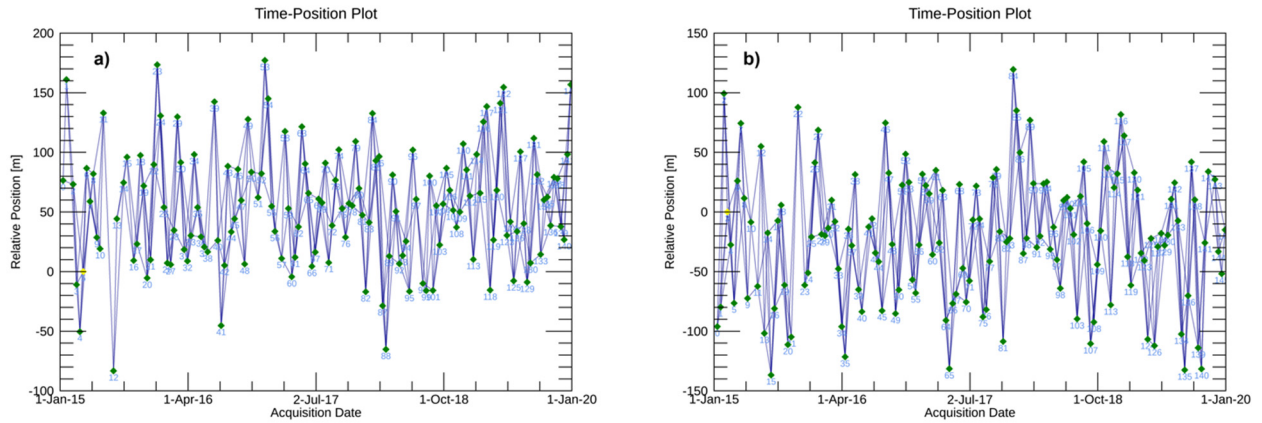
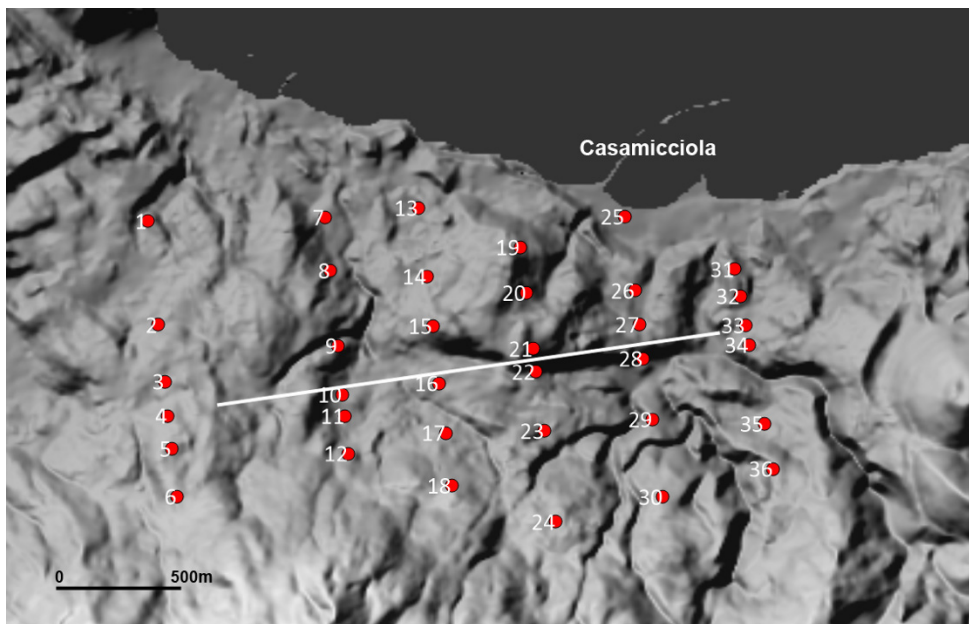


