geosciences

MDPI

Supplementary Materials

The 2017, Md = 4.0, Casamicciola Earthquake: ESI Scale Evaluation and Implications for the Source Model.

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Table S1. Descriptive sheet of the environmental effects allowed the estimation of the degrees of ESI intensity and the reconstruction of the isoseismal map.

Site number	**1**
Latitude	40.746131°
Longitude	13.888086°
Locality	Via Fango , Lacco Ameno (NA).
Type of effect	Earth Slide
Description	Drywall collapse for a length of ca. 5 m
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group, 2019.
Site number	**2**
Latitude	40.742495°
Longitude	13.884802°
Locality	Via Borbonica, Lacco Ameno (NA).
Type of effect	Fracturing
Description	On the left, fracturing of small pillars along via Borbonica; the collapse of these was prevented by the metal scaffolding of the handrail; on the right fracture in the asphalt at the base of the pillars.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation

Sources of reference	Emergeo Working Group, 2019
Site number	**3**
Latitude	40.742028°
Longitude	13.887070°
Locality	Via Crateca, Lacco Ameno (NA).
Type of effect	Ground fractures
Description	Coseismic fracturing of the soil that extends for 30 m, through a private property and an asphalted road. The fracture opening is 1-2 cm.
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography

Satellite image

Photographic documentation	 
Sources of reference	Emergeo Working Group, 2019.
Site number	**4**
Latitude	40.741216°
Longitude	13.886989°
Locality	Via Crateca, Lacco Ameno (NA)
Type of effect	Fractures
Description	Fracturing of two pillars constituting the entrance to a private property, in which there are also fractures and lifting, of a few centimeters, of the paved ground.
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography.

Satellite image

Photographic documentation

Sources of reference	Emergeo Working Group, 2019.
Site number	**5**
Latitude	40.740865°
Longitude	13.886959°
Locality	Via Crateca, Lacco Ameno (NA).
Type of effect	Ground fracture
Description	Ground fracture, E-trending, 10 m long, 2 cm wide, 2-3 cm of vertical offset, down to the N
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography.

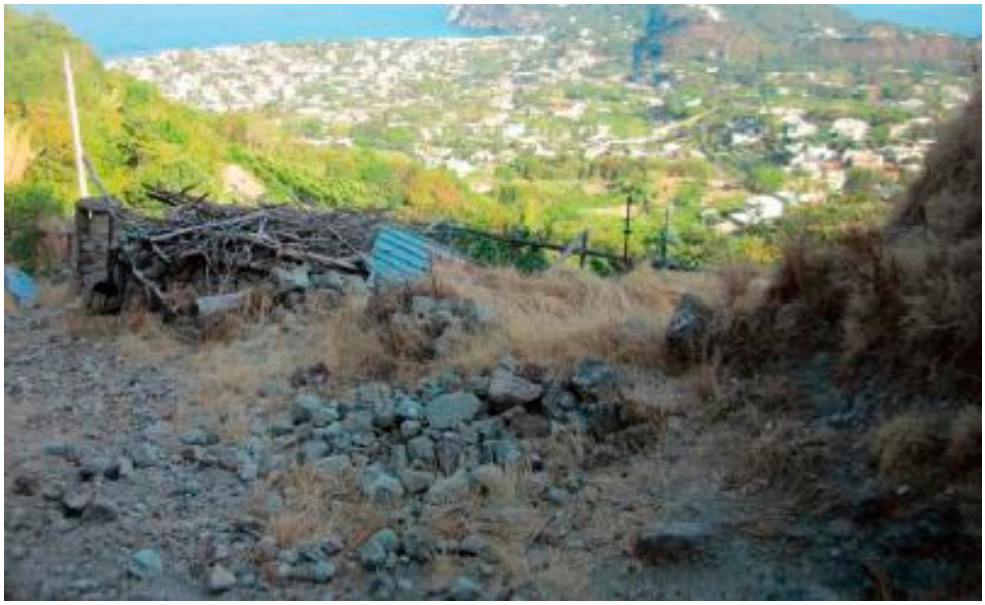
Satellite image

Photographic documentation

Sources of reference	Emergeo Working Group, 2019.
Site number	**6**
Latitude	40.741025°
Longitude	13.887702°
Locality	Via Crateca, Lacco Ameno (NA).
Type of effect	Ground fracture
Description	Ground fracture, E-trending, 18 m long, 2 cm wide, 2 cm of vertical offset, down to the N
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography.

