

Real Time damage Scenario

A new earthquake of MI 5.8 hit the Emilia Romagna region on Tuesday, May the 29, at 09:00:03 local time (07:00:03 UTC). The dicentra location has been recorded at 44.851, 11.086, near to Medolla, at 10.2 Km depth.

An update of the damage scenarios for the residential buildings has been immediately carried out, and the results for the mean values of the severe damage limit state are shown in the figure below. The seismic input for the damage scenario has been modelled through the Akkar and Bommer (2010) attenuation equation for rock conditions, and for reverse fault mechanism, assuming that this earthquake occurred on a similar structure as the one that generated the 20th of May mainshock.

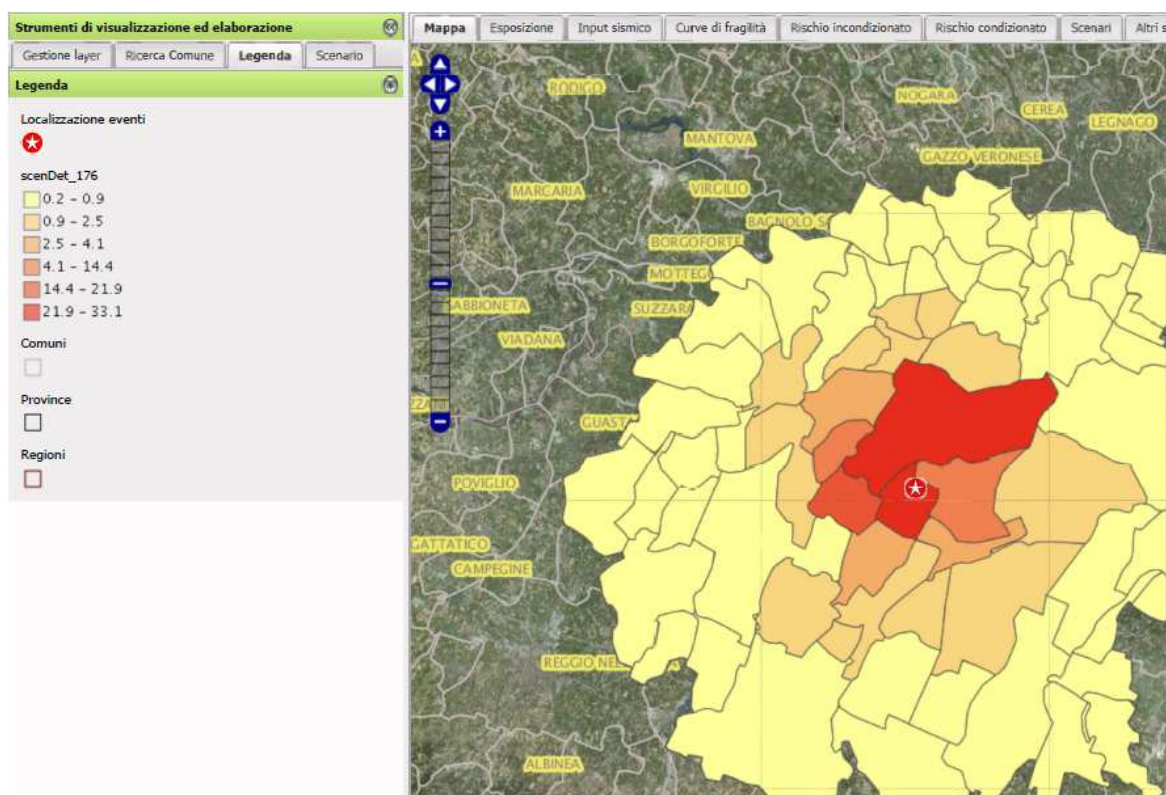


Figure 1. WebGis residential buildings –Percentage of buildings that reach or exceed the severe damage grade for each municipality, mean values.

The damage scenario calculated by using for the seismic input the shakemap produced by the INGV few hours after the event show damage values near to the maximum obtained with the Akkar Bommer equation. This is reasonable as the shakemap are computed by integrating real ground shaking data form recording stations, therefore including site effects, with the data modelled from attenuation equations.

