DOKUZ EYLÜL UNIVERSITY

EARTHQUAKE RESEARCH AND IMPLEMENTATION CENTER

Santorini Island (Northeast of Aegean Sea) 1-7 February 2025 Earthquake Activity Preliminary Assessment Report-1

8 FEBRUARY 2025

BUCA-İZMİR

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Contents

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1-INTRODUCTION

Since January 28, 2025, seismic activity in the Aegean Sea, particularly on and around Santorini Island, has intensified, with the number of recorded earthquakes exceeding 1,000 as of February 7, 2025, according to AFAD data. This ongoing activity, classified as an earthquake storm, has produced a maximum recorded magnitude of 5.2 Mw. The tremors have been concentrated approximately 25 km northeast of Santorini Island, occurring mostly at depths between 5 km and 25 km. The closest recorded earthquake from the area of the swarm events to Turkiye shores struck 140 km away.

The earthquakes are concentrated near the Kolumbo volcano, located 6.5 km northeast of Santorini Island, which has an underwater crater. Kolumbo is part of the Santorini Volcanic Complex and was last active in 1650, while the most recent eruption in the complex occurred in 1950.

This preliminary assessment report prepared by the researchers at Dokuz Eylül University - Earthquake Research and Application Center (DEU-ERAC) is to evaluate the latest developments for the ongoing earthquake storm (February 1–7, 2025). Based on the available data, it aims to inform the public about the geological and active tectonic characteristics of the affected region, the volcanic structure, and key seismological insights. Additionally, the report assesses the significance of the earthquakes, potential risks, their possible impacts, and necessary precautions. To support this effort, a working team was established on January 28, 2025, by the DEU-ERAC, comprising experts from the Departments of Geology and Geophysical Engineering at the Faculty of Engineering, relevant departments of the Institute of Marine Sciences and Technology, and academic staff from İzmir Vocational School. This report also includes findings from a 10-day literature review, data compilation, and analysis conducted by the team.

2-REGIONAL GEOLOGY AND TECTONIC ENVIRONMENT

The Aegean Region is a seismically active tectonic environment with high deformation rates due to its location at the convergence zone of the African and Eurasian plates, including the Aegean-Anatolian microplate (Figure 1). Historically, deep-focus earthquakes with magnitudes reaching up to 8.5 have been recorded in the region (Papazachos, 2019). Additionally, the Santorini-Amorgos Fault Zone, characterized by frequent shallow-focus earthquakes, highlights the tectonic complexity of the Aegean Sea. This area exhibits diverse geodynamic regimes, including pure extension, transpression, and transtension, all associated with back-arc deformation (Sakellariou et al., 2019).

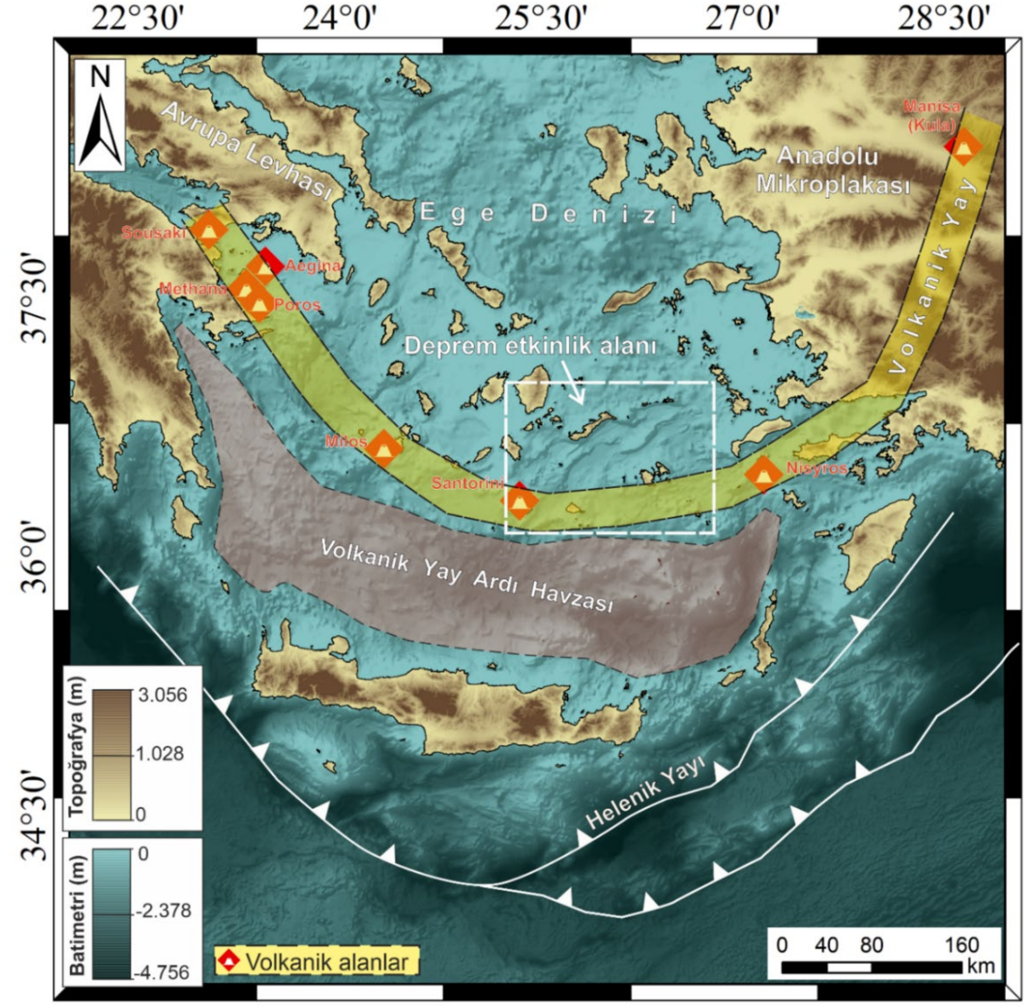

Figure 1. The main tectonic and volcanic structures of the Eagean region (Bathymetry data obtained from the GEBCO 2023 dataset via the GEBCO website, and elevation data extracted from DEM data using the Global Mapper software package) (Nomikou et al. (2013) and Hübscher et al. (2015)).

Previous studies (McKenzie, 1972; Le Pichon & Angelier, 1979; Caputo et al., 1970; Papazachos) have identified key lithospheric processes driven by two fundamental tectonic forces: the northward movement of the African plate, which causes the subduction of the Eastern Mediterranean lithosphere beneath the Aegean Sea, and the southwestward movement of the Aegean-Anatolian block along the North Anatolian Fault Zone. These processes, accompanied by periodic volcanic activity and seismic events over millions of years, define the region's tectonic characteristics. They contribute to the complex deformations observed in the compressional outer arc, volcanic arc, and extensional back-arc regions of the Aegean subduction system (Kiratzi & Louvari, 2003; Chatzipetros et al., 2013; Shaw & Jackson, 2010; Benetatos et al., 2004).

In the Northern Aegean, right-lateral strike-slip faulting has been confirmed by geodetic data (Sakellariou et al., 2019). The right-lateral movement in the Saros Basin has been measured at 21.2 mm/year, decreasing to 12.5 mm/year south of the Chalkidiki Peninsula and approximately 7 mm/year in the southwestern Sporades Basin (Müller et al., 2013). According to the same researchers, the total strike-slip movement along the Skyros-Edremit Fault and the Agios Efstratios Fault is approximately 10 mm/year, while on the Psara-Lesvos Fault, it is around 4 mm/year.

In Western Anatolia and Central Greece, north-south (N-S) extension and normal faulting characterize the dominant deformation style (Sakellariou et al., 2019). The M7.5 earthquake that struck southwest of Amorgos Island in 1956, followed by a M7.2 aftershock, ranks among the largest earthquakes in the Aegean Sea over the past century (Okal et al., 2009). This earthquake and the resulting large tsunami highlighted the active tectonic regime of the Aegean Sea.

The Santorini-Amorgos earthquake swarm, which began on January 28, 2025, highlights the region's high tectonic activity. These events are essential for understanding the interaction between micro- and macroseismic processes within the back-arc extension regime. Active faulting in the Santorini-Amorgos zone presents risks not only in terms of seismic hazards but also potential volcanic threats.

