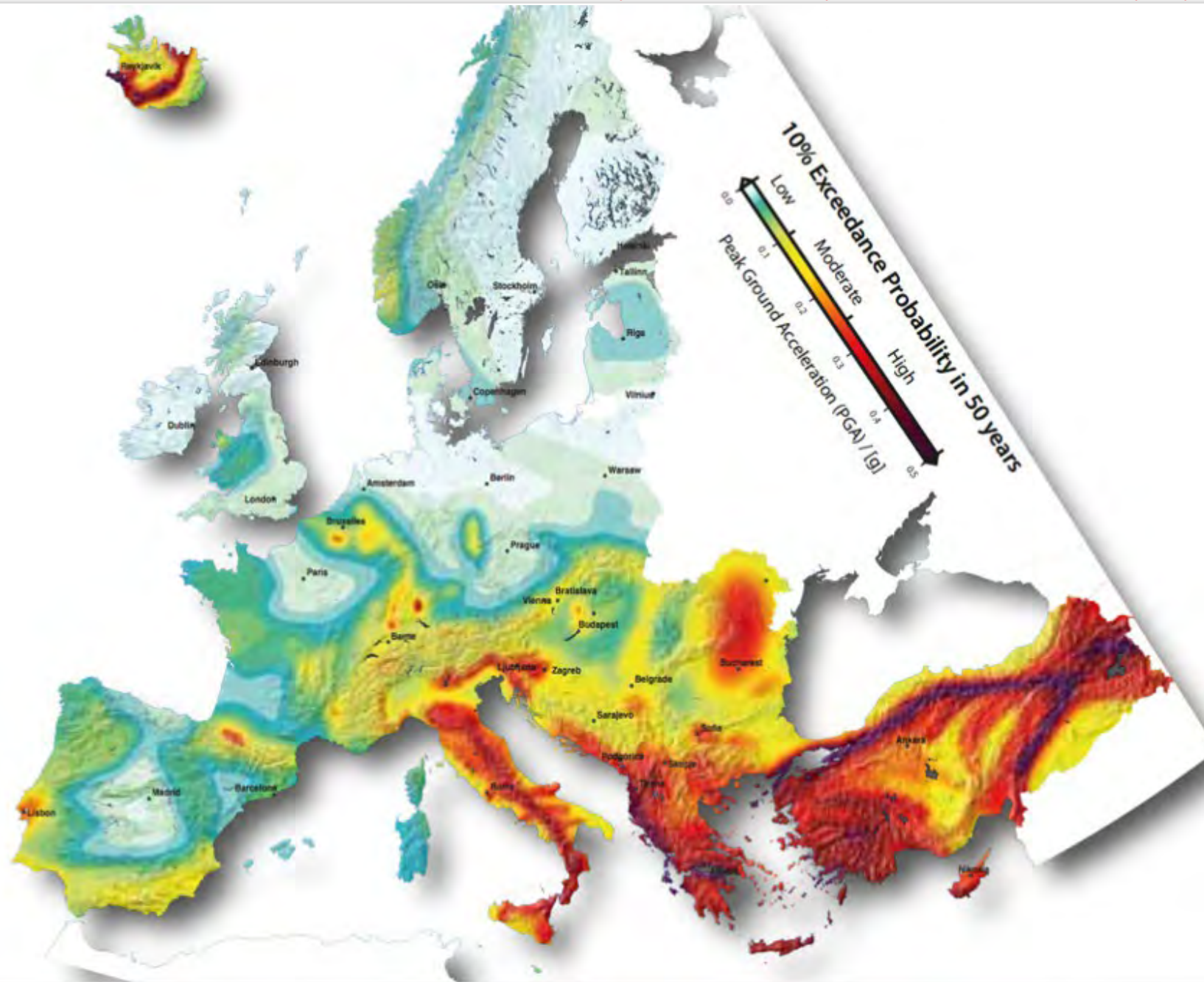


Expected earthquakes and disaster preparedness in Europe

G. Michele Calvi

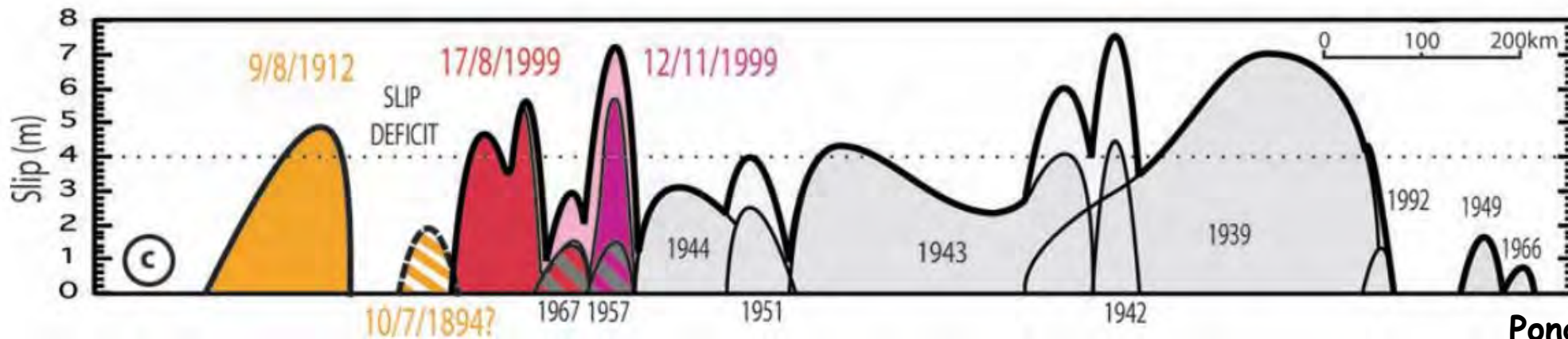