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**7**
Latitude	40.736831°
Longitude	13.885297°
Locality	Fumaroles near Pizzone, Lacco Ameno (NA).
Type of effect	Rockfalls
Description	Widespread small rockfalls .
ESI Intensity	IV
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**8**
Latitude	40.736814°
Longitude	13.885357°
Locality	Fumaroles near Pantane, Lacco Ameno (NA).
Type of effect	Ground fractures
Description	Ground fractures in loose soil, 30 cm long, opening of few millimiters
ESI Intensity	IV
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes.

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group - 2019.
Site number	**9**
Latitude	40.742222°
Longitude	13.887901°
Locality	Via dei Carri, Lacco Ameno (NA).
Type of effect	Ground fractures
Description	Fracturing of the road pavement, also affecting the adjacent wall. The fracture extends for about ten meters, with an opening of 1-2cm.
ESI Intensity	VII
Geomorphic setting	Urban area, mostly plain topography

Satellite image

Photographic documentation

Sources of reference	Emergeo Working Group - 2019.
Site Number	**10**
Latitude	40.741903°
Longitude	13.888114°
Locality	Via dei Carri, Lacco Ameno (NA).
Type of effect	Earth Slide
Description	Drywall (parracina) collapse for a length of ca. 10 m
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography.

Satellite image

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**11**
Latitude	40.741478°
Longitude	13.888903°
Locality	Via dei Carri, Lacco Ameno (NA).
Type of effect	Earth slide
Description	Collapse of a dry stone wall that surrounded a badly damaged house
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group - 2019.
Site number	**12**
Latitude	40.740609°
Longitude	13.889906°
Locality	Via dei Carri, Lacco Ameno (NA).
Type of effect	Earth slide
Description	Drywall (parracina) collapse for a length of about 5m.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Area scarsamente popolata. Zona collinare.

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group - 2019.
Site number	**13**
Latitude	40.739369°
Longitude	13.893487°
Locality	Via dei Carri, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Drywall (parracina) collapse for a length of 2 m
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Sparsely inhabited, hilly area, with steep slopes.

Satellite image

Photographic documentation

Sources of reference	Emergeo Working Group- 2019.
Site number	**14**
Latitude	40.739136°
Longitude	13.894196°
Locality	Via dei Carri, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of drywalls (parracine), on both sides od the road
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Sparsely inhabited, hilly area, with steep slopes.