The 2012 earthquake sequence in the Heraklion Basin revealed that northwest-southeast (NW-SE) extension remains active in the southern Aegean (Bohnhoff et al., 2006; Dimitriadis et al., 2009, 2010; Papadimitriou et al., 2015). Additionally, significant seismic activity has been observed along the southeast-northwest (SE-NW) oriented Santorini-Amorgos zone, which plays a critical role in the tectonic framework of the southern Aegean (Figure 2).

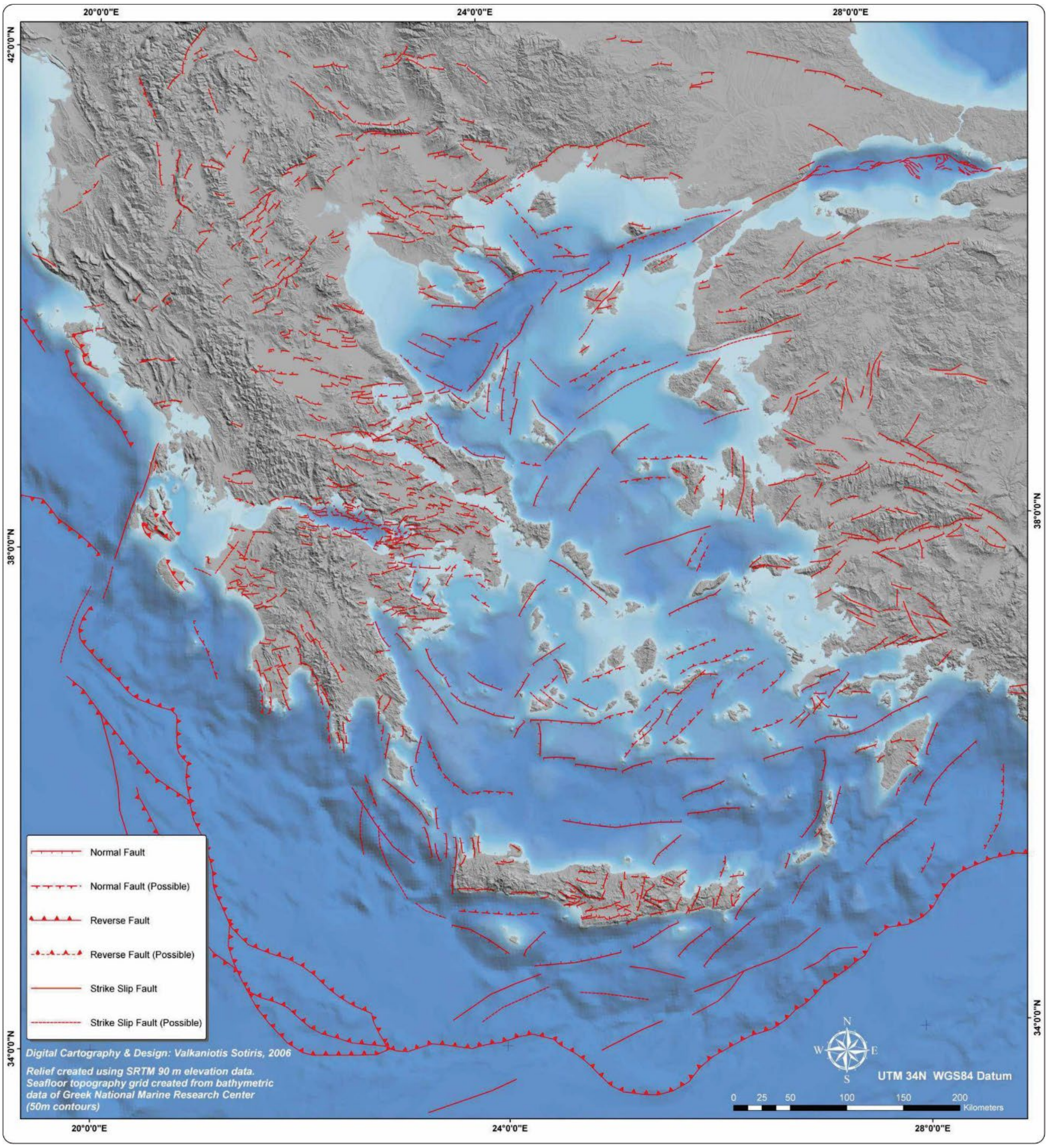

Figure 2. Active faults of the Aegean region (adapted from Pavlides et al., 2008). The red star indicates the location of the Santorini earthquakes.

In Santorini Island and its surrounding areas, where the earthquakes occurred, previous studies (Mascle and Martin, 1990; Piper and Perissoratis, 2003) have identified the presence of NE-SW striking strike-slip faults. Additionally, Papadopoulos and Pavlides (1992) classified the Amorgos Fault as a dip-slip normal fault with a right-lateral component (Figure 3).

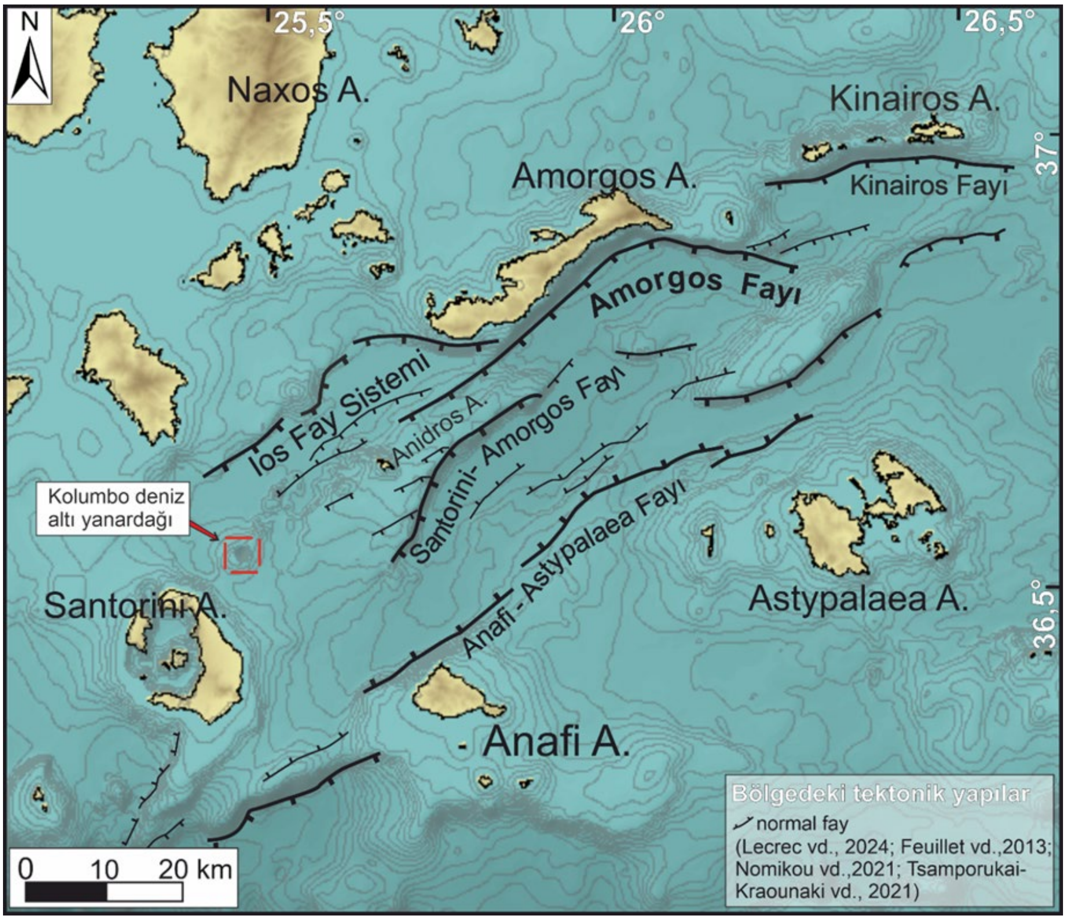

Figure 3. Tectonic structures in the region where the Santorini earthquakes occurred, along with the location of the Kolumbo submarine volcano, a significant feature in the area. Bathymetric data was obtained from the General Bathymetric Chart of the Oceans (GEBCO) website, and a relief map with contours drawn at 100m intervals was added using ArcGIS Ver. 10.3. (Bathymetry: https://download.gebco.net/; Tectonic structures: Leclerc et al., 2024; Feuillet et al., 2013; Nomikou et al., 2021; Tsampouraki-Kraounaki et al., 2021). The red circle indicates the area where Aegean earthquakes are concentrated.

