1755, 2007 European earthquakes compared

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An Italian-led team of seismologists has conducted a study comparing a 2007 earthquake off southwestern Portugal with a similar 1755 earthquake.

This year's Feb. 12, magnitude 6 earthquake about 125 miles off southwestern Portugal was compared with the 8.5-8.7 magnitude 1755 quake and resulting tsunami that occurred at the same location.

The researchers said both earthquakes are special because their unique tectonic environment: Although active subduction is likely not occurring at that location, the researchers said brittle plate convergence in old oceanic lithosphere can account for the occurrence of great earthquakes along moderate-length faults.

The scientists discovered this year's earthquake originated 25 miles beneath the sea floor with an oblique reverse faulting source. They also identify the preferred fault plane. They then scaled the source characteristics to the size of the 1755 earthquake and found a fault length of 143- to 196 miles -- compatible with the lengths of mapped faults in the area.

The study that included scientists from the National Institute of Geophysics and Volcanology in Bologna, Italy; University College Dublin; and the University of Granada, appears in the journal Geophysical Research Letters.