

THE DEPICTION OF NATURAL DISASTERS
IN MIDDLE BYZANTINE HISTORIES (867-1204)



ÖZLEM KİNAŞ

BOĞAZIÇI UNIVERSITY

2019

THE DEPICTION OF NATURAL DISASTERS
IN MIDDLE BYZANTINE HISTORIES (867-1204)

Thesis submitted to the
Institute for Graduate Studies in Social Sciences
in partial fulfillment of the requirements for the degree of

Master of Arts

in

History

by

Özlem Kınaş

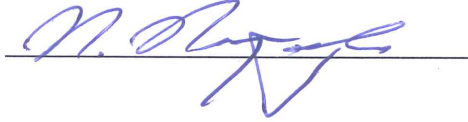
Boğaziçi University

2019

The Depiction of Natural Disasters
in Middle Byzantine Histories (867-1204)

The thesis of Özlem Kınaş
has been approved by:

Prof. Nevra Necipoğlu
(Thesis Advisor)



Assoc. Prof. Koray Durak



Assist. Prof. Şahin Kılıç
(External Member)



July 2019

DECLARATION OF ORIGINALITY

I, Özlem Kınaş, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
- this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

Signature.....

Date26.07.2019.....

ABSTRACT

The Depiction of Natural Disasters in Middle Byzantine Histories (867-1204)

This thesis not only presents the natural disasters that occurred in the Byzantine Empire between 867 and 1204, as recorded in a group of selected Middle Byzantine narrative histories, but also analyzes the depiction of these disasters. It intends to understand the Byzantine perception of natural disasters. Through such an analysis, the thesis offers new perspectives on different sense-making systems; especially on the difference between natural/scientific and divine/religious conceptualizations in the minds of Middle Byzantine historians.

Another objective is to provide a broader approach to previous studies that analyze Byzantine interpretations of natural disaster narratives. These studies evaluating the Byzantine perspective on disasters have mostly focused on earthquakes and, they have failed to emphasize the common features of these disasters. Therefore, in the present study, in addition to earthquakes, narratives of other disasters such as storms, floods, and droughts are evaluated together, and the similarities in the descriptions of these disasters are emphasized. Such natural disasters are examined under three subtitles; earthquakes, atmospheric phenomena, pestilence and pests.

All Byzantine historians mentioned in this thesis were members of the upper class and were highly educated in both Christian and classical texts. Therefore, they had full knowledge of both observational and religious explanations of natural disasters. However, it is clear that religious explanations predominate for Byzantine historians, although they include explanations based on natural observation.

ÖZET

Orta Bizans Dönemi Tarihlerinde Doğal Afetlerin Tasviri (867-1204)

Bu tez 867 ve 1204 yılları arasında meydana gelen ve bazı seçilmiş Orta Bizans dönemi tarihlerinde kaydedilen doğal felaketleri sunmakla kalmaz, aynı zamanda bu afetlerin tasvirlerini de analiz eder. Bu analizin amacı, Bizanslıların doğal afetlerle ilgili algılarını anlamamızı sağlamaktır. Bu da bize, Orta Bizans tarihçilerinin zihnindeki doğal ve tanrısal / bilimsel ve dini gibi kavramsallaştırmalar arasındaki farklar üzerine yeni bakış açıları sunabilir.

Diğer bir amaç da, Bizans kaynaklarında geçen doğal afet anlatılarının analizini içeren önceki çalışmalara daha geniş bir yaklaşım sunmaktır. Bizans afet bakış açısını değerlendiren bu çalışmalar daha çok depremlere odaklanmış ve söz konusu çalışmalar tüm doğal felaketlerin betimlemesindeki ortak özellikleri vurgulamakta yetersiz kalmıştır. Bu yüzden bu tezde depremlerin yanı sıra fırtınalar, seller ve kuraklıklar gibi diğer afet anlatıları bir arada değerlendirilmiştir ve bu afetlerin anlatılış biçimindeki ortaklıklar vurgulanmıştır. Bunu yaparken depremler, atmosferik olaylar, salgın hastalıklar ve zararlı böcekler alt başlıkları kullanılmıştır.

Bu tezde adı geçen Bizans tarihçilerinin tümü üst sınıfa mensup kişilerdi ve hem Hristiyan hem de klasik metinler üzerine yüksek derecede eğitimliydi. Bu nedenle doğal afetlerin hem antik metinlerdeki doğal gözleme dayalı açıklamalarına hem de dini açıklamalara hakimdiler. Ancak açıkça görülüyor ki her ne kadar doğal gözleme dayalı açıklamalara yer verseler de Bizans tarihçileri için dini açıklamalar çok daha ağır basmaktadır.

ACKNOWLEDGEMENTS

First and foremost, I would like to express my deep and sincere gratitude to my advisor, Prof. Nevra Necipođlu, for her inspirational seminars and continuous support of my study. It was a great privilege to work and study under her guidance. Without her support, it would not have been possible to complete this thesis on time. Besides my advisor, I would like to thank the other members of my thesis committee, Assoc. Prof. Koray Durak and Assist. Prof. řahin Kılıç, for their encouragement and insightful comments. Also, I would like to express my sincere gratefulness to Dr. Anestis Vasilakeris and Dr. Kyriaki Konstantinidou, especially for inspiring me to study Byzantine history, and for their immense support.

Moreover, many thanks go to my friends whose moral support was extremely crucial to me. During my years at Bođaziçi University, the library was not only a studying area for me but also the center of my social life. Thus, I thank all of my friends who made the library an even more enjoyable place for me. Moreover, I would like to thank all my friends from TBS who were not only my colleagues but became my best friends.

Furthermore, I owe a special thank to Iřık Gürgen, Deniz Kőseođlu, İbrahim Berksoy, Çađdař Aydođdu, Ümit Arafal, Yener Koç, Gölseren Duman, Melike Sümertař, Ekin Mahmuzlu, Simge Tařdemir, Murat Narcı, Tricia and Bryan Blazowsky not only for their friendship but also for their technical support.

Last but not least, I owe my deepest gratitude to my family. My mother and father, Ömriye and Mehmet Kınař, have always encouraged and supported me in every moment of my life. I also thank my sister and brother, Ayře and Yařar, who stood by my side all the time. Moreover, I would like to thank deeply each member

of the Kolland family for their ultimate support and love. Above all, however, I am most grateful to Daniel Kolland, who will become my husband in a week. He believed in me and devoted much time and effort to help me. Without not only his academic but also his emotional support, love, and care, it would have been much harder to complete this thesis.



TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 General introduction.....	1
1.2 Period under study.....	4
1.3 The sources.....	4
1.4 Literature review	12
CHAPTER 2: NATURAL DISASTERS IN NINTH TO THIRTEENTH CENTURY HISTORIES	17
2.1 Earthquakes	17
2.2 Atmospheric phenomena.....	29
2.3 Pestilence and pests.....	49
CHAPTER 3: EXPLANATIONS FOR NATURAL DISASTERS DEPICTED IN NINTH TO THIRTEENTH CENTURY HISTORIES.....	58
3.1 Natural explanations.....	59
3.2 Religious explanations	71
3.3 Astronomic events as signs of natural disasters.....	83
CHAPTER 4: CONCLUSION.....	88
APPENDIX A: EMPERORS AND MENTIONED HISTORIANS (867-1204).....	92
APPENDIX B: FIGURES FROM MADRID SKYLITZES.....	93
REFERENCES.....	95

CHAPTER 1

INTRODUCTION

1.1 General introduction

This year [1032] famine and pestilence afflicted Cappadocia, Paphlagonia, the Armeniakon theme and the Honoriad,¹ so grave that the very inhabitants of the themes abandoned their ancestral homes in search of somewhere to live. The emperor [Romanos III] met them on his return to the capital from Mesanakarta and, unaware of the reason for this migration, obliged them to return home, providing them with money and the other necessities of life.²

The Byzantines experienced several natural disasters that affected their lives severely. Many lost their dwellings, suffered from severe famines, and sometimes decided to leave their homeland due to these calamities. Therefore, all of these intense experiences shaped the Byzantine perception of natural disasters, along with the depictions transmitted through oral and written traditions.

