

Structural complexities and tectonic barriers controlling recent seismic activity in the Pollino area (Calabria-Lucania, Southern Italy) – constraints from stress inversion and 3D fault model building.

Daniele Cirillo^{1-2*}, Cristina Totaro²⁻³, Giusy Lavecchia¹⁻², Barbara Orecchio²⁻³, Rita de Nardis^{1-2*}, Debora Presti²⁻³, Federica Ferrarini¹⁻², Simone Bello¹⁻² and Francesco Brozzetti¹⁻²

¹ Università degli studi “G. d’Annunzio” Chieti-Pescara, DiSPUTer, via dei Vestini 31, 66100 Chieti, Italy.

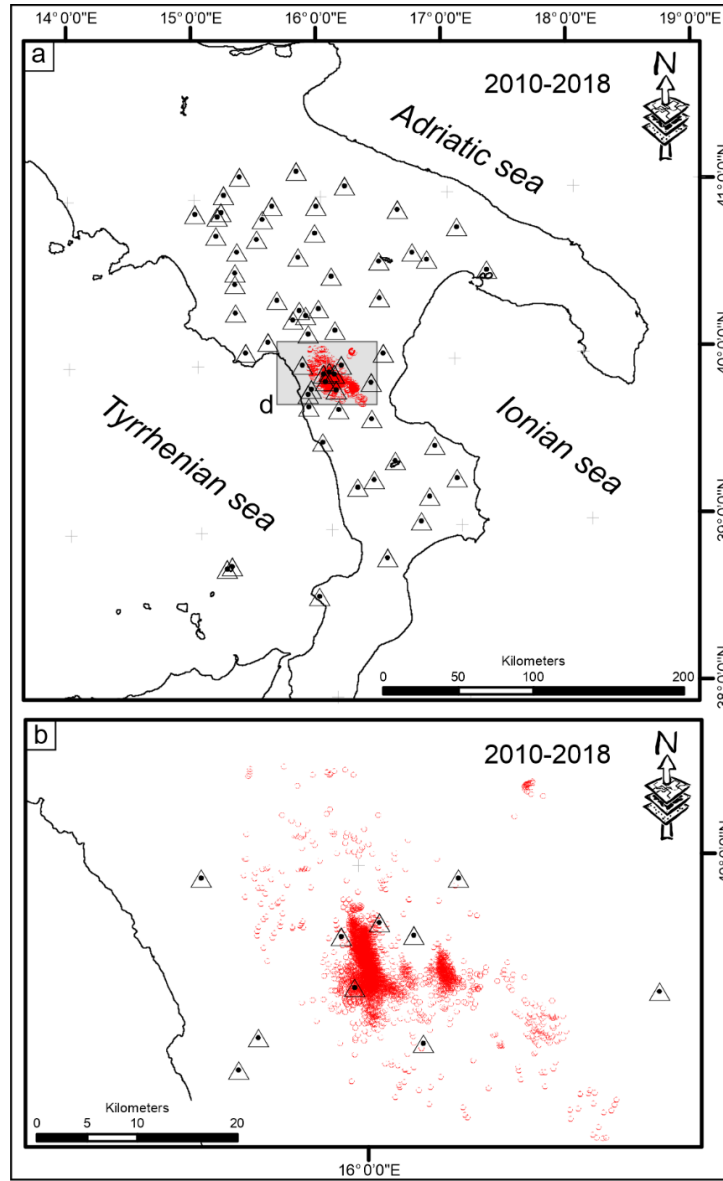
² CRUST Centro interUniversitario per l’analisi SismoTettonica tridimensionale, Italy.