3-SOUTH AEGEAN VOLCANIC ARC (GEVY)

The Southern Aegean Volcanic Arc (also known as the Hellenic Arc) is formed due to the subduction of the African Plate beneath the Eurasian Plate. Spanning approximately 450 km in length and 20 to 40 km in width, it extends from the Corinth Isthmus on the Greek mainland to the Bodrum Peninsula on the Turkish mainland. The active portion of the arc consists of numerous inactive and active volcanoes, including Sousaki, Aegina, Methana, Milos, Santorini, Kolumbo, Kos, Nisyros, Yali, and Akyarlar. Among these, only the Santorini, Kolumbo, and Nisyros volcanoes have exhibited signs of activity within the past 100 years.

From an evolutionary perspective, it is widely accepted that during the Holocene, the volcanic arc migrated southward, ultimately forming its present arc-shaped geometry. In a subsequent phase, crustal thinning and weakening led to the opening of the Aegean Sea behind the initial arc. This process is believed to have facilitated magmatic activity at shallow depths beneath the thinned Aegean crust, contributing to the development of a second volcanic arc.

Studies indicate that the Southern Aegean Volcanic Arc remained active between the Late Pleistocene and Holocene periods (Table 1, Sigurdsson et al., 2006; Nomikou et al., 2012). At the center of the arc, behind the Hellenic Trench, lies the Santorini Volcanic Complex (SVC), where recent seismic activity has been intensively observed. The SVC is the core and most significant component of the Santorini Volcanic Field, which also includes the Christiana volcanic islands to the southwest and the Kolumbo submarine volcano to the northeast.

The SVC has been active since the Early Pleistocene, undergoing periodic cycles of volcanic activity and dormancy (Preine et al., 2022a). Over the past 360,000 years, Santorini has experienced twelve major eruptions, numerous smaller eruptions, and four caldera collapses, forming the Thera Pyroclastic Formation (TPF) (Druitt et al., 1999; Druitt et al., 2019b). The most recent major eruption, known as the Late Bronze Age (LBA) or Minoan eruption, occurred approximately 3,600 years ago (Bond & Sparks, 1976; Friedrich et al., 2006; Druitt et al., 2019a) and is considered the largest and most significant volcanic event in the Aegean Sea (Satow et al., 2021).

Located 7 km northeast of Santorini, Kolumbo Volcano is part of the Hellenic Volcanic Arc and is believed to have formed around 350,000 years ago (Nomikou et al., 2012; Preine et al., 2022a) (Figure 3). The 1650 eruption produced a cone of stratified pumice deposits up to 260 meters thick, which briefly breached the sea surface before being destroyed in a violent explosive eruption. This event created a 500-meter-deep and 1,500-meter-wide crater (Fouqué, 1879; Cantner et al., 2014). The 1650 eruption also triggered a tsunami, causing significant destruction on the neighboring islands of Santorini, Ios, and Sikinos (Fouqué, 1879; Dominey-Howes et al., 2000; Ulvrova et al., 2016).

Table 1. Earthquake, volcanic activity and tsunami conditions of volcanic/non-volcanic islands within the South Aegean Volcanic Arc.

Island	Age	Volcano Type	Activity Status	Earthquakes (Mw)/Volcanic Activity	Tsunami	Wave Height (m)
Amorgos	----	----	----	1956 (Mw 7.5, 7.2)	Yes	25-30
Anafi	Pliocene	Stratovolcano	Passive	None	No	No
Kos	Pleistocene	Caldera	Potentially Active	1933 (Mw 6.6)	Yes	3-4
Tilos	Pleistocene	Stratovolcano	Potentially Active	None	No	No
Milos	Pleistocene	Lava Dome	Potentially Active	2001 (Mw 4.6)	No	No
Nisyros	Pleistocene-Holocene	Stratovolcano	Active	1996 (Mw 6.0), 1888 (Steam Eruptions)	Yes	1-2
Kolumbo	Holocene	Submarine Volcano	Active	1650 (Mw 6.5)	Yes	12-15
Santorini	Holocene	Caldera	Active	1600 BC: Great Thera Eruption, 1950 (Mw 7.0), 726 (Major Eruption, 1866-1870-1925-1928-1939-1941 earthquakes)	Yes	3-5
Nea Kameni	Holocene	Lava Dome	Active	1950 (Last Eruption)	No	No
Palea Kameni	Holocene	Lava Dome	Active	726 (Major Eruption)	No	No
Kinaros	Holocene	Submarine Volcano	Active	None	No	No
Christiana	Pleistocene	Stratovolcano	Potentially Active	None	No	No

4-JULY 9, 1956 AMORGOS EARTHQUAKE: Its Intensity and Tsunami Effects on the Aegean Coast

The M7.5 earthquake that occurred near Amorgos Island on July 9, 1956, was reportedly felt along the Aegean coast, with tsunami effects observed (Figures 4 and 5). This major earthquake, one of the largest in the Aegean Sea, resulted in the death of 53 people. The earthquake is reported to have triggered a tsunami exceeding 20 meters of water height on islands near the seismic source, while tsunami waves reaching up to 2 meters were observed along the Aegean coast, at 150-350 km distances from the source.

Subsequent isoseismal modeling studies indicated that the earthquake intensity reached 8-9 (VIII-IX) on islands near Santorini, while along the Aegean coast, the intensity was estimated to be around 5 (V) (Schenkoya et al., 2007). However, studies conducted by our team suggest that, when considering ground acceleration attenuation relationships and soil parameters, the earthquake intensity value could reach up to 8 (VIII) in settlement areas on alluvial ground in İzmir Bay, Kuşadası Bay, and Gökova Bay.

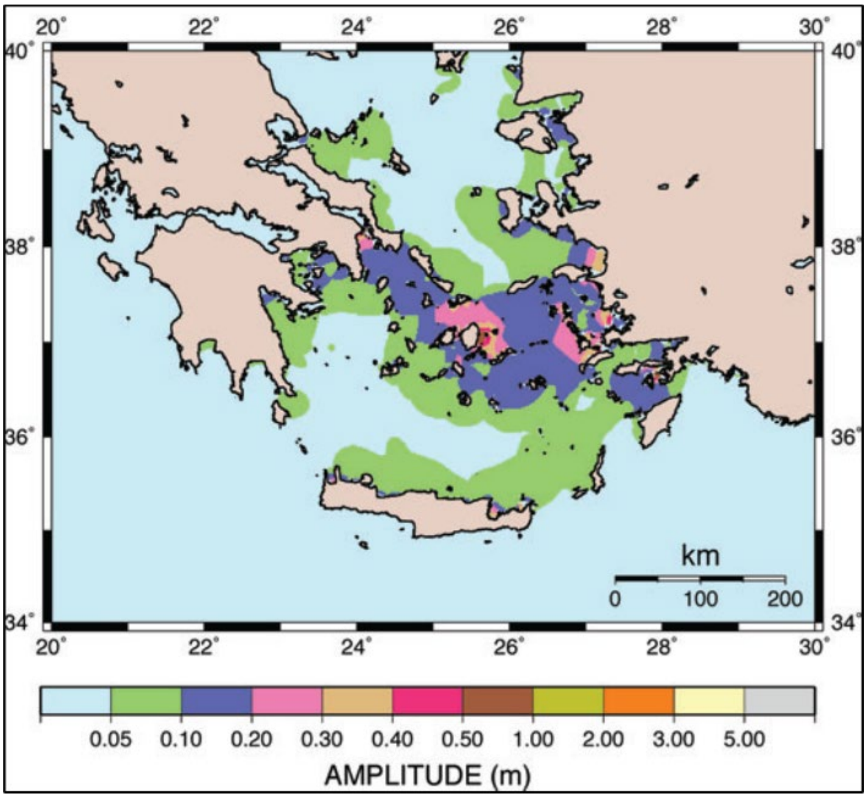

Figure 4. Tsunami distribution after the July 9, 1956 Amorgos earthquake (Okal et al. 2009)

