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For Immediate Release

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Activity more than location affects perception of quakes

SAN FRANCISCO, March 7, 2014 – Scientists rely on the public’s reporting of ground shaking to characterize the intensity of ground motion produced by an earthquake. How accurate and reliable are those perceptions?

A new study by Italian researchers suggests that a person’s activity at the time of the quake influences their perception of shaking more than their location. Whether a person is at rest or walking plays a greater role in their perception of ground motion than whether they were asleep on the first or sixth floor of a building. People in motion had the worst perception.

“People are like instruments, more or less sensitive,” said Paola Sbarra, co-author and researcher at the Istituto Nazionale di Geofisica e Vulcanologia in Rome, Italy. “A great amount of data and proper statistical analysis allowed us to make a fine-tuning of different conditions for a better interpretation of earthquake effects,” said Sbarra.

The paper, co-authored by colleagues Patrizia Tosi and Valerio de Rubeis, is published today in the March issue of the *Seismological Research Letters (SRL)*.

Sbarra and colleagues sought to analyze two variables – how an observer’s “situation” and “location” influenced their perception in order to improve the characterization of low macroseismic intensities felt near small earthquakes or far from larger ones. Contrary to their findings, the current European macroseismic scale, which is the basis for evaluating how strongly an earthquake is felt, considers location the stronger indicator for defining intensity.

The authors analyzed data submitted to “Hai-sentito-il-terremoto?” (www.haisentitoilterremoto.it), which is similar to the U.S. Geological Survey’s “Did You Feel It?” website (<http://earthquake.usgs.gov/research/dyfi/#intro>) that analyzes information about earthquakes from people who have felt them. After an earthquake, individuals answer questions about what they felt during the quake, along with other questions regarding their location and activity.

Intensity measures the strength of shaking produced by the earthquake at a certain location. Intensity is determined from effects on people, human structures, and the natural environment.



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The number of people who feel an earthquake is critical to determining intensity levels, and low intensity earthquakes generate fewer reports, making objective evaluation of shaking difficult.

The journal *SRL* is published by the Seismological Society of America, which is the leading research society devoted to the study of earthquakes.

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