This research aims to present and evaluate the depictions of natural disasters that happened between 867 and 1204 by looking at the narrative histories that cover this time span. The investigation of disaster narratives might contribute to our understanding of what is considered to be natural and divine/scientific and religious in the minds of the Byzantine historians.

¹ Armeniakon: A province located in eastern Anatolia, which was founded by the emperor Justinian I for the governance of Armenia including the regions from Cappadocia to the Black Sea and the Euphrates. In the ninth century, it was divided into three separate themes: Armeniakon, Charsianon and Cappadocia. In the tenth century another theme, Chaldia was also separated. Thus, from the 9th c. onward, Armeniakon corresponds to a smaller piece of land. Clive F. W. Foss, "Armeniakon," in *The Oxford Dictionary of Byzantium*, ed. Alexander P. Kazhdan (New York: Oxford University Press, 1991), 177.

Paphlagonia: The province located in northern Asia Minor in the coast of Black Sea. First, it was founded by Diocletian, but later in the time of Justinian I it was merged with the neighboring region, Honoriad. "Paphlagonia," in *The Oxford Dictionary of Byzantium*, ed. Alexander P. Kazhdan (New York: Oxford University Press, 1991), 1579.

² John Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, trans. Jean-Claude Cheynet, Bernard Flusin, and John Wortley (Cambridge: Cambridge University Press, 2011), 364.

Another purpose is to provide a broader approach to earlier modern studies that attempted to analyze the portrayal of the Byzantines regarding the natural disaster narratives. Although the disaster descriptions of the Byzantine historians were not limited to the earthquakes, and their reactions to all other natural disasters were similar, in the scope of earlier studies, the focus was primarily on the interpretations of earthquakes. For instance, E. Guidoboni, A. Comastri, and G. Traina's *Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th Century*³ depicts the earthquakes in different sources case by case. Also, in the introduction of this catalog, the authors comment on the descriptions of the earthquakes. M. Bakır, in her MA thesis, also not only provided a catalog of earthquakes that occurred in the vicinity of Constantinople from the fourth until the fifteenth century, but she also tried to analyze the depictions of earthquakes in the primary sources.⁴ Another MA thesis by S. Casta also focuses on the earthquake narratives reported by both the Byzantine and Arab historians during the crusades. He also tries to demonstrate a contemporary perception of disaster, but his main focus is again on the earthquakes.⁵ However, the interpretations of the historians in the primary sources focus not only on the earthquakes, but also other natural disasters such as extreme weather conditions and epidemics as a whole, and they shared similar ways of portrayals. Thus, in the scope of this thesis, these depictions of natural disasters will be analyzed together.

The category of natural disasters, however, is not a Byzantine method to describe such events. In this sense, to evaluate the Byzantine perception of natural

³ Emanuela Guidoboni et al., *Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th Century* (Roma: Istituto nazionale di geofisica, 1994).

⁴ Mevlüde Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454" (MA, Boğaziçi University, 2002), 99-115.

⁵ Stephen Casta, "Natural Disasters and the Crusades: Framing Earthquakes in Historical Narratives, 1095-1170" (ibid.the University of Waterloo, 2017), 75-107.

disasters, first of all, it is crucial to grasp their understanding of disaster in more general terms. This insight might allow us to differentiate whether the Byzantines see a distinction between the disastrous events, such as being natural or political in origin. For instance, Leo the Deacon lists several misfortunes that Byzantines experienced without any differentiation between political, economic, military, and natural causes.

Still other calamities were portended by the rising of the star that appeared and again by the fiery pillars that were manifested in the north in the middle of the night and terrified those who saw them; for these portended the capture of Cherson by the Tauroscythians⁶ and the occupation of Berrhoia by the Mysians.⁷ Then there was the star that rose in the west at sunset, which, as it made its evening appearances, did not remain fixed on one point, [...] For on the eve of the day when traditionally the memory of the great martyr Demetrios is celebrated, a terrible earthquake occurred, the likes of which had not happened in this generation, [...] And the harsh famines and plagues, droughts and floods and gales of violent winds [...] and the barrenness of the earth and calamities that occurred, all came to pass after the appearance of the star. But my history will describe these in detail in their place.⁸

According to the citation above, the capture and occupation of some cities were considered among the disasters that were portended with the appearance of an unusual star. However, Leo the Deacon is not an exception in his description.

According to many other historians as well, the line between such calamities events seems to be blurry. In most of the disaster narratives, when they are not referring to a specific case of disaster, but complaining about the disastrous events in general, they do not make a distinction between them. All kinds of political, natural, or economic disasters are transmitted as if they are related to each other.

⁶ Although it is not certain whether it occurred in 989 or 990, this is about the capture of Crimean Cherson by Vladimir. See footnote 92 in Diaconus Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, trans. Denis Sullivan Alice-Mary Maffry Talbot (Washington, D.C.: Dumbarton Oaks Research Library and Collection, 2005), 217.

⁷ This is about the invasion of Macedonian Berrhoia by Samuel of Bulgaria. See footnote 93 in *ibid.*, 217

⁸ *Ibid.*, 217.

The categorization of natural disasters, however, enables us a unit of analysis that can be useful to see the Byzantine perception of such uncontrollable disasters. Political disasters, in this sense, differ from natural disasters because they might be somehow predicted by looking at the course of events. Thus, not every political disaster has such attributions to natural calamities, and unexpectedness of these natural phenomena makes them a unit of analysis.

1.2 Period under study

The availability of the multiple numbers of historical narratives from the ninth century onward made it possible to trace the depictions of natural disaster accounts better. In the time of the Macedonian dynasty, which was a period of political revival for the Byzantines, the study of the ancient sources and book production increased. Especially in the time of Constantine VII Porphyrogenetos (r. 913-959), he sponsored many ceremonial, diplomatic or biographical works. The number of historical narratives also relatively increased from this period onwards. Skylitzes, for instance, in the foreword of his *Synopsis historion*, covering the years 811-1057, names more than ten historians, whose works he either used or read. Even though most of those histories have not survived until today, it shows the multiplicity of works that were produced. Despite these missing sources, we still possess plenty of narrative histories that allow us to analyze the depiction of natural disasters in the Middle Byzantine period.

1.3 The sources

One of the primary purposes of historiographical sources is to keep a record of each year or each reign of the emperors. Thus, natural disasters are likely to have their

places among these narratives as extraordinary events of their period. Therefore, this study is limited to narrative histories as they contain more natural disaster accounts compared to other primary sources, and provide sufficient cases to enable us to understand the Byzantine perception of natural disasters.