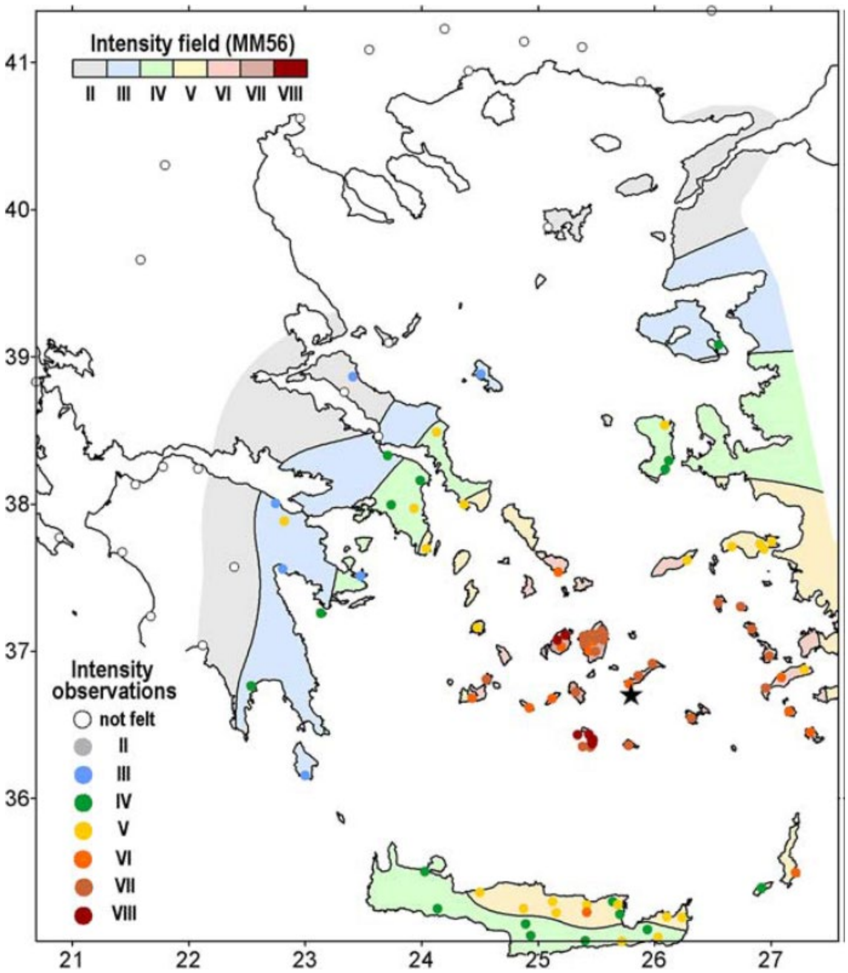

Figure 5. the July 9, 1956 Amorgos earthquake intensity map generated using Kriging method (Schenková et al. 2007).

5-SEISMOLOGICAL SITUATION

Earthquakes with magnitudes of 5.5 and above that occurred in the earthquake storm area at the beginning of the instrumental period (1900-2020) have been mapped by our center, using the International Seismological Center (ISC) catalog, along with their dates and nearby main faults, as shown below (Figure 6). The most notable feature is the concentration of earthquakes with magnitudes of 6.0 and above over the past hundred years, located just east of the earthquake storm cluster. The largest of these events was the M7.5 earthquake on July 9, 1956, situated between the Amorgos and Astypalaea faults. Two other significant large earthquakes occurred east of Anafi Island: the M7.2 earthquake on September 7, 1956, and the M7.0 earthquake on April 4, 1911.

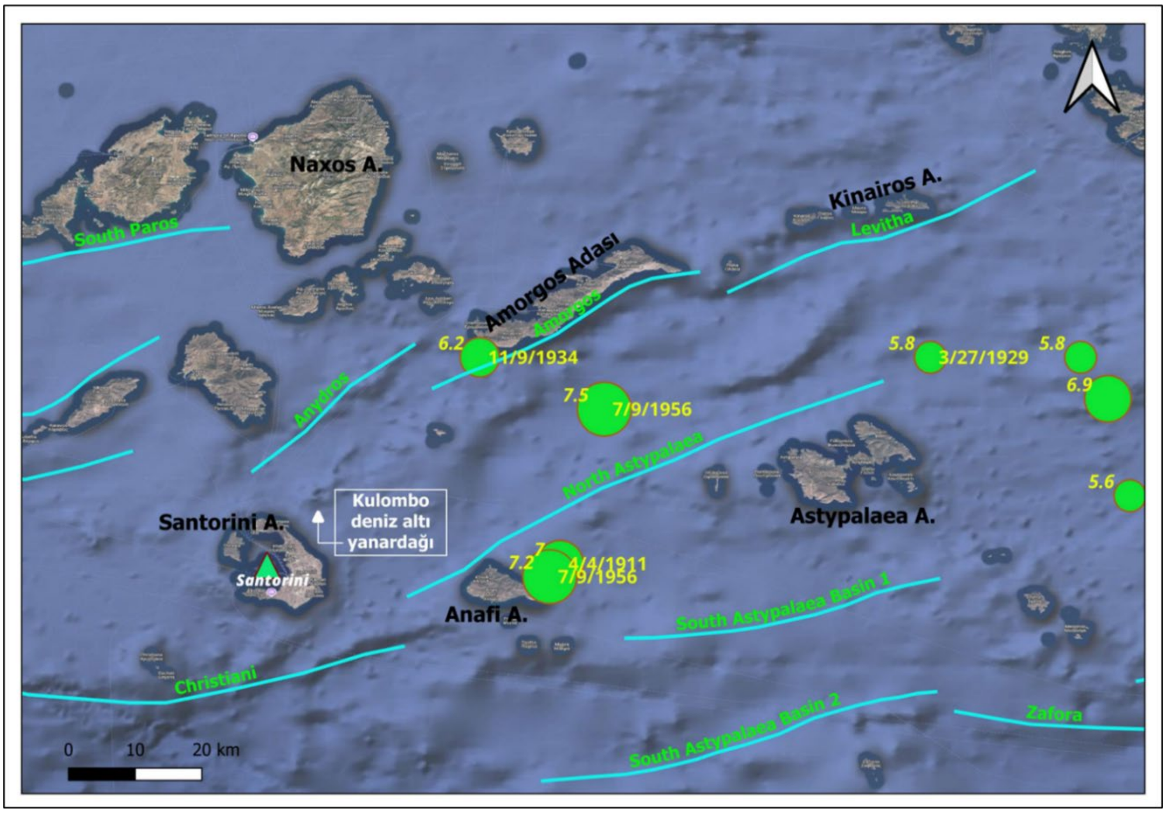

Figure 6. Moderate and major Earthquakes around the Santorini volcanic complex between the year 1900 and 2020.

Earthquake Moment Tensor Solutions and Earthquake Distribution

The earthquakes occurring between January 28 and February 7, 2025, have been concentrated around the Kolumbo Submarine Volcano, located approximately 25 kilometers northeast of Santorini Island. The focal depths of these earthquakes range from 2 to 25 kilometers, indicating that they are shallow-focus earthquakes.

The instrumental magnitude (Moment Magnitude, Mw) of 4.5 and above, along with AFAD moment tensor solutions and their corresponding tabular data, are presented below. As shown in Figure 7, the earthquakes exhibit a collapse-type (normal faulting with dip-slip motion) mechanism and are predominantly concentrated in a North-Northeast direction between Santorini and Amorgos Islands (Figure 7, Table 2).

These earthquakes, of volcanic and/or tectonic origin, can be classified as an "earthquake swarm" or "seismic storm." It has been observed that a significant period of seismic quiescence preceded these events. In such seismic occurrences, numerous small to moderate-sized earthquakes occur in succession without a distinct main shock. This phenomenon suggests that the activation of fault lines and fractures is due to magmatic activity beneath the seabed, likely caused by the upward movement of magmatic fluids.

