

Supplementary Material for “Hydrogeological Hazards in Open Pit Coal Mines—Investigating Triggering Mechanisms by Validating the European Ground Motion Service Product with Ground Truth Data”



Figure S1. The impact of land subsidence at the Anargiroi village. The photos were capture in May 2016 (before the landslide event that occurred on June 10, 2017).

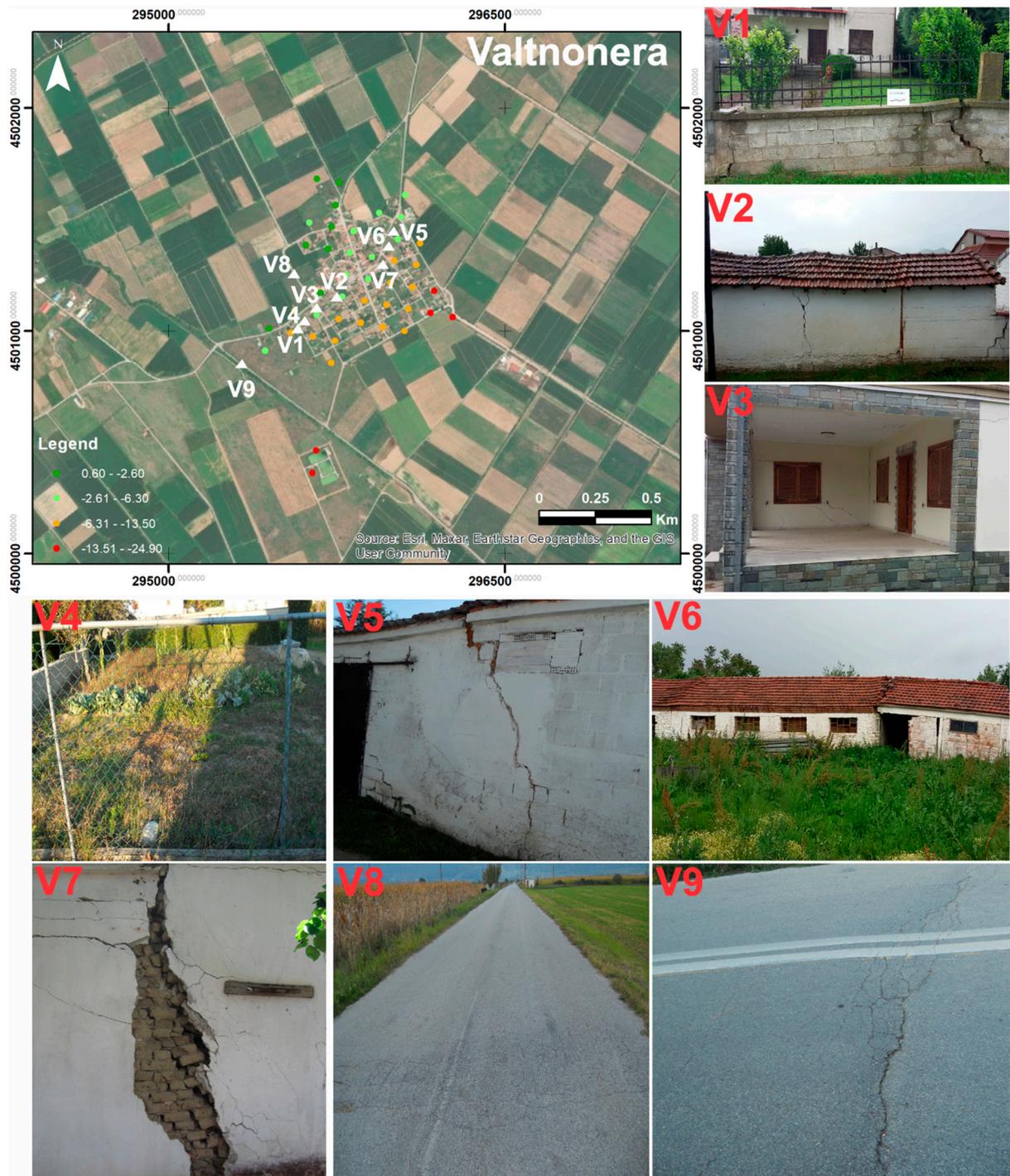


Figure S2. The impact of land subsidence at the Valttonera village. The photos were capture in May 2016 (before the landslide event that occurred on June 10, 2017).

