



35° Convegno Nazionale
Lecce 22-24 novembre 2016

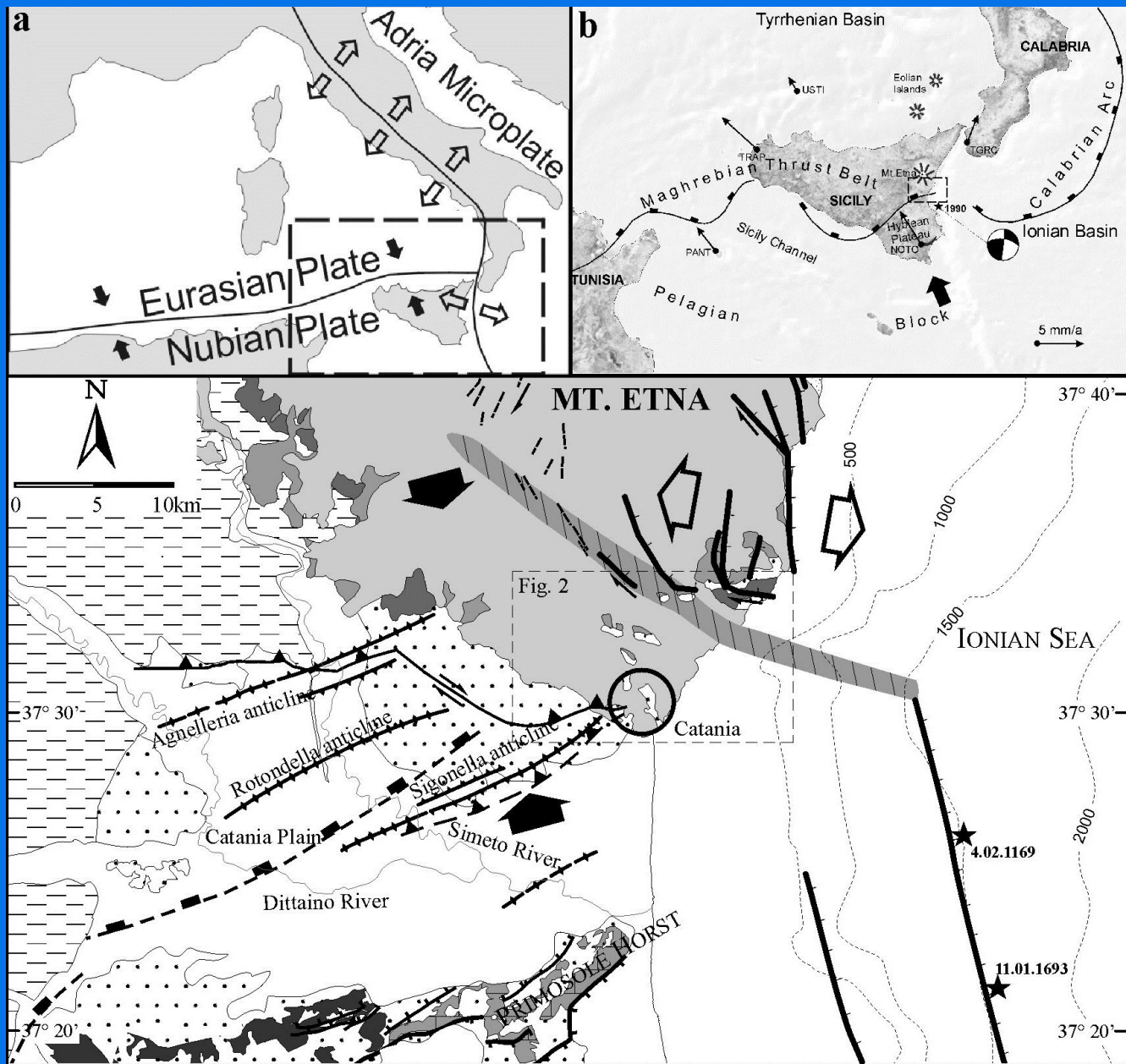
Late Quaternary deformation in the Catania urban area (eastern Sicily): relation with the active tectonics

Giuseppe Tortorici, Francesco Pavano, Gino Romagnoli,
Stefano Catalano



UNIVERSITÀ DI CATANIA - Dipartimento di Scienze Biologiche, Geologiche e Ambientali -
Sezione di Scienze della Terra

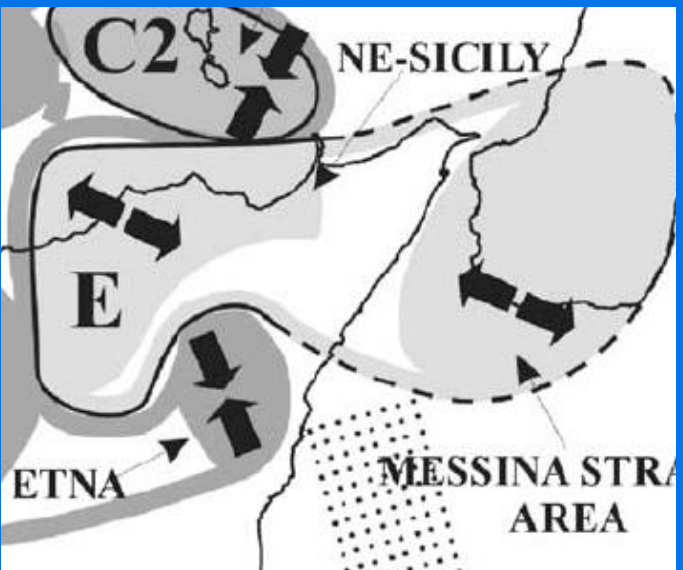
Geological sketch map of the Catania region



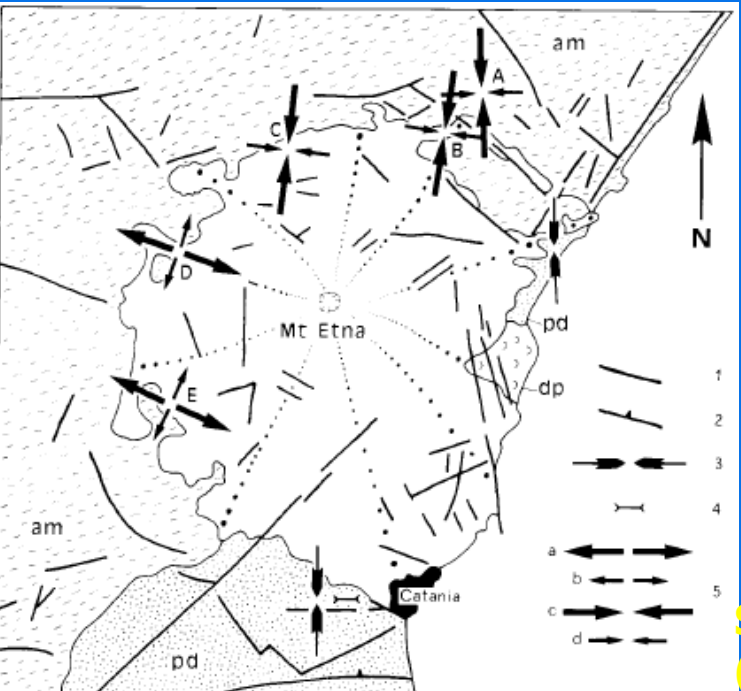
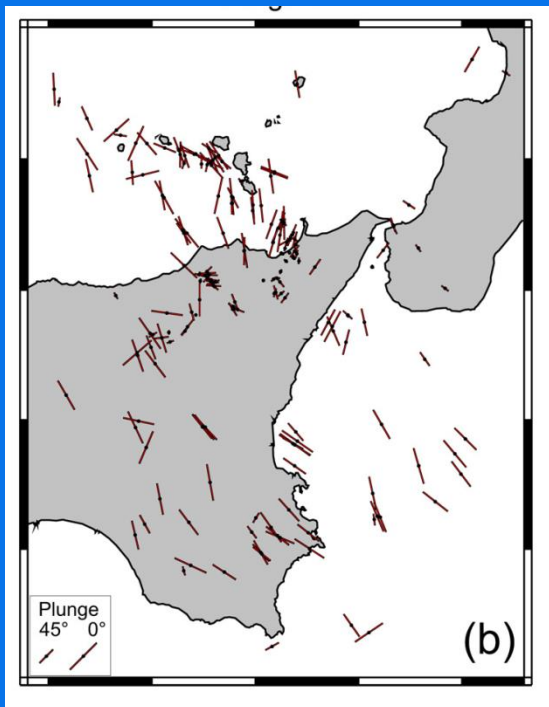
(Catalano et al., 2011 mod.)

Proposed stress fields for the Mt. Etna region based on:

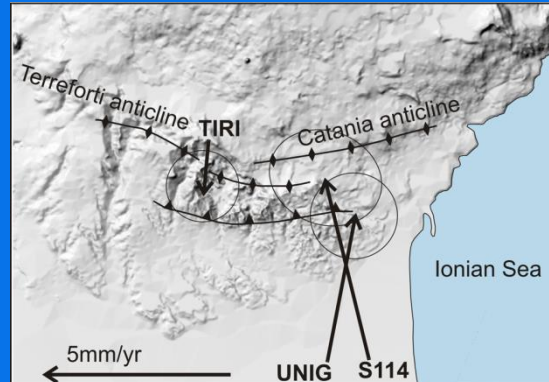
Focal mechanisms (Neri et al., 2005 mod)



Focal mechanisms (Scarfi et al., 2013)

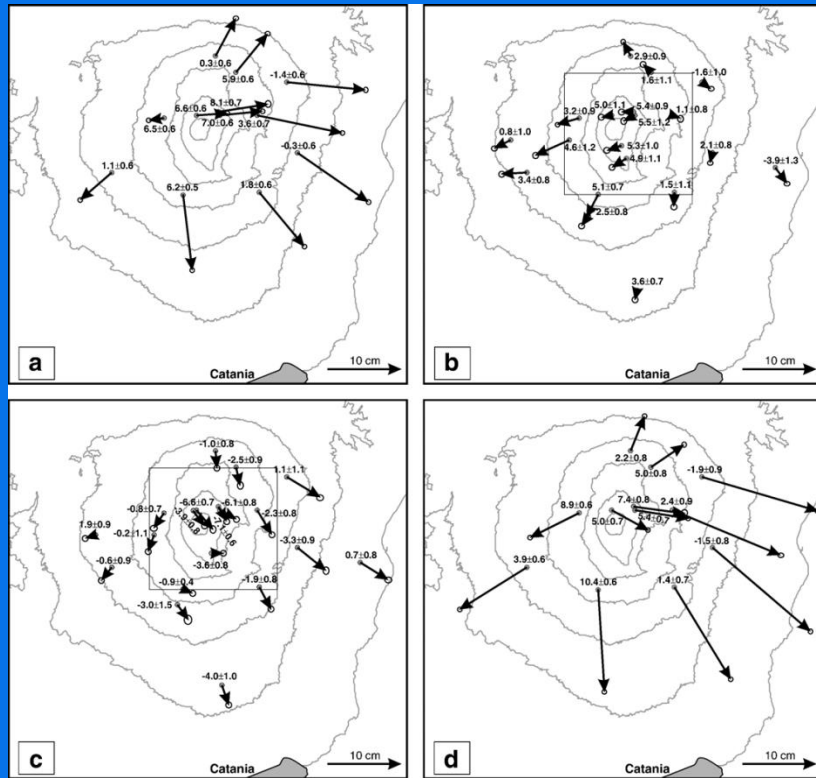


Horizontal GPS velocities (De Guidi et al., 2015)