³ Università degli studi di Messina, Dipartimento di Scienze Matematiche e Informatiche, Scienze Fisiche e Scienze della Terra – Viale F. Stagno D’Alcontres, 98166, Messina, Italy

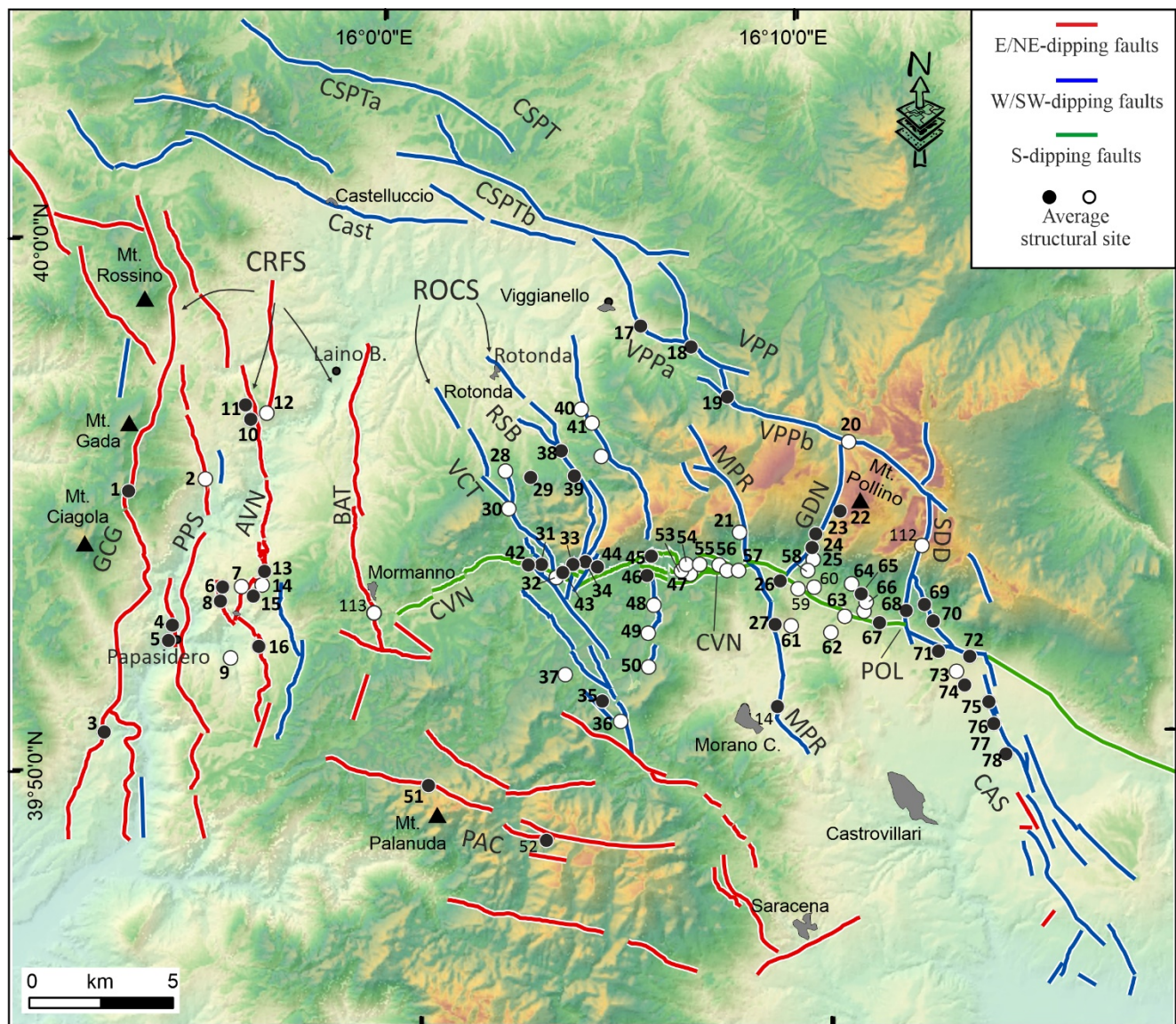
*Correspondence to: Daniele Cirillo (daniele.cirillo@unich.it) and Rita de Nardis (rita.denardis@unich.it)

