QUICK-LOOK ACCOUNTS FILE

Second section of the Quick-Look Catalogue

[1] 79 9 25 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 2

Large plinian eruption of Vesuvius, destroying Pompei, Herculaneum, Stabia and Oplonti. Most people killed by pyroclastic surges and flows. Eruption accompanied by several shocks.
On the second day of the eruption, sea seen to retreat. Quite a large number of fish found on the beach (Plinius, 21).

Further references: Mallet (22); Capocci (23 and 24); Baratta (25 and 26); Guidoboni (27); Caputo and Faita (28); Soloviev (29).

[2] 1112 6 20 Campania
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. Sea withdrew three-four times about 200 steps in Naples, leaving fish on the sea floor (Anonymous, 30).

Further references: Capocci (23 and 24); Mercalli (31); Caputo and Faita (28); Bedosti and Caputo (19); Soloviev (29).

[3] 1169 2 4 Messina Straits
coordinates: 37 24 15 06
cause: ER
tsunami intensity: 4
reliability: 3

Earthquake epicenter in the Ionian Sea. Felt in Sicily and in Calabria near Reggio. At the same time an eruption at Etna volcano occurred.
In Messina, the sea receded from the coast and then came back, destroying the city walls and flooding the town (Falcando, 32).

Further references: Mercalli (31 and 185); Capocci (23 and 24); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Tinti and Saraceno (35).

[4] 1329 6 28 Eastern Sicily
coordinates: 37 44 15 00
cause: VA
reliability: 0

Eruption of Etna volcano, with a subsequent earthquake of volcanic origin concomitant with the beginning of some activity of the volcano.
In Mascali, abnormal water agitation slightly affecting fishing boats. Some boats in the beach carried into the sea (Nicolaus, 40).

Further references: Mongitore (41); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Tinti and Saraceno (35).

[5] 1511 3 26 North Adriatic
coordinates: 46 16 13 09
cause: EA
tsunami intensity: 2
reliability: 3

Epicenter located inland, very far from the coast (in the Julian Alps, near Tarvisio). Severe damage in Udine and Venice. Felt area very wide, involving Istria, Slovenia, Germany, Croatia, etc. Number of dead people uncertain, but probably low.
At Trieste the sea level rose so much that the inhabitants climbed up to S. Giusto (Marsich, 52). At Venice anomalous oscillations in the canals (Bembo, 51) and some canals dried (Sanudo, 50).
Tsunami revised by Guidoboni and Tinti (57).

Further references: Galliciolli (53); Zanon (54); Bonito (18); Mallet (22); Baratta (34 and 55); Caloi *et al.* (56); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[6] 1564 7 20 Liguria-Côte d'Azur
coordinates: 44 00 7 20
cause: EA
tsunami intensity: 3
reliability: 4

Epicenter located in France, in land close to the Italian border, about 30 km north of Nice. Epicentral area including the Vesubia, Tinea and Roia valleys (near Nice), where severe damage is reported and about 650 people died. Felt also in Sanremo (V MCS).
In Nice damage caused by the sea. In Villefranche the sea bottom subsided by about one pike (Mogiol, 59; Almagià, 60). At Antibes the sea at first flooded the beach inundating some shops, and then retired leaving the harbour dry (Laurenti, 61).
Revisions: Moroni and Stucchi (62), Rivara and Vaccari (63), Lambert *et al.* (64).

Further references: Bonito (18); Mercalli (39); Baratta (34 and 55); Caputo and Faita (28).

[7] 1613 8 25 Messina Straits
coordinates: 38 08 14 48
cause: EA
reliability: 2

Strong earthquake with epicenter near Naso (Messina, Sicily), involving the whole eastern coast of Sicily. At Naso more than 200 buildings collapsed and 103 people died. Some damage in Messina.
At Naso the sea flooded the beach (Incudine, 66).

Further references: Mercalli (31); Caputo and Faita (28); Soloviev (29).

[8] 1627 7 30 Gargano
coordinates: 41 48 15 16
cause: EA
tsunami intensity: 5
reliability: 4

Disastrous earthquake in Apulia. Epicenter located in land near Lesina and S. Severo (Foggia). At S. Severo all the buildings and the towers ruined. 800 victims. Damage in the neighbouring villages (Torre Maggiore, San Paolo, Serra Capriola, etc.) where about 4300 people died. Felt in a very broad area, and also in Chieti, Naples and Ragusa.
Along the coast between S. Nicandro and the Fortore river mouth, near the Lesina lake, the sea withdrew 2-3 miles and then flooded the coast and possibly the village of Lesina (Del Vasto, 71; Foglia, 72; Anonymous, 73;

De Poardi, 74; Ballerani, 75). In Manfredonia the waves reached the middle of the city walls, about 2.5 m above the ground (Cerqua, 76). At the Saro (today called Foro) river mouth, sea withdrawal observed (Antinori, 77).
Event studied by Baratta (78 and 79) and recently revised by Molin and Margottini (80) and by Guidoboni and Tinti (3 and 5). Tsunami simulated numerically by Tinti and Piatanesi (191).

Further references: Bonito (18); Mallet (22); Mercalli (31); Baratta (34 and 55); Heck (81); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[9] 1631 12 17 Campania
coordinates: 40 49 14 26
cause: VA
tsunami intensity: 3
reliability: 4

Explosive eruption of the Vesuvius from December 16, 1631 to January 1st, 1632, causing fatalities and destructions.
Sea withdrawal along the coast in the Gulf of Naples (Braccini, 82; Giuliani, 83). Near Sorrento the sea withdrew about 1 mile (Muratori, 84).
Event studied by Le Hon (85) and by Baratta (26 and 25). Revised by Tinti and Saraceno (35).

Further references: Sorrentino (86); Bonito (18); Mallet (22); Capocci (23); Mercalli (31); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[10] 1638 3 27 Tyrrhenian Calabria
coordinates: 39 08 16 15
cause: EA
reliability: 2

Strong shock located near Nicastro, Calabria, about 15 km far from the Tyrrhenian coast. More than 10000 victims, though the exact number is unknown. Severe damage in many localities: Cosenza, Nicastro, S. Eufemia, Girifalco, etc. Felt in a very large area, involving the whole Calabria. Kircher (65) mentions an intense volcanic activity at the Etna and Stromboli volcanoes in the day immediately before the shock.
Scarce information on the tsunami. At Pizzo Calabro the sea withdrew by about 2 miles leaving the sea bottom dry (Recupito, 87).