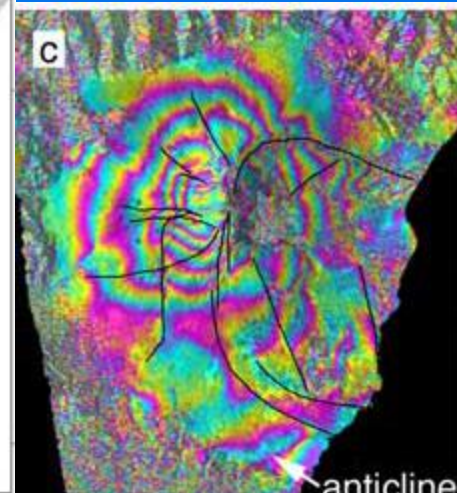
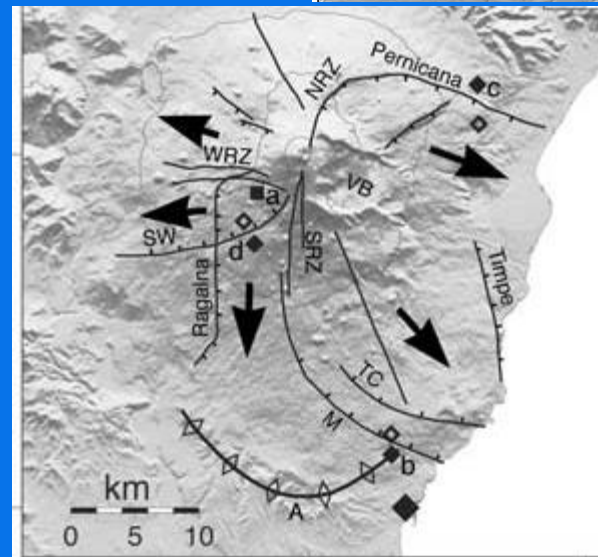
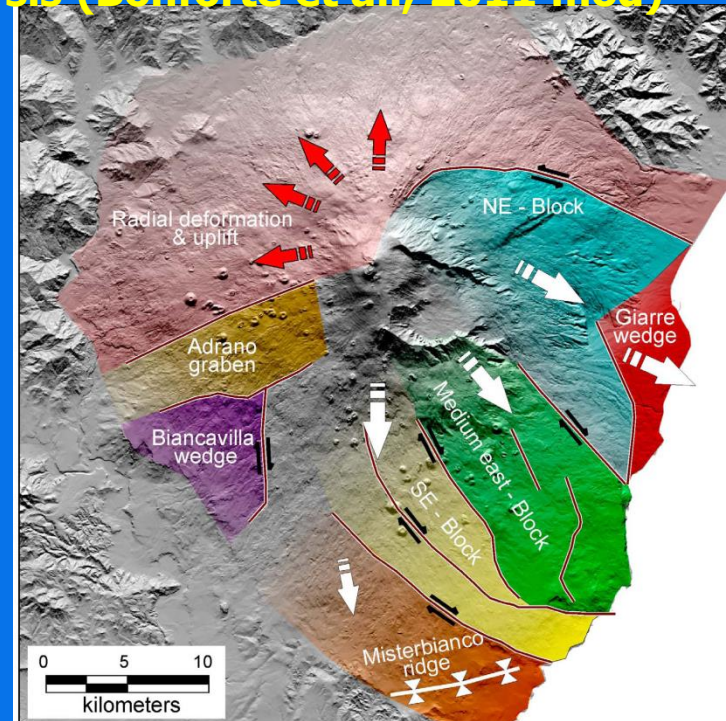


Stress in situ measurements (Bousquet et al., 1988 mod)

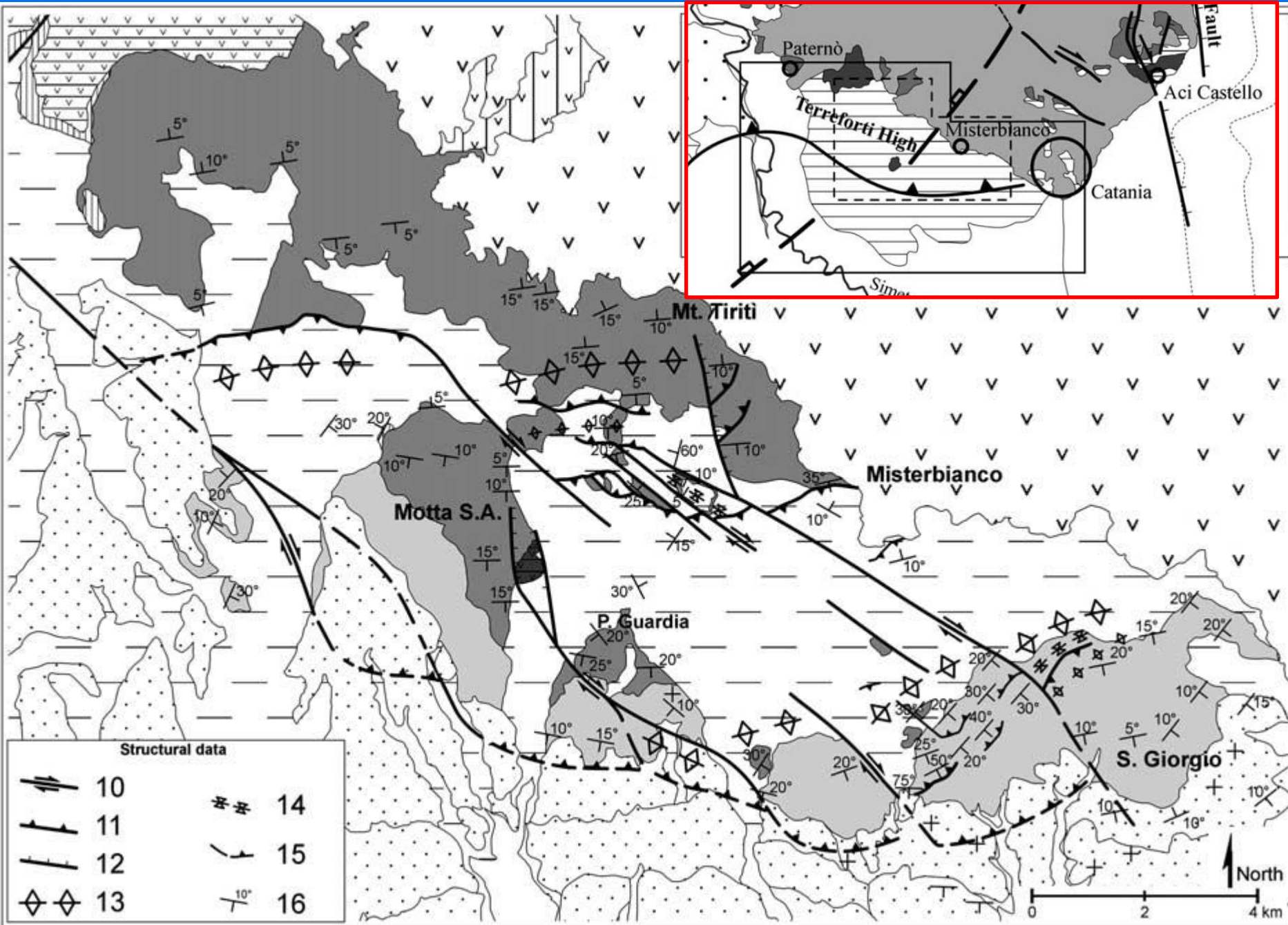
Deformation pattern the Mt. Etna region based on: InSAR analysis (Bonforte et al., 2011 mod)



GPS vectors (Palano et al., 2006 mod)



GPS vectors and InSAR analysis (Lundgren et al., 2004 mod)

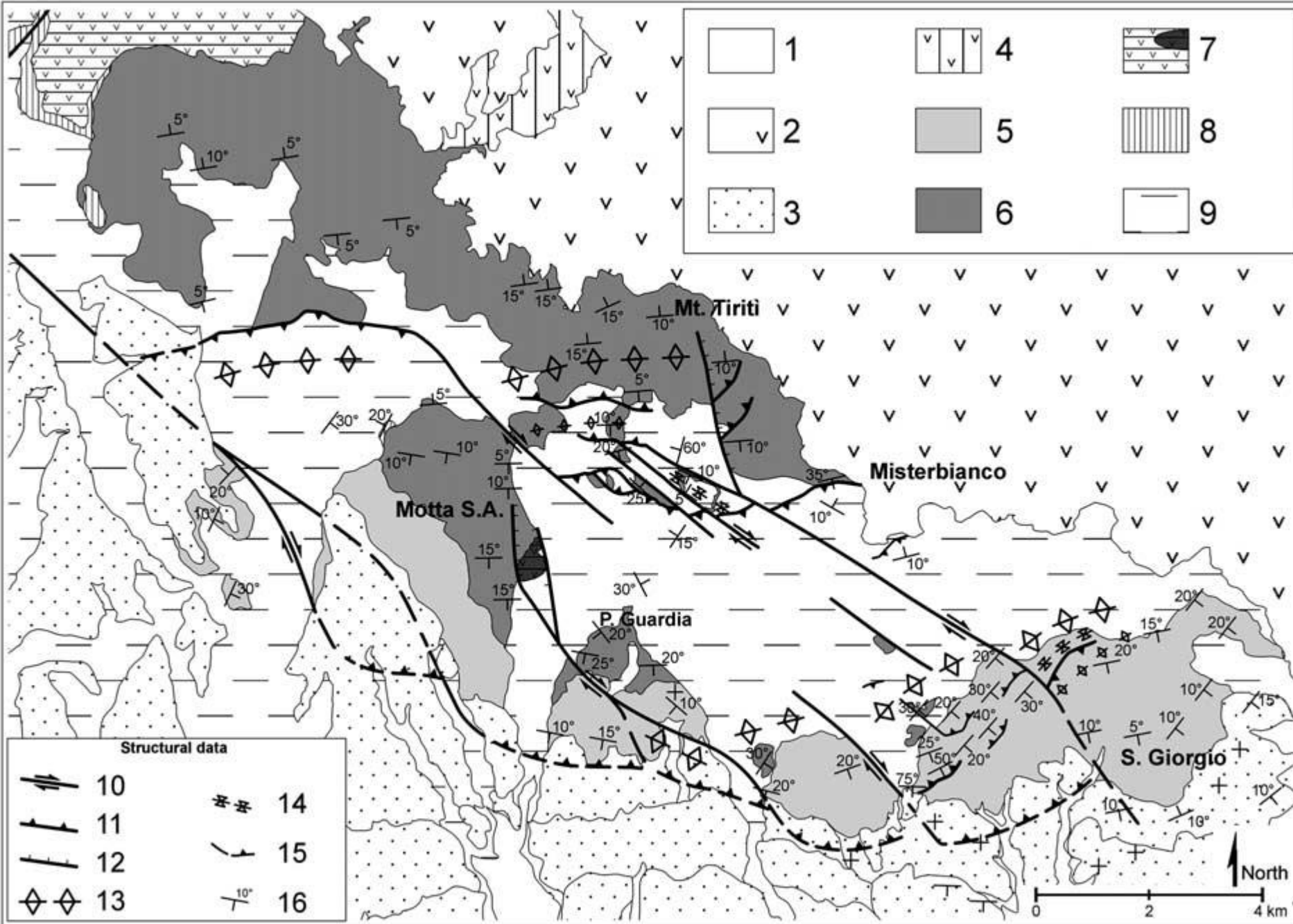


(Catalano et al., 2004)

