# Natural Disasters impact in Greece the last 10 years as revealed from EM-DAT

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**Abstract**

Natural disasters exert a profound influence on human lives, resulting in significant economic and environmental repercussions. Effective preparedness is a crucial strategy for mitigating these adverse impacts. This research offers insights into Greek natural disasters documented in the EM-DAT database over the decade spanning from 2014 to 2023. It examines the consequences of these disasters in terms of human fatalities, injuries, the number of affected individuals, and property damages. Furthermore, this study draws a comparative analysis between the initial five years (2014-2018) and the subsequent five years (2019-2023) of the decade. These insights into the impacts of natural disasters serve a dual purpose. On one hand, they furnish essential data for informing future policymaking regarding preparedness, emergency management, and disaster mitigation in Greece. On the other hand, they shed light on the efficacy of preparedness and emergency management measures implemented over the past decade, especially when comparing the first half to the latter half.

**Keywords:** Natural disaster, natural hazard, risk, risk management.

## Introduction

Over the past decade, Greece has experienced a series of natural disasters that have left an indelible mark on both its human and environmental landscapes. This paper delves into the compelling narrative of Greece's encounter with natural disasters during the period from 2014 to 2023, as chronicled by the Emergency Events Database (EM-DAT). The Mediterranean nation's geographic location places it in the crosshairs of various natural phenomena, from earthquakes and wildfires to floods and heat waves. These events have not only posed immediate threats to life and property but have also imparted profound and enduring impacts on Greek society. As we explore the data contained within the EM-DAT database, we gain valuable insights into the frequency, magnitude, and consequences of these natural disasters.

Through this examination, we aim to provide a comprehensive overview of the challenges posed by natural disasters in Greece over the last decade. We will delve into the grim statistics of human fatalities, injuries and property damage. Furthermore, we will draw comparisons between the first

discernible trends or

shifts in the nature and severity of these disasters. In doing so, we seek not only to elucidate the historical record but also to provide a foundation for future policy development and disaster management strategies in Greece. By understanding the evolving dynamics of natural disasters in this region, we hope to contribute to more effective preparedness and mitigation efforts, ultimately striving for a safer and more resilient Greece in the face of an uncertain climatic future. For the accuracy of the research, it should be noted that the latest flood currently ongoing in the Thessaly region has not yet been included in the EM-DAT.

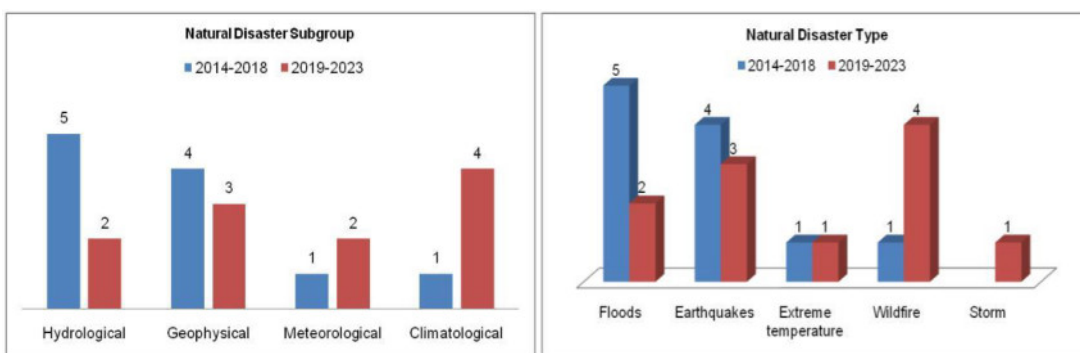## Natural Disasters Analysis for 2014-2023



Figure 1 and 2: Comparison of occurrence of Natural Disasters in Greece between the first half and the later half (Public EM-DAT platform, 2023)

As demonstrated in figures 1 and 2, hydrological natural disasters were more frequent during the first half of the decade compared to the second half, with geophysical disasters following a similar trend. Floods and earthquakes emerged as the primary natural disasters affecting Greece from 2014 to 2018. In the latter half of the decade, climatological disasters took the forefront, with geophysical disasters following suit. Wildfires and earthquakes continued to rank as the most prevalent disasters in Greece from 2018 to 2023.