Further references: Mercalli (185 and 31); Bonito (18); Mallet (22); Capocci (23); Baratta (34); Caputo and Faita (28); Bedosti and Caputo (19); Soloviev (29).

[11] 1646 4 5 Tuscany
coordinates: 43 33 10 18
cause: EA
tsunami intensity: 3
reliability: 4

Strong earthquake in Leghorn. Many buildings suffered severe damage.
Sea level rising more than 3 yards (Settimani, 88). In the harbour some ships grounded (Pilla, 89).

Further references: Mallet (22); Capocci (23); Mercalli (31); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28).

[12] 1649 1 Messina Straits
coordinates: 38 10 15 33
cause: EA
reliability: 0

Strong earthquake in Messina. Felt in Reggio Calabria.
At Messina in the harbour many ships wrecked (Bonito, 18).

Further references: Roscitano (92); Arcovito (93); Corrao (94); Mongitore (41); Mallet (22); Capocci (23); Mercalli (31 and 185); Baratta (55); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[13] 1672 4 14 Central Adriatic
coordinates: 44 04 12 34
cause: ER
tsunami intensity: 2
reliability: 4

Strong earthquake in Rimini provoking severe damage and a lot of victims (some sources report 200 victims, some others more than 500). Epicenter located in the sea just a few km south of Rimini, where most of the houses were destroyed. Felt in a large area.
At Rimini sea withdrew and then flooded the coast for about 20 paces (Anonymous, 101). Event studied by Baratta (102).

Further references: Baratta (34 and 55); Mallet (22); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[14] 1693 1 9 Eastern Sicily
coordinates: 37 20 15 10
cause: ER
reliability: 0

Strong seismic period affecting Eastern Sicily. Strong shock located in the sea not far from the coast, between Catania and Augusta. In the harbour of Augusta, anomalous movement of the sea (Campis, 103).

Further references: Baratta (34); Caputo and Faita (28); Soloviev (29).

[15] 1693 1 11 Eastern Sicily
coordinates: 37 25 15 10
cause: EA
tsunami intensity: 4
reliability: 4

Disastrous earthquake with epicenter in Val di Noto (Eastern Sicily), located near Lentini, Carlentini and Melilli, causing around 70000 victims: at Catania about 70 percent of the people dead. Total destruction in several villages and towns in Siracusa, in Ragusa and in Catania provinces. Recent revisions performed by Guidoboni (104) and by De Rubeis *et al.* (105).
At Catania remarkable sea level withdrawal and rise, affecting a lot of boats (Campis, 103; Burgos, 106; Anonymous, 107-108). At Augusta sea recession, leaving boats stranded, and sea flooding. Big vessels risked the shipwreck. The walls of S. Domenico monastery reached by sea waters (Acquaviva, 109; Anonymous, 110; Burgos, 106; Muglielgini, 111). At Messina (at La Cittadella) three sea withdrawals and returns observed (Anonymous, 108).

Further references: Bottone (112); Aprile (113); Mercalli (31 and 185); Mongitore (41); Mallet (22); Baratta (34 and 55); Carrozzo *et al.* (6); Caputo and Faita (28); Boschi *et al.* (114).

[16] 1698 5 14 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 2

A period of strong explosions and frequent earthquakes (May, 19-July, 14) concluding a 25-month cycle of Vesuvius activity.
Five anomalous sea oscillations seen in Naples on May, 14. A lot of fish found in the beach (Sorrentino, 86).

Further references: Baratta (26, 34 and 25); Mercalli (31); Caputo and Faita (28).

[17] 1703 2 2 Latium
coordinates: 42 27 13 20
cause: EA
reliability: 0

Strong earthquake in Central Italy, with epicenter about 100 km far from the sea. Wide area affected north of L'Aquila. About 10000 victims.
Small withdrawal of the sea at the mouth of Tiber, Latium, reported by Baglivi (119).
Revision by Maramai and Tertulliani (120).

Further references: Mallet (22); Mercalli (31); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28).

[18] 1703 7 2 Liguria-Côte d'Azur
coordinates: 44 24 8 55
cause: ER
reliability: 2

Just a weak shock near Genoa.
In the harbour of Genoa sea level lowered about 6 feet and then came back in 15 min (Maraldi, 97).

Further references: Mallet (22); Mercalli (39); Baratta (34); Heck (81); Caputo and Faita (28); Soloviev (29).

[19] 1714 6 30 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 0

A period of strong explosions and frequent earthquakes (February, 1712-May, 1737) occurred in the Vesuvius area.
The sea withdrew in Naples by seven paces for three times (12 h, 18 h and 20 h) on June, 30. It returned to the previous level in the interval of 15 min, leaving some fish on the beach (Sorrentino, 86).

Further references: Baratta (26 and 25); Mercalli (31); Caputo and Faita (28); Soloviev (29).

[20] 1726 9 1 Northern Sicily
coordinates: 38 06 13 22
cause: EA
tsunami intensity: 2
reliability: 4

Very violent earthquake in Northern Sicily coasts near Palermo, causing severe damage in the city and in the neighbouring villages, with more than 200 victims.

At Palermo and in some other places sea withdrawal (Anonymous, 121 and 122; Villabianca, 125). A portion of Mt. Gallo fell into the sea (Ruffo, 123). Offshore Ustica two ships risked shipwreck because of an extraordinary sea agitation (Mongitore, 124).

Further references: Mallet (22); Baratta (34 and 55); De Panfilis and Marcelli (126); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[21] 1727 7 4 Sicily Channel
coordinates: 37 30 13 04
cause: ER
reliability: 2

Aftershock of the strong 8 May 1727 Sciacca earthquake in South-western Sicily.
Sea withdrawal at Sciacca (Savasta, 16).

Further references: Mongitore (41); Mallet (22); Baratta (34); De Panfilis and Marcelli (126); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[22] 1731 3 20 Gargano
coordinates: 41 27 15 33
cause: EA
reliability: 2

One of the strongest earthquakes in the area of Foggia. Epicentral location in land, near Foggia, about 30 km far from the coast. Maximum intensity in Foggia. More than 500 people dead.
Sudden sea rise that nearly wrecked some boats at Siponto and Barletta (Cirillo, 129). Probable tsunami mentioned by Mallet (22) reporting the same description found in Cirillo's.
Recent revision performed by Tinti *et al.* (128).