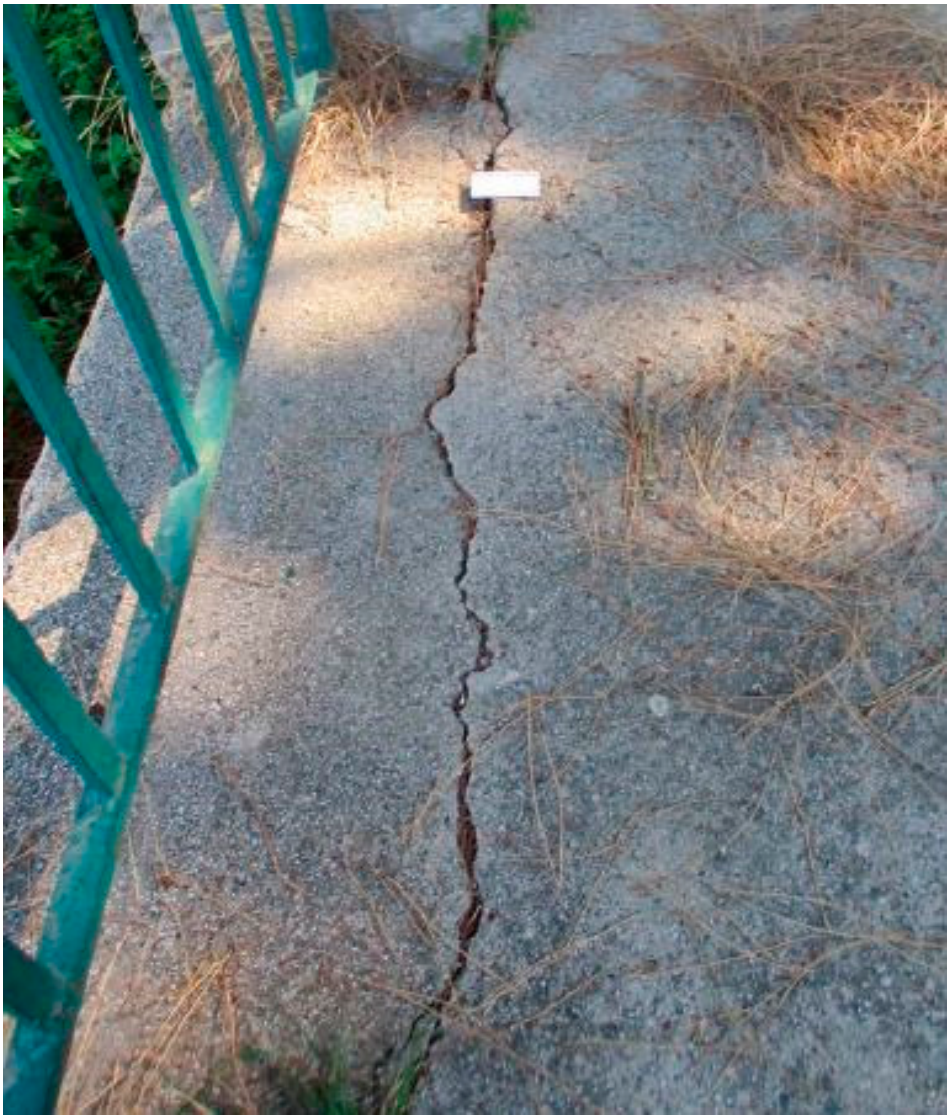
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**15**
Latitude	40.739102°
Longitude	13.894529°
Locality	Via dei Carri, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the soil, a couple of meters long and with an opening of about 1cm; vertical offset of 1-2cm, down to the N
ESI Intensity	V
Geomorphic setting	Sparsely inhabited, hilly area, with steep slopes.

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**16**
Latitude	40.739117°
Longitude	13.895028°
Locality	Via dei Carri, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing in volcanic deposits, 1-2 m long, with an opening of about 1cm.
ESI Intensity	V
Geomorphic setting	Sparsely inhabited, hilly area, with steep slopes.

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**17**
Latitude	40.742180°
Longitude	13.890433°
Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing in the concrete of a sidewalk. The fracture extends for several meters, following the anchoring of the pillars of a handrail. It has an opening of less than 1 cm, but shows a vertical displacement of 1-2 cm, down to the N

ESI Intensity	VI
Geomorphic setting	Area urbana. Zona collinare.
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**18**
Latitude	40.741051°
Longitude	13.893538°
Locality	Via Montecito, Casamicciola Terme (NA)
Type of effect	Ground fracture
Description	Fracture and overturning of a small masonry pillar, forming part of a handrail, on the side of the road. At the base of the pillars there is a fracture in the concrete, with a vertical component of a couple of centimeters, down to the N
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**19**
Latitude	40.740769°
Longitude	13.894643°
Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the soil, of about 20 m, which also extends into a concrete pavement. The fracture has a variable opening of 1-2 cm.
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography

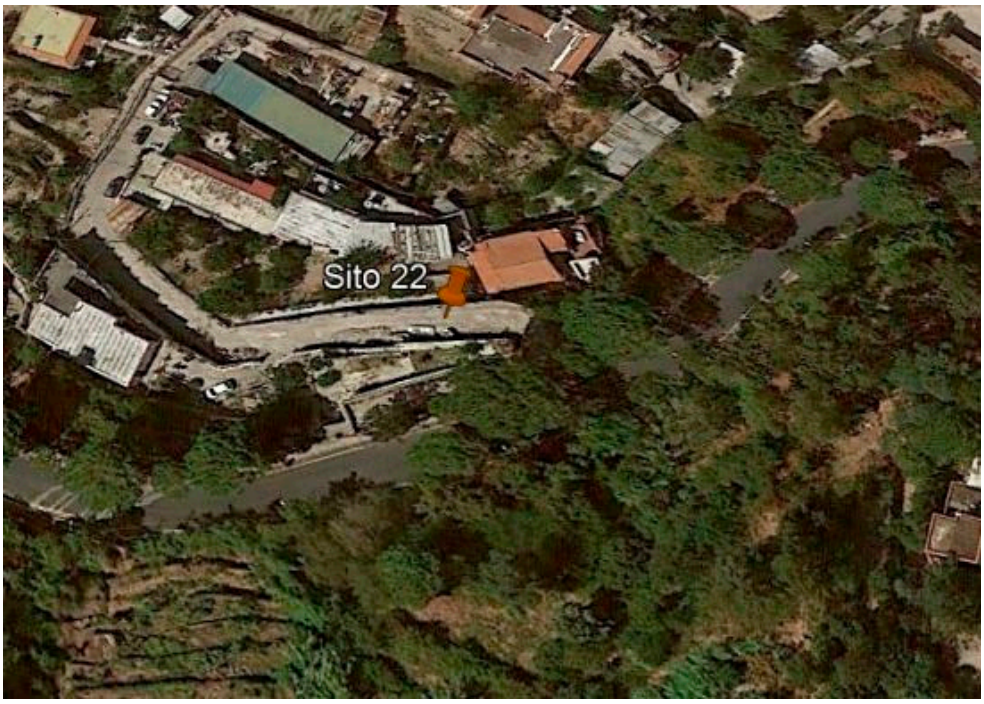
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**20**
Latitude	40.740833°
Longitude	13.894542°
Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracture about 50 cm long, which extends into the concrete pavement of the road, and continues into the side wall. The opening varies from 1 cm in the ground to 2-3 cm in the masonry.
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**21**
Latitude	40.740876°
Longitude	13.894627°

Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Fractures
Description	Fracturing, displacement and rotation of a small masonry pillar, which is part of a handrail, on the side of the road.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.

Site number	22
Latitude	40.740934°
Longitude	13.894751°

Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of a dry stone wall that surrounded a badly damaged house. The collapse affects about 5 m of the building.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**23**
Latitude	40.743664°
Longitude	13.895713°

Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracture of the concrete pavement, which extends for about 10 m: the fracture has an opening of 1 cm and a vertical displacement of 2cm, down to the N
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**24**
Latitude	40.743854°
Longitude	13.897108°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracture in incoherent soil extending for 1 m, with an opening of 1-2 cm.
ESI Intensity	V
Geomorphic setting	Urban area. Own garden. Flat area.

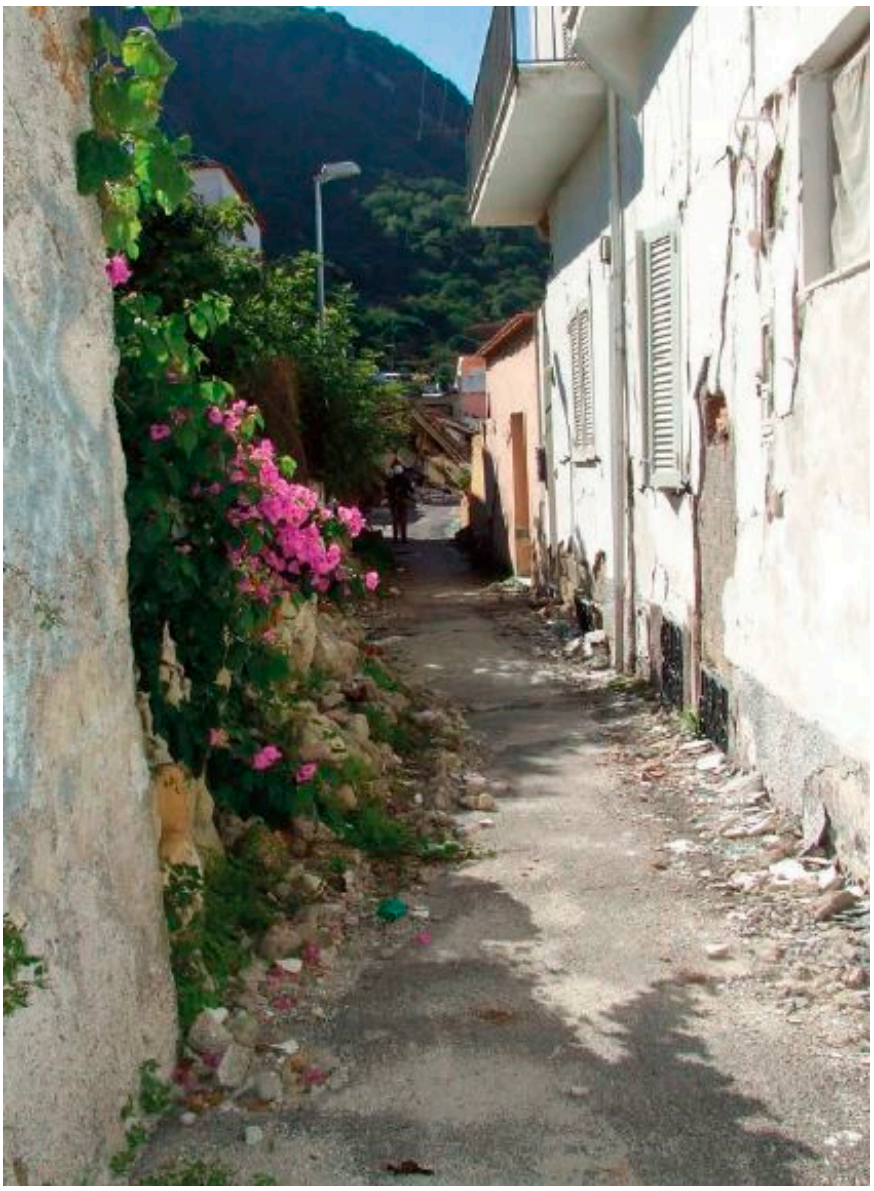
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**25**
Latitude	40.743476°
Longitude	13.897395°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Drywall (parracina) collapse for a length of ca. 5-6 m.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**26**
Latitude	40.743093°
Longitude	13.898186°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Drywall (parracina) collapse for a length of ca. 3-4 m.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects

Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation



Sources of reference	Emergeo Working Group- 2019.
Site number	**27**
Latitude	40.743097°
Longitude	13.898661°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Ground fracture
Description	Fracturing of the paved soil which extends for about one meter and continues in the adjacent masonry wall. The opening of the fracture is less than 1 cm in the flooring, and about 2-3 cm in the low wall.
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.

Site number	**28**
Latitude	40.742505°
Longitude	13.899797°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of a paved road. The fractures extends for about 20 m, with an opening of no more than 1 cm, and continue into the wall of a severely damaged house.
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography

Satellite image

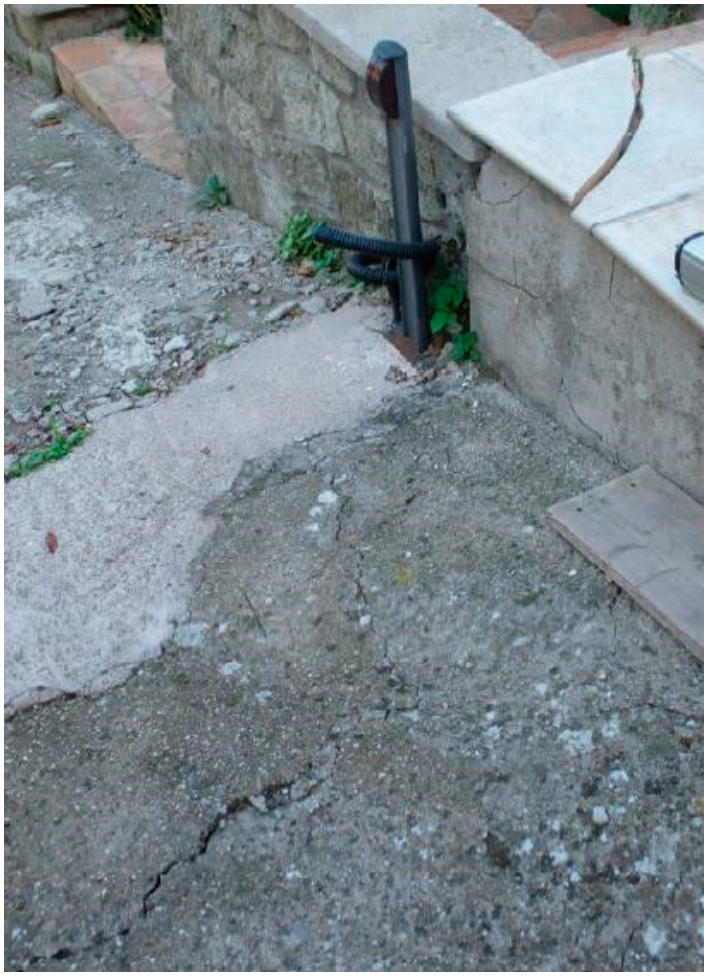
Photographic documentation

Sources of reference	Emergeo Working Group- 2019.
Site number	**29**
Latitude	40.742574°
Longitude	13.900215°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Column rotation
Description	A slight rightward rotation of the upper part of a column is observed.
ESI Intensity	Data reported because located in the immediate vicinity of ground effects

Geomorphic setting	Urban area, residential building, hilly topography
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.