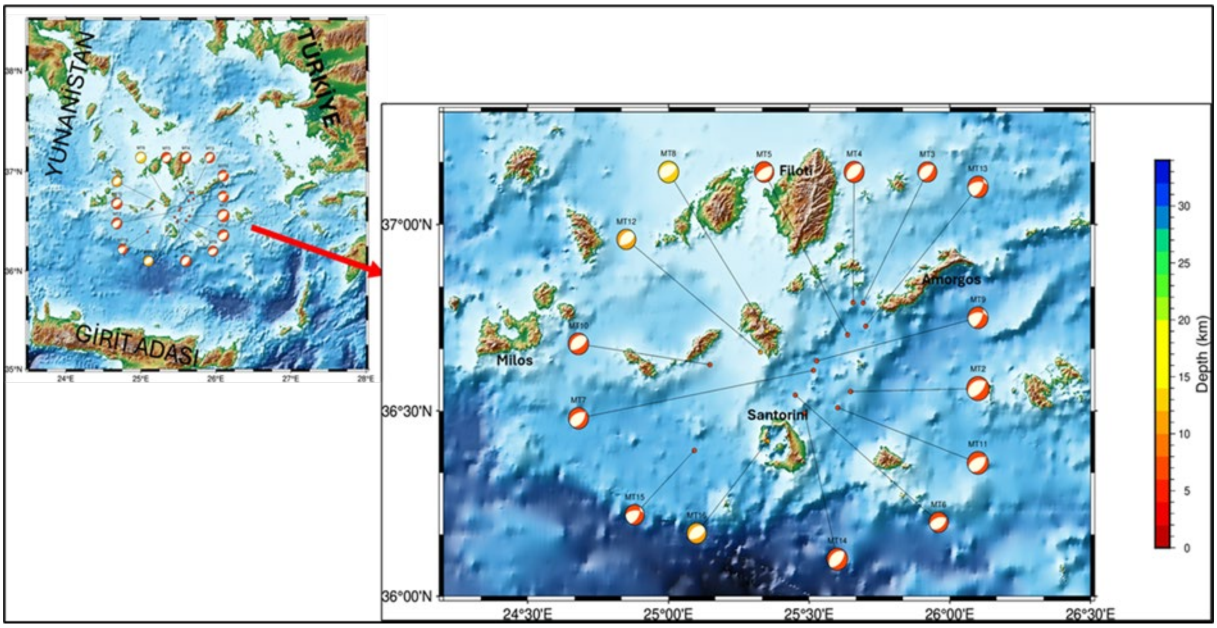

Figure 7. Map of moment tensor earthquake source mechanism solutions (data downloaded from AFAD). The beach balls indicate that the earthquakes are normal faults (with a collapse character). The names on the beach balls (MT1-16) are detailed in the table below.

Table 2. Moment tensor earthquake source mechanism solutions (data were downloaded from AFAD Earthquake Department website for dates between 24.01.2025 and 07.02.2025).

Earthquake Source	Longitude (DD)	Latitude (DD)	Depth (km)	Strike	Dip	Slip	Magnitude Type (Mw)	Magnitude	Date-Time (Year-Month-Day-Hour-Minute-Second)
MT1	25.6089	36.5392	7.0	23	39	-146	MW	4.7	2025-02-04 12:36:48
MT2	25.6475	36.5519	7.0	43	58	-102	MW	5.2	2025-02-04 13:04:13
MT3	25.6919	36.7903	7.0	40	57	-102	MW	4.4	2025-02-04 09:09:34
MT4	25.6564	36.7011	7.0	49	52	-88	MW	4.6	2025-02-04 09:03:22
MT5	25.6367	36.7047	7.0	239	62	-87	MW	4.5	2025-02-04 06:53:25
MT6	25.4508	36.5028	7.0	50	41	-108	MW	4.4	2025-02-04 06:09:06
MT7	25.515	36.6089	7.0	36	47	-111	ML	4.6	2025-02-04 02:46:03
MT8	25.3409	36.7147	13.9	55	61	-98	MW	4.7	2025-02-03 20:39:11
MT9	25.5269	36.6344	7.0	269	48	-40	MW	4.7	2025-02-03 20:19:37
MT10	25.1472	36.6242	6.9	226	233	-100	MW	4.7	2025-02-03 17:44:53
MT11	25.6019	36.5083	7.0	247	52	-72	MW	4.9	2025-02-03 12:17:37
MT12	25.3272	36.6581	10.4	62	52	-75	MW	4.4	2025-02-03 11:50:46
MT13	25.7011	36.7275	7.0	266	50	-45	MW	4.7	2025-02-03 05:29:45
MT14	25.4047	36.4031	7.0	42	54	-94	MW	4.8	2025-02-03 08:26:23
MT15	25.0919	36.3936	7.0	267	53	-45	ML	4.4	2025-02-02 17:48:31
MT16	25.3528	36.4189	10.5	62	51	-82	MW	4.5	2025-02-02 17:41:17

Characteristics of the Earthquake Swarm

According to earthquakes reported by the University of Athens unified seismic station network between January 25, 2025, and February 8, 2025 (Figure 8), events recorded within the swarm area (excluding tremors below M0.5) had an instrumental magnitude ranging from a maximum of 5.1 to a minimum of 0.5. Given the density of the Greek seismic station network around Santorini Island and its surroundings, it is believed that the initial earthquake depths were calculated with high accuracy. The instrumental magnitude (M) and depth distribution have been mapped and graphed for the swarm area, as shown in Figure 8. We note that relocation calculations of earthquakes (i.e., event depths and locations) will provide even more accurate interpretations.

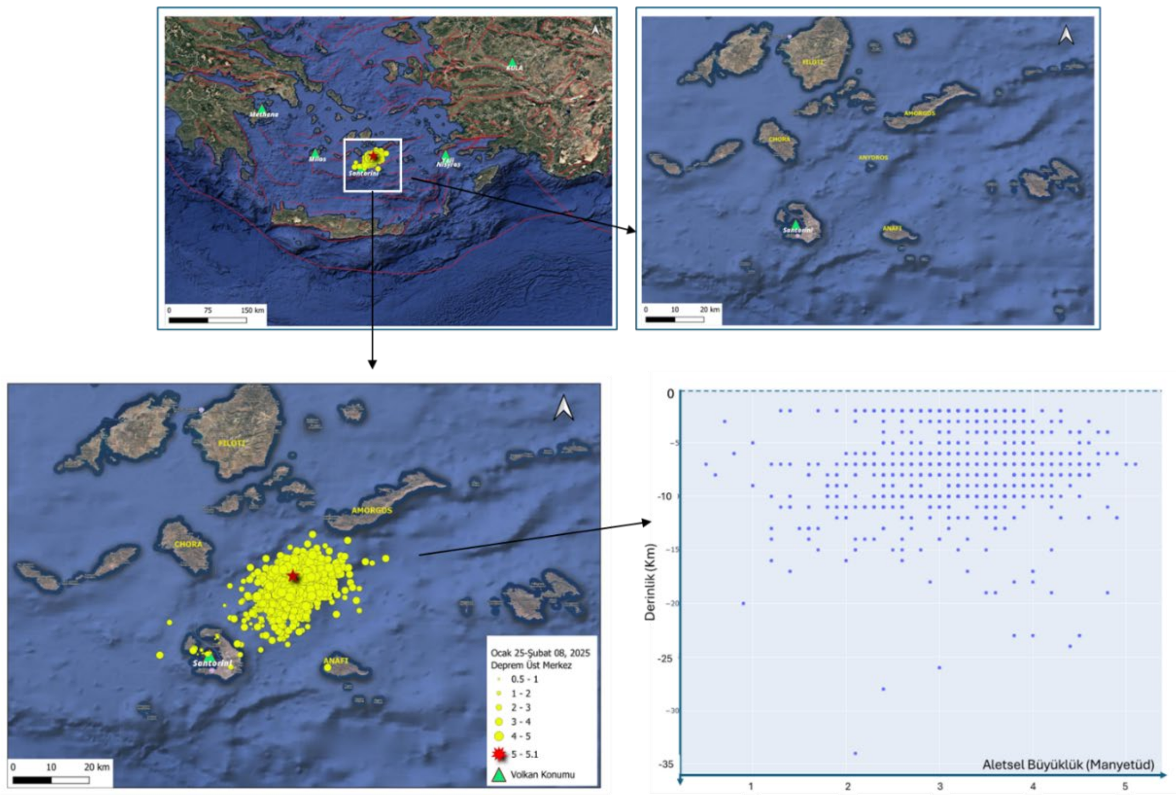

Figure 8. In the depression area where earthquakes of volcanic and/or tectonic origin occurred between January 25 and February 08, 2025, it is observed that earthquakes occur frequently at depths between 0-12 km, and generally between 0-20 km. Earthquakes are less frequent within the 20-30 km depth range, and earthquakes with a magnitude of M3 and above can reach depths of up to 25 km (University of Athens - Seismology Laboratory, 2025).