Further references: Seyfart (127); von Hoff (130); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28).

[23] 1742 1 19 Tuscany
coordinates: 43 33 10 18
cause: ER
tsunami intensity: 2
reliability: 4

Seismic period occurred in January-February, 1742 in Tuscany (Central Italy). Epicentral location possibly offshore near Leghorn.
Anomalous sea rising and subsiding in Leghorn harbour. Sailors in the open sea noted an anomalous sea rising and an unusual storm (Pedini, 131; Boccacci, 132; Mattei, 133; Gentili, 134).
Revised by Maramai and Tertulliani (120).

Further references: Mallet (22); Mercalli (31); Baratta (34 and 55); Carrozzo *et al.* (6); Caputo and Faita (28).

[24] 1743 2 20 Apulia
coordinates: 39 00 19 15
cause: EA
reliability: 2

Strong earthquake in the Salento peninsula (Apulia) and the Ionian islands. Maximum damage in Nardò, where most buildings ruined. Lecce and Brindisi heavily damaged. Felt area very large, involving Calabria, Messina and Naples. More than 160 victims.
As to the tsunami, some effects in the harbour of Brindisi, where the sea withdrew (Scalese, 17; Cagnes and Scalese, 116).

Further references: Mallet (22); Ascoli (117); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28).

[25] 1760 6 16 Campania
coordinates: 40 51 14 16
cause: ER
reliability: 0

Earthquake located in the sea at Portici. Information from the Journal Encyclopedique (1st July 1760) quoted by Mallet (22): in the Portici harbour the sea floor remained dry for two minutes.

Further references: Capocci (23); Mercalli (31); Caputo and Faita (28); Soloviev (29).

[26] 1774 9 24 Tuscany
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. On September, 24 the sea ebbed and flowed three times in an hour to the extent of 2 feet in perpendicular height, both at Malaga and Leghorn (Mallet, 151).

[27] 1783 2 5 Tyrrhenian Calabria
coordinates: 38 18 15 58
cause: EA
tsunami intensity: 3
reliability: 4

In 1783 Calabria (Southern Italy) was shaken by the most violent and persistent seismic crisis ever occurred in the last two thousands years. Five very strong earthquakes (I > IX MCS) occurred in a short interval of time (February-March), causing destructions and a lot of victims in a vast region embracing the whole Southern Calabria and the Messina area, Sicily. The 5 February earthquake abruptly opened the seismic period. More than 380 villages damaged, 180 almost totally ruined. More than 25000 victims, mostly in Messina because of the violent fire following the shock.
The coast from Messina to Torre del Faro (about 11 miles) and from Cenidio to Scilla (about 7 miles) heavily affected by the tsunami. Sea generally reported to recede and then to inundate the shore. Recessions and inundations repeated at least three times at intervals of about 10 min.
At Messina the quays in the harbour and the nearby buildings inundated. Sea agitated for three days after the main shock (Sarconi, 8; Hamilton, 136). At Reggio Calabria the sea surpassed the beach arriving at the coastal road (Sarconi, 8). At Catona the sea flooded the coast for a short stretch (Sarconi, 8). At Roccella Ionica the beach was flooded for about one mile (Galimi, 137). At Scilla the sea withdrew for more than eight yards leaving the sea bottom dry and a lot of fish on the beach; then suddenly the water came back surpassing its usual limit and flooding the coast (Sarconi, 8). At Nicotera the sea withdrew boiling and then turned the fishing-boats upside-down (Vivenzio, 138).
Recently revised by Tinti and Guidoboni (139). Simulated numerically by Tinti and Gavagni (192).

Further references: Ippolito (140); Minasi (141); De Lorenzo (142); Roscitano (92); Mallet (22); Mercalli (185); Baratta (34 and 55); Heck (81); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[28] 1783 2 6 Tyrrhenian Calabria
coordinates: 38 15 15 43
cause: EL
tsunami intensity: 6
reliability: 4

Second of the strong earthquakes pertaining to the Calabria seismic crisis. Very likely the earthquake is not responsible for the tsunami (at the epicentre, waves observed about half an hour later than the ground shaking). Tsunami probably due to a huge earthquake-induced rockfall: a portion of the Monte Pacì (south-western side of the Scilla beach) collapsed suddenly into the sea.

Tremendously disastrous tsunami because of the very high number of victims, particularly in Scilla where most people, frightened by the sequence of earthquakes, escaped to the open beach and were surprised by the unexpected waves that reached the roof of the buildings (Hamilton, 136; Sarconi, 8; Minasi, 141; Vivenzio, 138; De Lorenzo, 142). The total number of victims exceeding 1500 (Galimi, 137; Mercalli, 185). In Marina Grande (Scilla) inundation heights in the range of 6-9 m observed (Sarconi, 8). At Messina the sea seen to rise and noisily overflow the coast; tsunami also quite relevant at the headlight. At Peloro, near Torre del Faro, flooding of a long stretch of fields, close to the Pantanello small lake. Small houses, people and animals carried seaward (Gallo, 143; Augusti, 144). At Torre del Faro, coast flooded for about 600 paces. Some boats and 26 victims carried seaward (Sarconi, 8); run-up height about 6 m. At Punta del Pezzo and surrounding areas sea covering the beach for one and a half mile, leaving some sand on the ground (Sarconi, 8).
Recently revised by Tinti and Guidoboni (139).

Further references: Corrao (94); Pittaro (145); Mallet (22); Mercalli (185); Baratta (34 and 55); Heck (81); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[29] 1783 2 7 Tyrrhenian Calabria
coordinates: 38 34 16 10
cause: EA
reliability: 2

Third of the strong earthquakes pertaining to the Calabria seismic crisis.
At Stilo sea rising with no flooding (Vivenzio, 138).
Recently revised by Tinti and Guidoboni (139).

Further references: Mallet (22); Mercalli (185); Baratta (34 and 55); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[30] 1783 3 1 Tyrrhenian Calabria
coordinates: 38 46 16 18
cause: EA
reliability: 2

A very strong shock, pertaining to the Calabrian seismic crisis, caused severe damage in many villages (Poliolo, Castel Monardo, Vallelonga, Mileto, Monteleone).
At Tropea, along the coast, sea flooding occurred after the shock (Galimi, 137).