However, it is still not possible to find the record of every disaster that happened to the Byzantines primarily due to the selectivity of the authors to include them in their narratives. Even if a devastating natural disaster had happened, it might be sometimes just ignored within the integrity of the text. For instance, when the historians were interested in political history, and if they did not see any correlation between political and natural disasters, they could have ignored natural disasters. Thus, usually, the sources might be limiting in getting a full record of natural disasters and analyzing their influences. However, there are an adequate amount of accounts that enable us to understand how the Byzantines depicted natural disasters and perceived them.

Because the personal qualifications of the Byzantine historians play a significant role in configuring how they perceived the world, the authors listed in the paragraph below and their works are going to be briefly introduced. To put it more precisely, in this presentation, the class of the historians in question, what kind of education they received, where they lived, and their occupations will be included.

The historians whose histories will be analyzed are respectively: Kaminiates, 904; Leo the Deacon (959-986); Michael Psellos (976-1078); Skylitzes (811-1057); Attaleiates (1034-1079); Anna Komnene (1081-1118); Zonaras (969-1118); Kinnamos (1118-1176); Niketas Choniates (1118- 1207).⁹

⁹ In Appendix A, these historians and the period that they wrote about is indicated. The histories of Genesis (the section about Basil I, 867-886), Theophanes Continuatus Book V and Book VI (944-961), Symeon the Logothete (944-962), Pseudo Symeon (944-961), Eustathios of Thessaloniki, and the chronicle of Monemvasia do not include any natural disaster narrative, and thus were not included

John Kaminiates, *The Capture of Thessaloniki* (904): The main source of information about Kaminiates is his own account. He belonged to a well-situated clerical family in Thessaloniki. His father was the *exarch*¹⁰ of Greece.¹¹ He himself was a relatively low ranking cleric, but held a position of chamberlain in the bishop's household that would enable social status and wealth.¹² Thus, as in the case of other historians mentioned in this thesis, he should have access to good education coming from an upper class family.

His work is more like an account that has been written in the form of a long letter to a friend, Gregory of Cappadocia, than being a narrative history. Kaminiates' purpose is to inform his friend about the sack of Thessaloniki by the Arabs in 904, and his experiences as a hostage.¹³ Although it is a short text and there is only one reported natural disaster case, it is still useful to see a non-Constantinopolitan view.

Leo the Deacon, (959-986): He was born in ca. 950 in a village, Kaloe, in Western Anatolia. At a young age, he went to Constantinople to pursue his higher education.¹⁴ His father, Basil, was most likely a wealthy landowner because he was able to send his son to the capital city for a higher education.¹⁵

Leo the Deacon indicates that he studied συλλογή λόγων (IV: 7) and the εγκύκλιος παιδευσίς (IV: 11) in Constantinople. The latter term, referring to general education at the "secondary" level, would typically include grammar, rhetoric, and philosophy; the former term specifically referring to training in Aristotelian logic.¹⁶

among the mentioned sources. *Constantinian Excerpts, Chronicon Bruxellense*, the history of Kedrenos, Nikephoros Bryennios, Manasses and Michael Glykas were not included due to lack of English translations.

¹⁰ Exarch is a title for several officials either in secular or ecclesiastical administration. Alexander Petrovic Kazhdan, ed. *The Oxford Dictionary of Byzantium*, vol. 1 (New York: Oxford University Press, 1991), 767.

¹¹ John Kaminiates, *The Capture of Thessaloniki*, trans. David Frendo (Perth: Australian association for Byzantine studies, 2000), 93.

¹² Ibid., xxxi.

¹³ See, *ibid.*, xxviii. and Leonora Neville, *Guide to Byzantine Historical Writing* (Cambridge, United Kingdom: Cambridge University Press, 2018), 114.

¹⁴ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 9.

¹⁵ Warren Templeton Treadgold, *The Middle Byzantine Historians* (Basingstoke: Palgrave Macmillan, 2013), 236.

¹⁶ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 23.

Thus, although he had chosen a religious career, he was well educated on the classical texts as well. Leo's history is usually considered as exemplifying the revival of the classical forms of history writing by including the classical concept of *τύχη* or detailed descriptions of natural phenomena. His writing style is most likely a result of his educational background.¹⁷

After his training, he remained in the capital and was appointed as a deacon. In the reign of Basil II (r. 976-1025) he became a member of the palace clergy which allowed him to get first hand information about the state affairs. However, even before that he seems to have become a member of the imperial court around 975.¹⁸

Michael Psellos, *Chronographia* (976-1078): Michael Psellos was born to a middle-class family in Constantinople in 1018. His actual name was Constantine, but when he became a monk in 1054, he took the name Michael. He had a state-sponsored education, and he was an extraordinary student from the beginning as indicated by his ability to recite the entire *Iliad* at a very young age.¹⁹ As time progressed, he became one of the most important figures not only of his age, but also of the whole Byzantine era as a very productive scholar, philosopher, teacher, orator, and statesman.²⁰

First, he worked as a judiciary official in Mesopotamia and Asia Minor, then around 1040 coming back to the capital, he started to work as a secretary at the court of Michael IV. Then, he became an important advisor and spokesman to the emperors.²¹ In the time of Constantine IX Monomachos (r. 1042-1055), he was offered to become chief of the imperial chancery, but he declined. Thus, he

¹⁷ Neville, *Guide to Byzantine Historical Writing*, 125.

¹⁸ Treadgold, *The Middle Byzantine Historians*, 236.

¹⁹ For further information, see Michael Psellos, *Mothers and Sons, Fathers and Daughters the Byzantine Family of Michael Psellos*, trans. Anthony Kaldellis (Notre Dame, Indiana: University of Notre Dame Press, 2006), 3.

²⁰ Anthony Kaldellis, *The Argument of Psellos' Chronographia*, vol. 68 (Brill, 1999), 9.

²¹ Psellos, *Mothers and Sons, Fathers and Daughters the Byzantine Family of Michael Psellos*, 4.

continued to work as a court *rhetor* and teacher.²²

In the scope of this thesis only his work *Chronographia* will be examined, which starts with the reign of Basil II in 976, and goes down to the end of Michael VII's reign in 1078. His work is about the reigns of these emperors, but it is far from being a mere year-by-year history book. He includes philosophical debates as well, and it has great value in terms of its literary quality. However, because he is more focused on politics and ideas, descriptions of natural occurrences in his time are briefly mentioned.

Skylitzes, *A Synopsis of Byzantine History* (811-1057): Although he left a magnificent work, the details about the personal life of Skylitzes are considerably limited. It is believed that John Skylitzes and John Thrakesios were the same person. The latter probably refers to the name of the theme he or his family came from, Thrakesion.²³

Some legal documents prove that he most likely held high positions in the judiciary system in Constantinople. He was the first person mentioned in the sources with this family name. Therefore, it is believed that he was the first person from his family who reached high positions in the civil service. This social advancement was achieved probably through having a good education which was possible in the eleventh century.²⁴

His account, which is in large part a summary of earlier histories, is examined for the purpose of this thesis. It is basically a political and military history, which focuses on emperors, but he provides a wide range of information about other details

²² Stratis Papaioannou, *Michael Psellos : Rhetoric and Authorship in Byzantium* (Cambridge: Cambridge University Press, 2013), 5,6.

²³ Treadgold, *The Middle Byzantine Historians*, 329.

²⁴ Jean-Claude Cheynet, "Introduction: John Skylitzes, the Author and His Family," in *John Skylitzes: A Synopsis of Byzantine History, 811–1057*, ed. John Wortley (Cambridge: Cambridge University Press, 2010), ix,x.

like economic problems of the people or the disasters that happened to them.