Continuing to examine the occurrences throughout the entire decade, the EM-DAT database revealed, as shown in figure 3, that 2017 had the highest number of natural disasters, while 2016 and 2019 had the lowest occurrences. On Table 1, we can observe the types of disasters that took place in 2017, which had the highest occurrence.
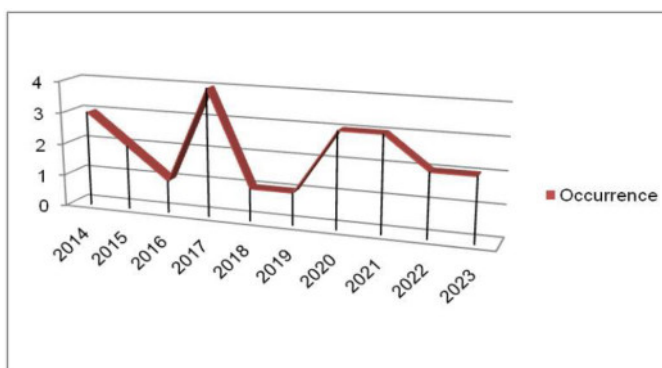


Figure 3: Occurrence of natural disasters in Greece from 2014-2023.(Public EM-DAT platform, 2023)

Tablet 1. Impact high score for Occurrence

| YEAR | TYPE OF DISASTER | IMPACT HIGH SCORE |
|------|-----------------|-------------------|
| 2017 | Geophysical/ Earthquake/ Ground movement Hydrological/ Flood/ Flash Flood<br>Geophysical/ Earthquake/ Ground movement<br>Meteorological/ Extreme temperature/ Severe winter conditions | Occurrence: 4 |

Figure 4 provides a temporal view of fatalities, affected populations, injuries, and damages. As indicated in the Fatality figure for 2022, the second half of the decade witnessed the highest annual report of human fatalities. This aligns with the Affected figure, which also reveals the second-highest number of affected individuals occurring in 2022. The year 2014 stands out as having the highest number of affected populations, attributed to two earthquakes that struck during that year. Additionally, 2014 recorded the most significant damages throughout the entire decade. In contrast, the year 2018 saw the highest number of injuries among the population. Tablet 2 illustrates the types of disasters with the most significant impact.
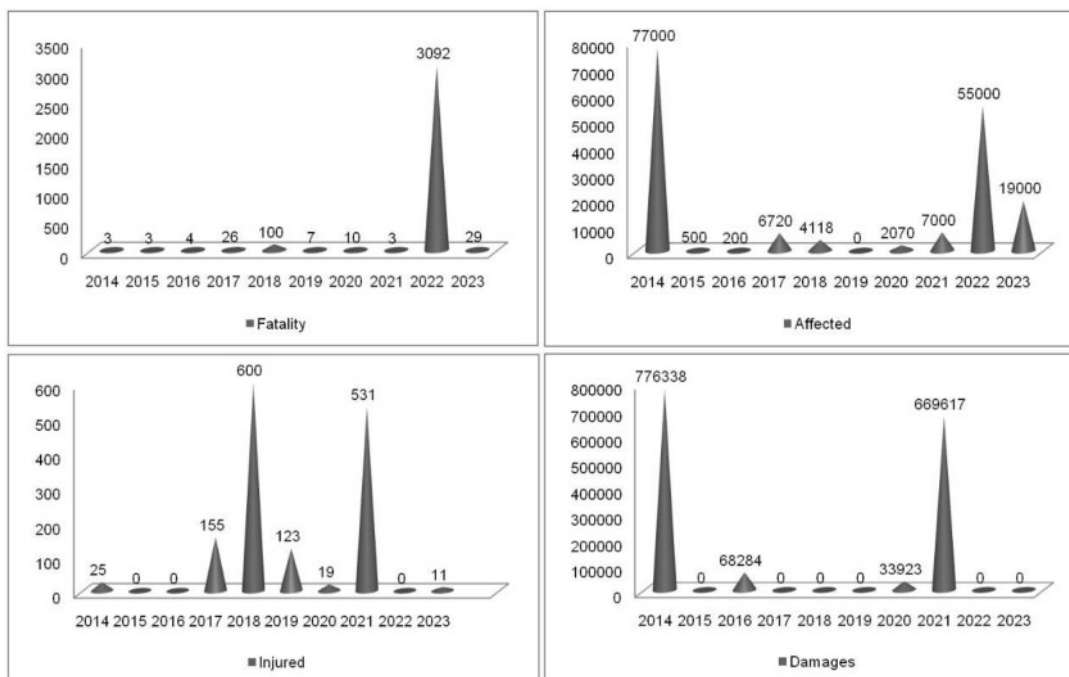