Correlation of the terraced deposits of the Catania region and the OIT Stage

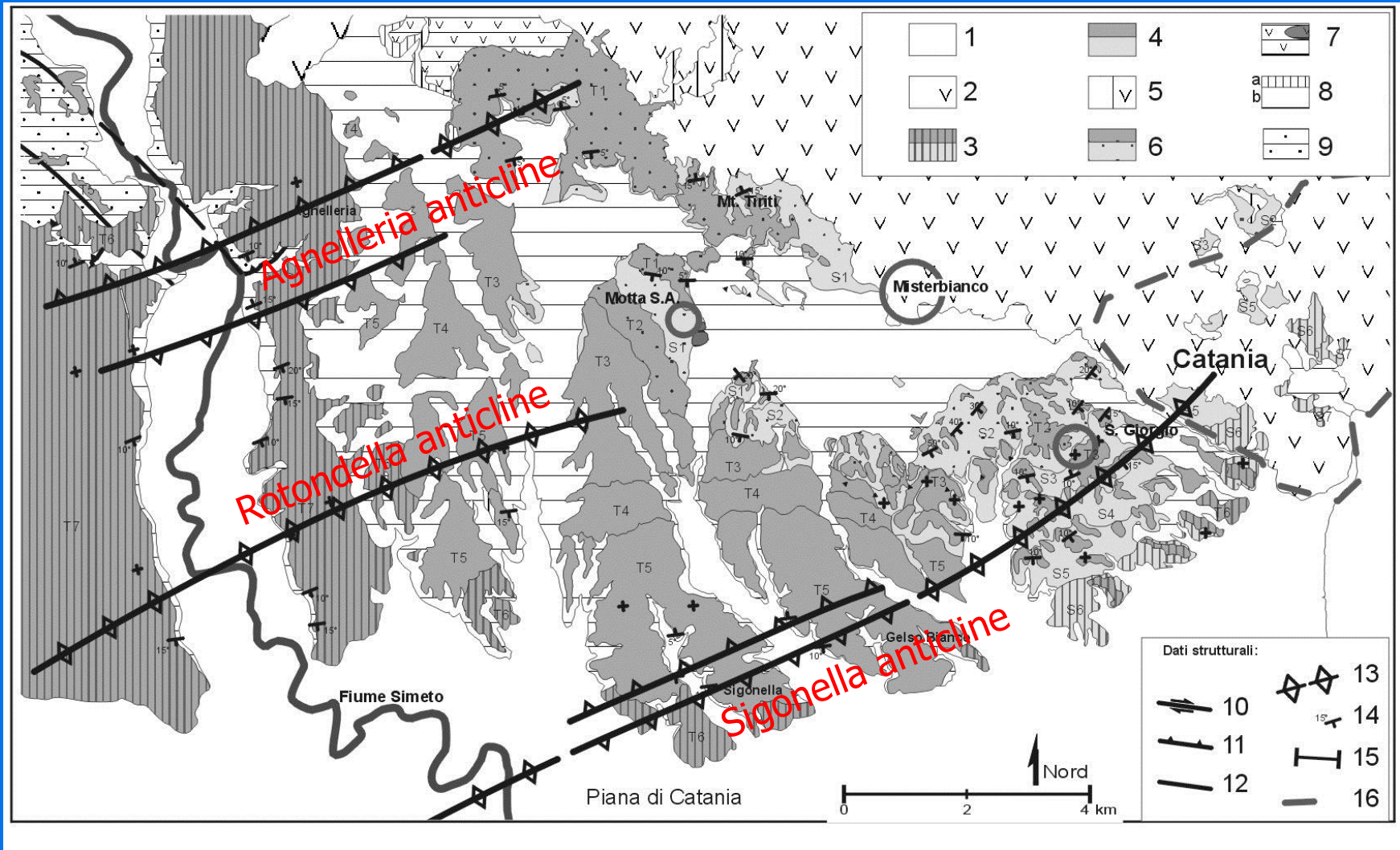
Sequence	Age of basal surface	Age of pebbles	OIT Stage	Age
S1	< 250 ka	320-250 ka	7.5	240 ka
S2			7.1	200 ka
S3	< 180 ka	180-100 ka + 320-250 ka	5.5	125 ka
S4			5.3	100 ka
S5			5.1	80 ka
S6	> 35 KA	180-100 ka + 320-250 ka + < 80 ka	3.3	59 ka
S7			3.1	40 ka

(Monaco, 1997; Monaco et al., 2000; Catalano et al., 2004)



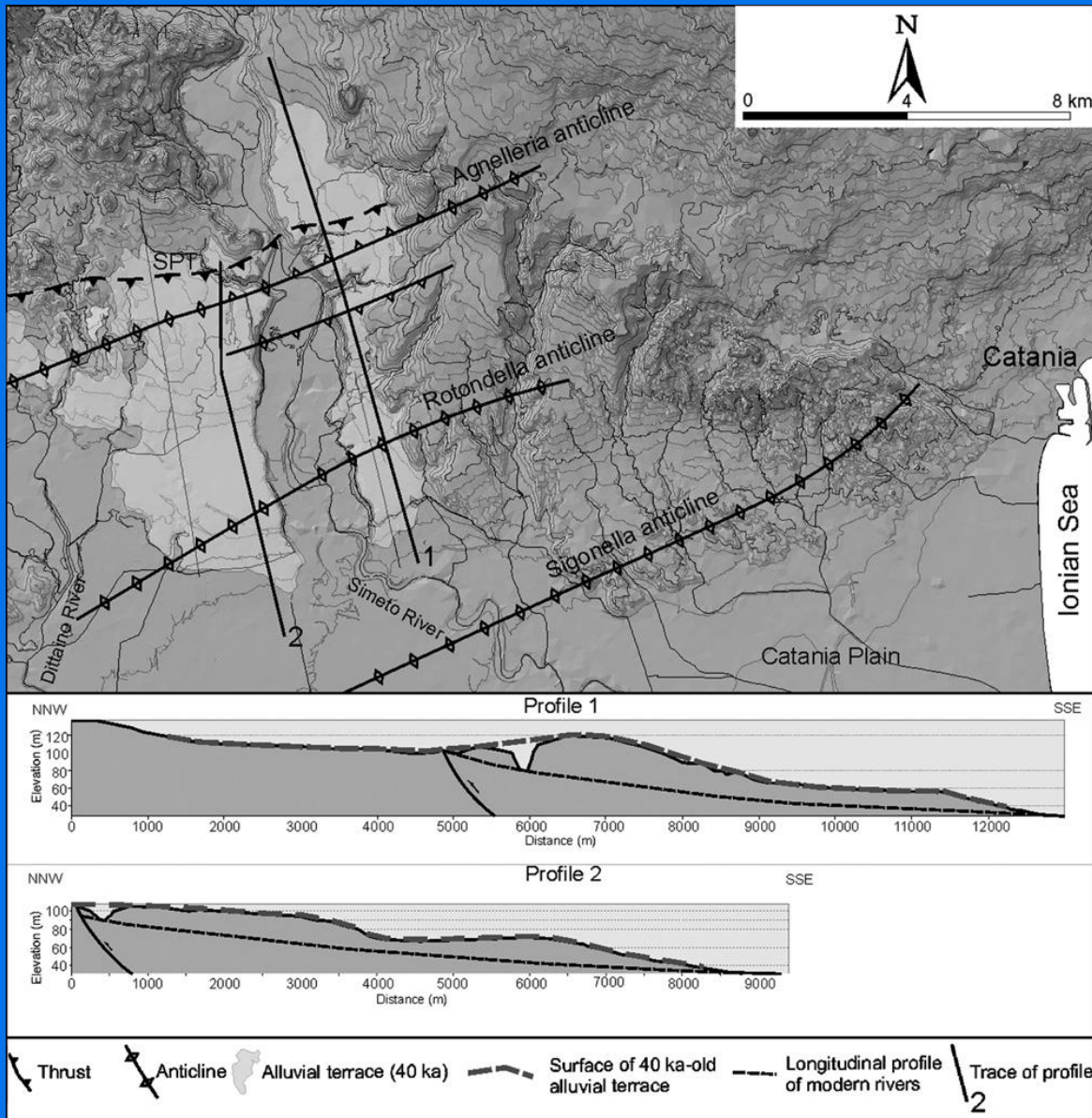
(Catalano et al., 2004)

Late Quaternary folds and marine and fluvial terraced deposits of the Catania region



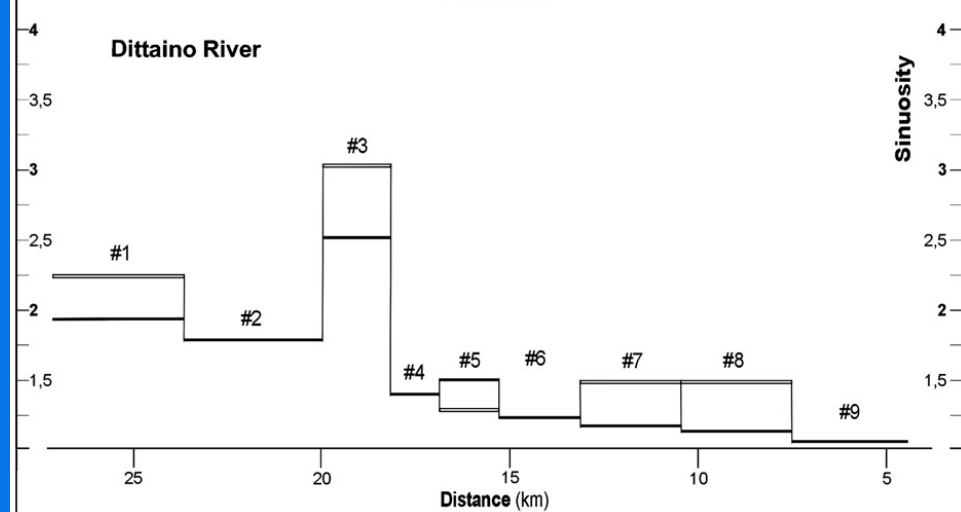
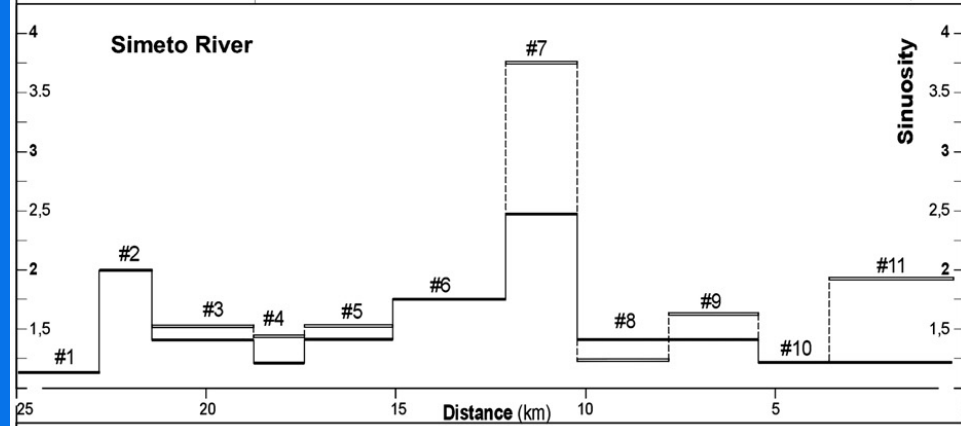
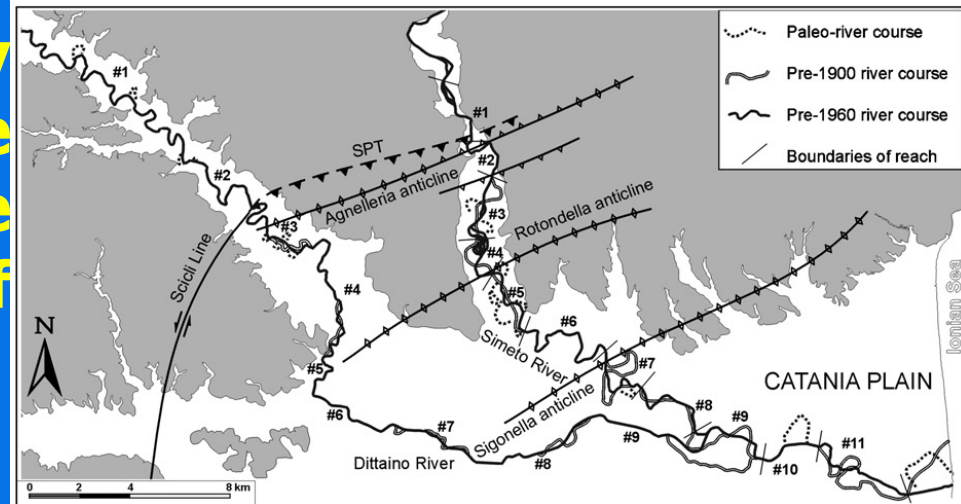
(Catalano et al., 2004 mod.)