Attaleiates, *The History* (1034-1079): He was most likely born in or near by the city of Attaleia that is located in southern Asia Minor. Similar to Leo the Deacon, at a young age, Attaleiates moved to Constantinople to pursue his higher education. In the time when Psellos' influence in the educational sphere was in the highest point, he studied law which allowed him to gain a position in the legal bureaucracy.²⁵ He started his career as a low ranking judge in Constantinople.²⁶ Then, he became a member of the Senate representing the Constantinopolitan law court.²⁷

Attaleiates was highly influenced by the teachings of Psellos, so it would be useful to consider these two historians together as contemporaries. Although both of the intellectuals belong to the Constantinopolitan ruling elite, their positions are slightly different. While Psellos represents an urbane courtier and bureaucrat, Attaleiates is a representative of the military aristocracy who personally attended some campaigns with the emperor as in the case of the Battle of Manzikert.²⁸ However, his history proves that besides political and military issues he was interested in many other issues including natural phenomena. He was an eyewitness to the period he wrote about, and that makes his descriptions even more vivid.

Anna Komnene, *Alexiad* (1081-1118): Anna Komnene (born in 1083) is the only woman historian of the Byzantine Empire. She was the first-born child of Alexios I Komnenos (r. 1081-1118), and she wrote a history of her father's reign.²⁹ Her artful classicizing Attic Greek, extremely elaborate descriptions, and philosophical explanations illustrate the sophisticated education she got. Even the

²⁵ Michael Attaleiates, *The History*, trans. Anthony Kaldellis Dimitris Krallis (Cambridge, MS; London: Harvard University Press, 2012), vii.

²⁶ Treadgold, *The Middle Byzantine Historians*, 313.

²⁷ Attaleiates, *The History*, viii.

²⁸ Neville, *Guide to Byzantine Historical Writing*, 152.

²⁹ Treadgold, *The Middle Byzantine Historians*, 354.

choice of *Alexiad*, as a title echoing the *Iliad*, shows her involvement with classical texts.³⁰

The *Alexiad* starts with the reign of Michael VII and Nikephoros Botaneiates, explaining the period that resulted in Alexios' gaining the imperial power. Although she explains her ideas on some philosophical issues, her text is mainly about the political and military events of Alexios' reign. The political conflict of this period was Norman invasion of western provinces, and then an alliance with westerners against Turkish threat from the east which led to arrival of first crusader army to Asia Minor. As the wife of the important commander Nikephoros Bryennios (who also wrote a history of Alexios I's rise to imperial power), and the daughter of the emperor, she must have had first-hand information for her history.

Zonaras (969-1118): Even though it is known that Zonaras was a high-ranking bureaucrat who later became a monk, the details about his life are not known.³¹ He was a judge and a well-educated intellectual, being the author of many works that belong to different genres like history, hagiography, and canon law.³²

In the scope of this thesis, only the last parts of Zonaras' history were evaluated: Books 17 and 18 covering the years between 969 and 1118. He was a contemporary historian to Anna Komnene, but while Anna's history is more like a biography of her father, Zonaras wrote a history extending from Creation to 1118 which is the longest history written in Greek.³³ Although he starts with the Creation, his narrative does not pursue the Byzantine chronicle tradition. He uses classical texts, but instead of copying them most of the time he summarizes and paraphrases them. The sources he used in writing the Byzantine history starting from the fourth

³⁰ Neville, *Guide to Byzantine Historical Writing*, 174.

³¹ Treadgold, *The Middle Byzantine Historians*, 388.

³² Neville, *Guide to Byzantine Historical Writing*, 192.

³³ Treadgold, *The Middle Byzantine Historians*, 388.

through the eleventh century are as follows: Malalas, Prokopios, Theophanes, George the Monk, Psellos, Attaleiates, Skylitzes, and Scylitzes Continuatus. His account of Alexios Komnenos seems to be based on original research or personal experience.³⁴

Kinnamos (1118-1176): He was born some time after the death of emperor John II Komnenos in 1143 (r. 1118-1143), but the precise date is unknown. He was probably born and raised in Constantinople, and he received the secondary education of a future bureaucrat.³⁵ His position as an imperial secretary in the court of Manuel I (r. 1143-1180) was started at a very early age. He served the emperor both during his campaigns and in the palace.³⁶ He joined the emperor in his eastern campaigns that allowed him to be an eyewitness to the events that he indicated outside of the capital.

As a mid-level state official, his rhetorical abilities are not comparable with Choniates, who starts his history at the same time with Kinnamos. He mainly focuses on political and military history, and thus other details like natural disasters are mentioned very rarely in his history. The sources that he used are not clear, but it is most likely that he depended on his own experiences at the court and during the campaigns, besides written documents and oral evidence.³⁷

Niketas Choniates (1118-1207): The information about Choniates mostly comes from his own writings. He was born around mid-twelfth century in Chonai (Western Anatolia), and moved to Constantinople at the age of twenty for educational purposes.³⁸ As an adult he held many important positions in the imperial administration and judiciary. After he worked as a provincial tax official in

³⁴ Neville, *Guide to Byzantine Historical Writing*, 192.

³⁵ Treadgold, *The Middle Byzantine Historians*, 407.

³⁶ John Kinnamos, *Deeds of John and Manuel Comnenus*, trans. Charles M. Brand (New York: Columbia University Press, 1976), 3.

³⁷ Neville, *Guide to Byzantine Historical Writing*, 186,87.

³⁸ Choniates Niketas, *O City of Byzantium : Annals of Niketas Choniates*, trans. Harry J. Magoulas (Detroit, Mich.: Wayne State University Press, 1984), x, xi.

Paphlogonia, he was promoted and became an imperial undersecretary. In the time of Isaac II he became a full secretary, and then he was appointed as the second-ranking official of the imperial treasury. Favored by the emperor, he held many other high positions as follows; chief subordinate of the postal logothete,³⁹ to judge of the Velum, logothete of the Secreta, the senior minister of the whole civil service. His promotions were so many that almost each year he held a different office.⁴⁰

His history starts with the reign of John Komnenos (r. 1118-43) and ends in 1207, shortly after the conquest of Constantinople by the Latins. It is the only account that covers the last decades of the twelfth century, and it was written in an extraordinarily elaborate and classicized fashion. Chonites's history is one of the most important sources that cover the time of the third and fourth crusade.⁴¹

1.4 Literature review

The studies focusing on natural disasters that occurred in the Byzantine period might be grouped under different categories; the works that approach natural disasters as a whole, the researches on atmospheric anomalies, and pestilences and earthquakes.

W. Tucker is one of the scholars who approached natural disasters as a whole without focusing on one specific disaster. However, still, his work on Mamluk Syria⁴² discusses the economic consequences and human cost of the natural disasters lacking the contemporary perception towards them. Ömer Subaşı and Muharrem Kesik are also other historians who discuss natural disasters as a whole without focusing on any specific disaster. Ö. Subaşı evaluates the natural disasters that

³⁹ A title used for high level officials who were the head of many departments with primarily but not exclusively fiscal functions. Kazhdan, *The Oxford Dictionary of Byzantium*, 1247.

⁴⁰ Treadgold, *The Middle Byzantine Historians*, 423-27.

⁴¹ Neville, *Guide to Byzantine Historical Writing*, 219.