Site number	**30**
Latitude	40.742580°
Longitude	13.900307°
Locality	Via D'Aloisio, Casamicciola Terme (NA).
Type of effect	Ground fractures

Description	Fracturing of the concrete road pavement, which continues in the adjacent wall. The fracture has an opening of no more than 1cm in the ground, while it increases up to 2-3 cm in the low wall. There is also a dislocation of about 2 cm of the wall covering
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**31**
Latitude	40.742054°
Longitude	13.899618°
Locality	Via Montecito, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracture of the asphalt road surface, approximately 10 m long, with an opening of 1 cm. Fracturing is observed along a stretch of road on the side of which the neighboring buildings have collapsed or severely damaged.
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography

Satellite image

Photographic documentation

Sources of reference	Emergeo Working Group- 2019.
Site number	**32**
Latitude	40.745316°
Longitude	13.903518°
Locality	Via Castanito, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracture of the asphalt road surface, which extends for about 5m and has an opening of no more than 1 cm
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography
Satellite image	

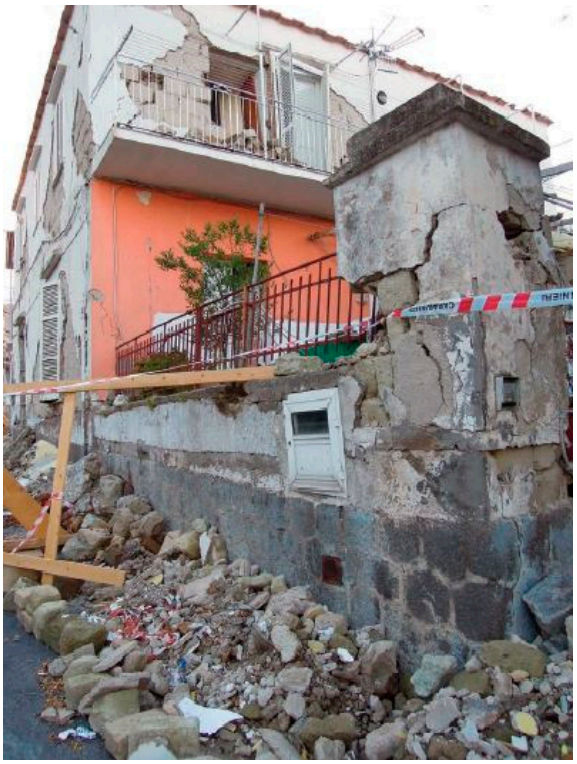
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**33**
Latitude	40.743056°
Longitude	13.902477°
Locality	Via Sassolo, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the cemented soil in front of a house. The fracture extends for 5m, showing an opening of less than 1 cm and a vertical dislocation of 1 cm, down to tre north
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**34**
Latitude	40.742514°
Longitude	13.902068°
Locality	Via Ottringolo, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of an asphalted road, which extends for about 2 m, with opening and vertical displacement not exceeding 1 cm
ESI Intensity	VI
Geomorphic setting	Urban area, hilly topography

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**35**
Latitude	40.742491°
Longitude	13.901988°
Locality	Via Ottringolo, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of a dry wall several meters long, connected to a badly damaged house
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**36**
Latitude	40.742529°
Longitude	13.901086°
Locality	Piazza Maio, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of several drywalls, which caused the interruption of the road. The walls collapsed for a length of 4-5 m

ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**37**
Latitude	40.742357°
Longitude	13.901784°
Locality	Via Speziera, Casamicciola Terme (NA).
Type of effect	Ground fractures

Description	Fracturing of the road at the intersection of the roads Spezieria, Ottringolo and Santa Barbara. The fracture extends for 5-6 m, also affecting the adjacent houses and causing the collapse of the wall of a house. A vertical offset of the fracture of 2-3 cm down to the north is observed.
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**38**
Latitude	40.741991°