40 ka-old alluvial terraced deformed by the Agnelleria and Rotondella anticlines



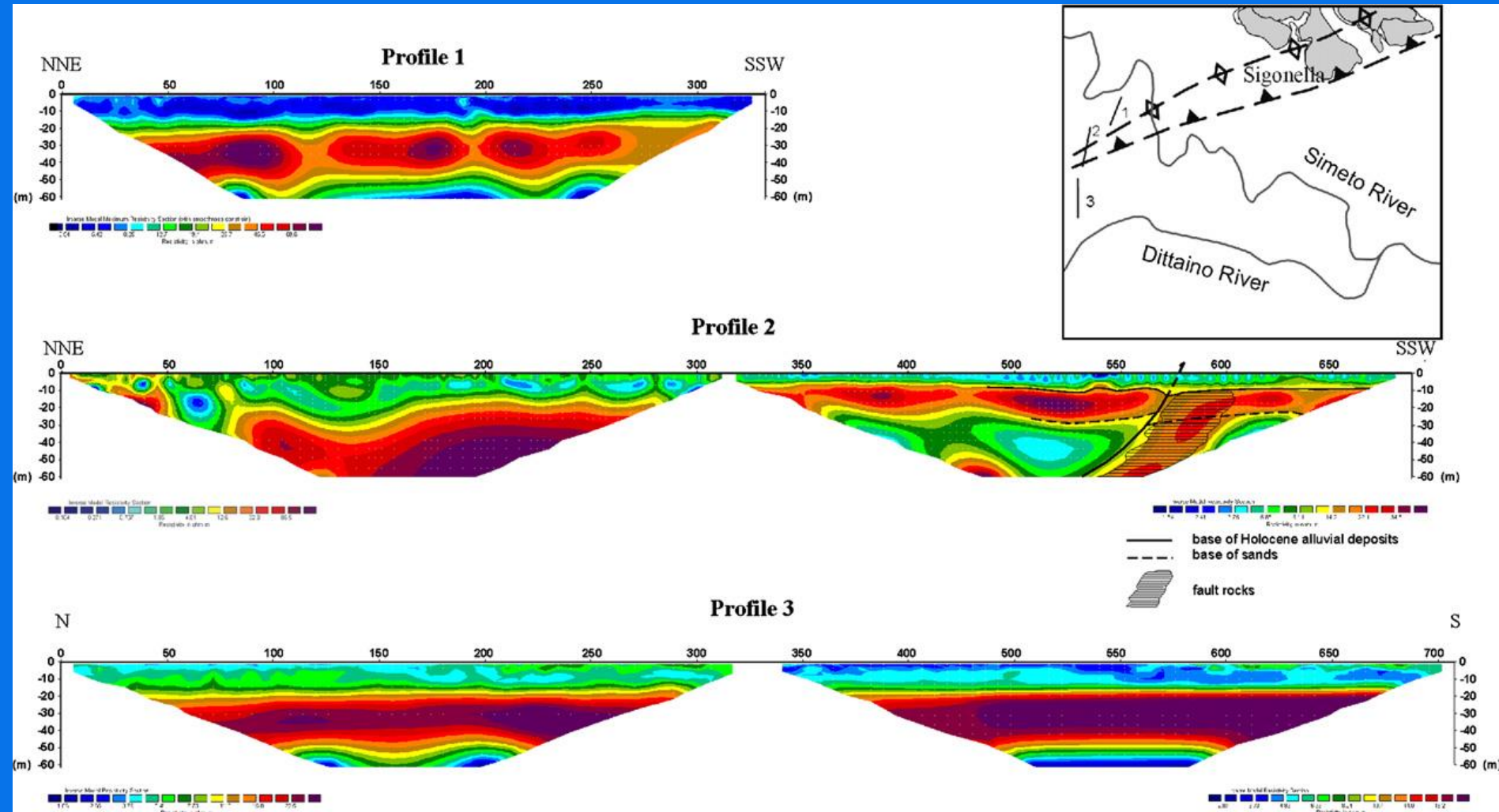
(Catalano et al., 2011)

Evolution of the sinuosity along the Simeto and the Dittaino rivers, across the Late Quaternary tectonics of the Catania Plain

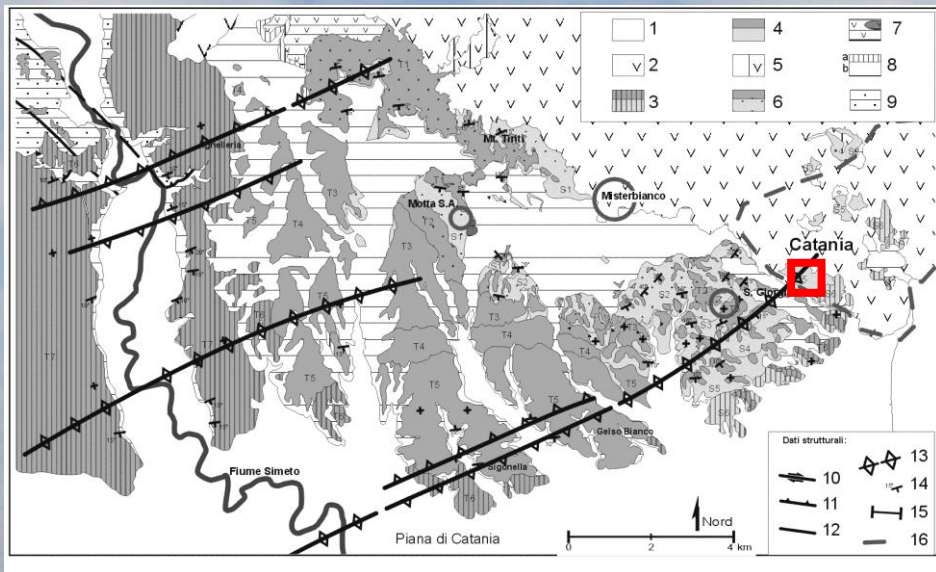


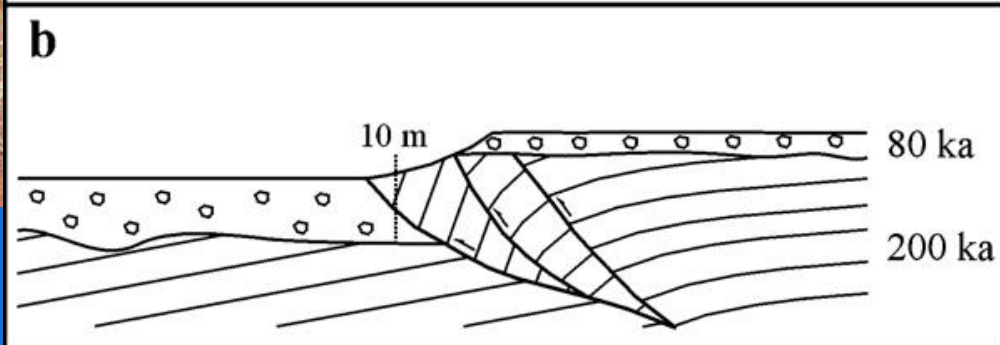
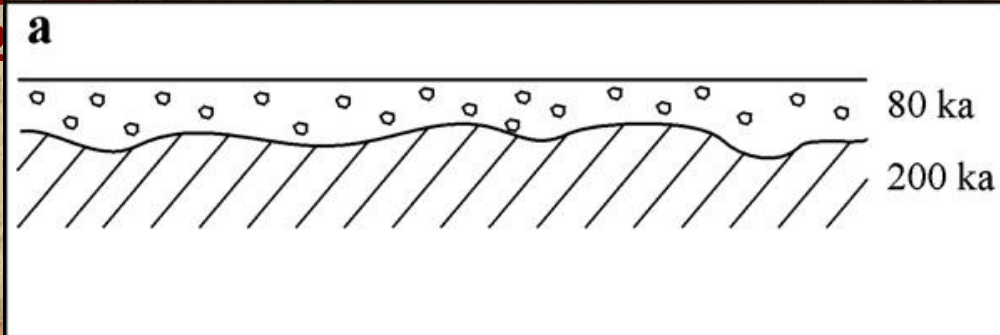
(Catalano et al., 2011)

Geoelectric tomographies in the Catania Plain, across the southwestern prolongation of the Sigonella anticline