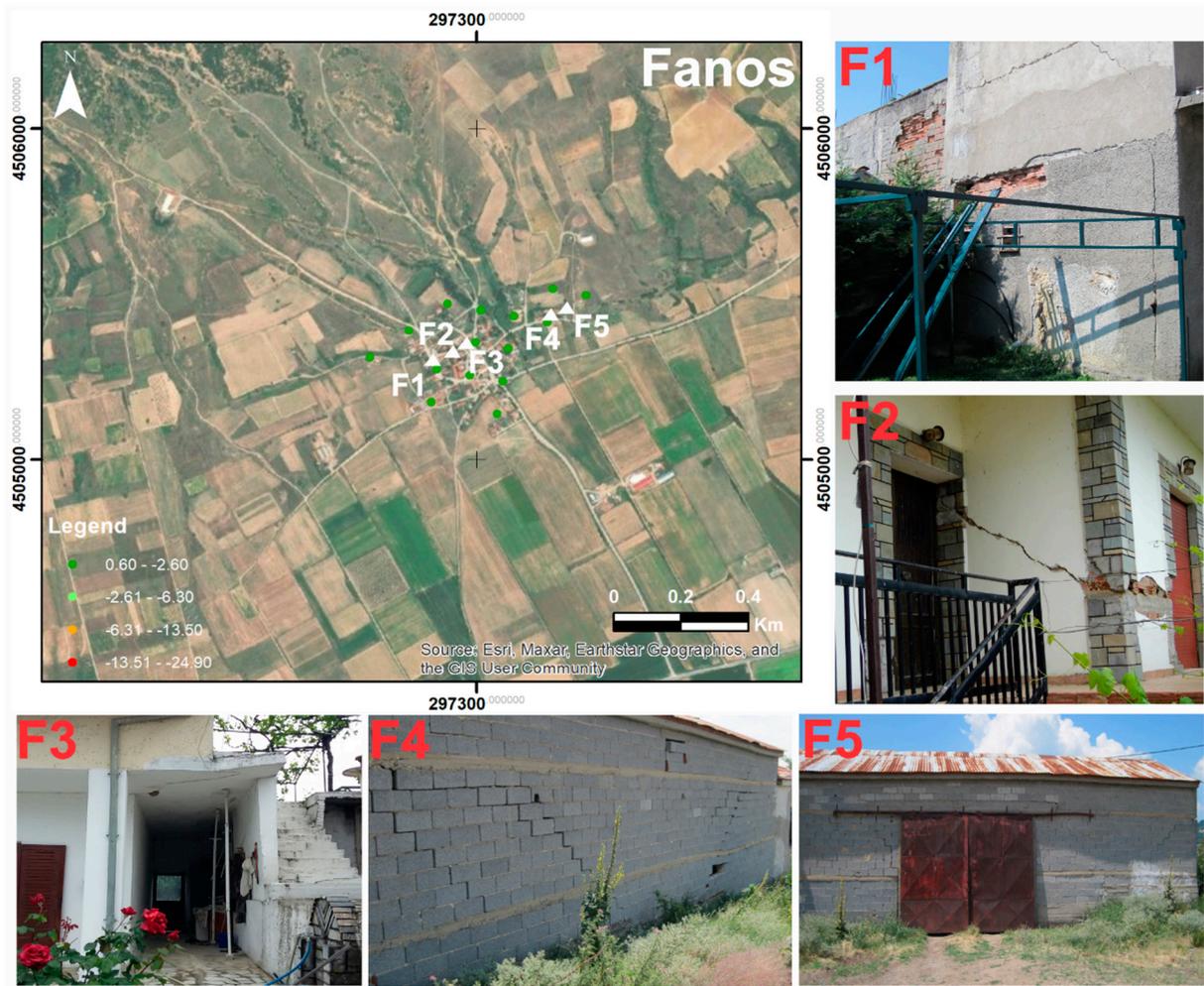


Figure S3. The impact of land subsidence at the Fanos village. The photos were capture in May 2016 (before the landslide event that occurred on June 10, 2017).



Figure S4. The impact of landslide event in areas previously affected by land subsidence, at the Anargiroi village. The expansion of the surface ruptures and the intensification of the damages on the constructions is clearly presented.



Figure S5. Images taken at the Valtnonera village before and after the occurrence of the major landslide event, that took place on June 10, 2017. It is clear that, as expected due to the large distance of the village from the open pit, the landslide did not cause any further damages to the already damaged, by the land subsidence, constructions of the village.



Figure S6. Images taken at the Fanos village before and after the occurrence of the major landslide event, that took place on June 10, 2017. It is clear that, as expected due to the large distance of the village from the open pit, the landslide did not cause any further damages to the already damaged, by the land subsidence, constructions of the village.