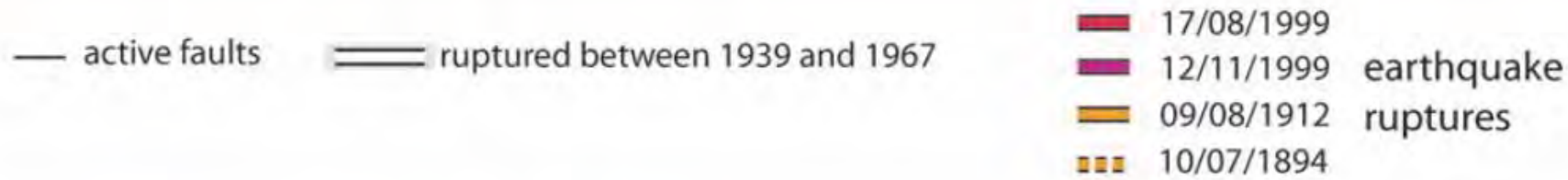
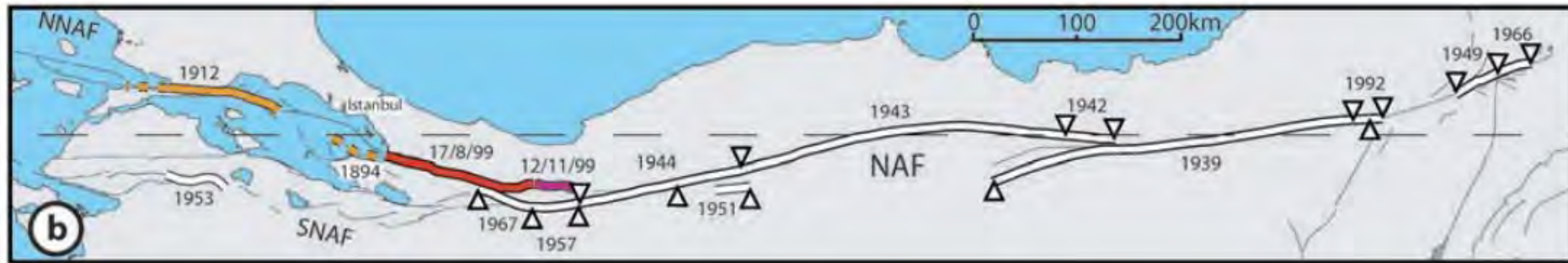
IUSS and Eucentre Foundation, Pavia, Italy

Europe?



