Catalogue of Tsunamis in the Eastern Mediterranean from Antiquity to Present Times

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ABSTRACT

This paper presents a systematic compilation of all data pertaining to tsunamis observed or recorded in the Eastern Mediterranean from antiquity to the present time (1500 B.C. to 1980 A.D.). The first catalogue has been published by Prof. N.N. Ambraseys in the "Bulletin of the Seismological Society of America" (Vol. 52, No. 4, October 1962) and this has formed the skeleton of this paper. All of the available information has been collected from historical accounts, newspaper archives, other reports, and recent mareographic data. The data have been extracted from the seismological literature and other relevant sources. Most of the events listed have been generated along the coast of Greece, Albania, South Yugoslavia, Turkey, Syria, and Israel. There is little doubt that the large conjugate fault system along the west coast of Greece, Crete, and Rhodes to the south coast of Turkey is often responsible for the earthquakes in this area and most of the tsunamis in the Eastern Mediterranean.
In questo lavoro è stata fatta una raccolta sistematica di tutti i dati relativi agli tsunami osservati o registrati nel Mediterraneo orientale dall’antichità ad oggi (1500 a.C. al 1980 d.C.). Il primo catalogo è stato pubblicato dal Prof. N.N. Ambraseys nel «Bollettino della Società Americana» (Vol. 52, n. 4, ottobre 1962), sulla base di cui è stato costruito l’attuale lavoro. Sono state raccolte tutte le informazioni utili da resoconti storici, archivi di giornali, altre notizie, e dati mareografici recenti. I dati relativi ai terremoti sono stati estratti da quelli forniti dall’Istituto Sismologico di Atene con la relativa bibliografia. La maggior parte degli eventi in elenco, è associata a terremoti, mentre alcuni sono il risultato di attività vulcanica. Molti degli tsunami hanno avuto origine lungo le coste della Grecia, Albania, Jugoslavia meridionale, Turchia, Siria ed Israele. Si ipotizza che il grande sistema di faglie coniugate, la costa occidentale della Grecia, Creta e Rodi fino alla costa meridionale della Turchia, sia spesso responsabile dei terremoti in questa zona e della maggior parte degli tsunami nel Mediterraneo orientale.

1. Introduzione

Nord est 31°-44° N e 18°-36° E escludendo Mar Nero e i costi orientali del Mar Egeo è l’oggetto del presente articolo.

Il primo catalogo è stato pubblicato da N. Ambraseys in «Bollettino della Società Americana» (Vol. 52, n. 4, pp. 895-913, ottobre 1962) e questo ha formato il quadro di questo lavoro.

In questo catalogo abbiamo compiuto e rendiamo pubblici dati e circostanze relativi al fenomeno tsunami, che non erano mai stati pubblicati prima. La materia è composta da informazioni sacre e profane, pubbliche e segrete, che si riferiscono sia alla costa marittima sia alle regioni continentali. Includono notizie storiche, cronache, resoconti di eventi, cronache, resocont
have it is true, been read in whole or in part by few authors
of earthquake catalogues; but as far as we are aware, for one
reason or another, practically none of the information supplied
in these catalogues is absolutely correct or complete. Some
authors erred in rendering Muslim or Byzantine chronologies
with the result to date in their catalogues scores of events by
as much as six centuries too early (Ambraseys, 1961). Others,
owing to errors resulting from transcribing events and topo-
nomies from Latin translations of Greek or Arabic texts, or
owing to differences in chronology resulting thereby, repeat
in their catalogues the same event two or more times or even
nominate events. To some extent also they omit the
impossibility of a whole year for a given region collectively
and enter in our catalogue the year itself of those years
when they affect our catalogue or are pointed out as in their
appropriate place in the paper.