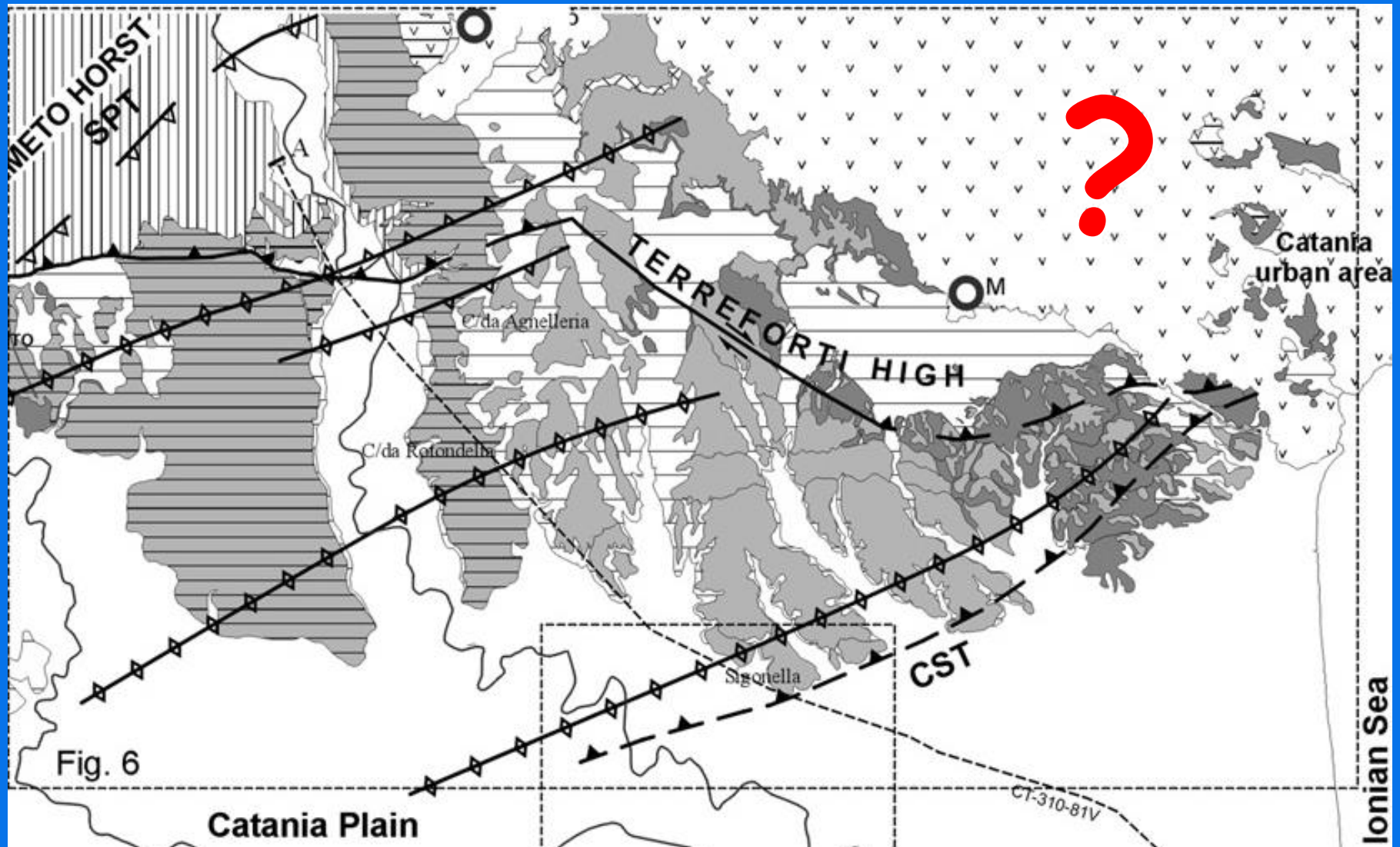


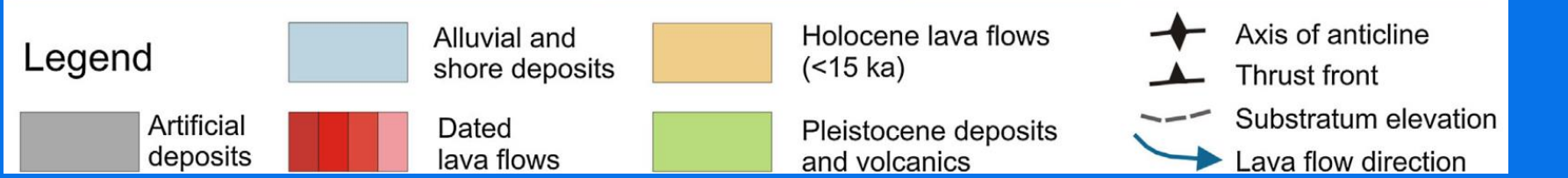
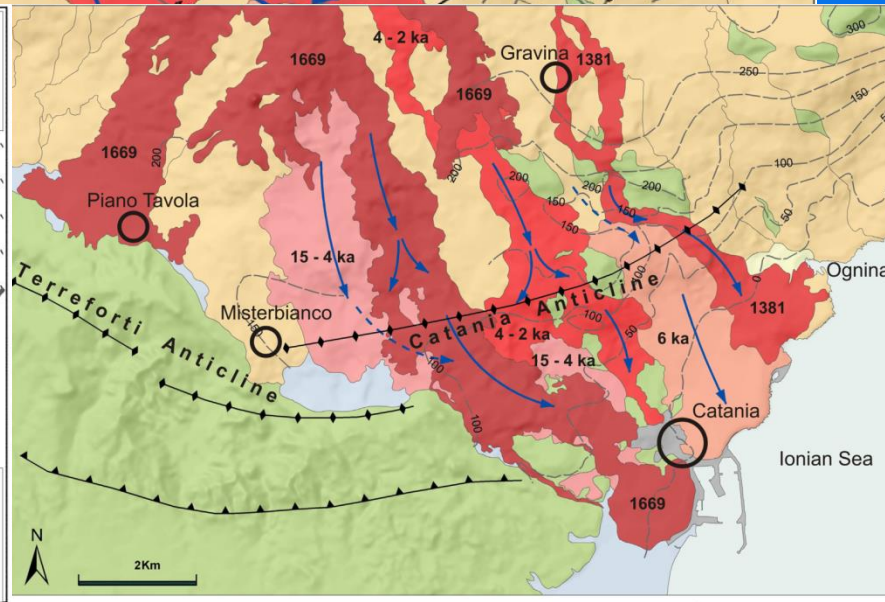
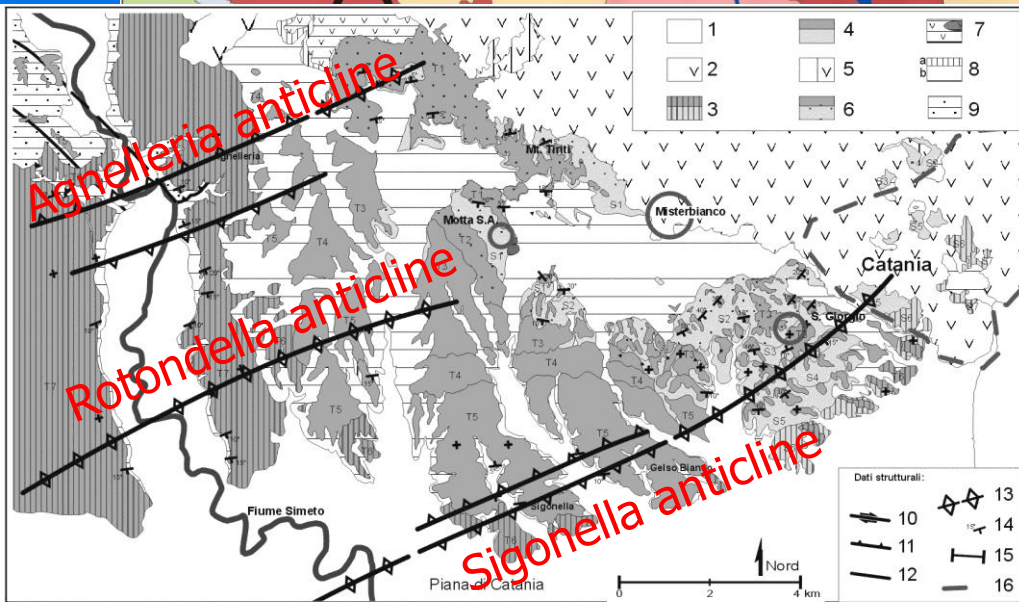
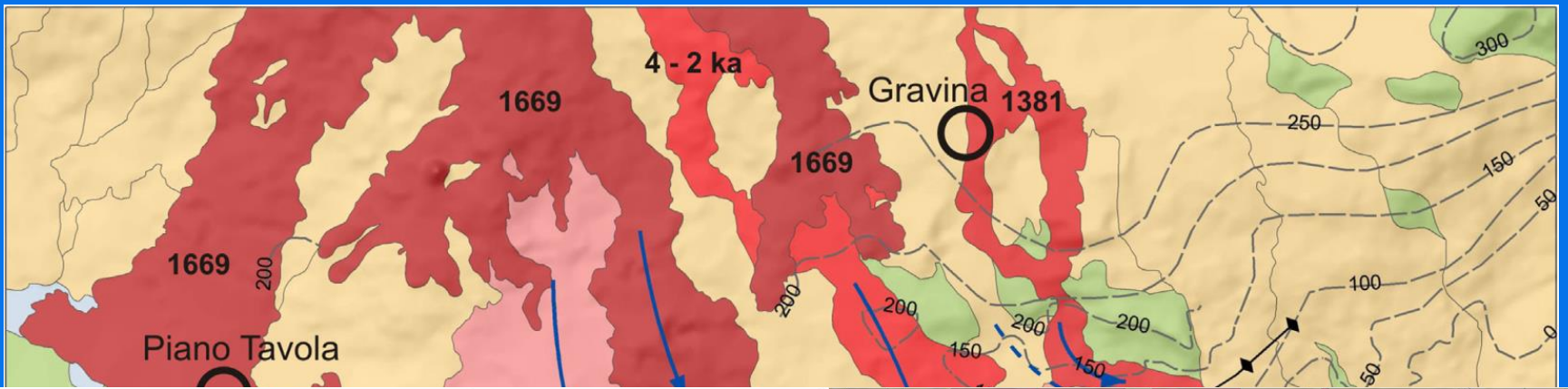
(Catalano et al., 2011)





(Catalano et al., 2011)

