, crowd movement."

The resulting [seismic signals](#) could be similar to what scientists would be able to see if they could place a sensor inside a complex geological fault system, he said.

Other scientific benefits of the work could include understanding:

- Unusual ground vibrations in an urban setting and understanding the variability in ground motions at different sites.
- The vibrational response of a large structure, helping engineers to learn about different design elements.
- How the seismic network's website is used by the general public, and how it stands up to heavy user traffic.

Provided by University of Washington

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