[31] 1783 3 28 Tyrrhenian Calabria
coordinates: 38 49 16 28
cause: EA
reliability: 2

A shock, pertaining to the Calabrian seismic crisis, caused severe damage in the villages located between the S. Eufemia Gulf and the Squillace Gulf, both in the Tyrrhenian and Ionian coasts.
At Bagnara sea flooding occurred after the shock (Galimi, 137).

[32] 1784 1 7 Ionian Calabria
coordinates: 38 19 16 24
cause: ER
reliability: 2

Light aftershock of the Calabrian seismic period, started in February, 1783.

At Roccella Ionica the sea flooded most of fields, causing damage and destroying some small houses (Vivenzio, 138).
Recently revised by Tinti and Guidoboni (139).

Further references: Mercalli (185); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28).

[33] 1784 1 19 Messina Straits
coordinates: 38 10 15 38
cause: ER
reliability: 2

Light aftershock of the Calabrian seismic period started in February 1783.
Sea agitated between Torre del Faro and Scilla. At Faro many banks and ditches broken. At Fossa and Catona many fields flooded, damage. Many trees overturned (Vivenzio, 138).
Recently revised by Tinti and Guidoboni (139).

Further references: Mercalli (185); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29).

[34] 1805 7 26 Campania
coordinates: 41 31 14 31
cause: EA
tsunami intensity: 2
reliability: 4

Disastrous earthquake located in Southern Italy, near Campobasso, about 60 km far from the coast. Many villages heavily damaged, in particular at the foot of the Matese massif: Baranello, Cantalupo, Frosolone, Vinchiaturo, Mirabello and some other localities totally destroyed. Area of damage quite wide, including Salerno, Naples, Pozzuoli and Melfi. Felt in Rome, Spoleto and Foligno. More than 5000 victims and 3000 injured people.
Earthquake felt on board of vessels at Capri, Sorrento, Ponza and Ventotene (Poli, 147; D'Onofrio, 148; Baratta, 34). Sea water rising (about 2-3 yards) in the Gulf of Naples from Sorrento to Gaeta (Poli, 147).

Further references: Mallet (151); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[35] 1808 4 2 Liguria-Côte d'Azur
coordinates: 44 51 7 15
cause: EA
reliability: 2

Epicenter clearly located in land, near Pinerolo (in the Alps), about 150 km far from the Ligurian/French coast. Felt in a wide area, and also in France and in Switzerland. Area of damage very small and not heavily affected. Two victims.
An anomalous water behaviour in a canal at Marseilles: three water fluxes and refluxes with about 15 cm level rise (Vassalli Eandi, 149).
A recent revision (ING-SGA, 4) carried out by using coeval sources.

Further references: Mallet (151); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[36] 1813 5 17 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 1

Period of explosions at the Vesuvius from May to December 28, 1813.
The sea withdrew about 15-20 paces at Torre del Greco, Portici and Resina in an interval of a few minutes (Capocci, 23; Mercalli, 31).

Further references: Baratta (34 and 25); Caputo and Faita (28); Antonopoulos (100).

[37] 1813 6 19 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 1

Period of explosions at the Vesuvius from May to December 28, 1813.
The sea withdrew about 15-20 paces at Torre del Greco, Portici and Resina in an interval of a few minutes (Capocci, 23; Mercalli, 31).

Further references: Baratta (34 and 25); Caputo and Faita (28).

[38] 1817 1 14 Sicily Channel
coordinates: 37 30 13 00
cause: EA
reliability: 0

Epicenter located on the coast, about 10 km NW of Sciacca. Slight damage.
At Sciacca many oscillations of the sea level on the beach at the foot of the mountain (Ferrara, 150). The sea withdrew by 30 canes and this phenomenon lasted until the 17th of January (Mercalli, 31).

Further references: Mallet (151); Baratta (34); Caputo and Faita (28); Antonopoulos (100).

[39] 1818 2 20 Eastern Sicily
coordinates: 37 34 15 07
cause: EA
tsunami intensity: 2
reliability: 4

Very strong earthquake near Catania, where it caused a lot of damage. Some villages in the Etnean area totally destroyed. Felt in the whole Sicily, in Calabria and in Malta. 72 victims and 18 injured people, mostly at Zafferana Etnea.
At Catania the sea water in the dockyard was so low that one vessel had to recede. In addition, the waves were so impetuous that they surpassed the cliff and the defence wall and reached the opposite side (Longo, 152).

Further references: Mallet (151); Baratta (34); Karnik (153); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[40] 1818 2 23 Liguria-Côte d'Azur
coordinates: 43 45 8 00
cause: EA
reliability: 2

Strong earthquake involving a wide area in Western Liguria and Piedmont, and Nice. Strongly felt at Sanremo, Savona, Nice.
At Antibes the sea hit violently the beach (Gay Lussac and Arago, 154).

Further references: Baratta (155 and 34); Mallet (151); De Rossi (156); Vassalli Eandi (157); Mercalli (39); Caputo and Faita (28); Antonopoulos (100).

[41] 1818 12 9 Liguria-Côte d'Azur
coordinates: 44 46 15 54
cause: EA
reliability: 2

Epicenter located near Parma, about 120 km far from the Ligurian coast. Some damage in Parma and in the neighbouring villages. Felt quite strong in Modena, Leghorn, Reggio Emilia and Genoa.
In the Genoa harbour extraordinary swelling water observed (Anonymous, 158).

Further references: Mallet (151); Mercalli (39); Baratta (34); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[42] 1823 3 5 Northern Sicily
coordinates: 38 00 13 57
cause: ER
tsunami intensity: 4
reliability: 4

Very violent earthquake, with epicenter in the sea. Severe damage in Palermo (most nearshore houses partially destroyed). Cefalù, Termini Imerese, Corleone, Naso, Gerace heavily damaged. Felt in Messina, Catania and Siracusa. At Termini Imerese hot springs had more water and increased temperature.
At Cefalù a sudden big wave observed. A big vessel carried seaward and then landward where it crashed. Some other boats carried towards the beach and then abruptly brought back. Anomalous sea movement seen along the whole coast from Cefalù to Palermo (Anonymous, 160; Ferrara, 150).

Further references: Mallet (151); Baratta (34); Carrozzo *et al.* (6); Karnik (153); Caputo and Faita (28); Soloviev (29).

