In this study, we improve the knowledge on the seismotectonic framework of the Calabrian region by using available geologic, tectonic, paleoseismic, and macroseismic information in the literature. We construct a PGA model based on the long-term recurrence behavior of seismogenic faults together with the spatial distribution of earthquakes observed in historic time (Akinci et al., 2009, Akinci, 2010). The relative percentage difference (perc) in PGA (g%) between a) the Poisson and the BPT; b) the Poisson and the BPT+.

Seismic hazard assessment: an application to the Calabria Arc (Southern Italy). Natural Hazard 14:113-126


This difference becomes less pronounced considering the CFF effect in the same area. The time-dependent models differ by about 50% from the time-independent maps close to fault sources. We observed a positive effect of CFF for several seismogenic sources in the southern Calabria. The static stress change becomes critical when the faults close to the source under consideration produced the last event before its latest characteristic earthquake.

- Using the maximum values of CFF, we observed that the PGA values increase around 0.1 g respect to those obtained using a simple renewal (BPT) model.

Although the percentage ratio between the seismic hazard computed using Poisson and renewal models is high (95%), the absolute PGA values are smaller in terms of the absolute difference in PGA being around 0.1-0.15 g along the southern Calabria seismogenic sources. The city of Cosenza and surrounding areas bear the highest seismic hazard in Calabria.