Supplementary Text 1: Acronyms list

AVN= Avena fault;
BAT= Battendiero fault;
CAS= Castrovillari fault;
Cast= Castelluccio fault;
CRFS= Coastal Range Fault Set;
CSPT= Castello Seluci-Piana Perretti-Timpa della Manca fault;
CSPTa= Castello Seluci - Piana Perretti fault;
CSPTb= Timpa della Manca - La Fagosa fault;
CVN= Cozzo Vardo-Cozzo Nisco fault;
GCG= Gada-Ciagola fault;
GDN= Gaudolino fault;
MPR= Morano Calabro-Piano di Ruggio fault;
PAC= Monte Palanuda – Campolungo fault;
POL= Pollino fault;
PPS= Papasidero fault;
ROCS= Rotonda-Campotenese fault system;
RSB= Rotonda-Sambucoso;
SDD= Serra Dolcedorme fault;
SVPC= Castello Seluci-Viggianello-Piano di Pollino-Castrovillari fault set;
VCT= Fosso della Valle-Campotenese fault;
VPP= Viggianello - Piano di Pollino fault set;
VPPa= Viggianello - Prastio fault;
VPPb= Vacquarro - Piano di Pollino fault;



Supplementary Figure 1: (a) location map with the temporary and permanent seismic stations (black triangles) used for hypocenter location. The 2010-2018 relocated epicenters (red circles) are also reported within the study area (grey rectangle). (b) enlarged view of the study area.



Supplementary Figure 2: Geological-structural map showing the main faults mapped on a 10 m-resolution DEM (Tarquini et al., 2012). The structural sites are reported in black circles if used to compute the pseudo-focal mechanisms reported in Figure 3 of the main text. Fault key: CRFS= Coastal Range Fault Set; GCG= Gada-Ciagola fault; PPS= Papasidero fault; AVN= Avena fault; BAT= Battendiero fault; ROCS= Rotonda-Campotenese fault system; VCT= Fosso della Valle-Campotenese fault; RSB= Rotonda-Sambucoso; CVN= Cozzo Vardo-Cozzo Nisco fault; MPR= Morano Calabro-Piano di Ruggio fault; VPP= Viggianello - Piani del Pollino fault set; VPPa= Viggianello-Prastio fault; VPPb= Vacquarro-Piani del Pollino fault; GDN= Gaudolino fault; POL= Pollino fault; CAS= Castrovillari fault; SDD= Serra Dolcedorme fault; PAC= Monte Palanuda – Campolungo fault; Cast= Castelluccio fault; CSPT= Castello Seluci-Piana Perretti-Timpa della Manca fault; CSPTa= Castello Seluci - Piana Perretti fault; CSPTb= Timpa della Manca - La Fagosa fault.

Seismogenic BOX	Fault Name	Acronym	Length (km)	Av. strike (RHR)	Av. dip	Rake	Width (km)	Area (km ²)
1	Fosso della Valle - Campotenese	VCT	15.16	150	70	-90	4	131
2	Rotonda - Fosso Sambucoso	RSB	12.82	160	65	-80	6	123
3	Morano Calabro - Piano di Ruggio	MPR	13.33	160	65	-90	3.5	153
4	Castrovillari	CAS	20.64	150	70	-85	2	286
5	Castelluccio	Cast	16.12	110	60	-90	2.5	120
6	Castello Seluci - Piana Perretti	CSPTa	11.04	115	60	-80	2.5	164
7	Timpa della Manca - La Fagosa	CSPTb	11.28	110	60	-80	2.6	171
8	Viggianello - Prastio	VPPa	8	130	60	-90	3.5	150
9	Vacquarro – Piani del Pollino	VPPb	9.49	120	60	-90	3.6	129

Supplementary Table 1: Summary table of the seismogenic boxes' parameters.