[43] 1828 10 9 Liguria-Côte d'Azur
coordinates: 44 43 9 00
cause: EA
tsunami intensity: 2
reliability: 4

Epicenter located in land, near Voghera, about 50 km far from the Ligurian coasts. Many localities suffered severe damage: at Gamminella, S. Paolo, Bagnara, many buildings destroyed and in total 7 people dead. Severe damage even at Voghera, Pinerolo, Montebello and Casteggio. In Genoa cracks observed in many houses. Strongly felt at Alessandria, Asti, Porto Maurizio, Oneglia.
Some vessels damaged at Genoa, where the shock induced a strong sea movement, causing some boats to be reversed (Rothé, 161; Anonymous, 164 and 165; Mayer, 162; Colla, 163).

Further references: Mallet (151); Mercalli (39); Baratta (34); Karnik (153); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[44] 1832 3 8 Ionian Calabria
coordinates: 39 00 17 00
cause: EA
tsunami intensity: 2
reliability: 4

Epicenter located in land, about 15 km from the Ionian coast. Many villages heavily damaged: Cutro, Policastro, Roccabernarda, Rocca di Neto and some other localities were partially destroyed. Also Crotone and Catanzaro suffered damage. In total 235 victims.

At the Tacina river mouth the sea rose, flooding most fields at Magliacane, for about 1/2 mile. The sea seen to rise like a cone as much as about 70 feet at the time of the shock, at the distance of about one mile from the coast (Colosimo, 167; Zuccaro, 168; Rossi, 169; Cirelli, 170).

Further references: Baratta (34); Carrozzo *et al.* (6); Mercalli (31 and 185); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[45] 1836 4 25 Ionian Calabria
coordinates: 39 34 16 43
cause: EA
tsunami intensity: 3
reliability: 4

Earthquake caused almost complete destruction at the Calabrian villages of Rossano and Crosia. At Cropalati, Caloveto, Calopezzati and Longobucco most buildings ruined. At Cosenza light damage. Felt in Naples too. The total number of victims is 590 and 237 injured.
At Rossano Calabro the sea flooded the beach (Rossi, 169). At Calopezzati the sea quickly withdrew roaring, then suddenly rose and violently flooded the beach as deep as 40 paces, destroying everything it found. A lot of fish found on the beach (Rossi, 169; Anonymous, 171; Romanazzi, 172). At Cento Fontane (Rossano) the sea withdrew carrying and damaging 7 boats; a lot of fish found on the beach and the sea bottom uplifted about 16 paces (De Rosis, 173). At Japichello fishing boats carried about 80 paces landward (De Rosis, 173). At Corigliano the sea terribly roared and the water flooded the fishermen living-places; after about one hour the sea came back to its usual limits; boats were turned upside down and broken (Amato, 174).

Further references: Mallet (151); Capocci (23); Mercalli (31); Baratta (34 and 55); Karnik (153); Carrozzo *et al.* (6); Caputo and Faita (28); Bedosti and Caputo (19); Soloviev (29); Antonopoulos (100).

[46] 1846 8 14 Tuscany
coordinates: 43 31 10 32
cause: EA
tsunami intensity: 3
reliability: 4

Earthquake located in land, about 15 km SE of Leghorn, causing severe damage in many villages. Orciano Pisano almost totally destroyed (99 out of 113 houses collapsed). Castelnuovo, Guardistallo, Montescudaio, Lorenzana and Luciana heavily damaged. Some damage also at Leghorn, Pisa and Volterra. Some sources report 60 victims, some others 384. Shock recorded at four seismological observatories: Vallombrosa, Parma, Florence and Modena.
Tsunami description in some coeval sources (Savi, 175; Tellini, 176; Pilla, 89). At Leghorn the sea rose quickly by more than one yard. Some vessels felt a violent shock. Some ships steering towards the Leghorn harbour had a sudden displacement. At the Leghorn lighthouse the water rose near the tower and washed the quays.
Revised by Maramai and Tertulliani (120).

Further references: Baratta (34 and 55); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[47] 1847 8 26 Campania
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. On August 26, in the morning, the sea in Naples suddenly lowered about 5 feet and then after 2 min it came back to its usual level (Capocci, 23; Perrey, 47).

[48] 1875 3 17 Central Adriatic
coordinates: 44 12 12 24
cause: ER
tsunami intensity: 2
reliability: 4

Strong earthquake involving Central and part of Northern Italy. The shock was very violent at Cesenatico, Rimini and Cervia, where many chimneys ruined and some houses suffered damage. Epicenter located in the sea, a few km far from the coast.
Tsunami descriptions given by Serpieri (177 and 178). At Rimini fishermen in boats felt a violent horizontal shock and noted some big waves. In the harbour the sea level, that was at a high tide, passed suddenly to low tide returning to high tide 2 min later. At Cervia the sea violently flooded quite a large part of the beach and some sailors felt the shock on the boats. At Cesenatico, some big waves flooded the beach. At Pesaro eye-witnesses on the beach were reached by two big waves up to the waistband. At Ancona eye-witnesses reported some big waves.

Further references: Baratta (34 and 55); Carrozzo *et al.* (6); Karnik (153); Caloi *et al.*, (56); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[49] 1885 1 16 Liguria-Côte d'Azur
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. In Nice severe damage in the «Promenade des Anglais» were observed. The wall in support of the street ruined. The sea water flooded the Halevy street, up to 100 m from the usual sea level. People that were in the Promenade des Anglais were overturned. Event description was given by Mercalli and Taramelli (180). There was no storm and the sea, immediately before, was very calm. At Cannes, the dock of the harbour suffered severe damage and also the Croizette avenue. At Villafranca, in the gulf very high waves were observed. At Mentone the Promenade des Anglais was damaged, like in Nice and in Cannes. At Oneglia, because of the sea fury, the old tower of the dock collapsed.

[50] 1886 11 11 Liguria-Côte d'Azur
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. At Nice and at Cannes the same effects were seen as on January 16, 1886. Heavy rains caused overflow of the Varo river and of many other small streams (Mercalli and Taramelli, 180).

[51] 1886 12 17 Liguria-Côte d'Azur
coordinates:
cause:
reliability: 0

No plausible cause of the tsunami. At Nice at about midnight a «tsunami» took place that destroyed all the restoration works done to repair the damage occurred on January 16 and on November 11, 1886. This phenomenon, that lasted for about half an hour, was not related to any storms or rains or river inundations (Mercalli and Taramelli, 180).