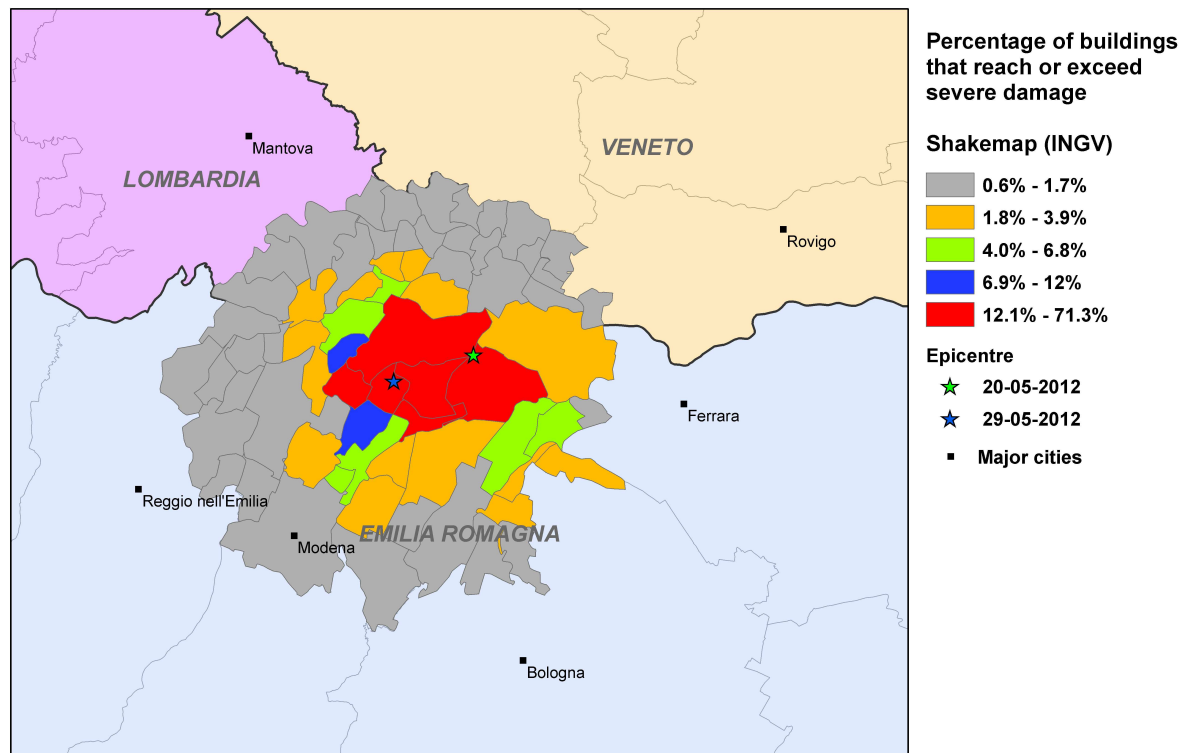


Figure 2. Damage scenario obtained by using as seismic input the shakemap data produced by INGV (<http://shakemap.rm.ingv.it/shake/7223045800/download>)– Percentage of buildings that reach or exceed the severe damage grade for each municipality.

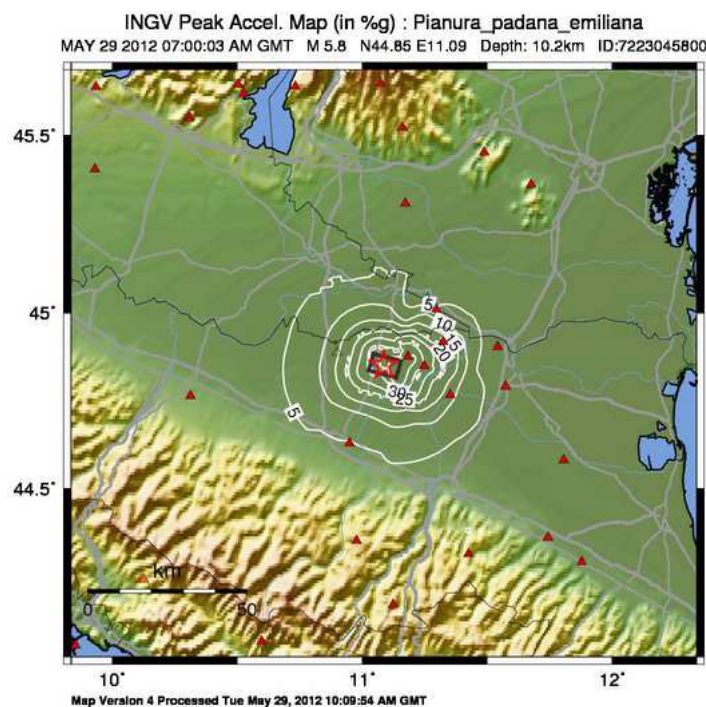


Figure 3. Shakemap of pga calculated by 'INGV (<http://shakemap.rm.ingv.it/shake/7223045800/download/pga.jpg>) for the May 29 earthquake, 9:00:03 (local time)