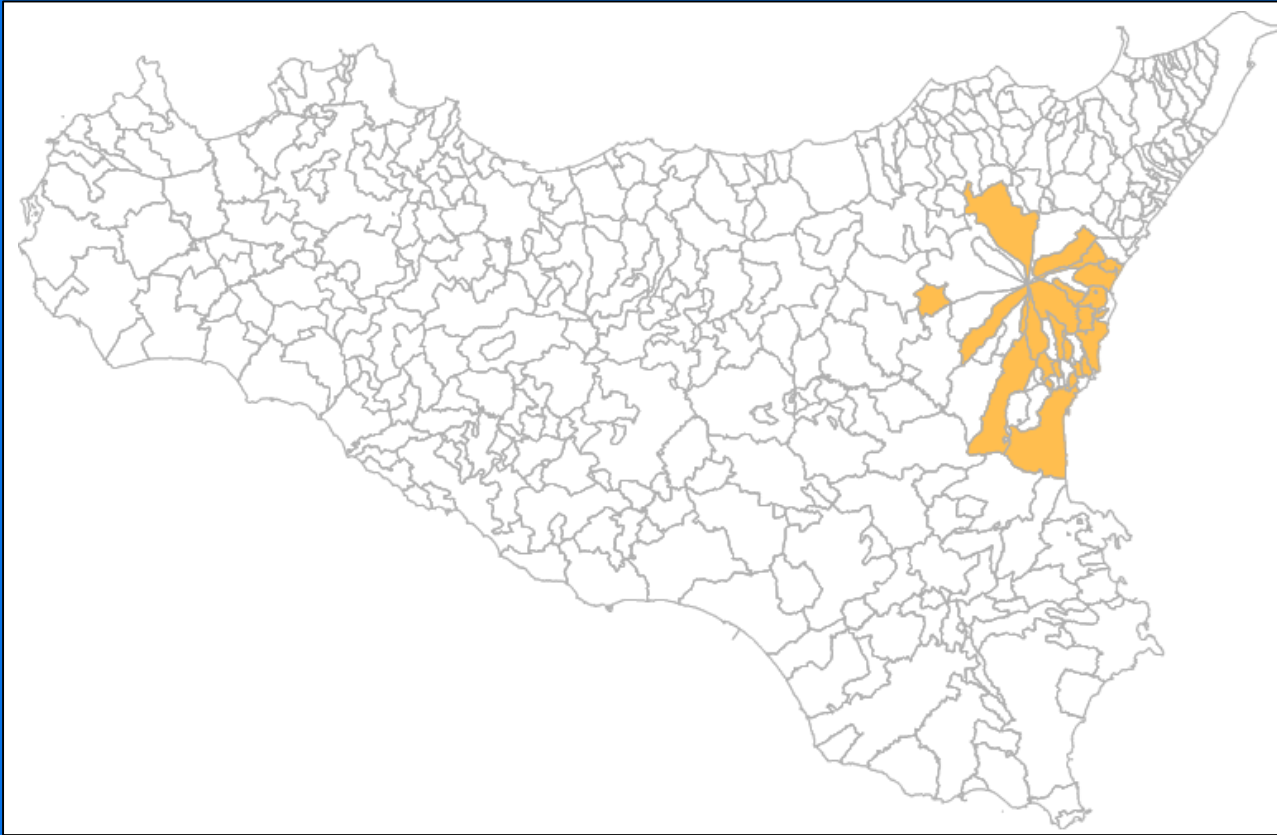


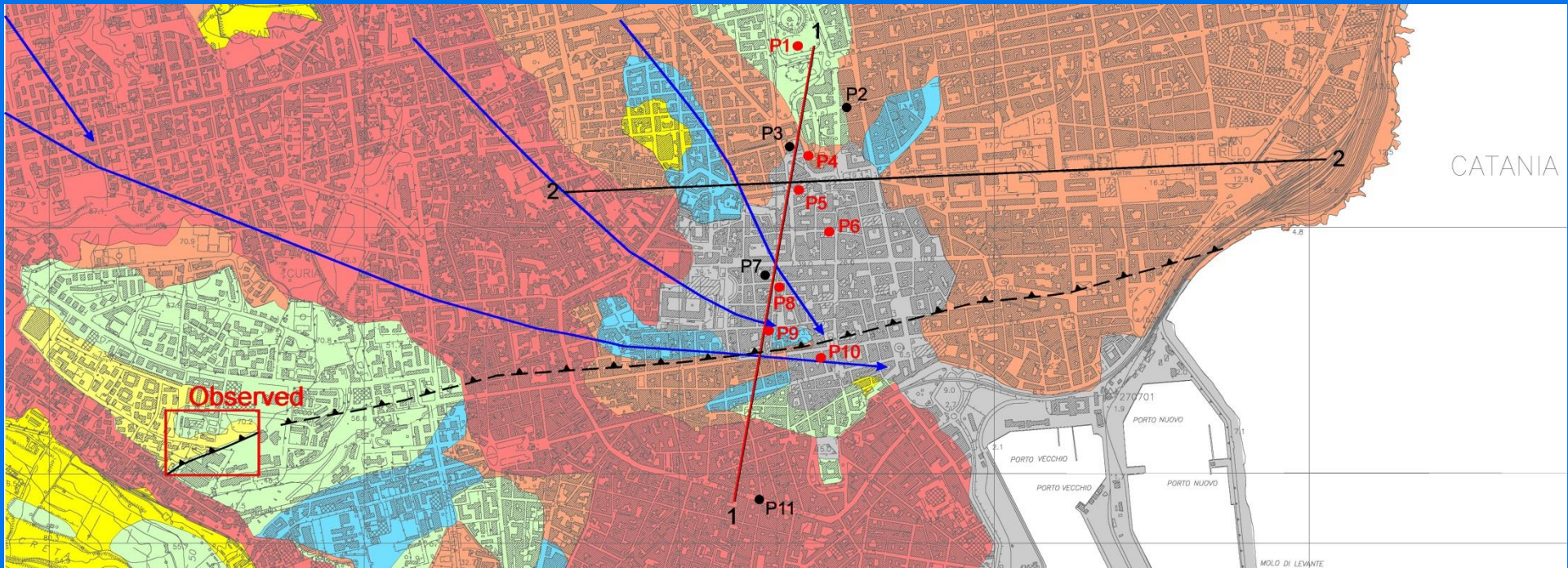


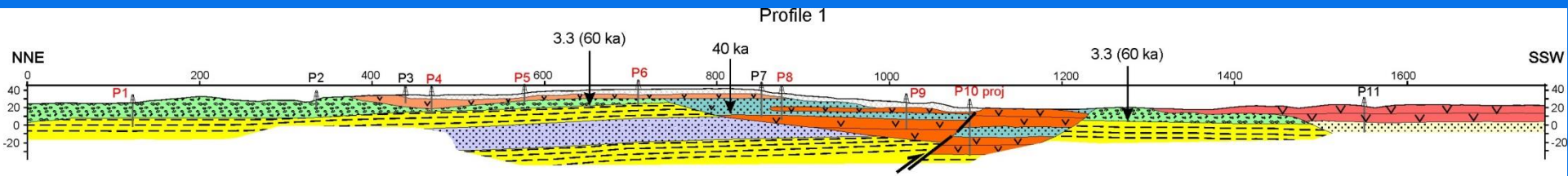
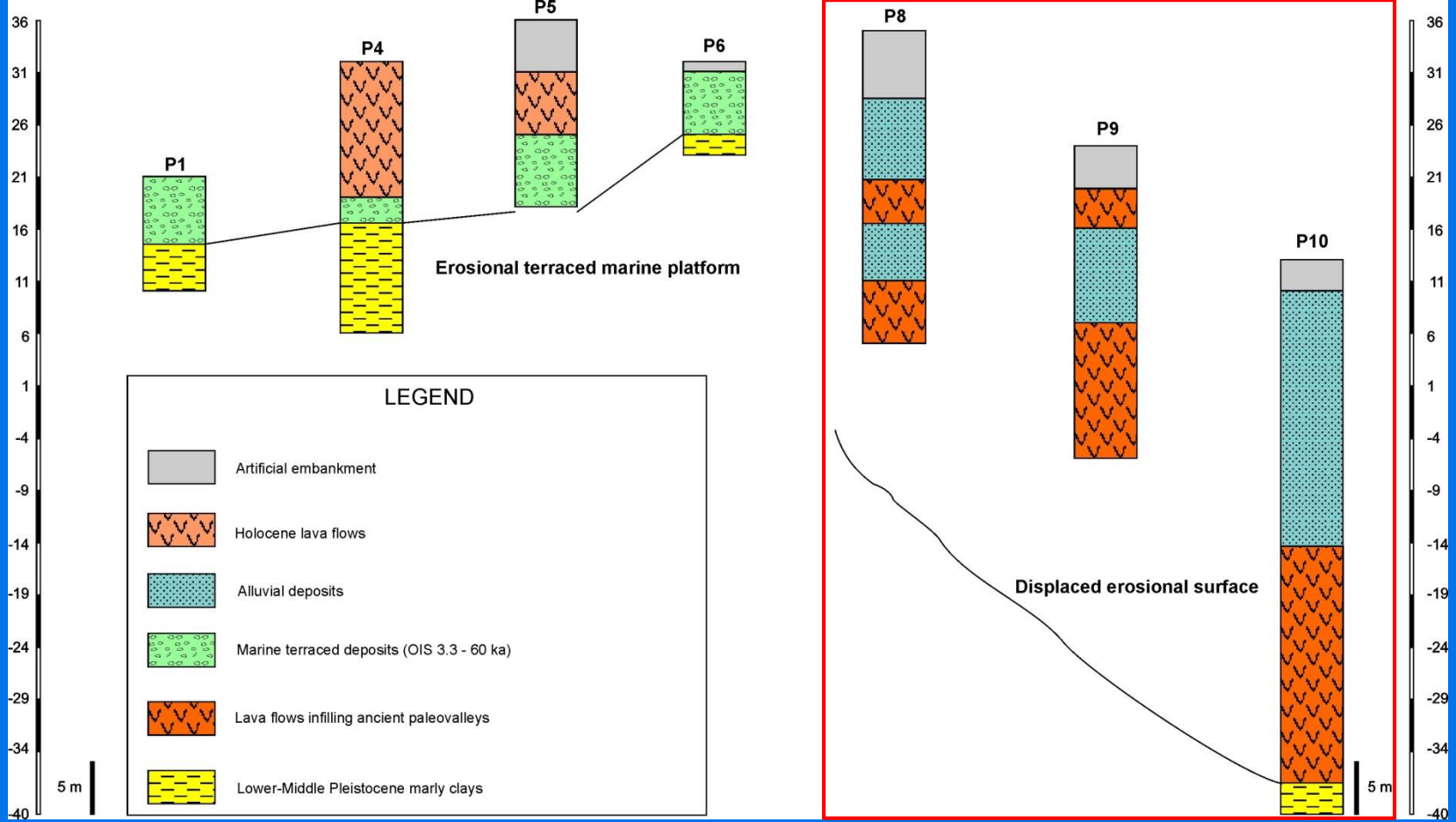
(De Guidi et al., 2015)

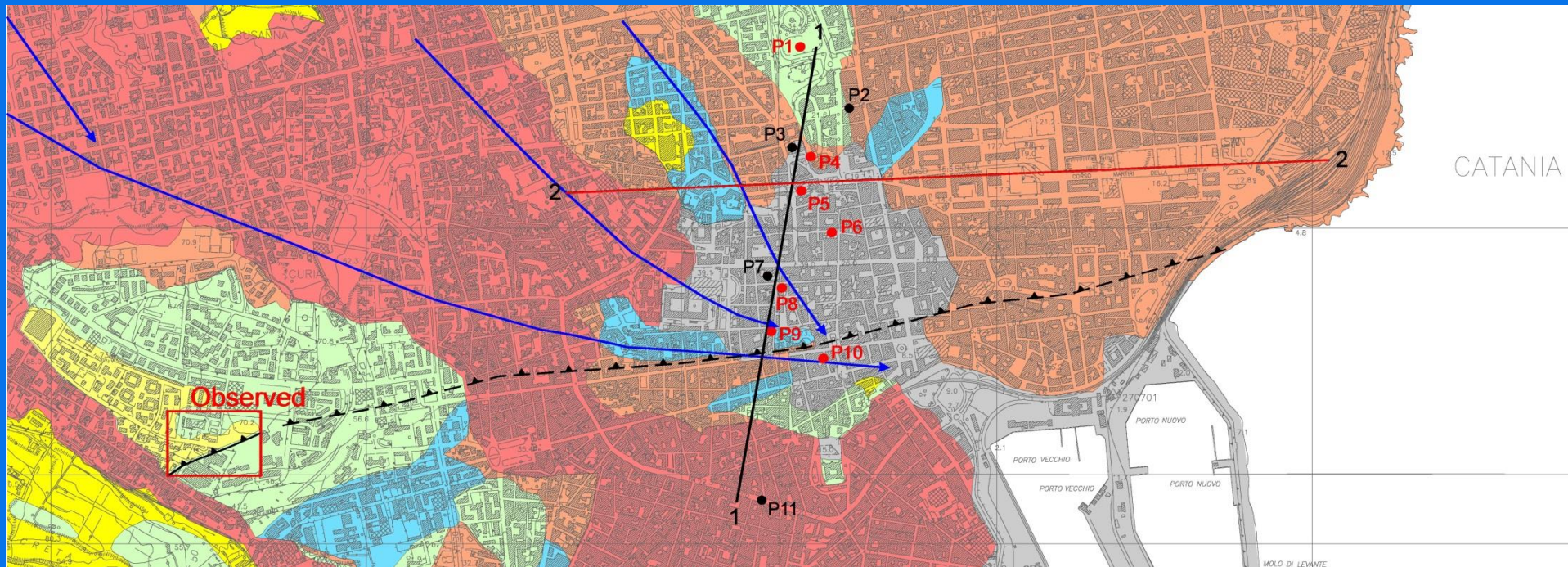
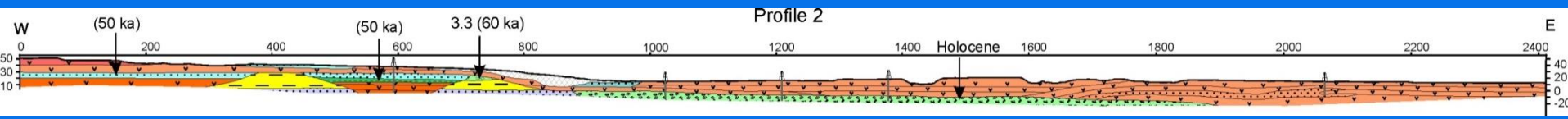
Investigated areas of Mt. Etna, for the level 1 of the Seismic Microzonation (SM)

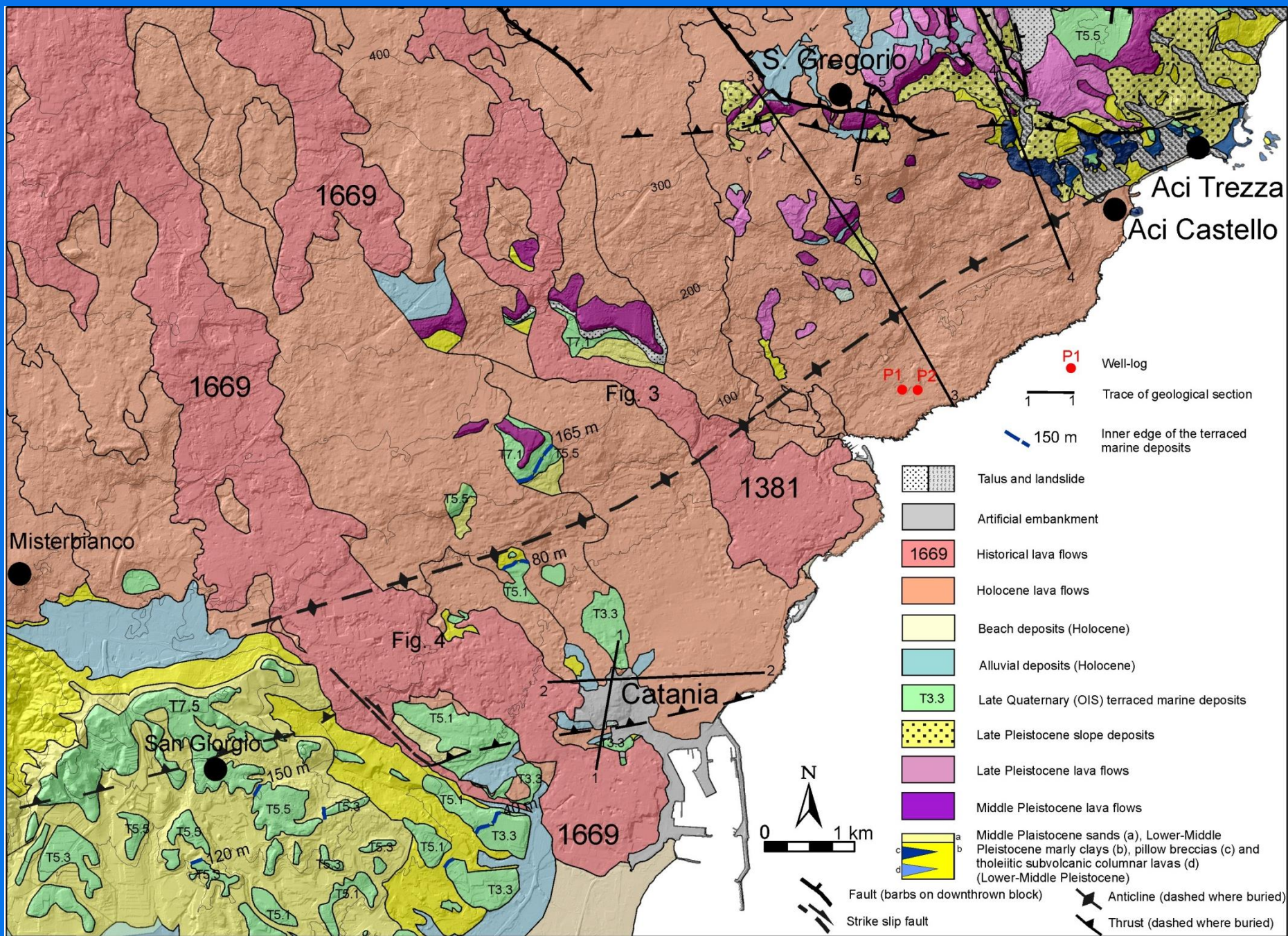
(n. 7, OPCM 3278/2003: Santa Venerina, Zafferana Etnea, Acireale, Aci Catena, Giarre, Milo, Sant'Alfio, Piedimonte Etneo, Linguaglossa; and n. 15, OPCM 3907/2010: Aci Sant'Antonio, Acicastello, Belpasso, Biancavilla, Catania, Fiumefreddo di Sicilia, Mascali, Mascalucia, Nicolosi, Randazzo, San Gregorio di Catania, Trecastagni, Tremestieri Etneo, Valverde, Viagrande)