[52] 1887 2 23 Liguria-Côte d'Azur
coordinates: 43 53 8 00
cause: ER
tsunami intensity: 3
reliability: 4

This is one of the most relevant earthquakes occurred in Liguria, usually called the «Vallo di Diano earthquake». During this seismic period many shocks occurred, but only three were particularly strong. The main shock caused severe damage in the area between Mentone and Albissola, for an extension of about 100 km along the coast. The epicenter is located in the sea, about 20 km far from Sanremo and Oneglia. More than 650 victims and about 160 injured people.
Shock violently felt by ships in the sea between Corsica and the Ligurian coast (Issel, 179). In most of the villages along the coast (Riviera Ligure), sea withdrawal and return to normal level were seen (Mercalli, 39). At Diano Marina, about 30 cm sea-level lowering (Mercalli and Taramelli, 180). At Porto Maurizio 30 cm sea-level lowering according to Charlon (181); but according to Issel (179), the sea lowered about 1 m, then rose about 1 m above msl, flooding the beach; at the third shock, the harbour almost dried, then the sea came back violently (Mercalli and Taramelli, 180). At Sanremo some vessels broke moorings; 1 m sea-level lowering; a lot of fish found on the beach (Issel, 179; Gatta, 182); flux and reflux observed with 40 cm amplitude (Mercalli, 39). At Oneglia, 4 m sea withdrawal (Mercalli and Taramelli, 180). At Ospedaletti 1 m sea withdrawal (Mercalli and Taramelli, 180). At Alassio about 30 m sea withdrawal (less than 1 m in height), followed by beach flooding; this occurred for all the three shocks (Mercalli and Taramelli, 180). At Loano and Finale Marina 2 m sea withdrawal (Mercalli and Taramelli, 180). At Savona sea withdrawal. A lot of fish found on the beach (Mercalli and Taramelli, 180). At Santa Margherita Ligure 15 m sea withdrawal (Mercalli and Taramelli, 180). At Genoa after the main shock the sea withdrew in some places 10 m, in others 30 m (Issel, 179; Tacchini, 183). At Albissola about 1 m sea withdrawal after the 2 shocks (Mercalli and Taramelli, 180). Also at Antibes and Nice the sea level lowered and the sea bottom was dried (Tacchini, 183). Maximum run-up (1.5 m) at Imperia (Eva *et al.*, 9). Tide-gauge records available for Genoa and Nice harbours (Mercalli, 39). The Genoa harbour digitized record is available at the University of Genoa.

Further references: Baratta (34 and 55); Caputo (28); Soloviev (29); Antonopoulos (100).

[53] 1888 7 30 Liguria-Côte d'Azur
coordinates:
cause:
reliability: 2

According to Mercalli (39), at Sanremo at 8:27 a.m. a strong shock was followed by a roar and at 8:35 a.m., quite a strong shock was felt at Bussana (near Sanremo).
At Pietra Lunga (west of Sanremo) a fisherman observed that the sea withdrew and returned two times. No information on this earthquake is available in the Italian earthquake catalogs.

[54] 1889 12 8 Gargano
coordinates: 42 03 15 30
cause: ER
reliability: 2

Epicenter in the sea between the Tremiti Islands and the Gargano coast. Felt over a very wide area, including almost all Central Italy (Baratta, 34).
Possible tsunami at the Fortore mouth. Sea agitated in Termoli and Mattinata.
Revised by Tinti *et al.* (128).

Further references: Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[55] 1894 11 16 Tyrrhenian Calabria
coordinates: 38 16 15 52
cause: EA
tsunami intensity: 3
reliability: 4

A disastrous earthquake occurred in Calabria. On November 16 three relevant shocks, and the third was the strongest. The main shock involved the whole Calabria, Sicily and most of Campania. The most severe damage occurred in Aspromonte and along the Tyrrhenian coast between Capo del Pezzo and Palmi. About 100 victims and 800 injured people. The most affected villages were Palmi, S. Cristina, Bagnara, Solano, Seminara, S. Procopio.
At Reggio Calabria the shock was strongly felt by many boats; one moored vessel carried in land and seriously damaged (Riccò, 184). At Palmi the sea was very agitated (Riccò, 184; Mercalli, 185). At Scilla the shock was felt by fishermen and the sea water was boiling (Mercalli, 185). At Tropea some fishermen noted that at their usual fishing place the anchor could not reach the sea bottom anymore, probably due to a submarine slide caused by the shock (Riccò, 184). In the Messina Straits, Pellaro and Villa S. Giovanni the shock was felt by vessels (Riccò, 184; Mercalli, 185). At Messina the tide gauge was stopped by the shock (Riccò, 184).

Further references: Baratta (34 and 55); De Panfilis and Marcelli (126); Caputo and Faita (28); Antonopoulos (100).

[56] 1905 9 8 Tyrrhenian Calabria
coordinates: 38 40 16 03
cause: EA
tsunami intensity: 3
reliability: 4

This is one of the strongest events occurred in Southern Italy. The epicentral area has an elliptical shape, involving the S. Eufemia Gulf, Briatico, Martirano, Monteleone, S. Onofrio, Ajello and many other villages. The shock caused destructions, more than 550 victims and 2000 injured people. It was felt in the whole Southern Italy, including Sicily.
The shock was also felt in the sea and the sea water rose and lowered many times with a period of 7.5 min along the coast of the Tyrrhenian Calabria up to Ischia. The tide-gauge records from Catania, Palermo, Ischia, Civitavecchia, Naples, Messina and Leghorn are reproduced by Platania (11). At Briatico along the beach a lot of fish were found; a fishing boat was carried a few meters in land (Baratta, 186; Mercalli, 187; Rizzo, 10; Cavasino, 166; Platania, 11). At Bivona the sea flooded the beach more than 30 m carrying one fishing boat in land (Rizzo, 10). At Scalea suddenly the sea flooded the beach about 30 m, rising about 6 m above the cliff; fishing boats carried landward (Rizzo, 10; Platania, 11; Monti, 12). At Milazzo the harbour office referred that the sea rose and lowered every 30 min with amplitude of about 80 cm (Platania, 11). At Pizzo a lot of fish was found in the beach and one boat was carried 30 m in land (Mercalli, 187; Platania, 11; Monti, 12).

Further references: Alfano (159); Heck (81); Carrozzo *et al.* (6); Caputo and Faita (28); Bedosti and Caputo (19); Soloviev (29); Antonopoulos (100).