⁴² William Tucker, "Environmental Hazards, Natural Disasters, Economic Loss, and Mortality in Mamluk Syria," *Mamluk Studies Review* 3 (1999).

occurred in Anatolia in the eleventh century by looking at the Byzantine and Muslim sources, but his work is more descriptive and does not analyze the perception of the contemporary historians.⁴³ Muharrem Kesik similarly does not mention the interpretations of the historians in his study but limits himself to natural disasters that occurred in Constantinople between 1100 and 1250.⁴⁴ C. Rohr,⁴⁵ on the other hand, through his analysis of historical sources from the late medieval period, tried to understand the contemporary perception of natural disasters in Europe by comparing them to the biblical stories. His analytical approach is the closest to this thesis, but he focuses on Europe in the same period.

Recent studies on atmospheric anomalies focus primarily on the event itself, and its economic, political or social consequences. However, they are not always interested in how these natural phenomena were perceived and depicted in historical sources. They limit themselves to correlating the scientific data with these sources. Such studies are undertaken by a group of scholars who come from different fields, such as history, archaeology, meteorology, chemistry, etc., and they tend to focus primarily on the late antique and early medieval period, with particular attention to the climate cooling in the sixth century.

The studies of environmental history that concentrate on the medieval period are undertaken by the initiatives of especially John Haldon and a group of scholars, such as Lee Morderachai, Adam Izdebski, and many others. Many important and collaborative works are carried out under the umbrella of the Climate Change and History Research Initiative (CCHRI) with the support of Princeton University

⁴³ Ömer Subaşı, "Xi. Yüzyılda Anadolu'da Meydana Gelen Doğal Afetler," *Atatürk Üniversitesi Türkiyat Araştırmaları Enstitüsü Dergisi*, no. 54 (2015).

⁴⁴ Muharrem Kesik, "İstanbul'd Doğal Afetler (1100-1250)," in *Afetlerin Gölgesinde İstanbul Tarih Boyunca İstanbul Ve Çevresini Etkileyen Faktörler*, ed. Said Öztürk Mehmet Ali Beyhan (İstanbul: İstanbul Büyükşehir Belediyesi., 2010).

⁴⁵ Christian Rohr, "Writing a Catastrophe. Describing and Constructing Disaster Perception in Narrative Sources from the Late Middle Ages," *Historical Social Research/Historische Sozialforschung* (2007).

aiming at a comparative approach to climate, environment, and society in Eurasia.⁴⁶

They combine the scientific data that come from the lake sediments and pollen records with the archaeological and historical information. Michael McCormick, from the University of Harvard, is another important historian who makes valuable contributions, especially by analyzing the data coming from the ice records.

However, as stated earlier, they are all primarily interested in the natural events themselves, as well as the reasons for such calamities, and their impacts on social, economic, and political life.

The studies about the epidemic diseases and plague infestations are more concentrated on the bubonic plague in the sixth century, which continued sporadically until the middle of the eighth century. Stathakopoulos, for instance, not only catalogs the famines and pestilences between 284 and 750 but also discusses their social and demographic aspects as well as medical history.⁴⁷ M. McCormick, on the other hand, analyses the involvement of rats in this epidemic.⁴⁸ Also, another article by M. Meier focuses on the 'Justinianic plague' and its social and economic consequences.⁴⁹ Although the cases were not as devastating as in the sixth century, different pestilences kept striking the Byzantines in the later centuries. However, they did not attract the attention of the historians much. This lack of attention is most likely because the cases of pestilence and pests were not as severe as in the earlier centuries. The pestilence and pests cases, however, will not be handled according to

⁴⁶ For further information on this group, <https://climatechangeandhistory.princeton.edu>

⁴⁷ For further information see, Dionysios Ch Stathakopoulos, *Famine and Pestilence in the Late Roman and Early Byzantine Empire : A Systematic Survey of Subsistence Crises and Epidemics* (Aldershot: Ashgate, 2004).; Lester K. Little, *Plague and the End of Antiquity : The Pandemic of 541-750* (Cambridge: Cambridge University Press, 2007).

⁴⁸ For further information, see Michael McCormick, "Rats, Communications, and Plague: Toward an Ecological History," *Journal of Interdisciplinary History* 34, no. 1 (2003).

⁴⁹ For further information, see: Mischa Meier, "The "Justinianic Plague" : The Economic Consequences of the Pandemic in the Eastern Roman Empire and Its Cultural and Religious Effects," *Early medieval Europe* (2016).

their severity. Every instance of epidemic depictions in 867-1204 in contemporary histories is going to be presented and examined.

The studies on earthquakes are already partially mentioned above while stating the purpose of this thesis. These are the catalog by E. Guidoboni, A. Comastri, and G. Traina, and MA theses by M. Bakır and S. Casta. Other works on earthquakes that do not include depictions in the primary sources are as follows. G. Downey extends the scope of his research until 1454, but he only focuses on regions around Constantinople.⁵⁰ Another catalog prepared by Kazım Ergin, Ugur Güçlü, and Zeki Uz does not discuss the sources themselves, but dates and locates the earthquakes that took place during a more extended period for the surrounding region of Turkey, from 11 AD to 1964.⁵¹

1.5 Thesis outline

The first chapter is the introduction. It introduces the aims and contributions of this thesis, its period of study, and the mentioned sources.

In the second chapter, the natural catastrophes that had severe impacts on Middle Byzantine society will be presented and evaluated as experiences that shape their interpretations. The way the writers depicted these events becomes quite crucial to understand the Byzantine perception of the natural world and divine, which will be the focus of the following chapter.

This presentation will be categorized under different types of natural disasters that are: earthquakes, atmospheric phenomena, pestilence and pests. Although fires

⁵⁰ Glanville Downey, "Earthquakes at Constantinople and Vicinity, Ad 342-1454," *Speculum* 30, no. 4 (1955).

⁵¹ Kazım Ergin, Ugur Güçlü, and Zeki Uz, *Türkiye Ve Civarının Deprem Katalogu, Miliattan Sonra 11 Yılından 1964 Sonuna Kadar = a Catalog of Earthquakes for Turkey and Surrounding Area, 11 A.D. To 1964 A.D* (Istanbul: T.C., Istanbul Teknik Üniversitesi, Maden Fakültesi, Arz Fizigi Enstitüsü, 1967).

might also be considered as natural disasters, they are excluded in this thesis, mainly because all the cases in the sources were human-made. These disasters will be introduced in chronological order with the comparison of different historians who wrote about the same period. This chapter will allow the reader to get familiar with the representation of various natural disasters, and it enables to trace common features in their depictions.

The third chapter, in light of the natural disaster cases presented in the previous section, will offer a more in-depth investigation to understand the Byzantine way of perceiving the disastrous natural phenomena. Three ways of explanations of these events will be analyzed under three different sections: natural, religious, and astronomical explanations. There will be an attempt to answer the questions like; how such explanations were related to Byzantine division of science and religion? Alternatively, how the educational backgrounds of the authors might affect their description?

All in all, an investigation of these narrative histories enables us to understand the Byzantine perception of the extraordinary and devastating natural events such as floods, droughts, and earthquakes. Their judgments will be discussed through searching answers for the following questions: How did Byzantine historians describe the natural disasters, and how did they explain their origins? In what ways are these explanations revealing to make sense of their perception of ‘science’ and ‘religion’? Mainly, how did these historians perceive natural phenomena? It is, therefore, an attempt to understand the notion of natural disasters through the narrated cases, instead of merely presenting what has ‘actually’ happened.

