

Macroseismic Intensities in Central - Southern Peloponnese during the 19th century

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Extract

The 1886 August 27 Filiatra earthquake

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General information

On August 27, 1886 at 23:27 a destructive earthquake struck SW Peloponnisos. Its maximum effects were reported from the coastal area between Pyrgos and Methoni, as well as in the western part of Messiniakos gulf coast. The shock was felt from northern Italy to Egypt and Turkey. It was possibly felt in Bern and Marseille.

The earthquake affected a total population of 110,000, killing 370 and injuring at least 500. The epicenter of the earthquake originates from the sea offshore Kyparissia Gulf.

At least 8,000 buildings, mainly town and rural houses, suffered damage degree 5, 300 damage grade 4, 400 damage grade 3 and 250 damage grade 2 of the European Macroseismic scale (EMS). Many bridges were destroyed or damaged. The bridge in Sfaktiria as well as the Nedas river bridge at Agiannakis and Zurtsa (Nea Figaleia) was completely destroyed. The Alfios river bridge at Megalopolis was seriously damaged. In Ancient Olympia two pillars of the stadium collapsed, as well as three columns of the Byzantine church. At Pyrgos, the train rails were dislocated at a length of 3km. In Patras harbor subsidence of piers was observed. The telegraph lines in Peloponnisos were broken as well as the telegraph submarine cable from Zakynthos to Crete, at a site 29 miles away from Zakynthos.

Eye witness reports from the island of Strofades and along the coast from Kyparissia to Gargalianoi mention "earthquake lights" coming from Strofades. At several places the earthquake was preceded by noise. An english steamer sailing 100 miles off cape Matapas in Crete observed a rough sea at a radius of 400m.

Macroseismic information

Galanopoulos (1953) and Chiotis (1887) were the main studies used for intensity assessment and distribution. Baratta (1901), Galanopoulos (1936 and 1941) were also consulted. In total, the earthquake effects were reported for 339 places (main towns, small towns and settlements), out of which 6 settlements were not identified. According to EMS, vulnerability class A was assessed for the buildings in small towns and settlements and A and B for main towns.

Intensity	No of places
10	72
9-10	25
9	20
8-9	15
8	28
7-8	29
7	24
6-7	22
6	20
5-6	20
5	14
4-5	6
4	0
3-4	1
3	2
2-3	2
F	37
NF	2
Total	339

Effects on the environment

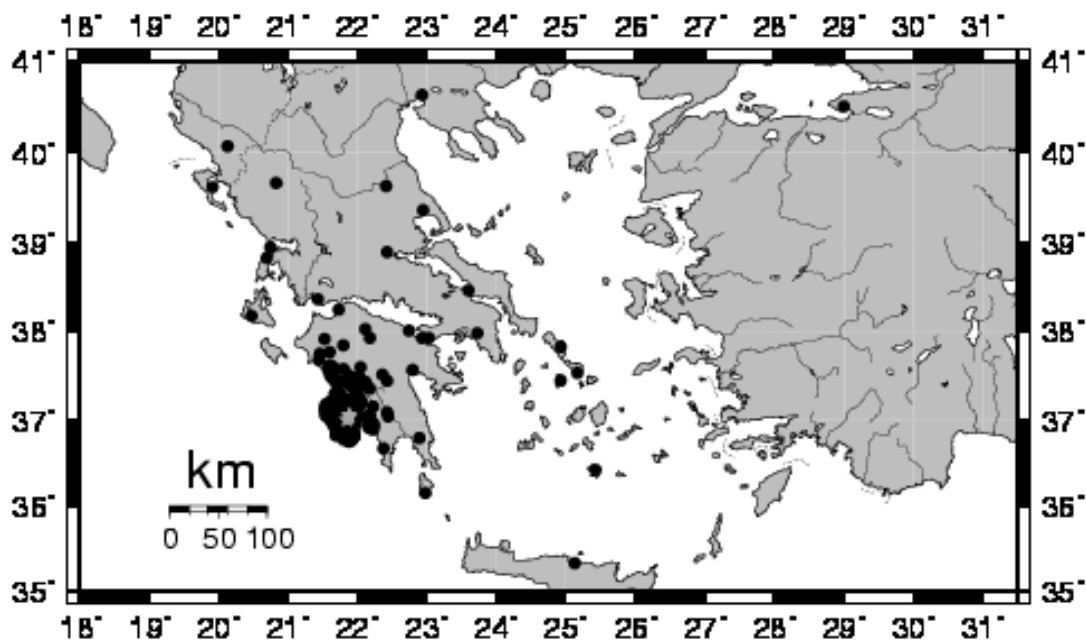
Galanopoulos (1941) reports that several long, wide ground fissures were observed at Gargalianoi. In Yalova and Marathopolis water came out of the fissures. In Filiatra, at the site Morina the fissures were very deep and 1 m wide. Springs were overflowed at several places. Minor ground cracks appeared in Koroni.

Soil subsidence in Yiannitsa and a large fissure was observed in Corinth canal (Isthmos). At the site Potokia, overflow of the river Alfios was reported. Near Yalova, at Agrili and Koroni a sea wave flooded the coast for 10-15m and boats and steamers were washed out. In the pyramids of Cairo the sand was risen on the air.

Comments

In the previous year (1885), the earthquake of 28 March was also damaging in the area of Messinia.

Many authors suggest that the epicenter is located offshore Gargalianoi, near Strofades island, also based on the existence of a sea wave. Tectonic studies in Messinia (Mariolakos et al. (1994) have located several faults within the main zone of Kalamata-Kyparissia, however not long enough to accommodate the size of this earthquake, which would be justified if it originated from the subduction zone, west of the meizoseismal area.



Distribution of intensity and epicentres of the earthquake of August 27 1886

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