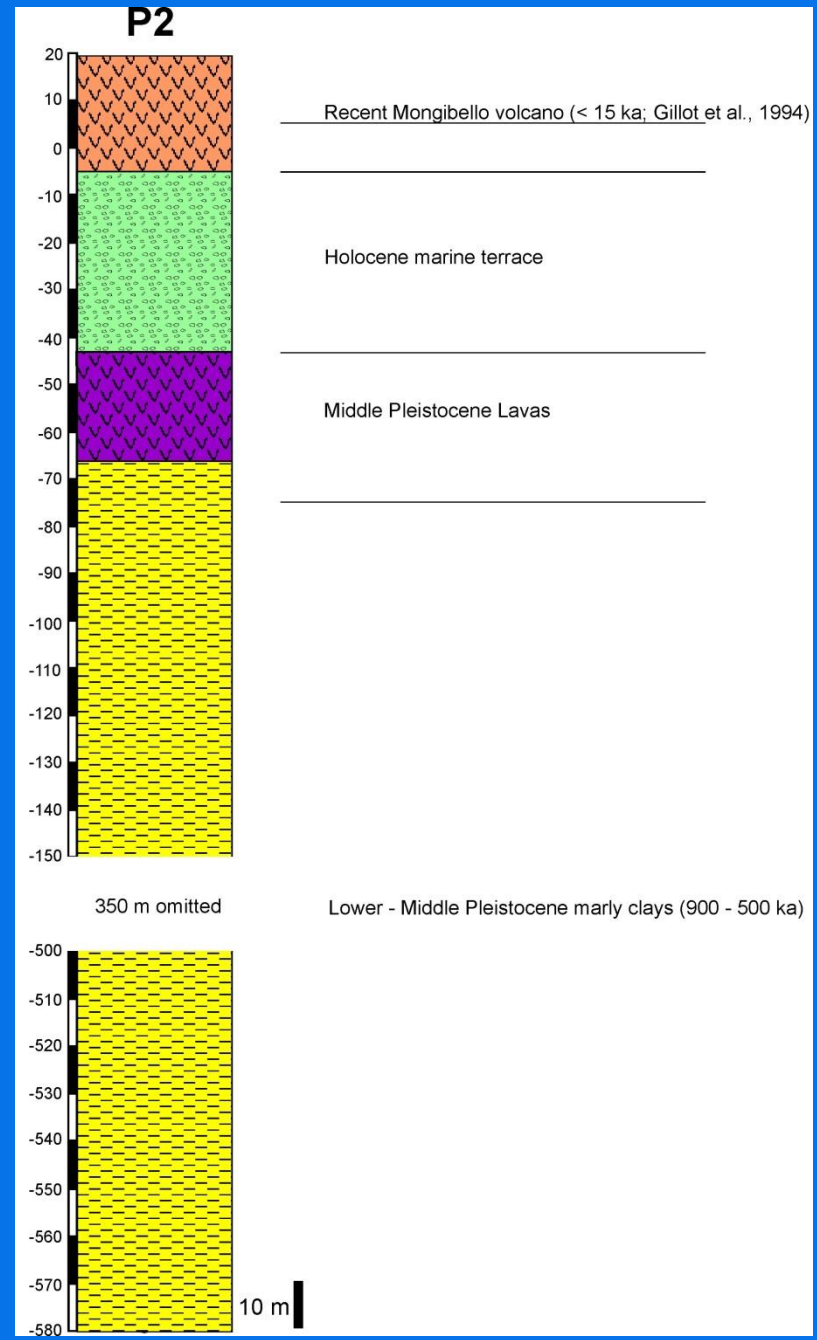
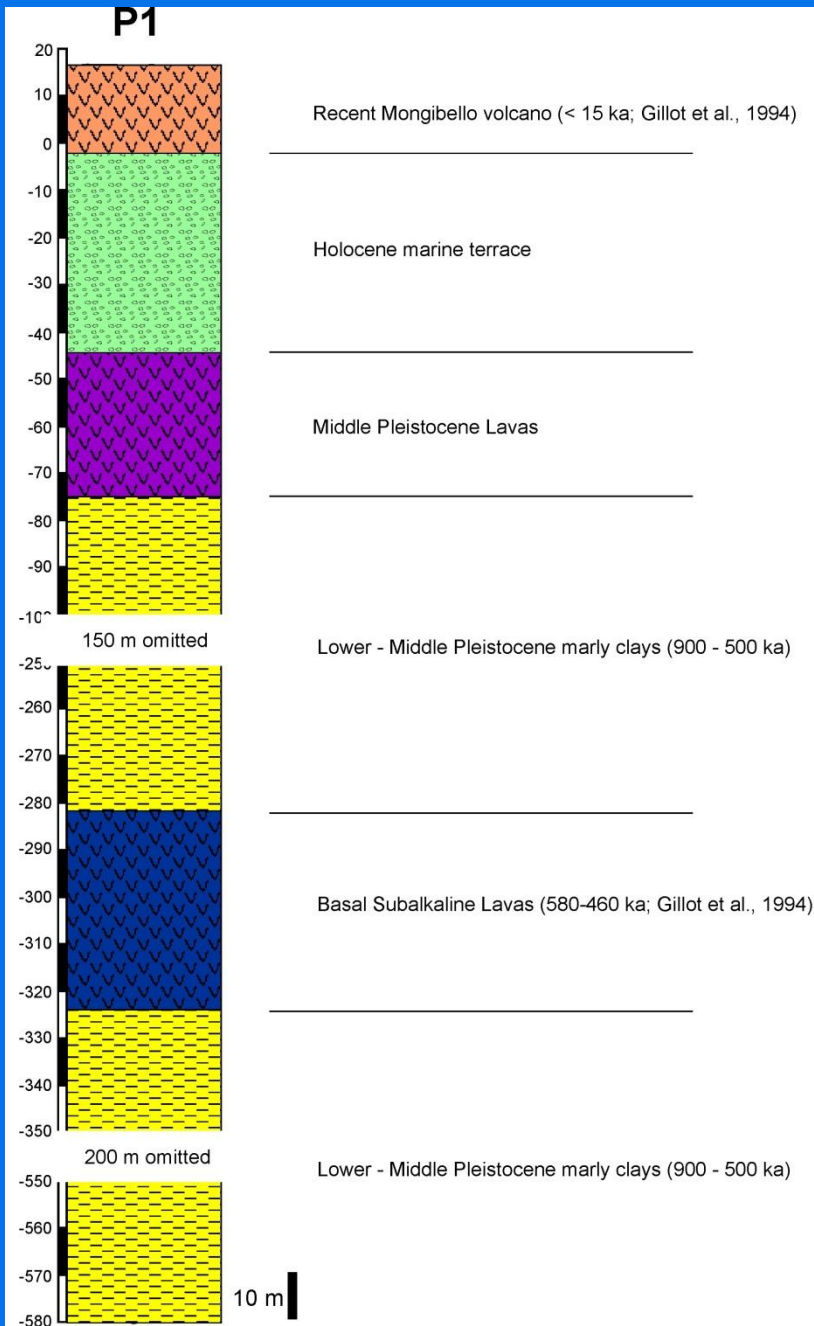


