

Recent seismic activity in Italy and seismic gaps

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After the 1908 M7.1 Messina earthquake, Omori(1909) pointed that there were two seismic gaps along the Montes Appenninus seismic belt. The M7.0 Avezzano earthquake occurred at the one of them in 1915. So, the seismic gap is the one of important information to predict the place of the future earthquake. But there was no earthquake in the other seismic gap until now.

Recently destructive earthquakes occurred at the middle part of the Montes Appenninus. These were M6.1 eq in 1984 April, M6.0 eq in 1984 May, M6.4 eq in 1997, M6.3 eq in 2009, M6.2 eq in 2016 August, M5.9 eq in 2016 Oct., and M5.9 eq in 2017. The source areas were estimated by one month aftershock($M \geq 2.5$) distributions. Italian Seismic Instrumental and parametric Data-base(ISIDe) by Institute of National Geophysics and Volcanology(INGV), Quick Epicenter Determinations by USGS and Catalog of Damaging Earthquakes in the World by Utsu(http://iisee.kenken.go.jp/utsu/index_eng.html) were used.

There are some seismic gaps along the Montes Appenninus seismic belt. One is a small seismic gap between the 1984 M6.1 eq and 1997 M6.4 eq. The area between 2009 M6.3 eq and 1984 M6.0 eq is large, but the 1915 M7.0 Avezzano earthquake occurred in this area. There is a possibility to exist a small seismic gap. Additionally, the area between 1984 M6.0 eq and 1980 M6.9 eq may be other seismic gap.

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