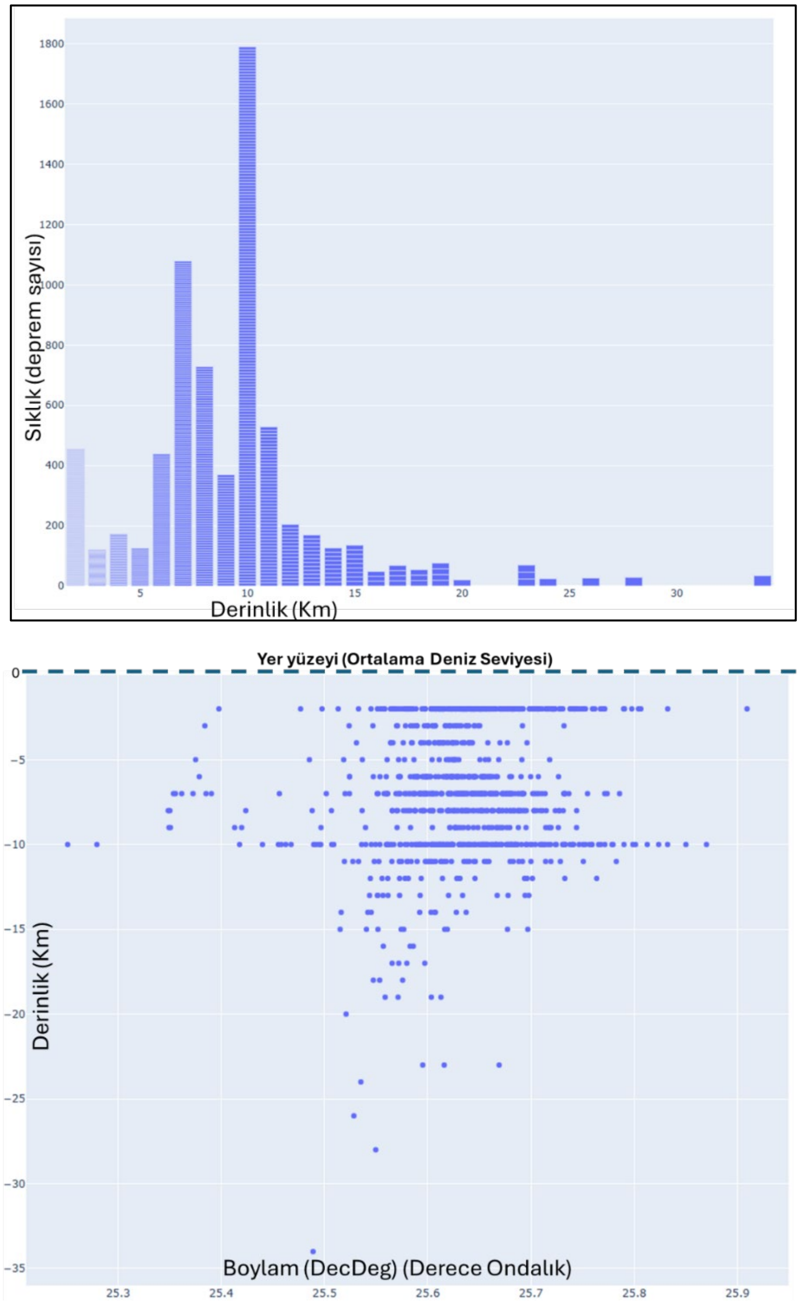

Figure 9. Earthquake Depth Distribution (January 25 – February 8, 2025): Seismic activity has predominantly occurred at depths between 5 and 12 km, with more than 400 earthquakes recorded at depths between 0 and 2 km. These shallow earthquakes over the past two weeks are thought to indicate a hydrothermal (volcanic) origin. A cross-sectional analysis of the approximately West-East oriented swarm reveals intense activity at depths of 2.5 km and 10 km, while a seismic gap is observed between 2 and 7.5 km towards the location of the Kolumbo submarine volcano. No seismic activity has been detected at depths beyond 10 km in the North-Northwest direction of the swarm cluster.

Seismic Activity Observation

In the storm earthquake area, the ANYD station, which was rapidly established on Anydros Island by Aristotle University of Thessaloniki, has been operating continuously since February 4, 2025. The station records published as real-time static images of day plots of seismograms. Figure 10 presents these 24-hour seismograms from February 4 to February 8, 2025. Complex (non-uniform) signals can be observed on the continous seismograms. These hybrid-like signals suggest that the activity may be related to both volcanic processes and tectonic movements.

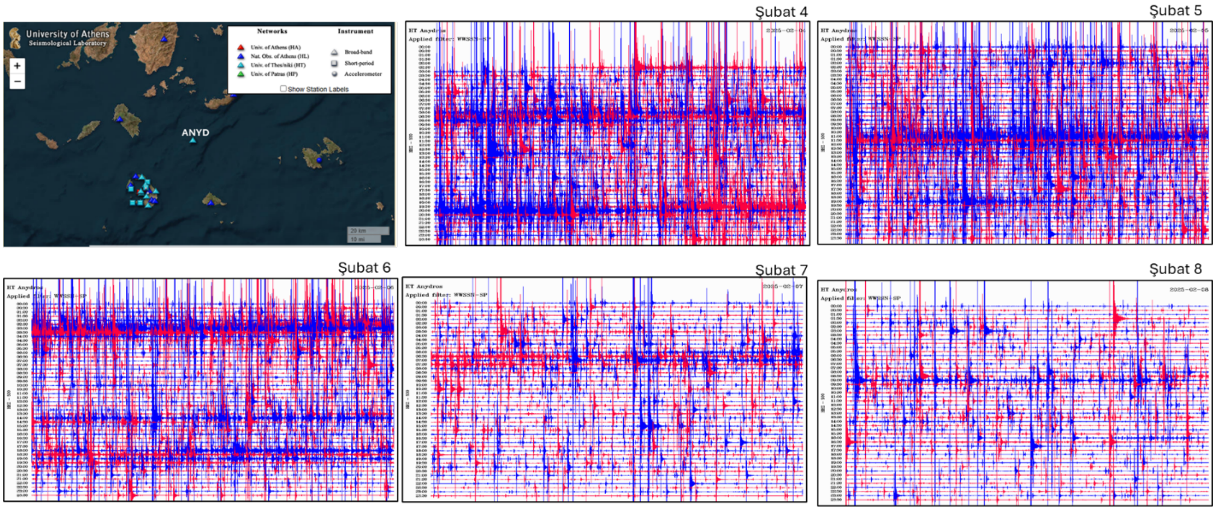

Figure 10. The records from the ANYD station, which was activated immediately after the earthquake swarm on Anydros Island, are provided as part of the HT seismic station network (Aristotle University of Thessaloniki – Geophysics Laboratory, 2025).

Figure 11 shows the daily distribution of earthquake epicenters around Kolumbo Volcano, a key feature of the Santorini Volcanic Complex, from February 1 to February 5, 2025.