CHAPTER 2

NATURAL DISASTERS IN NINTH TO THIRTEENTH CENTURY HISTORIES

2.1 Earthquakes

“Crossroads of both peoples and tectonic plates, the Anatolian region is rich with stories of cultures accommodating themselves to a violent geologic landscape.”⁵²

Before diving into Middle Byzantine accounts of earthquakes, this quotation might best depict how Anatolia was not only a meeting point for different civilizations but also a boundary region for massive tectonic plates, which is the reason for such seismic activities. Since it is the convergence point of African, Arabian, and Eurasian plates, there are many active faults in this area, which lead to many severe earthquakes. Some of these unpredictable natural events were recorded in the narrative histories as an outcome of the effort to understand these ground-shaking disasters.

Although such accounts might help to detect the dates or frequency of some earthquakes, the primary source of information for these investigations is geological surveys. This is because not every historical source includes these events, and many recorded texts might be already lost. Moreover, even if the sources include narratives of quakes, they do not always provide the exact dates and locations. Another obstacle is determining the severity of the earthquake because it is not every time possible to obtain information about the precise epicenter from the text. It depends very much on the author's proximity to the location. Alternatively, if he did not experience the earthquake personally, it depends on his/her source of information. Therefore, the

⁵²Rick Gore, "Anatolia Article, Killer Earthquakes Information, Colliding Continents Facts " (2009).

aim here is not presenting every earthquake that occurred, but to analyze the ones depicted in the historiographical accounts and to examine how they were described.

The contribution of this thesis is going to be putting earthquakes in a broader context by making sense of them together with the other disasters, which occurred between 867 and 1204. This approach is necessary because when Byzantine historians do not focus on one specific earthquake but depict contemporary views on disastrous events, they usually establish a connection with other natural disasters. Thus, analyzing the relationship between earthquakes and other natural disasters is essential to a firm grasp of the Byzantine perception of earthquakes. Earlier studies do mention that this link exists, but their explanations remain partial and limited.⁵³ That is why, in the second chapter of this thesis, the interpretations of earthquakes combined with other natural disasters will be discussed as a whole. On the other hand, this section will aim to present the chronicles of the earthquake narratives and to consider how the histories differ from each other in how they portray the same events.

The first reported earthquake starting from the period of Basil I (r. 867-886) in Skylitzes' history is in 926/927.⁵⁴ It occurred in the theme of Thrakesion.⁵⁵ He

⁵³ Although Mevlüde Bakır includes some of the other natural disasters, like thunderstorms in her analysis of the earthquake descriptions, her focus is on the perception of natural disasters rather than discussing them as a whole. See, for instance, Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454," 107-08.

⁵⁴ Because in the scope of this thesis, the main purpose is to analyze the depictions of natural disasters in narrative histories, the other primary sources that cover the same period is not included. Thus, there are accounts of earthquakes mentioned in the other sources, although the selected histories do not mention them. These earthquakes that were not mentioned: 9 January 869, Constantinople in Guidoboni et al., *Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th Century*, 387-88. (*Vita of Patriarch Ignatios of Constantinople* p.549A; *Patriarch Photios of Constantinople-Letters* 27-28 pp.170-171; *Scriptores Originum Constantinopolitanarum* pp.272-273; *Synaxarium Ecclesiae Constantinopolitanae* p.380; *Typikon of the Great Church* vol.i, pp.192-193; *Leo the Philosopher* p.254 (=Symeon Magister p.688); *Theophanes Continuatus* pp.321-323; *John Zonaras* vol. 3, pp.434-435) in Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454," 57. Both the histories of Skylitzes and Theophanes Continuatus mention construction works that were undertaken by Basil I. This was probably after the quake of 869, but none of these two historians describes the earthquake itself. See Theophanes Continuatus, *Chronographiae Quae Theophanis Continuati Nomine Fertur Liber V Quo Vita Basilii*

describes this destruction by saying, “[...] alarming fissures yawned in the ground which swallowed up many villages and churches together with the people.”⁵⁶ But he does not give any further comment.

Another earthquake occurred in northwestern Anatolia in 967. Both Skylitzes and Leo the Deacon reported it. Leo the Deacon, who was a contemporary historian, described the earthquake in a very detailed manner, including the damage, which had been done and the reasons for earthquakes.

During the same year, when summer was just turning to autumn, God shook the earth greatly, so that buildings and towns were destroyed. It happened then that Klaudioupolis, the most prosperous town of the Galatians, was demolished by the irresistible quaking and trembling, and became a sudden grave for its inhabitants, and many visitors who happened to be there were also killed instantly.⁵⁷

His evaluations on earthquakes will be examined in the next chapter, specifically while discussing the theories about the causes of earthquakes.

The same earthquake was briefly mentioned in Skylitzes’ history. After a brief presentation of the quake, he continued with the explanation of unusual weather conditions, which led to great famine and adverse economic conditions.

At the twelfth hour of the night on 2 September, eleventh year of the indiction, there was an exceptionally severe earthquake which badly damaged the Honoriad and Paphlogonia. There were fierce, burning winds in the month of May[...]⁵⁸

Imperatoris Amplectitur, trans. Ihor Sevcenko (Berlin: De Gruyter, 2006), 265.; Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 155.

Another earthquake occurred in 879 in Constantinople (*Vita of St. Stephen Neolampes p.292*) in Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454," 59. Also there is another earthquake probably occurred between 886 and 896 that was cited by an anonymous author who wrote *Vita of St. Theophano*, but the precise date is unknown. Ibid. n.163
⁵⁵ It was a theme located in western Asia Minor. It is believed that the name came from the placement of a troop that is from the region of Thrace. Alexander Petrovic Kazhdan, ed. *The Oxford Dictionary of Byzantium*, vol. 3 (New York: Oxford University Press, 1991), 2080.

⁵⁶ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 214.

⁵⁷ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 117, 18. In footnotes Talbot and Sullivan believe that Leo the Deacon made a mistake by calling Klaudioupolis, modern day Bolu, as metropolis of Galatia. However, it was part of Honorias and the account of Skylitzes recorded it correctly.

⁵⁸ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 266.

According to Leo the Deacon, an earthquake occurred in Constantinople in 989, which damaged the dome of Hagia Sophia. In Skylitzes' history, however, the same quake is dated to October 25-6, in 986. Leo the Deacon was a contemporary to this event, making him a more reliable dating source than Skylitzes. Leo the Deacon also describes it more extensively by relating it with a rising star and other calamities.

For on the eve of the day when traditionally the memory of the great martyr Demetrios is celebrated, a terrible earthquake occurred, the likes of which had not happened in this generation, and demolished to the ground the fortifications of Byzantium and destroyed most of the houses, turning them into tombs for their inhabitants, and razed to the ground the districts near Byzantium and caused much loss of life among the peasants. Furthermore, it brought down and knocked to the ground the half-dome of the upper part of the Great Church, together with the west apse (these were rebuilt by the emperor Basil in six years) And the harsh famines and plagues, droughts and floods and gales of violent winds [...] ⁵⁹

On the other hand Skylitzes cites this event as following;

In the fifteenth year of the indiction, AM 6494, the month of October, there was a great earthquake; many mansions and churches fell down as did a portion of the dome of the great church of God. This the emperor zealously restored, providing ten kentenaria for the machines alone by which the workmen standing [above] receive the materials being brought up, with which to rebuild the fallen portion. ⁶⁰

Though Leo the Deacon included more details regarding the casualties and causes of these events, both historians ponder in their writings about some sort of link between these disasters and other calamities.

Another earthquake happened in Constantinople in the winter of 1010/11. In Skylitzes' history, the tendency of giving information about various disastrous events in one paragraph is also valid for this earthquake. At the beginning of the account, he writes about a severe winter during which many rivers, lakes, and even the sea froze.