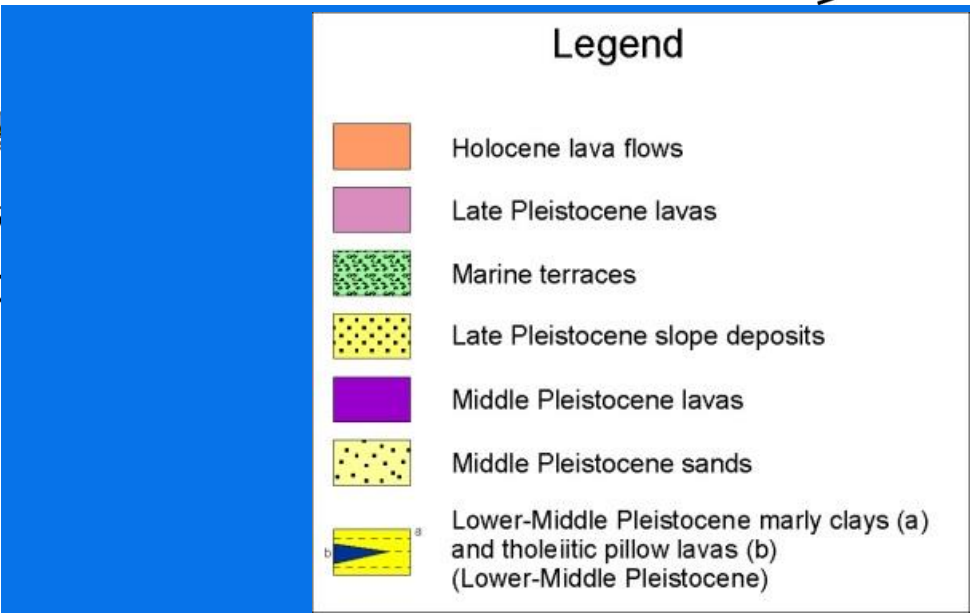
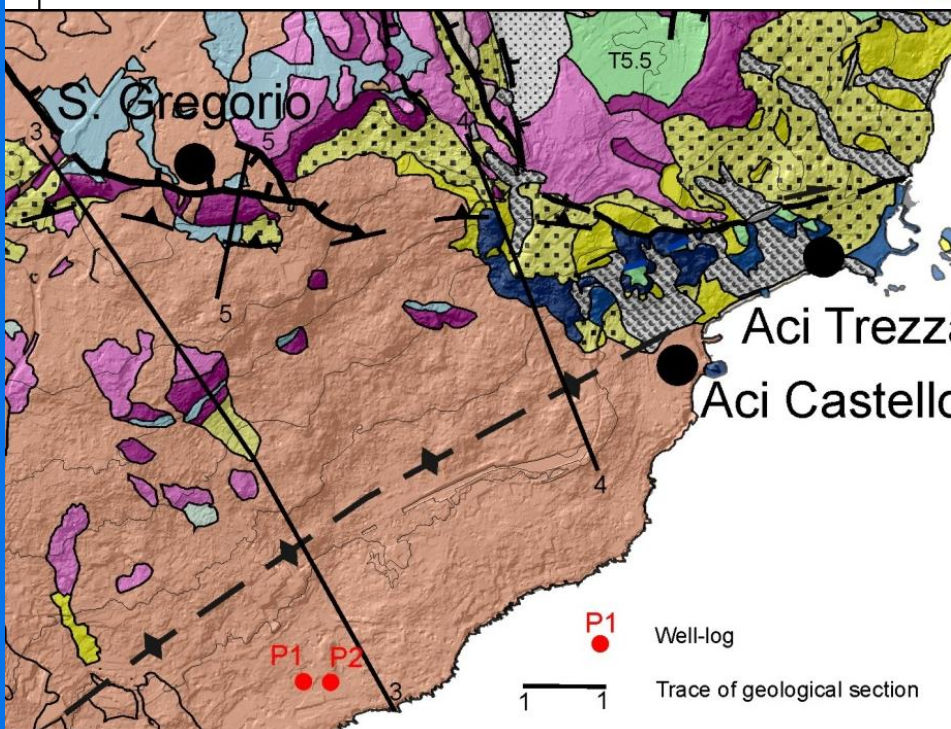
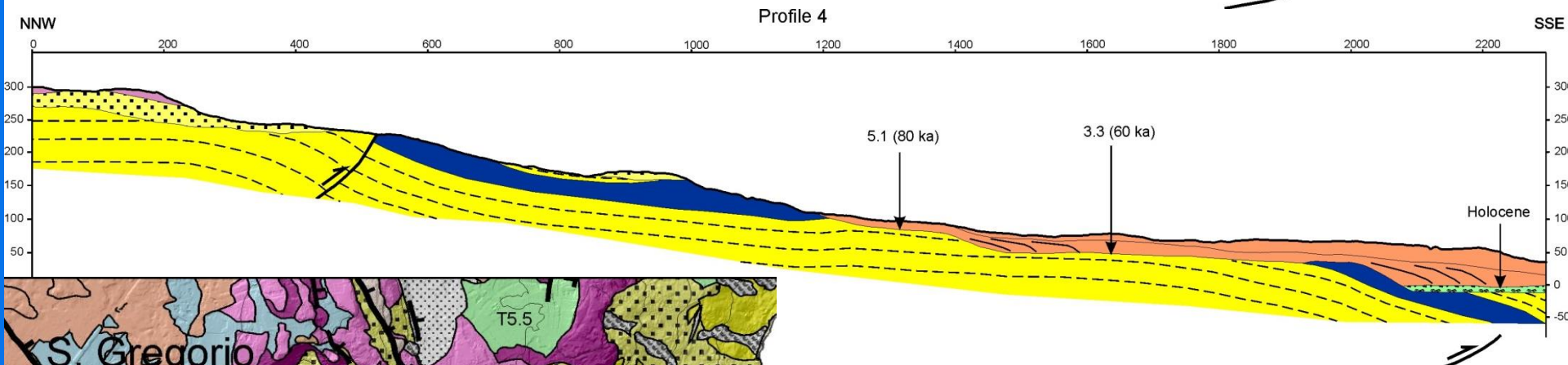
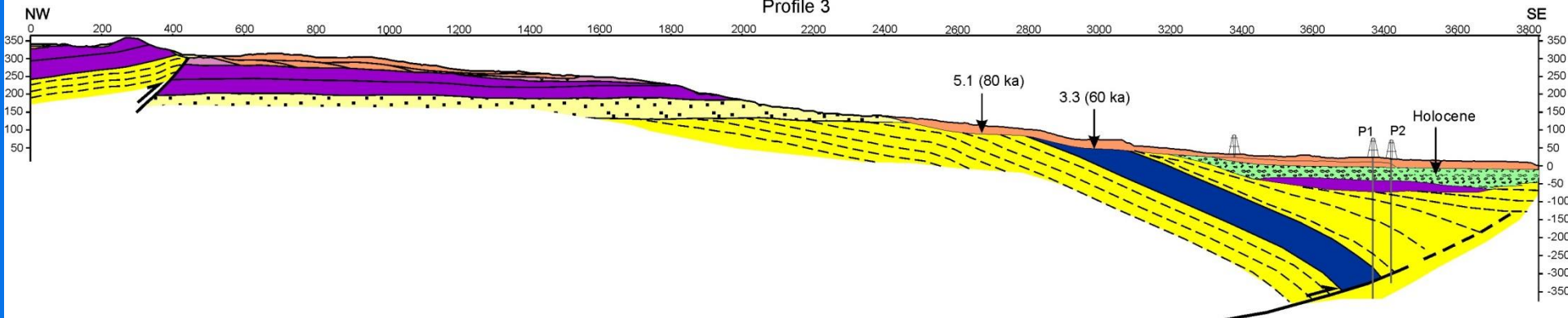


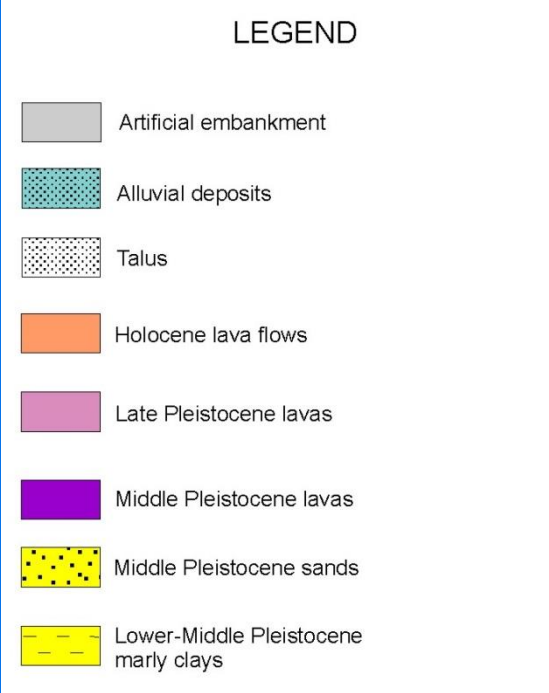
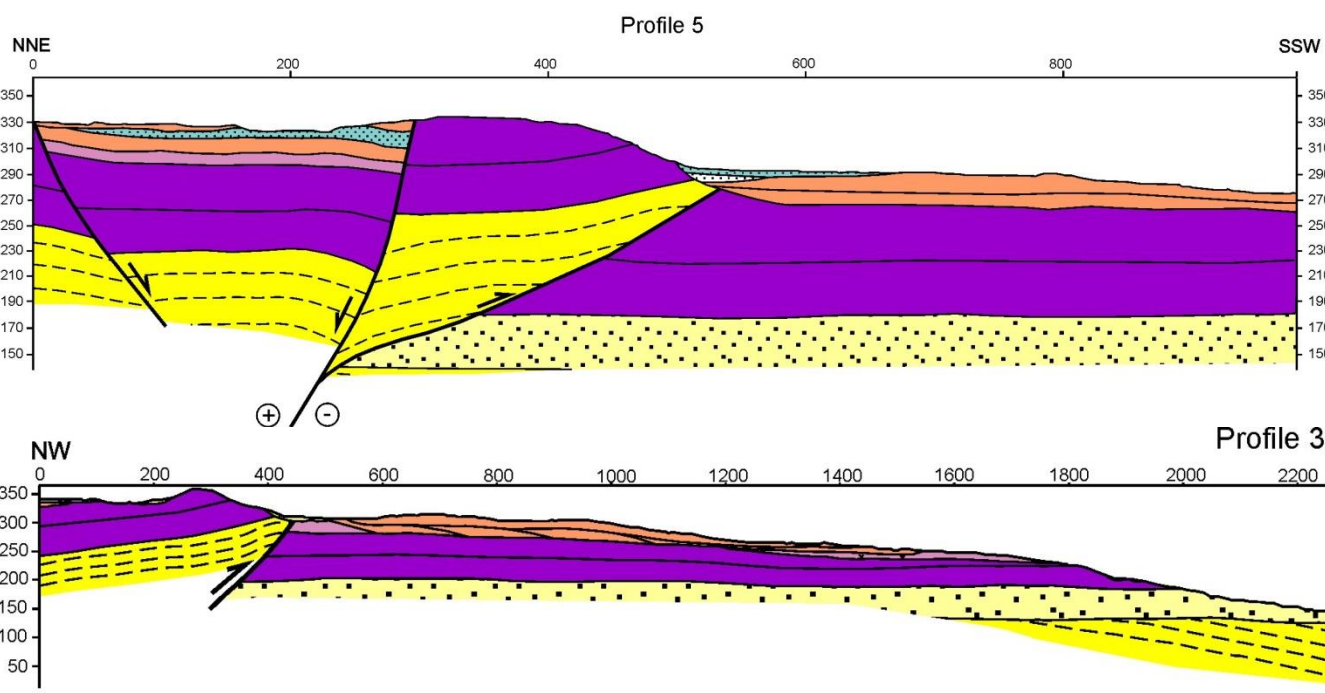
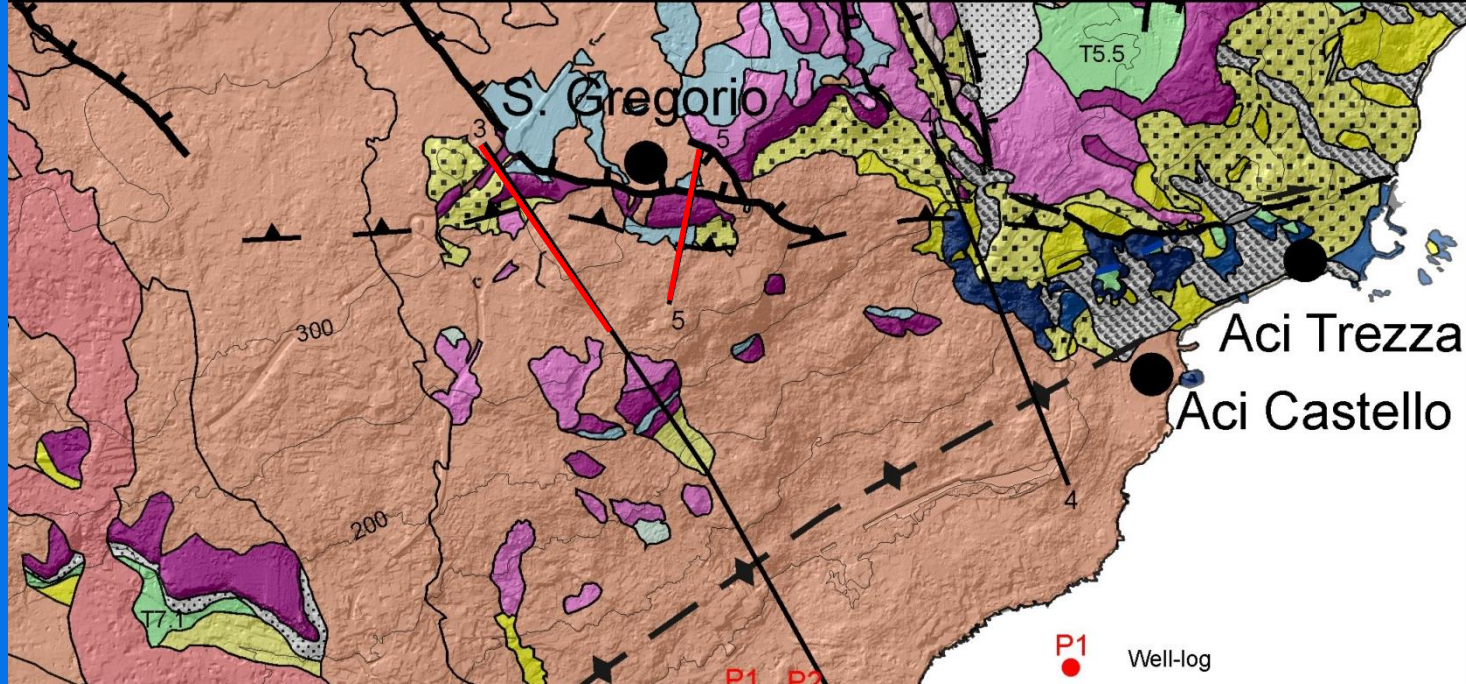












Conclusion

The presented study, even if based on the interpretation of pre-existing data, point out the occurrence of unknown compressional features in the Catania region.

Considering the population density of the area, these structures have to be better investigated during the studies of the III level of the microzonation in order to exclude recent reactivation of the ancient structures and to test their seismogenic potential and complete the assessment of the seismic hazard of the region.