Longitude	13.902195°
Locality	Via Santa Barbara, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the asphalt road; the fracture extends for 5 m, crossing sidewalks, streets and buildings. It has an opening of 1 cm
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation

Sources of reference	Emergeo Working Group- 2019.
Site number	**39**
Latitude	40.742104°
Longitude	13.902934°
Locality	Via Santa Barbara, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of incoherent soil that extends for 20 m in the garden of a house. The fracture has an opening of 2-3 cm. A subsidence of the soil is observed north of the fracture
ESI Intensity	VII
Geomorphic setting	Courtyard of a house, urban area, hilly topography

Satellite image	

Photographic documentation

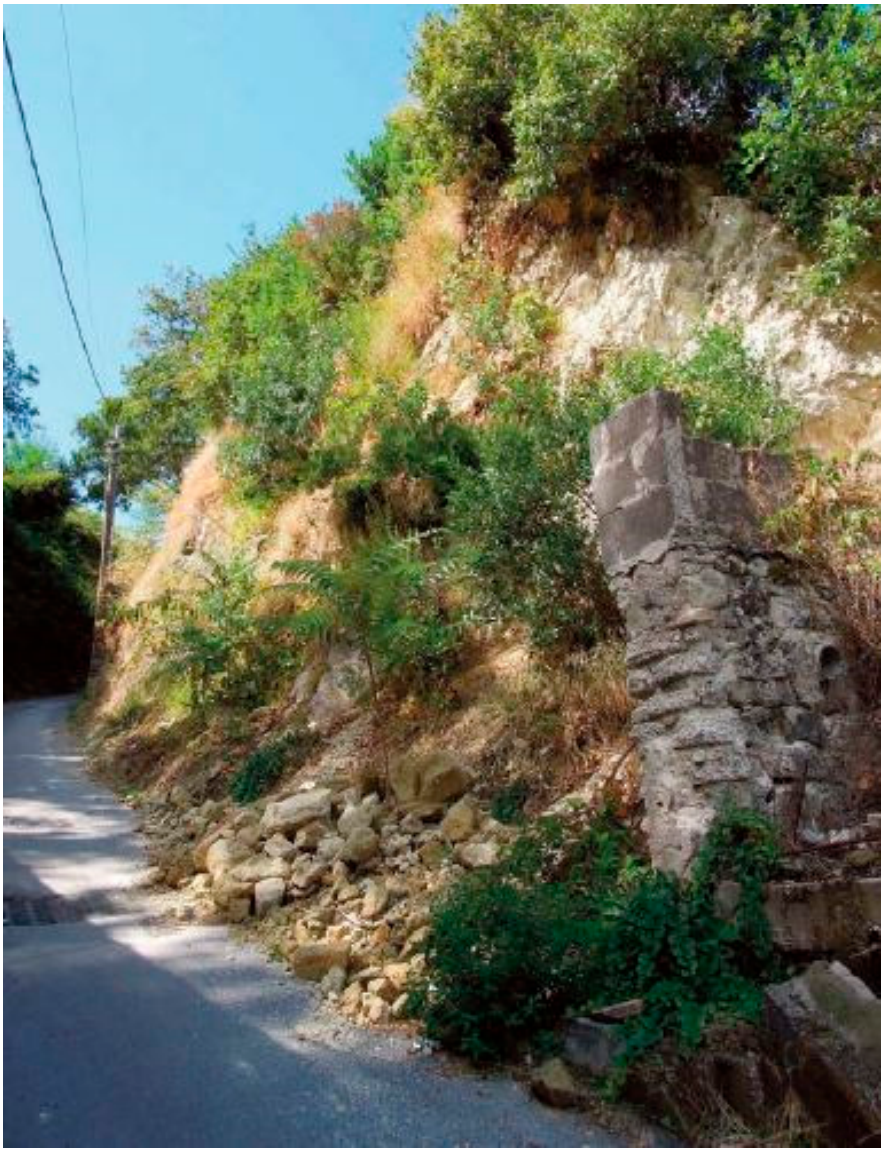
Sources of reference	Emergeo Working Group- 2019.
Site number	**40**
Latitude	40.742345°
Longitude	13.903753°
Locality	Via Nizzola, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of a drywall (parracina) for a length of 5 m
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**41**
Latitude	40.742459°
Longitude	13.904303°
Locality	Via Nizzola, Casamicciola Terme (NA).
Type of effect	Ground fractyres
Description	Fracture of the asphalt road, which extends for about 2 m, with an opening of less than 1 cm
ESI Intensity	V
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**42**
Latitude	40.742511°
Longitude	13.906498°
Locality	Via Nizzola, Casamicciola Terme (NA).
Type of effect	Earth slide
Description	Collapse of a dry stone wall (parracina) for a section about 3 m long
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography