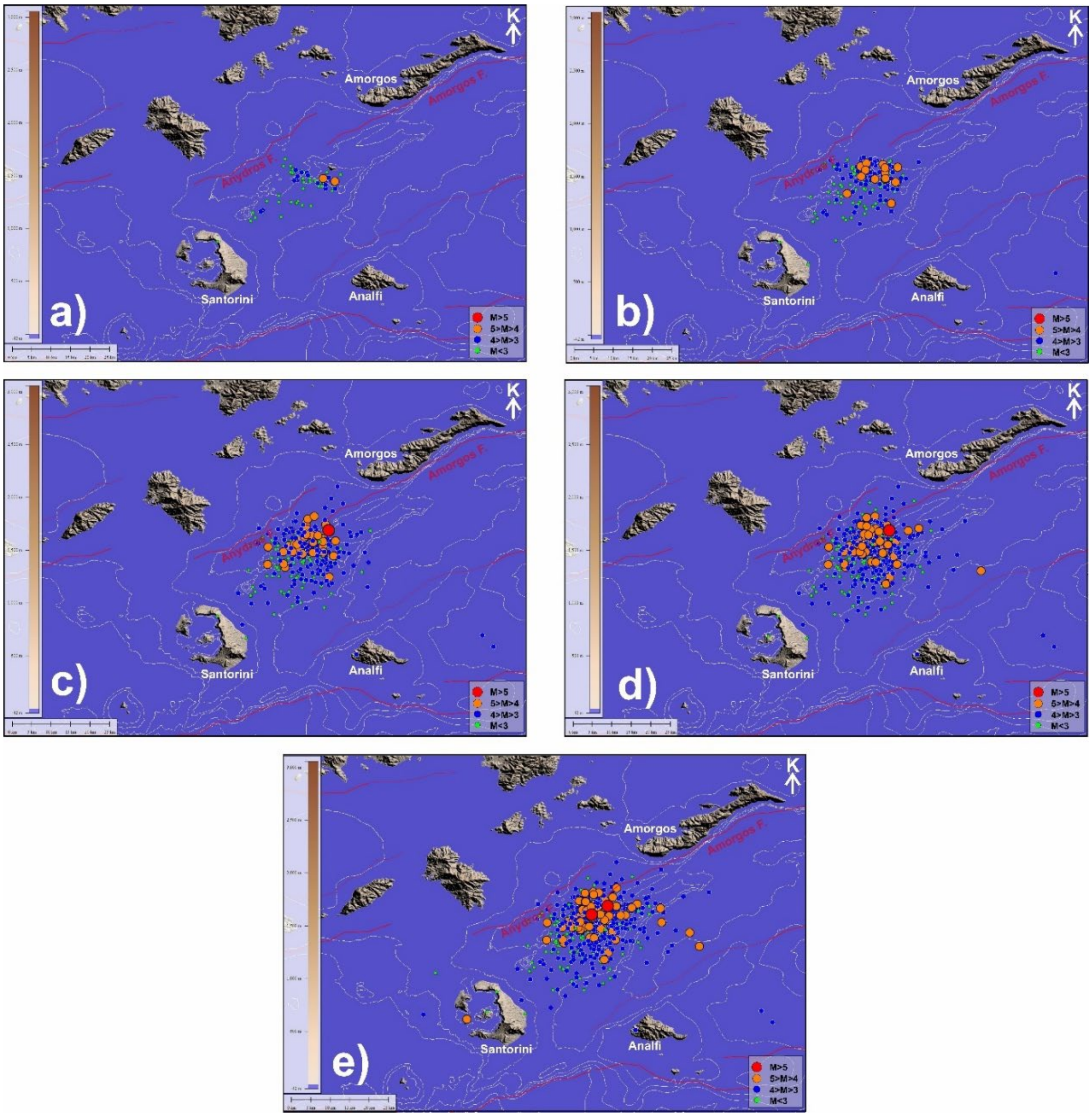

Figure 11. Epicentral distribution of the Santorini earthquakes that occurred on: a) 01.02.2025, b) 02.02.2025, c) 03.02.2025, d) 04.02.2025, and e) 05.02.2025 (Seismology Laboratory of the University of Athens, 2025). Faults shown on the map are taken from Zelenin et al. (2022).

The earthquakes are clustered near Columbo Volcano, which is part of the Santorini Volcanic Complex. Figure 12 presents the depth histograms (depth/frequency graphs) for the earthquakes that occurred daily between February 1 and February 5, 2025. These graphs show a noticeable trend: the focal depths of the earthquakes gradually increase each day, with the majority concentrated around a depth of 2 km. Additionally, Figure 13 illustrates the daily instrumental magnitude histograms for the same period, providing further insight into the seismic activity.

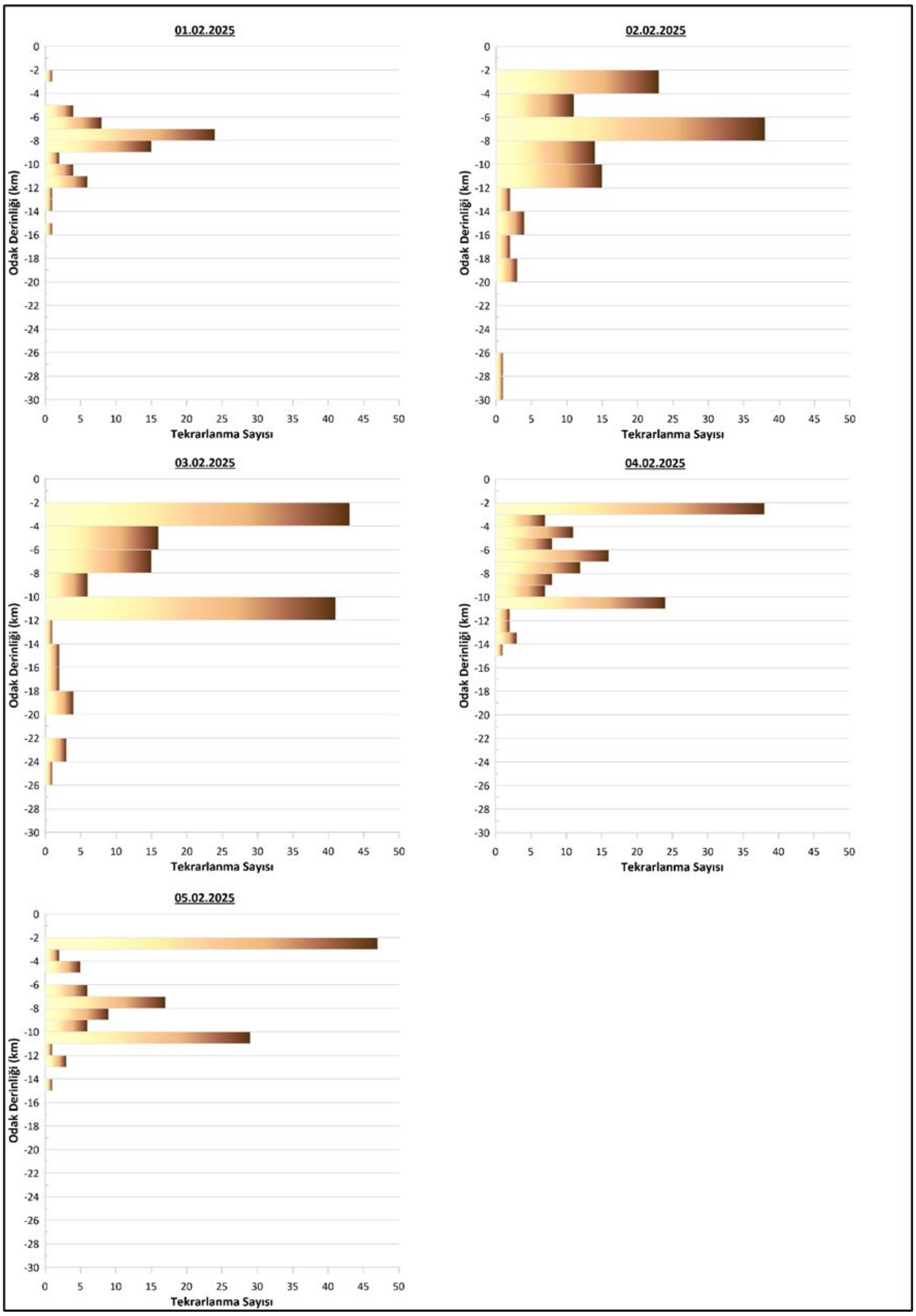

Figure 12. Focal depth histograms of the Santorini earthquakes that occurred from February 1 to 5, 2025 (Seismology Laboratory of the University of Athens, 2025).