Actual harm has been done to the science of seismology
by premature conclusions from fragmentary data, and parti-
cularly from data repeated from publication to publication
with a constantly increasing number of inaccuracies with no reference
to the original source of information. Under such circumstances
one can hardly be unjust to those who maintain that the observa-
tion of seismic phenomena of old date are scientifically in-
adequate.

In preparing our catalogue we were fully aware that its
outcome would be more suggestive than definitive. Also we
were aware of the fact that the older historical accounts
of seismic phenomena rarely include much useful information other
than reports of damage and casualties. These we considered
worthwhile our labours.

2. KEY TO CATALOGUE

The catalogue is arranged in the following manner:

Dates are given in headlines in the new style (Gregorian).

They are followed by the name of the region in which the seismic
sea-wave was felt. This is followed by the name of cities, towns,
or areas which were particularly affected. The intensity, m, of
the wave is given in small roman numerals and it refers to
Sieberg's modified intensity scale where the height of the wave
on land or the distance which it flooded inland is known and is
indicated as (H =) and (L =) respectively in meters. Near the
geographical coordinates of the epicentre of the main earth-
quake shock, when known are given together with the intensity
of the shock (I) in the modified Mercalli scale, magnitude
(M _ Gutenberg) and the focal depth (d = shallow, n = normal, m = intermediate). This is followed by the references
consulted which are pertinent to the Phenomenon itself, to the
accompanying earthquake, and to the information necessary
for the dating of the event. P: refers to references in the
Bibliography. Entries marked with an asterisk are doubtful events
which have been included for the sake of completeness.
Place names mentioned in the original suffered many changes
during historical and recent times. When these differ from
those of today, the former are shown in brackets where they
first occur, and the modern name is used thereafter. Modern
places are spelt after Lippincott.
In what follows the headlines more information is given
mainly about the events from 1500 BC to 1650 AD and some
of them up to the present time. For all the other events only
a bare outline is given. With so many dates, controversial points,
so many foreign names and such a multitude of references as
crowd this paper, though we have done our best to be as accurate as
possible, many errors must necessarily have crept in. We shall feel
most grateful to those who will point these out to us.
Fig. 1. Tsunamis in the Eastern Mediterranean from 1500 BC to 1980 AD.
Fig. 2 - causes of tsunamis:
- o = region in which the tsunami was felt.
| No. | Date       | Tsunami Data | Earthquake Data | References |
|-----|------------|--------------|-----------------|------------|
| 1.  | 75-700 B.C. | Syrian coastal | 10             |            |
| 2.  | 1900-1800 B.C. | Syrian coastal | 10             |            |
| 3.  | 1300 B.C. | Syrian coastal | 10             |            |
| 4.  | 1200 B.C. | Syrian coastal |                |            |
| 5.  | 1190 B.C. | Saranda (Greece) |                |            |
| 6.  | 1150-1100 B.C. | Syrian coastal | 10             |            |
| 7.  | 1150-1100 B.C. | Syrian coastal | 10             |            |
| 8.  | 1030 B.C. | Syrian coastal | 10             |            |
| 9.  | 935 B.C. | Syrian coastal | 10             |            |
| 10. | 860 B.C. | Syrian coastal | 10             |            |
| 11. | 740 B.C. | Syrian coastal | 10             |            |
| 12. | 630 B.C. | Syrian coastal | 10             |            |
| 13. | 590 B.C. | Syrian coastal | 10             |            |
| 14. | 525 B.C. | Syrian coastal | 10             |            |
| 15. | 479 B.C. | Syrian coastal | 10             |            |
| 16. | 426 B.C. | Syrian coastal | 10             |            |
| 17. | 373 B.C. | Syrian coastal | 10             |            |
| 18. | 330 B.C. | Syrian coastal | 10             |            |
| 19. | 222 B.C. | Syrian coastal | 10             |            |
| 20. | 138 B.C. | Syrian coastal | 10             |            |
| 21. | 58 B.C. | Syrian coastal | 10             |            |
| 22. | 46 A.D. | Syrian coastal | 10             |            |
| Date    | Event                                                                 |
|---------|----------------------------------------------------------------------|
| 17.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 21.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 25.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 01.01.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 08.01.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 15.01.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 22.01.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 29.01.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 05.02.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 12.02.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 19.02.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 26.02.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 05.03.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 12.03.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 19.03.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 26.03.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 02.04.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 09.04.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 16.04.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 23.04.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 30.04.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 07.05.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 14.05.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 21.05.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 28.05.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 04.06.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 11.06.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 18.06.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 25.06.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 02.07.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 09.07.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 16.07.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 23.07.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 30.07.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 06.08.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 13.08.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 20.08.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 27.08.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 03.09.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 10.09.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 17.09.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 24.09.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 01.10.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 08.10.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 15.10.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 22.10.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 29.10.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 05.11.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 12.11.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 19.11.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 26.11.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 03.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 10.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| 17.12.  | Naval forces of Eusebius and Asclepius at Lebena.                    |
| Date          | Event Description                                                                 |
|--------------|-----------------------------------------------------------------------------------|
| 1870 March 29| Alexandria, Euboea                                                               |
| 1871 April 1 | Ionian Sea, Is. of Venetian Islands                                              |
| 1871 May 10  | Ionian Sea, Messinia                                                             |
| 1872 March 10| Albania, coasts of the Adriatic Sea                                             |
| 1872 June 22 | Adriatic Sea, Is. of Otranto, near the mouth of the Strait of Otranto             |
| 1875 September 20| Ionian Islands, E. of Syros, near the mouth of the Strait of Katapola            |