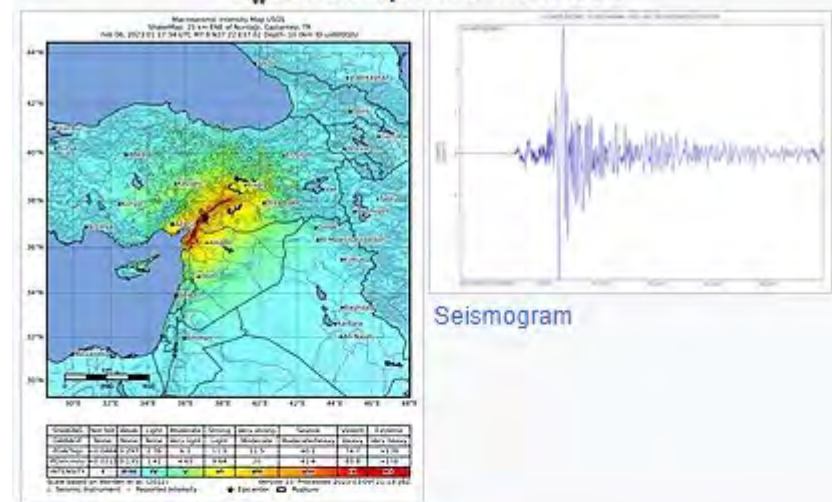
Turkey

North Anatolian Fault - slip rate 22 mm/y

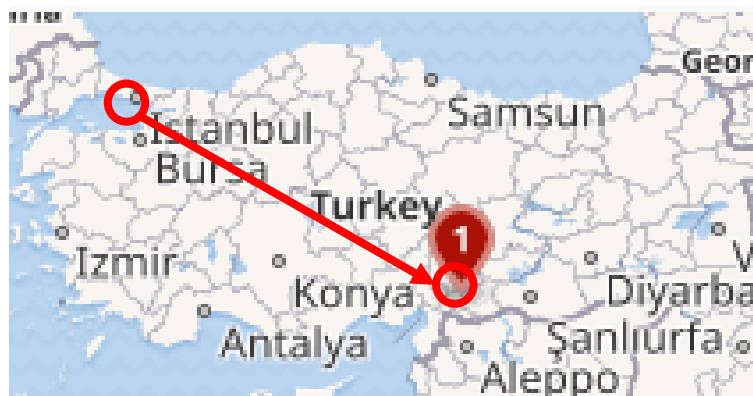


Pondard, N. et al. 2007

6 February 2023

M_w 7.8 earthquake at 01:17 UTC

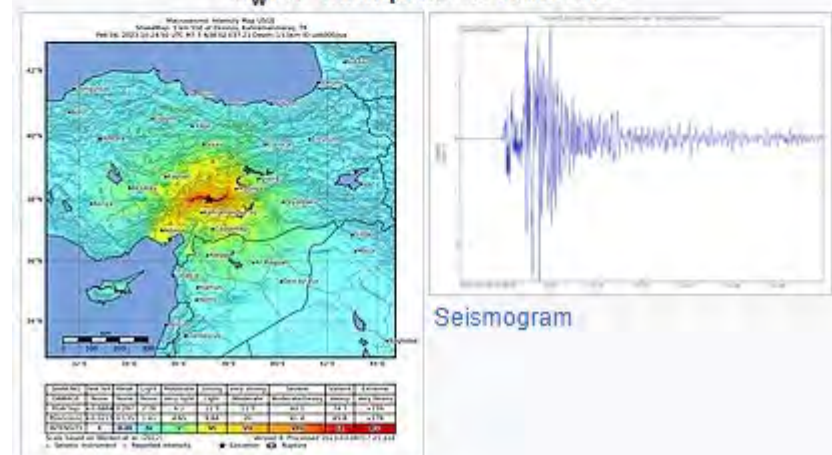
Strong ground motion map

**Measures:**

- Relevant programme of vulnerability reduction in the Istanbul area
- Base isolation of all hospitals (new and existent)

Effects:

- Satisfactory response of 12 isolated hospitals

M_w 7.7 earthquake at 10:24 UTC

Strong ground motion map

Malatya Battalgazi State Hospital

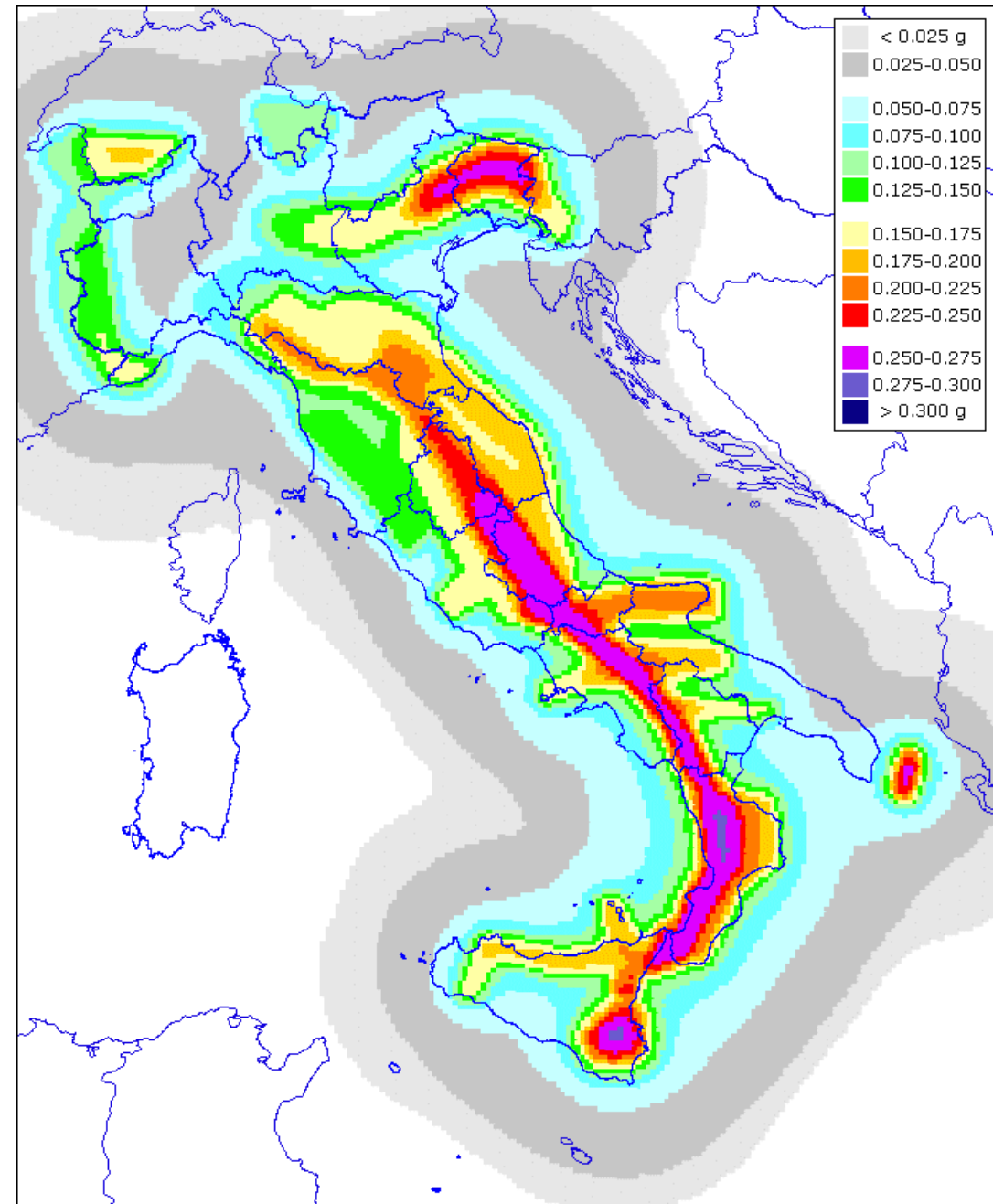


Damaged buildings within 5 km radius from hospital location



Italy

- Diffuse faulting
- Frequent events
- Rp 12 y for M 6
- High vulnerability
- Historical centres





Measures:

- Public programme on infrastructures (road networks, hospitals)
- Funding of private intervention by detaxation up 100% in ten years

Effects:

- Large number of micro strengthening by private owners
- Will it work?

Italy well prepared for emergency management

- Advanced search and rescue
- Programme for fast construction
- Software for homeless management

But:

- Relatively low magnitude events
- Homeless < 30,000

What would happen in case of a repetition of the Messina 1908, M 7.5, 100.000 victims?



- **Public programmes on infrastructures:**
 - Ports
 - Airports
 - Dams
 - Power facilities
- **Foster public - private cooperation:**
 - Detaxation for risk reduction
 - Compulsory insurance with public funding
 - Bank financing with public guarantee



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