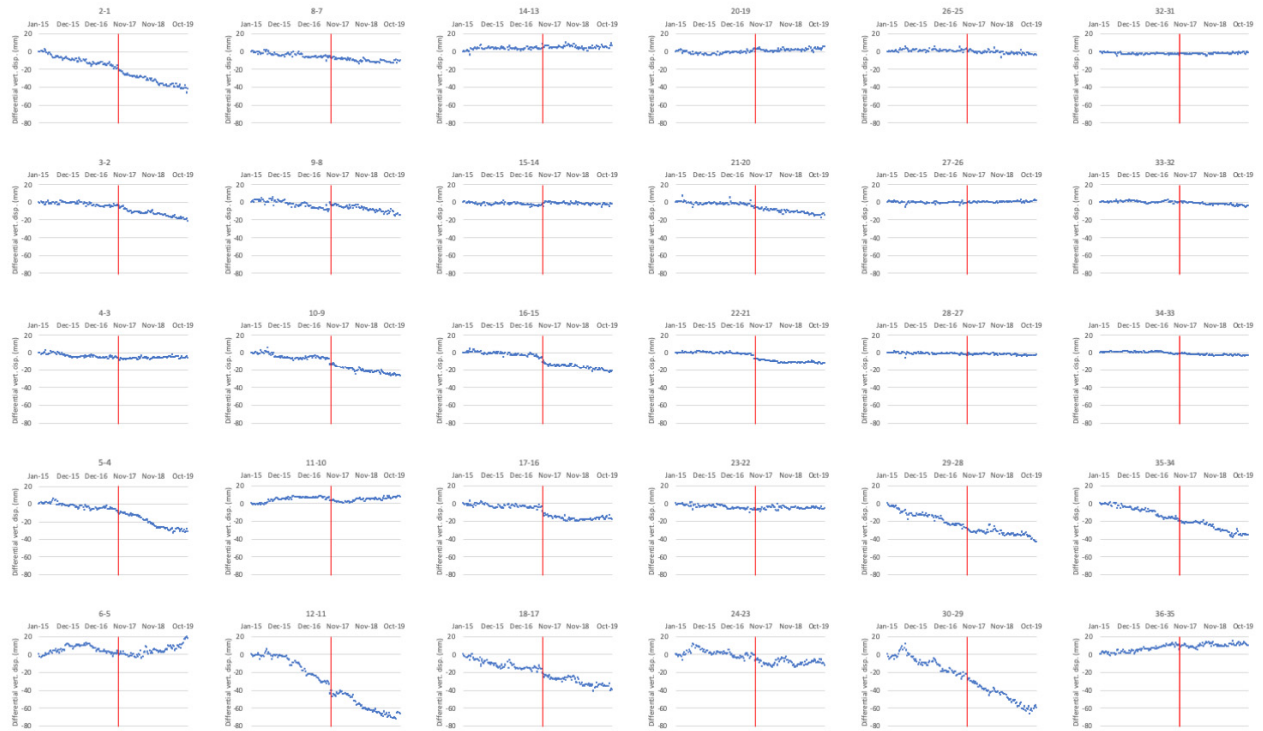
## Supplementary Materials



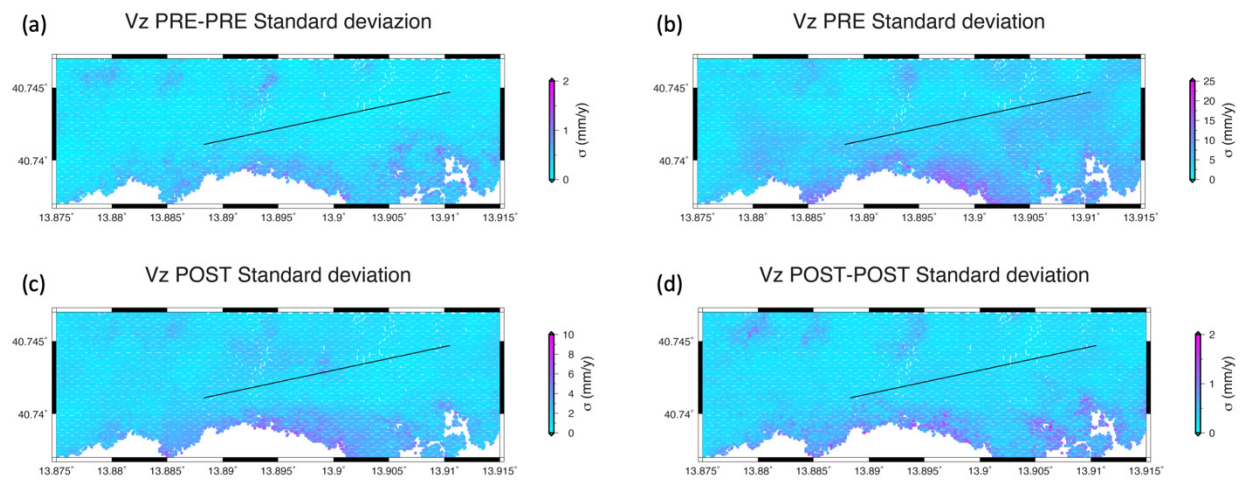
**Supplementary Figure S1.** Time-position plots displaying the interferograms network for descending (a) and ascending (b) Sentinel-1 SAR data.