Figure 4: A temporal views of natural disasters in Greece the last 10 years (Public EM-DAT platform, 2023)

Tablet 2. Impact high score and type of disaster

| YEAR | TYPE OF DISASTER | IMPACT HIGH SCORE |
|------|-----------------|-------------------|
| 2014 | Geophysical / Earthquake/ Ground movement<br>Two different earthquake incidents | Affected: 77000<br>Damage: 776338 |
| 2018 | Climatological / Wildfire/ Forest fire | Injured: 600 |
| 2022 | Meteorological / Extreme temperature/ Heat Wave | Fatality: 3092 |

Tablet 3 presents the impacts of natural disasters in Greece for the decade spanning from 2014 to 2023. Notably, one category of natural hazards, specifically biological disasters, is absent from the

dataset, indicating the absence of such incidents during this period. There is a discernible upward trend in annual fatalities in recent years, and a similar pattern emerges for the annual number of injured individuals, affected populations, and the extent of damages. This increase may be attributed to the prevalence of climatological and meteorological disasters during the latter years of the decade, which are often more challenging to predict and prevent. In contrast, the first half of the decade was characterized by a higher occurrence of hydrological disasters, which are generally more amenable to prevention and mitigation efforts. (Shen and Hwang, 2019)

Tablet 3 Natural Disasters impacts by year 2014-2023

| Year | Occurrence | | | | Fatality | | | | Injured | | | | Affected | | | | Damage | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | G | H | M | C | G | H | M | C | G | H | M | C | G | H | M | C | G | H | M |
| 2014 | - | 2 | 1 | - | - | 3 | - | - | - | 25 | - | - | - | - | 77.000 | - | - | 776.338 | - | - |
| 2015 | - | - | 2 | - | - | - | 3 | - | - | - | - | - | - | - | 500 | - | - | - | - | - |
| 2016 | - | - | 1 | - | - | - | 4 | - | - | - | - | - | - | - | 200 | - | - | 68284 | - | - |
| 2017 | - | 2 | 1 | 1 | - | 3 | 23 | - | - | 131 | 24 | - | - | 720 | 6000 | - | - | - | - | - |
| 2018 | 1 | - | - | - | 100 | - | - | - | 600 | - | - | - | 4118 | - | - | - | - | - | - | - |
| 2019 | - | - | - | 1 | - | - | - | 7 | - | - | - | 123 | - | - | - | - | - | - | - | - |
| 2020 | - | 1 | 2 | - | - | 2 | 8 | - | - | 19 | - | - | - | 900 | 1.170 | - | - | - | 33.923 | - |
| 2021 | 1 | 2 | - | - | 2 | 1 | - | - | 500 | 31 | - | - | 7000 | - | - | - | 626.416 | 43.201 | - | - |
| 2022 | 1 | - | - | 1 | - | - | - | 3.092 | - | - | - | - | 55.000 | - | - | - | - | - | - | - |
| 2023 | 2 | - | - | - | 29 | - | - | - | 11 | - | - | - | 19.000 | - | - | - | - | - | - | - |

C=Climatological, G=Geological, H=Hydrological, M=Meteorological.  (Public EM-DAT platform, 2023)

## Conclusion

In conclusion, the analysis of natural disasters in Greece from 2014 to 2023, as revealed by the EM-DAT database, paints a multifaceted picture of the nation's resilience in the face of nature's forces. Notably, the absence of biological disasters during this period stands as a testament to Greece's fortunate escape from such events. The data presented in Tablet 3 provides valuable insights into the evolving landscape of natural disasters in Greece. A clear observation emerges: there has been a consistent increase in annual fatalities, injuries, affected populations, and damages during the latter years of the decade. This trend aligns with the prevalence of climatological and meteorological disasters, which, due to their unpredictable nature, present significant challenges in prediction and prevention. This underscores the importance and impact of climate change, emphasizing the need for adaptable disaster preparedness strategies that account for the evolving hazard landscape. Moreover, efforts should focus on harnessing predictive technologies and strengthening preventative measures, particularly in the context of climatological and meteorological events.(Haggag *et al.*, 2021) All this could offer the opportunity to build more resilient strategies capable of safeguarding lives, minimizing injuries, and preserving the nation's natural and cultural heritage in the face of an ever-changing world.

# REFERENCES

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