Process of hydraulic fracturing linked to Ohio earthquakes

January 5, 2015

A report released January 5 by the Seismological Society of America (SSA) links hydraulic fracturing to earthquakes experienced in Ohio in 2014. Hydraulic fracturing is the process of injecting pressurized fluids into wellbores to open fractures in rock that release natural gas or petroleum products. In the past, the disposal of wastewater from hydraulic fracturing and other oil and gas acquiring processes has been linked to earthquakes, including a magnitude-5.7 earthquake east of Oklahoma City in 2011. However, the SSA study reveals a connection between the actual process of hydraulic fracturing and earthquakes, not just byproducts such as wastewater injection. This report comes shortly after the release of data showing Oklahoma to be one of the most earthquake-shaken states, with more than 560 quakes in 2014.

The SSA study found that in Poland Township, Ohio, it appears that the process of hydraulic fracturing activated a previously unknown fault, generating earthquakes up to magnitude-3.0. To connect the earthquakes with specific hydraulic fracturing events, scientists compared the timing of shaking with the timing of hydraulic fracturing, a technique called ‘template matching’. In analyzing the earthquakes, scientists were also able to outline the location of the previously unknown fault.

Sources: The Earth Institute Columbia University, E&E News, The Geological Society of America, Seismological Society of America

Updated 2/11/15