⁵⁹ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 217,18.

⁶⁰ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 314.

Then, he mentions a series of tremors, which continued from January until March, during which many buildings, including the churches of ‘the Forty Saints’ and of ‘All Saints’ were severely damaged. He concludes his paragraph with the uprising of Meles, in Italy, as if all of these events had common features or are somehow related.⁶¹

Skylitzes also noted a series of earthquakes in 1032, 1033, and 1034 AD as being part of a list of calamities after a star appeared during the night of 28 July 1032. In the case of the 1032-33 earthquakes, he even provides an exact hour of the events; but he does not mention details like the severity, consequences, or causes of the 1032 and 1033 quakes. However, the other mentioned disasters, like an epidemic and famine around Cappadocia and Arab attacks, are described in greater detail.⁶²

Moreover, Skylitzes referred to a severe earthquake on 17 February 1034 in Syria. Without providing further information on the quake, he starts to explain the troubles that resulted from a locust attack in the eastern provinces. Then, turning back to the capital, he mentioned the renovations made by Romanos III (r. 1028-1034), including a leper house, some hospices, water line and cisterns damaged by the shakings.⁶³

In 1034, after Michael IV succeeded to the throne, there was another earthquake in Jerusalem that lasted for forty days with aftershocks.⁶⁴ Although it occurred in the same year as the aforementioned Syrian earthquake in the former paragraph, this earthquake was not listed among the other calamities after the appearance of an unusual star. This preference was most likely because they happened in the reigns of different emperors, and historian started a new chapter.

⁶¹ Ibid., 330.

⁶² Ibid., 364, 65.

⁶³ Ibid., 367.

⁶⁴ Ibid., 374.

Zonaras, very likely by summarizing what Skylitzes recorded, referred to earthquakes in Constantinople along with the disasters around Cappadocia. However, unlike Skylitzes, he does not state the date of the incidents. Yet, the chronology of the mentioned events and description of the earthquakes lead us to the year 1032-33. Due to the quakes, for instance, he added that the hospitals for the epileptic and leprosy patients were damaged severely and that the emperor renewed them along with the broken water line that reached the capital.⁶⁵ In contrast with Skylitzes, he did not clarify the locations or dates of 1032, 1033, and 1034 earthquakes; but he did mention disasters like food scarcity in Cappadocia and locusts in eastern provinces as if all of these events occurred around the same time.

Nevertheless, these two narrations share the conception in which calamities in Cappadocia followed by the earthquakes in Constantinople were considered somehow linked. Although those calamities, which occurred in different places, have no common point, authors addressed them together as being disastrous phenomena that Byzantines had to face. However, their common point and the reason for reporting these events together is that those were the things the Byzantines had experienced after a star fall.⁶⁶ Distinguishable from Skylitzes, Zonaras does not make an association with any earlier astral signs, but he keeps the same storyline that narrates disasters along with the earthquakes.

⁶⁵ Johannes Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, trans. Erich Trapp, vol. 1118, *Byzantinische Geschichte Von 969 Bis* (1986), 68.

German translation: "Als sich Erdbeben ereigneten, wurden die Hospitäler arg mitgenommen sowie die Byzanz gegenüberliegenden Asyle, die von alters her als Wohnstätte für die Epileptiker und die Leprakranken bestimmt waren. Der Kaiser erneuerte auch diese und kümmerte sich um die geborstene Leitung, die das Wasser in die Hauptstadt führte."

⁶⁶ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 364.

A series of earthquakes in 1035, 1036, 1037, 1040, and 1041 are mentioned quite briefly in the history of Skylitzes. Yet, none of the other historians examined in the scope of this thesis mention those events.⁶⁷

According to Skylitzes, there was an earthquake in 1035 in the theme of Boukellarion⁶⁸ during which five villages were obliterated. This disaster is known because a eunuch called Proedros Nikephoros was staying there when it happened. After escaping that disaster, he returned to Constantinople and was tonsured as a monk in the Studios Monastery.⁶⁹

On 18 December 1036, in the fourth hour of the night, there were three successive earthquakes that shook the earth: two small and one big.⁷⁰ According to Bakır, it took place in Constantinople, but there is no indication in the text itself or any other contemporary sources.

Although the date (and even the hour) of the earthquake in 1037 is recorded in detail, the location is not cited at all: “In AM 6546, sixth year of the indiction, there was an earthquake on 2 November about the tenth hour of the day, and the earth continued to tremble into and throughout the month of January.”⁷¹ When the earthquake is somewhere outside of Constantinople, the author always indicates its location. Thus, as a high official living in the capital, he might not have found it necessary to indicate the location when its epicenter was around Constantinople. The earthquake catalog prepared by a team of scientists from Istanbul Technical University also shows that there was an earthquake in Constantinople, and no other

⁶⁷ Kedrenos also mentions these earthquakes, but his history exactly copies what Skylitzes wrote between 811 and 1057. Neville, *Guide to Byzantine Historical Writing*, 162.

⁶⁸ Boukellarion is a theme in central Asia Minor, which was founded in the 8th century and existed until eleventh century, when Turks conquered the region after the battle of Manzikert in 1071. The theme named after a military unit, privately hired soldiers, and comprised Galatia, Honorias, Paphlagonia and some regions of Phrygia. See Boulellarion in Kazhdan, *The Oxford Dictionary of Byzantium*, 316,17.

⁶⁹ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 375.

⁷⁰ *Ibid.*, 377.

⁷¹ *Ibid.*, 379.

location was mentioned in this year.⁷² Skylitzes' narration continues by covering a famine that took place in Thrace, Macedonia, Strymon⁷³ and Thessaloniki, right into Thessaly, but no further information about the earthquake was added.

In another place, Skylitzes writes about continuous shakes throughout the year 1040, along with other disasters like heavy rainfalls and an epidemic. According to him, the one that took place in Smyrna was the most severe one. Many buildings fell down and many dwellers lost their lives. Other regions and cities had also suffered, but none of the other locations were mentioned.⁷⁴ Although the writer does not explicitly refer to these earthquakes, in the following pages he generally talked about the frequent quakes and other disasters, which were regarded as fearful portents of false political decisions and tyranny of Michael IV.⁷⁵ In that case, the emphasis is on the mistreatments of the emperor rather than a specific earthquake.

An earthquake in June 1041 is also referenced very briefly without any further details about the city or the scope of destruction, but with an exact hour of day. "In this year, ninth year of the indiction, on 10 June, about the twelfth hour of the day, there was an earthquake."⁷⁶ Most likely, it took place in Constantinople,⁷⁷ and it might have been described shortly because it did not lead to any severe damage.

⁷² Ergin, Güçlü, and Uz, *Türkiye Ve Civarının Deprem Katalogu, Miliattan Sonra 11 Yılından 1964 Sonuna Kadar = a Catalog of Earthquakes for Turkey and Surrounding Area, 11 A.D. To 1964 A.D.*, 16.

⁷³ Strymon was a theme located between Struma and Mesta rivers and centered in Serres. Macedonia and Thessaloniki were neighboring themes. John V. A. Fine, *The Early Medieval Balkans : A Critical Survey from the Sixth to the Late Twelfth Century* (Ann Arbor: Univ. of Michigan Press, 2000), 83.

⁷⁴ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 381.

⁷⁵ *Ibid.*, 383,84.

⁷⁶ *Ibid.*, 389.