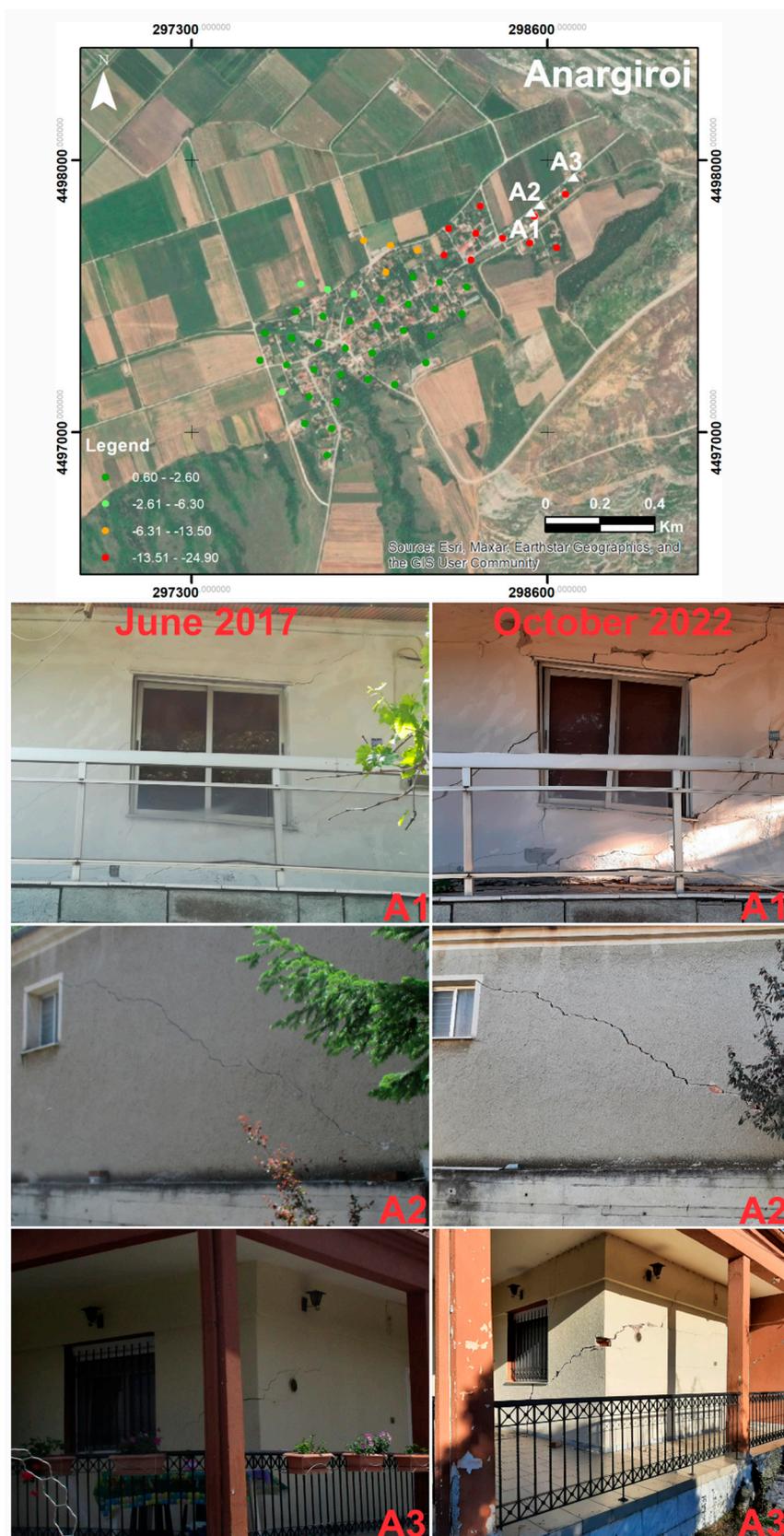


Figure S7. Images taken at the Anargyroi village after the occurrence of the major landslide event, that took place on June 10, 2017. The deformations taking place due to the continuous landslide and land subsidence movements since the occurrence of the landslide are clearly presented.

Table S1. Ground truth dataset

Number	Data	Source
1	Geology	1) Primary data from the Geological map of Greece (Ptolemaida sheet, [34]) provided by the Institute of Geological and Mining Research. 2) Five field work mapping from the PhD thesis of Dr. Tzampoglou [32]
2	Tectonic	The faults were verified by evaluating numerous studies [28,34,35,37,43].
3	Geotechnical data	1) Data reevaluated from former studies [19,23,30,31]. 2) Soil mechanics tests and crystallographic analysis tests from the PhD thesis of Dr. Tzampoglou under the supervision of Prof. C Loupasakis [32].
4	Ground Water Level mesurement campaign of May 1992	Ground measurements from PhD thesis of Dr. Dimitrakopoulos [42]
5	Ground Water Level mesurement campaign of October 2014	Ground truth measurements in which over 40 drills were measured dy using portable water level indicator - PhD thesis of Dr. Tzampoglou [32,45]
6	Ground Water Level mesurement campaign of May 2015	Ground truth measurements in which over 40 drills were measured dy using portable water level indicator - PhD thesis of Dr. Tzampoglou [32,45]
7	Ground Water Level mesurement campaign of October 2015	Ground truth measurements in which over 40 drills were measured dy using portable water level indicator - PhD thesis of Dr. Tzampoglou [32]
8	Ground Water Level mesurement campaign of May 2016	Ground truth measurements in which over 40 drills were measured dy using portable water level indicator - PhD thesis of Dr. Tzampoglou [20,32]
9	Surfaces ruptures mapping	1) Data from former studies [19,21,22,23,52]. 2) Six field works campaigns during the PhD thesis of Dr. Tzampoglou [32] in which 15.5 km of surfaces ruptures were mapped by using handheld gps
10	InSAR	Open access data obtained by the Copernicus Land Monitoring Service https://egms.land.copernicus.eu/ [26]