[57] 1906 4 4 Campania
coordinates: 40 49 14 26
cause: VA
reliability: 2

A volcanic explosive crisis occurred at the Vesuvius from April 4-22, 1906. In the Gulf of Naples during the eruption, the sea level temporary changed with a rising of 30-40 cm between Vico Equense and Portici (Mercalli, 13). Some fishermen referred that at the place called Scoglio Lungo (near the Favorita), during the eruption they noted that the sea withdrew and that some rocks, usually submerged, appeared. A similar phenomenon also occurred near S. Giovanni (Mercalli, 13).

Further references: Baratta (25); Caputo and Faita (28); Antonopoulos (100).

[58] 1907 10 23 Ionian Calabria
coordinates: 38 02 16 01
cause: EA
tsunami intensity: 3
reliability: 4

Strong earthquake occurred inland, about 15 km from the coast. The most damaged village was Ferruzzano. The area with heavy damage was quite wide, stretching about 20 km N and W of Ferruzzano, including S. Ilario Jonico, Bianco, Bovalino, Ardore, S. Luca, Platì, Africo, Brancaleone and Bova. Severe damage was suffered by some villages in the Ionian coast, from Melito di Porto Salvo to Gerace. The shock was also felt in the whole Calabria and in Eastern Sicily. The total number of victims was 167 (158 at Ferruzzano). More than 90 people injured.
A tsunami followed the earthquake. The sea flooded the beach 30 m for a stretch of about 10 km, between Capo Bruzzano and the Careri river mouth. Then it came back to its usual level (Mercalli, 188; Eredia, 146; Cavasino, 166). Tide-gauge records of Messina and Catania were analyzed by Platania (135).

Further references: Baratta (55); Alfano (159); Carrozzo *et al.* (6); Caputo and Faita (28); Bedosti and Caputo (19); Soloviev (29); Antonopoulos (100).

[59] 1908 12 28 Messina Straits
coordinates: 38 11 15 40
cause: ER
tsunami intensity: 6
reliability: 4

This is one of the strongest earthquakes ever occurred in Italy. Messina and Reggio Calabria were completely destroyed, and also many other villages: Faro, Ganzirri, S. Agata, Pace, Camaro, Gazzi, Cannitello, Villa S. Giovanni, S. Gregorio, etc. Partial destruction involved most of Calabria and Sicily. In Messina all buildings ruined and just after the shock a violent fire broke out. In Reggio Calabria all buildings ruined. The area of destruction was about 6000 square km wide. More than 60000 people died. Some strong foreshocks occurred on December 5, 6, 23, 25 and many aftershocks occurred till February 1909.
The earthquake produced a violent tsunami in the Messina Straits that caused severe damage and many victims. In all places the first movement was a sea withdrawal (in some places about 200 m) for a few minutes. Then the sea flooded the coast with at least three big waves. The sea level oscillations lasted many hours, gradually diminishing (Platania, 118; Eredia, 115). The tsunami reached its maximum intensity in the Calabrian coast at Pellaro, Lazzaro and Gallico, and in the Sicily coast at Giardini and S. Alessio (Baratta, 70). It was observed in Tyrrhenian Calabria as far as Porto S. Venere and in Sicily as far as Trabia and Termini Imerese (Baratta, 99; Platania, 118). In some localities the biggest wave was the first, while in others it was the second. Tsunami run-up was observed to decrease for increasing distances from the epicenter, but in the Straits this was masked by local amplification effects (Platania, 118; Riccò, 98). A post-event survey allowed to estimate damage, flooding and run-up: it was ascertained that the tsunami caused many victims and severe damage to buildings, ships, boats and nature.
At Messina the wave height reached 3 m; many mooring boats were severely damaged; the quays in the harbour were destroyed; many solid walls collapsed; the English cemetery was completely destroyed; some boats were carried onshore (Platania, 96; Oddone, 95; Martinelli, 91; Franchi, 90; Eredia, 115). At Paradiso, N of Messina, the run-up was 3.70 m; many boats were carried to the beach (Platania, 96; Baratta, 70). At Pace many small houses ruined and the water level reached 4.70 m; 3 victims (Platania, 96; Baratta, 70). At Galati Marina many buildings were destroyed; a lot of big trees were uprooted; many ships were damaged; 14 people killed (Platania, 118 and 96; Baratta, 70).
At Briga Marina many houses were destroyed and 46 people drowned (Platania, 118 and 96; Baratta, 70; Cavasino, 166). At Giampileri Marina the wave was 7.20 m high; many walls collapsed (Platania, 118 and 96; Baratta, 70; Cavasino, 166). At S. Tecla, Torre Archirafi and Nizza di Sicilia the wave reached 5.70 m height; many walls and boats were destroyed (Platania, 118 and 96; Baratta, 70). At Scaletta, Roccalumera and Alì Marina the height was 8 m; many boats were damaged and trees uprooted (Platania, 118 and 96; Baratta, 70). At Giardini the level of the water reached 9.50 m; 2 people were killed and many boats were damaged (Platania, 118 and 96; Baratta, 70). At S. Alessio the maximum height for the Sicily coast was measured: 11.70 m

(Platania, 118 and 96; Baratta, 70; Eredia, 115). At Riposto the sea flooded the coast about 150 m, 13 people died and many walls collapsed (Platania, 118 and 96; Martinelli, 91; Baratta, 70; Cavasino, 166). At Aci Trezza many trees were uprooted and boats destroyed (Platania, 118 and 96; Martinelli, 91; Baratta, 70). At Catania many boats were damaged and in the wall of the tide-gauge station it was possible to distinguish 4 different wave marks; the sea water flooded the coast about 100 m; 3 children were killed (Platania, 96; Baratta, 70; Eredia, 115). At Augusta the water flooded more than 700 m of land; severe damage was caused to the salt-pan (Platania, 96; Martinelli, 91; Baratta, 70).
At Reggio Calabria, many vessels in the harbour were damaged; some buildings were completely destroyed (Platania, 118 and 96; Martinelli, 91; Baratta, 70). At Pellaro, most of the houses close to the beach were totally destroyed; the measured run-up was 13 m; many people were carried landward (Platania, 118 and 96; Martinelli, 91; Baratta, 70). At Lazzaro the wave reached about 10.50 m height; the village was almost completely destroyed; 90 people were killed; the beach was remarkably eroded (Platania, 118 and 96; Martinelli, 91; Baratta, 70; Cavasino, 166). At Villa S. Giovanni most of the railway lines were destroyed (Platania, 96). In many localities such as Scilla, Nicotera, Tropea and Scalea, the sea flooded the beach (Platania, 96).
In the Aeolian Islands the tsunami was only weakly felt (Platania, 96; Baratta, 70). In Malta the sea level rose more than 1 m (Platania, 96; Baratta, 70). Many submarine cables were broken. Five tide-gauge records are reproduced by Platania (96): Messina, Catania, Civitavecchia, Malta, Naples.
Event recently revised and studied by Tinti and Giuliani (69 and 68).

