

Invited lecture: Seismic microzonation of some Municipalities of the Rubicone area (Emilia-Romagna Region)

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The Municipalities of Gatteo, Savignano and San Mauro Pascoli are located in the south-eastern part of Emilia-Romagna Region. The seismic hazard of the area has been computed by using the GNDT National Seismic Catalogue and the GNDT Seismotectonic Zonation. The seismicity can be considered moderate: in the past the zone has been stricken by several earthquakes (for example in 1786, 1672, 1875 and 1916) with maximum Intensity around VIII MCS. As computed assuming interarrival times exponentially distributed and magnitude characterized by negative exponentially distribution, seismic hazard is quite similar for the three Municipalities (with PGA per 474 years Return Period around 250 gals). The significant level of risk, particularly relevant in summertime, when the whole region becomes an overpopulated area because of tourism, urged the Emilia-Romagna Administration, in agreement with local Municipalities, to start a microzonation project. The analyzed area is situated along the board of Adriatic sea, and is nearly flat: from a geological point of view the sequence is continued by continental to marine deposits, laying in discordance on the last marine formations (Sabbie Gialle, lower and middle Pleistocene). It should be pointed out that the geotechnical parameters indicate very poor soils, with N_{SPT} of clay formations less than 5, and of sandy formations less than 10. The presence of strata characterized by low V_S (less than 100 m/s) could induce severe non linear behavior of soils under earthquake loading. In addition sandy beaches are (in some parts) susceptible of liquefaction. The output of the microzonation investigation consists on the evaluation of expected response spectra, identification of susceptible liquefaction areas and zones exposed to the possibility of non linear behavior of soils. These results will be used for the preparation of the master plan of the Rubicone area (the master plan can be referred to as an intermunicipalities land-use planning).