**Table Notes:**
- Events are listed in chronological order by date.
- Locations are marked with the names of geographical features and cities.
- The dates range from 1845 to 1928, indicating various historical events or battles.
- The events include battles, expeditions, and explorations across different coastal regions.
| Date          | Location                                      | Depth (km) | Magnitude | Type       | Remarks                                                                 |
|--------------|-----------------------------------------------|------------|-----------|------------|--------------------------------------------------------------------------|
| 1928 April 23 | Grecian Archipelago, Piraeus, Chalkis, Nauplion, Alexandroupolis, Crete, Chania, Karystos | 3,1       | 3.5        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1928 May 3    | Eastern Greece, Strymonic Gulf                | 3.7        | 4.3        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1932 September 26 | Gulf of Hierissos, Chalcidice | 4.9        | 7.0        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1947 October 6 | South Peloponnesus, Methone in Messenia      | 6.9        | 6.9        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1948 February 9 | Dodecanese, Island of Karpathos               | 7.1        | 7.1        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1948 April 22 | Ionian Islands, Leukas                         | 7.3        | 7.3        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1949 February 9 | Dodecanese, Island of Karfarsos               | 7.8        | 7.8        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1956 July 9   | Grecian Archipelago, Amorgos, Astipalaea, Pholegandros, Patmos, Kalimnos, Crete, Tinos | 10.0      | 10.0       | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1959 February 23 | North and west coasts of the Grecian Archipelago, Salonika, Samos, Leros, Crete | 11.0      | 11.0       | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1961 May 23   | Asia Minor, Sea of Marmara, Smyrna            | 7.5        | 7.5        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1961 June 6   | Grecian Archipelago, Crete, Leros            | 6.9        | 6.9        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1963 February 7 | Gulf of Corinth, Possidonia, Patras         | 4.9        | 4.9        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1965 July 6   | Gulf of Corinth, Kavala, Perafei             | 5.8        | 5.8        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1968 February 19 | Island St. Eustratios, Lemnos, Lesvos, Euboea | 1.2        | 1.2        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1978 June 20  | Salonika, Strymonic Gulf                      | 6.5        | 6.5        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
| 1979 May 15   | South Coasts of Crete                         | 5.8        | 5.8        | Earthquake | No earthquake was recorded. Most probably a seiche.                       |
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