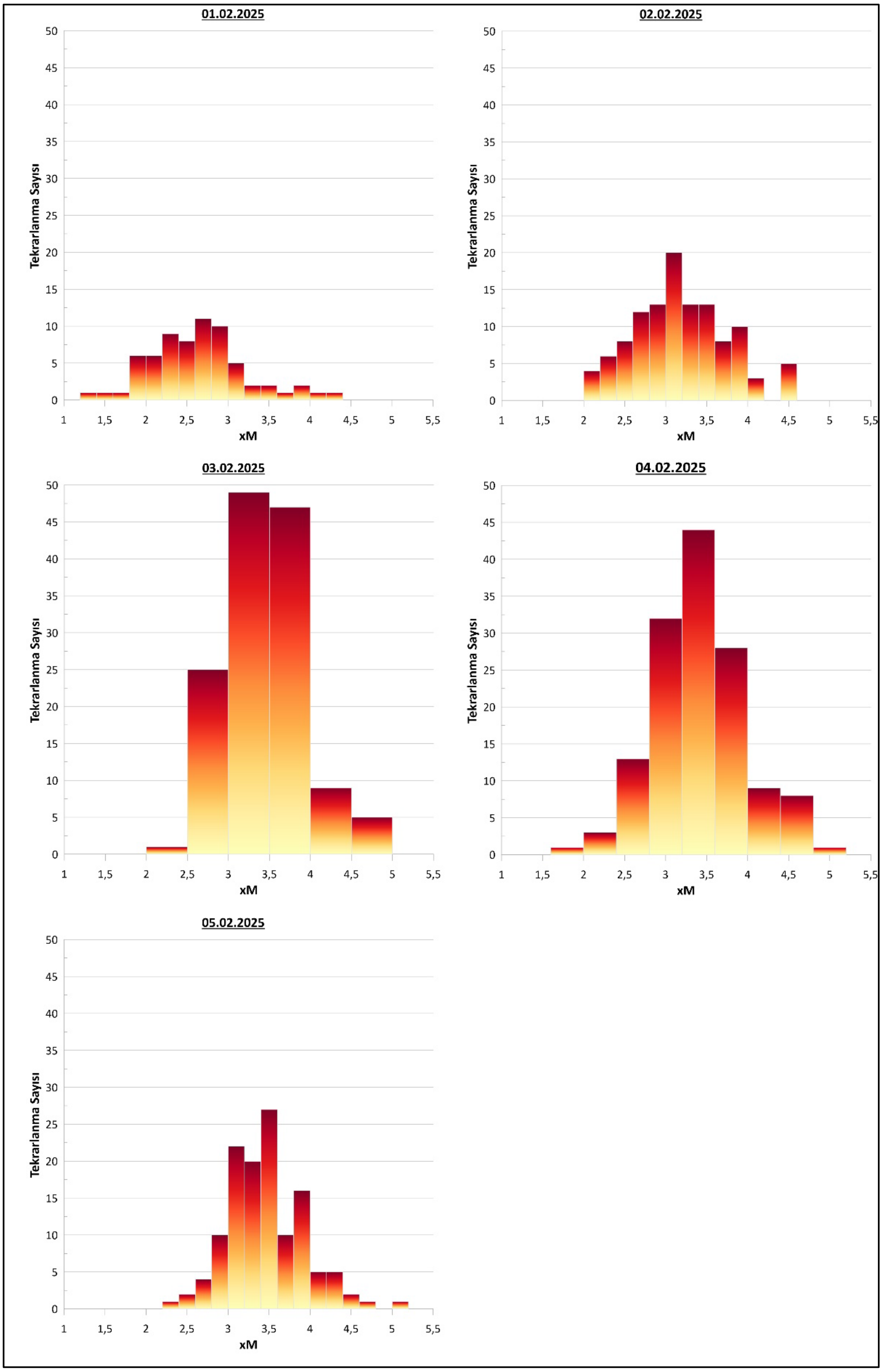

Figure 13. Magnitude histograms of the Santorini earthquakes that occurred from February 1 to 5, 2025 (University of Athens - Seismology Laboratory, 2025).

6-CONCLUSIONS AND RECOMMENDATIONS

This report has been prepared with contributions from the working team consisting of members of the DEU-ERAC excutive management and its advisory board, faculty from the Geology and Geophysical Engineering Departments of the Faculty of Engineering, İzmir Vocational School, and researchers from the DEU Institute of Marine Sciences and Technology. Between January 28, 2025, and February 7, 2025, the seismic activity that developed northeast of the Santorini Volcano in the Aegean Sea was analyzed, and its implications were evaluated based on the available data. Additionally, the potential impacts on Turkiye and the necessary precautions are summarized as follows:

Since January 28, 2025, ongoing seismic activity has been clustered northeast of the Santorini Volcano within a 35x20 km area trending SE-NW (KD-GB in Turkish notation). The southern boundary of this area is marked by Kolumbo Volcano, while the northern boundary is defined by Amorgos Island. This region is affected by both the Ios Fault and the Santorini-Amorgos Fault, with earthquakes occurring along/between these faults. The seismological characteristics of these earthquakes indicate that both volcanic and tectonic influences are present, suggesting that a tectono-volcanic (magmatic) geological system governs the activity.

Given the characteristics of this tectono-volcanic system, three possible scenarios are considered:

(i) The system releases stress through an earthquake exceeding M7, followed by volcanic activity.

(ii) The system initiates with volcanic activity, followed by an earthquake exceeding M7.

(iii) The system temporarily calms without volcanic activity, with seismic activity diminishing until another earthquake swarm occurs in the future.

In the event of a large-scale volcanic eruption, it is likely that ashfall could reach Turkiye’s Aegean coast, Western Anatolia, and the Eastern Mediterranean, extending as far as Israel, including Cyprus. Such an eruption could also trigger submarine landslides, increasing the tsunami risk along the Aegean coast. Historical records indicate that volcanic ash from the 1600 BC and 1950 AD eruptions of the Santorini Volcano reached Turkey’s southern coastline, extending to Israel, and was deposited in lakebeds in Western Anatolia’s Lakes Region. A similar eruption today would result in air pollution and widespread ashfall. It is critical for citizens to follow the guidance and instructions of public authorities to prevent confusion and ensure safety in such an event. If an earthquake exceeding M7 occurs, a tsunami is expected along the coastline between Çanakkale and Fethiye. This expectation is based on studies modeling the tsunami impact of the 1956 Amorgos Earthquake, which originated from the Amorgos Fault northeast of Santorini. These studies show that tsunami waves affected the coastline between Çanakkale and Fethiye at varying intensities. If a similar earthquake occurs, tsunami waves could reach a maximum height of 2 meters in some parts of the western and southwestern coastline, potentially inundating up to 500 meters inland, particularly in river mouths, deltas, and coastal lowlands. However, since Turkey's coastline is 150-350 km away from the fault responsible for generating the earthquake, a tsunami wave would reach the southwestern coast approximately 30 minutes after the earthquake and the northwestern coast within 3 hours. Thus, timely warnings for residents in Aegean coastal areas and islands are crucial. AFAD (Turkey's Disaster and Emergency Management Authority) and international real-time tsunami early warning systems are operational. Citizens are strongly advised to install relevant early warning applications on their smartphones to receive instant notifications about tsunami threats following a major earthquake. AFAD has announced that alerts will also be sent via SMS.

The impact of such an earthquake in terms of ground shaking intensity along Turkey's Aegean coast is expected to be moderate. If an M7.5 earthquake centered near Santorini were to occur, its intensity would reach IX (9) around Santorini. Since Turkey is 150-350 km from the epicenter, the expected intensity along the Turkish coast would be around V (5). However, in areas with alluvial ground, such as İzmir Bay, Kuşadası Bay, Söke Plain, and Gökova Bay, ground shaking intensity could reach VIII (8). It is recommended that rapid assessments of building inventories be conducted in these areas, and necessary precautionary measures be taken.

In conclusion, in the event of either a volcanic eruption or an earthquake exceeding M7 in the Santorini-Aegean region, it is essential to enhance public awareness regarding disaster preparedness and risk reduction. Government agencies and institutions must establish a coordinated disaster management strategy and conduct regular preparedness drills, including field and tabletop exercises, to identify and address potential risks.

A public information bulletin should be prepared in accordance with international standards, explaining the risks of tsunamis and volcanic eruptions. This bulletin should be visually engaging and easy to understand, providing clear, concise instructions on what to do before, during, and after a tsunami or volcanic eruption. Additionally, in order to include foreign residents and migrants living in Turkey, the bulletin should be translated into multiple languages alongside the Turkish version.

Local governments, municipalities, AFAD, and universities should collaborate on community-based disaster management coordination and conduct disaster preparedness drills. Raising public awareness and implementing regular training exercises will significantly enhance sustainable disaster management and preparedness for volcanic eruptions and tsunamis.

NOTE:
This report, prepared by the Dokuz Eylül University Earthquake Research and Implementation Center (DEU-ERAC), is subject to updates as seismic activity in the region continues. Future editions will be released based on new developments.

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