**Supplementary Figure S2.** Digital Terrain Model (source INGV Laboratorio Geomatica) of Ischia Island with indication of the preliminary points – located along 6 profiles perpendicular to surface fault trace (white line) [25] – for which is calculated the differential displacement for the period January 2015–December 2019.

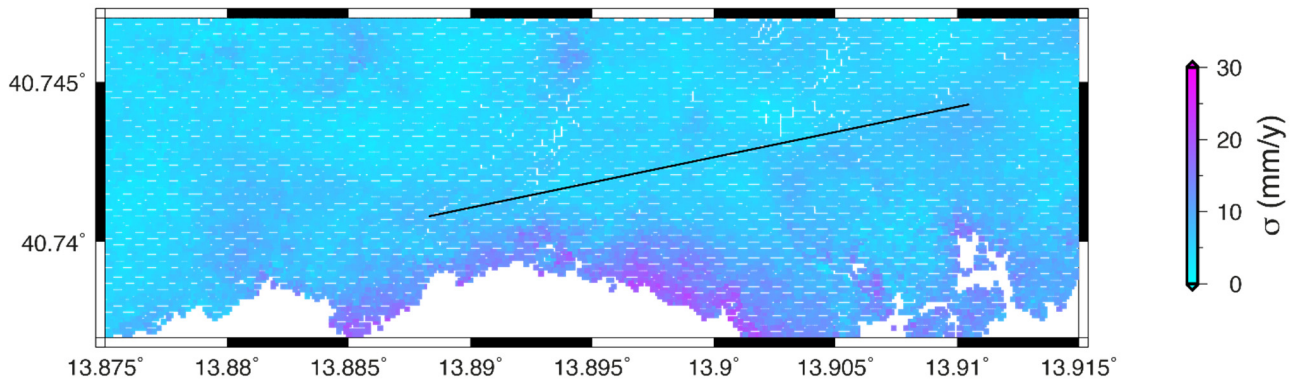


**Supplementary Figure S3.** Differential vertical displacement for the period January 2015–December 2019 between the couples of successive points located along the six profiles perpendicular to the CSf. For location of the points see Supplementary Figure 1.



**Supplementary Figure S4.** Standard deviation for the velocity of the vertical ground motion as obtained from the analysis of DInSAR data, for the four time periods indicated in Table 1. (Figure 4).

## Vz POST–PRE Standard deviation



**Supplementary Figure S5.** Standard deviation for the difference (Figure 5) of the velocity of the vertical ground motion in the period immediately following the earthquake (POST period; Figure 4c) minus the velocity measured in the period preceding the event (PRE period; Figure 4b).

**Supplementary Table S1.** Historical seismicity in the island of Ischia (after [27] and [24]). Epicentral intensity and magnitude values from CPTI15 [23] are reported in parentheses. \*uncertain earthquake

Year	Epicentral area	Epicentral intensity MCS	Magnitude	Damages
1228*	CASAMICCIOLA	9-10	-	700 deaths, large landslide from Mt. Epomeo
1275	NORTHERN SECTOR	8-9 (8-9)	- (4.0)	Damages
1302	EASTERN AREA	8		Many buildings collapse
1557	SOUTHEAST AREA	7-8 (6-7)	- (3.5)	Collapse of the Parish Church
1762	CASAMICCIOLA	7 (6-7)	- (3.5)	Damage to houses in Casamicciola
1767	EASTERN AREA	7-8 (6-7)	- (3.5)	Collapse of Rotaro's Church
1769	CASAMICCIOLA	8 -	- -	7 deaths, serious damage in the upper part of Casamicciola
1828	CASAMICCIOLA	8-9 (8-9)	- (4.0)	28 deaths, 50 injured, serious damage and collapses in the upper part of Casamicciola
1841	CASAMICCIOLA	7 (5-6)	- (3.3)	Cracks in the buildings
1863	CASAMICCIOLA	7 (6-7)	- (4.9)	Collapse of dry walls, small landslides from Mt. Epomeo
1867	CASAMICCIOLA	6-7 (4-5)	- (3.0)	Buildings damaged at Casamicciola
1881	CASAMICCIOLA	9 (9)	- (4.1)	129 deaths, many injured, many collapsed buildings at Casamicciola and Lacco Ameno

1883	CASAMICCIOLA	11 (9-10)	4.6-5.2 (4.3)	2333 deaths, 762 injured, many collapsed at Casamicciola, Lacco Ameno and Forio
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