Satellite image	

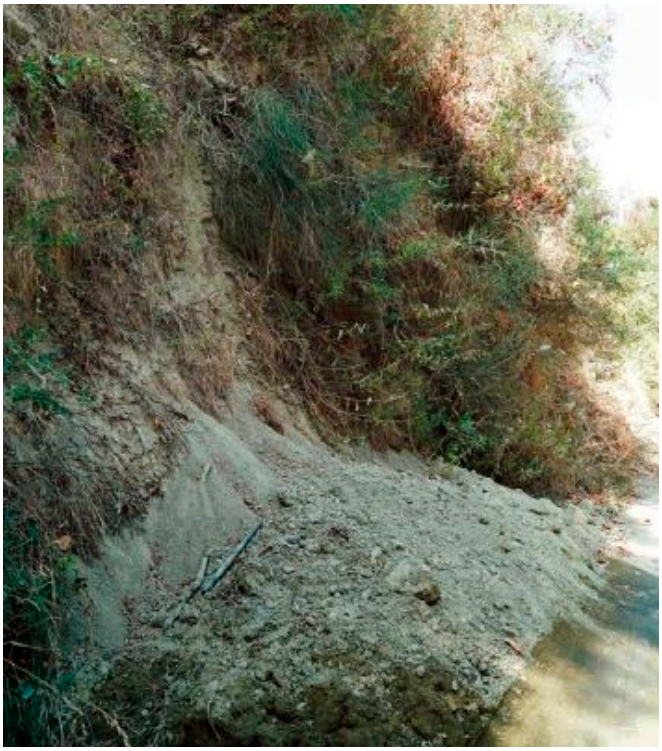
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**43**
Latitude	40.741983°
Longitude	13.907134°
Locality	Via Nizzola, Casamicciola Terme (NA).
Type of effect	Landslide
Description	Landslide of modest size in volcanoclastic deposits
ESI Intensity	IV
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**44**
Latitude	40.739411°
Longitude	13.906299°
Locality	Via Campomanno, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the asphalt road; the fracture extends for 100 m, with an opening of 1 cm
ESI Intensity	VII
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes

Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
ite number	**45**
Latitude	40.739919°
Longitude	13.905659°
Locality	Via Campomanno, Casamicciola Terme (NA).
Type of effect	Landslide
Description	Landslide of modest size in volcanoclastic deposits
ESI Intensity	IV
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes

Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.

Site number	**46**
Latitude	40.740213°
Longitude	13.903796°
Locality	Via Campomanno, Casamicciola Terme (NA).
Type of effect	Rockfalls
Description	Fall of rocks from the Mount Epomeo slope; boulders have modest dimensions, which do not exceed 50 cm in diameter

ESI Intensity	V
Geomorphic setting	Rural area, sparsely populated, hilly topography with steep slopes
Satellite image	
Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.

Site number	**47**
Latitude	40.741168°
Longitude	13.903835°
Locality	Via Campomanno, Casamicciola Terme (NA).
Type of effect	Earth slide

Description	Collapse of a dry stone wall (parracina), for a length of about 10 m
ESI Intensity	Data reported because located in the immediate vicinity of ground effects
Geomorphic setting	Urban area, hilly topography
Satellite image	

Photographic documentation	
Sources of reference	Emergeo Working Group- 2019.
Site number	**48**
Latitude	40.741468°
Longitude	13.900964°
Locality	Via Santa Barbara, Casamicciola Terme (NA).
Type of effect	Ground fractures
Description	Fracturing of the soil involving the road surface, the garden and the paved terrace of the adjacent house. The fracture extends for a hundred meters, with a maximum opening of 4 cm. In some points a vertical displacement of a couple of centimeters is observed, down to the north
ESI Intensity	VII
Geomorphic setting	Urban area, hilly topography

Satellite image	
Photographic documentation	 

Sources of reference	Emergeo Working Group- 2019.