



## COMPOSITE SEISMOGENIC SOURCES

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## GENERAL INFORMATION

<b>DISS-ID</b>	ITCS020
<b>Name</b>	Southern Marche
<b>Compiler(s)</b>	Kastelic V.(1), Livani M.(2), Maesano F.E.(1), Scrocca D.(3), D'Ambrogio C.(4), Basili R.(1)
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## PARAMETRIC INFORMATION

	PARAMETER	QUALITY	EVIDENCE
<b>Min depth [km]</b>	3.5	LD	Based on geological data from Bigi et al. (2013).
<b>Max depth [km]</b>	13.0	LD	Based on geological data from Bigi et al. (2013).
<b>Strike [deg] min... max</b>	140...175	LD	Based on geological data from Bigi et al. (2013).
<b>Dip [deg] min... max</b>	35...50	LD	Based on geological data from Bigi et al. (2013).
<b>Rake [deg] min... max</b>	80...100	EJ	Inferred from regional tectonic considerations.
<b>Slip Rate [mm/y] min... max</b>	0.15...0.4	OD	Derived from restoration of base of Pleistocene horizon.
<b>Max Magnitude [Mw]</b>	5.9	EJ	Derived from maximum magnitude of associated individual source(s).

LD=LITERATURE DATA; OD=ORIGINAL DATA; ER=EMPIRICAL RELATIONSHIP; AR=ANALYTICAL RELATIONSHIP; EJ=EXPERT JUDGEMENT;

## ACTIVE FAULTS

## ACTIVE FOLDS

## COMMENTARY

## COMMENTS

This composite source straddles the region from the cities of Macerata (to the northwest) toward Teramo (to the southeast) and is the southernmost part of the Umbro-Marche Apennines outer onshore thrust. This front is the E- to NE-verging fault system at the eastern border of the Northern Apennines chain, parallel to the Marche coast.

Historical and instrumental catalogues (Boschi et al., 2000; Gruppo di Lavoro CPTI, 2004; Pondrelli et al., 2006; Guidoboni et al., 2007, CPTI15) show a few key earthquakes in this region, including (from north to south) the 100 B.C. (Mw 5.8, Picenum, CPTI99) and the 3 October 1943 (Mw 5.7, Ascolano, CPTI15) events. The area also shows a sparse intermediate ( $4.5 < M_w < 5.0$ ) seismicity.

The tectonic activity of this region is still not clearly documented but a plausible interpretation is that it is the southern sector of the Northern Marche blind thrust. Subsurface data (Bally et al., 1986; Calamita et al., 1991; Scisciani et al., 2002; Bigi et al., 2013) have well imaged the thrust plane that affects the whole Meso-Cenozoic succession, in particular to the south of the area. Various evidence suggest that the region is undergoing NE-SW trending compression, including earthquake focal mechanisms all along the outer onshore front (Frepoli and Amato, 1997; Pondrelli et al., 2002), while borehole breakout data (Montone et al., 2004) illustrated a NW-SE trending minimum stress axis.

## PICTURES

Map of hypocenter distribution with depth  
 Vertical sections of seismicity  
 Map of depth of seismogenic layer  
 Stress map of Italy  
 Map and section of  $S_n$  attenuation zone in Italy  
 Profile of seismic activity in the Southern Marche  
 Map showing Moho depths along the CROP3 profile  
 Regional balanced cross section, detail  
 Geological cross section  
 Seismotectonic zoning of the Central Apennines  
 Relationship between recent seismicity and thrust faults  
 Structural map of the central Adriatic sea  
 Regional cross-sections  
 Cross-sections



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# ITHACA Catalogo delle faglie capaci

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## SCHEDA FAGLIA



### GENERAL IDENTIFICATION

Fault Code	43500
Fault Name	Conero
Region Name	Marche
System Name	Conero
Synopsis	
Rank	ND

### GEOMETRY AND KINEMATICS

Geological Setting	
Tectonic Environment	ND
Segmentation	No

Average Strike (°)	150
Dip (°)	
Dip Direction	SW
Fault Length	0,00000000
Geometry	
Location Reliability (Mapping Scale)	500000
Fault Depth (Km)	0,00000000
Kinematics	REVERSE
Notes	

## ACTIVITY

Geomorphic Expression	
Surface Evidence	ND
Monitoring/Paleoseismology	
Last Activity (Year)	
Activity Reliability	

## SEISMIC PARAMETER

Recurrence Interval	0
Slip Rate (mm/yr)	0,00000000
Max Credible Rupture Length (Km)	0,00000000
Max Credible Slip (cm)	0,00000000
Known Seismic Event (year)	
Time Since Last Event (years)	0
Max Credible Magnitude	0,00000000
Max Credible Intensity	
Study Quality	LOW

## REFERENCES

Ref	Authors	Title	Reference	Year
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marche_002	FE Maesano, G Toscani, P Burrato, F Mirabella, C D'Ambrogi, R Basili	Deriving thrust fault slip rates from geological modeling: Examples from the Marche coastal and offshore contraction belt, Northern Apennines, Italy	Marine and Petroleum Geology, 42, 122-134. doi: 10.1016/j.marpetgeo.2012.10.008	2012