Further references: Heck (81); Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[60] 1916 7 3 Aeolian Islands
coordinates: 38 48 15 12
cause: EA
tsunami intensity: 3
reliability: 4

Violent eruption of Stromboli, accompanied by a strong earthquake, causing some light damage in the buildings. The shock was felt along the Tyrrhenian Calabrian coast from Amantea to Capo Vaticano. Also felt in Lipari, Salina and Vulcano Islands.
At Stromboli, in the S. Bartolo village, the sea level rose by about 10 m (Cavasino, 166).

Further references: Carrozzo *et al.* (6); Caputo and Faita (28); Soloviev (29); Antonopoulos (100).

[61] 1919 5 22 Aeolian Islands
coordinates: 38 48 15 12
cause: VO
tsunami intensity: 3
reliability: 4

From February 1919 an eruption of the Stromboli volcano occurred, that had its maximum on May 22 with a violent explosion. Most of the houses at Stromboli village were destroyed and many others suffered severe damage. Also at Ginostra some houses collapsed.
More or less at the same time as the explosion, a tsunami occurred along the coast of Stromboli. The sea water flooded the beach for about two minutes, carrying all the ships by more than 300 m in the neighbouring fields (Platania, 67; Oddone, 58).
In Capri at the Marina Piccola some sailors noted that the sea withdrew discovering some rocks that were more than 1 m below the msl. After a few seconds, some big waves flooded the beach (Platania, 67). At Ustica an anomalous sea movement was observed, like a light tsunami (Platania, 67). Several tide gauge records were available: Cagliari, Catania, Palermo, Messina, Faro, Civitavecchia and Naples, but only two contained information on the tsunami. In the record of Faro it was observed a group of very small amplitude oscillations with period of 11 min, lasting about 90 min. In the Messina record oscillations with 8-min period are visible (Platania, 67).

Further references: Imbò (49); Caputo and Faita (28); Soloviev (29); Antonopoulos (100); Barberi *et al.* (44).

[62] 1926 8 17 Aeolian Islands
coordinates: 38 50 14 45
cause: EA
reliability: 2

A strong shock, probably of volcanic origin, occurred in the Aeolian Islands with epicenter located in the Salina island. Severe damage at Malfa and Pollara, where most of the houses were heavily damaged. Quite a large number of landslides occurred in the whole island. At Filicudi and Lipari islands only slight damage reported. At Malfa and Capo beaches, in the island of Salina an anomalous sea movement was observed, with the sea water firstly receding (Cavasino, 166).

Further references: Dalmasso (48); Soloviev (29); Antonopoulos (100).

[63] 1930 9 11 Aeolian Islands
coordinates: 38 48 15 12
cause: VO
tsunami intensity: 3
reliability: 4

Strong explosion at Stromboli with hot avalanches, ejected blocks and secondary lava flows. 6 people perished, and 22 were injured. At Sopra Lena, the sea retired as much as 100 m and penetrated the beach for 200 m in 3 min. The run-up was about 2.5 m (Abbruzzese, 46; Imbò, 45).

Further references: Caputo and Faita (28); Soloviev (29); Antonopoulos (100); Barberi *et al.* (44).

[64] 1944 8 20 Aeolian Islands
coordinates: 38 48 15 12
cause: VO
tsunami intensity: 4
reliability: 4

Large explosion at Stromboli. Hot avalanche at the Forgia Vecchia. At Punta Lena the sea penetrated 300 m inland, destroying one house. A lot of fish were found on the beach (Cavallaro, 43; Barberi *et al.*, 44).

[65] 1954 2 Aeolian Islands
coordinates: 38 48 15 12
cause: VO
tsunami intensity: 2
reliability: 4

A strong explosive eruption at Stromboli involving the upper end of the conduit, with lava effusion from February 1, 1954 to March 13, 1954 (Cucuzza Silvestri, 42). Formation of clouds and generation of a tsunami. The tsunami delay times after the explosion are: Ginestra (Stromboli) 10 min, Panarea 25 min, Lipari 60 min, Sicilian coast 90 min (Imbò, 49; Caputo and Faita, 28).

Further references: Soloviev (29); Antonopoulos (100).

[66] 1968 4 18 Liguria-Côte d'Azur
coordinates: 44 05 8 00
cause: ER
tsunami intensity: 2
reliability: 4

Weak earthquake hitting the Ligurian coast. At Alassio and along the coast, a small tsunami with waves of about 3 m was observed after the shock. The sea was very calm before and during the quake. The first movement was a withdrawal and then the water came back violently flooding the beach (Abbo *et al.*, 38). The earthquake size is too small to generate a tsunami, that could have been caused by a triggered submarine slide.

[67] 1979 10 16 Liguria-Côte d'Azur
coordinates: 43 42 7 15
cause: GS
tsunami intensity: 3
reliability: 4

Extensive account is given in Mulder (14), in Mulder *et al.* (15), in Dutzer (37) and in Habib (36). A submarine slope failure occurred during the construction of the Nice new harbour, with no seismic event recorded. The event caused victims: except one person in Antibes, the victims were working men on the building site. This gravitational submarine sliding generated a small tsunami observed by several witnesses in the Baie des Anges. The maximum effects were observed 10 km far from the building site near Antibes, that was inundated (one person killed). Pictures of the inundation show wave heights of about 1 m. At La Salis (close to Antibes), witnesses reported a first wave of about 50 cm, 5 min after the landslide. This wave was followed by three 3m-high waves with a period of about 8 min. At the harbour of Saint Laurent du Var the water lowered by about 2 m 1 min after the landslide and then rose by 1 m. The tide-gauge records of Nice and of Villefranche show that the first wave is a 10 cm trough. The maximum recorded wave amplitudes do not exceed 10 cm in both harbours, whereas witnesses reported wave amplitudes of about 1 m.

Further references: MTF (33); LCPC (20); Auffret *et al.* (189); Cochonat *et al.* (190).

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