⁷⁷ Ergin, Güçlü, and Uz, *Türkiye Ve Civarının Deprem Katalogu, Miliattan Sonra 11 Yılından 1964 Sonuna Kadar = a Catalog of Earthquakes for Turkey and Surrounding Area, 11 A.D. To 1964 A.D.*, 16.

Middle Byzantine historians that mentioned in this thesis did not record any earthquakes between the years 1041 and 1063.⁷⁸ In the case of earthquakes especially in 1063 and 1065, and also small tremors between these years, Attaleiates dedicated a large, separate section to describe them. For almost four pages, he reported when these quakes occurred, which regions were affected, and how these shakings influenced people along with possible explanations for the causes of these earthquakes.

According to Attaleiates, the earthquake of 1063, September 23: Before this year, in the month of September of the second indiction, on the twenty-third of that month, during the second watch of the night, there was a sudden powerful earthquake, more frightening than any that happened before, and it began in the western regions. It was so great in magnitude that it overturned many houses, leaving only a few undamaged. Nor did churches untouched by its ferocity, but some suffered cracks in a few places while others suffered serious structural damage, their columns fractured as if cleanly hewn that way. For it did not strike only once and then, as usually happens, cease, but it consisted of three violent motions in succession, which caused people to lament loudly and feel a terror the likes of which humanity had never known. People came out of their houses in tuning the usual invocation to God, and even women confined to their chambers were so gripped by fear that they set aside their modesty and rushed outdoors to add their voices to the same invocations. During that night another ten to twelve tremors of the earth ensued, though they were far less violent than the previous ones. For had they been equal to the first ones, nothing would have prevented every single building they reached and affected from falling down to its foundations and being rendered useless, and all of their inhabitants would have tasted a most horrible death.⁷⁹

In 1063, as a high juridical official living at the capital city, Attaleiates must have been an eyewitness to that earthquake which would have enabled him to relate every small detail, including the reactions of the inhabitants. Then he discussed whether the quakes had resulted from natural or divine causes. Although he explained possible natural causes of earthquakes very explicitly, he seems to have been fully convinced that such phenomena had a divine nature and hence concluded

⁷⁸ The MA thesis by Bakır and the *Earthquake Catalogue* also do not mention any case of earthquake.

⁷⁹ Attaleiates, *The History*, 161, 62.

that they were the result of God's anger.⁸⁰ Then, he gave a list of the regions that were affected by that event; Constantinople, some regions of Macedonia, and Hellespont. In Hellespont, the city of Kyzikos was hit especially hard; and an ancient Greek temple was destroyed.⁸¹

Zonaras also mentioned the same earthquake and the damage on the temple in Kyzikos. He additionally talked about the collapse of the Church of the Holy Fathers in Nikaia as if these two cities were hit by the same quake.⁸² According to Attaleiates, however, the earthquake that struck Nikaia was a different earthquake, which took place two years later.

After the two-year period, an earthquake occurred that was larger than the frequent aftershocks, but smaller than the initial one. It happened at Nikaia in Bithinia and brought almost total devastation and ruin to the place. Its most important and large churches – the one founded in honor of the Wisdom of the Word of God, which was also the cathedral, and the one of the Holy Fathers, where the council of the most Holy and Orthodox Fathers against the Areios confirmed its decisions and where Orthodoxy was proclaimed openly to shine brighter than the sun – those churches, then, were shaken and collapsed as did the walls of the city along with many private dwellings. And on that day the shaking ceased. These events were earned by our sins and were surely caused by divine anger; but it seems also that they were a predictive sign of the invasion by that nation, which I mentioned, and its destruction, for in divine signs it is possible to glimpse not only the things that we have already spoken about but also some thing to come.⁸³

While Zonaras only gives a summary of what had happened, Attaleiates explains these events with precise details and cause-effect relations.

Zonaras made mention of another earthquake, which occurred on St. Nicholas day during the reign of Alexius I Komnenos (r. 1081-1118). As a result, many buildings collapsed; and, being buried by the rubble, people were killed.⁸⁴ This

⁸⁰ Ibid., 167.

⁸¹ Ibid., 165.

⁸² Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 130.

⁸³ Attaleiates, *The History*, 165,67.

⁸⁴ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 167.

incident might be dated sometime between 1081 and 1090, according to other events that he described, but the author did not provide an exact date.⁸⁵

Anna Komnene also covers the 1080s, but she did not report any such earthquake. However, she writes about only one earthquake, which occurred in 1118. None of the other histories mention it.

It was evening and the stars above were shining in the clear air, and the moon was lighting up that evening, following the Synod. When the monk entered his cell about midnight, stones were automatically thrown, like hail, against his cell, and yet no hand threw them, nor was there any man to be seen stoning this devil's abbot. It was probably a burst of anger of Satanael's attendant demons who were enraged and annoyed because he had betrayed their [secrets?] to the Emperor and roused a fierce persecution against their heresy. A man called Parasceviotes who had been appointed guard over that infatuated old man to prevent his having intercourse with others and infecting them with his mischief, swore most solemnly that he had heard the clatter of the stones as they were thrown on the ground and on the tiles, and that he had seen the stones coming in successive showers but had not caught a glimpse anywhere of anyone throwing the stones. This throwing of stones was followed by a sudden earthquake which had shaken the ground, and the tiles of the roof had rattled. However Parasceviotes, as he asserted, was quite unafraid before he suspected it was the work of demons, but when he noticed that the stones seemed to be poured down like rain from above and that the old heresiarch had slunk inside and had shut himself in, he attributed the work to demons and was not able to... whatever was happening.⁸⁶

Here the earthquake is considered to be a fierce display of the devil's anger because of a conversation between Bogomils and the emperor. Thus, as a rare example, the cause of the earthquake was related to demonic powers. Also, the emphasis is not on the earthquake itself, but on it as being a way of punishment.

⁸⁵ Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454," 71. See also earthquake catalog by Ergin, Güçlü, and Uz, *Türkiye Ve Civarının Deprem Katalogu, Miliattan Sonra 11 Yılından 1964 Sonuna Kadar = a Catalog of Earthquakes for Turkey and Surrounding Area, 11 A.D. To 1964 A.D.*, 16. In this catalog this earthquake dated to 1082 or 1083 more precisely.

⁸⁶ Anna Komnene, *The Alexiad of Anna Comnena*, trans. E. R. A. Sweter (London: Penguin Books, 1969), 499.

In 1162, Sultan Kilij Arslan visited emperor Manuel I in Constantinople. During this visit, an earthquake shook the earth. Choniates probably saw this as a portent that proves God's disapproval.

Together with the Sultan, Manuel entered Constantinople. There he proclaimed a magnificent triumph resplendent with exquisite and precious robes and diverse adornment cunningly wrought. But as the Emperor, with members of the bodyguard, the nobility, the imperial retinue, and the Sultan was about to make his appearance before the citizens to receive their applause, *God annulled the splendors* of that day. *The earth shook* and many splendid dwellings collapsed, the atmospheric conditions were violent and unstable, and other such terrors took place so that one could not pay heed to the triumph, and the mind swooned. The clergy of the holy church, contended (and the emperor himself received their words as evil omens) that *God was wrathful* and that under no circumstances would tolerate an impious man to show himself and participate in a triumph adorned by all-hallowed furnishings and embellished by the likeness of the saints and sanctified by the image of Christ. Thus, the emperor was thoughtlessly conceived, and neither did the emperor himself pay adequate attention to it, nor was proper regard paid to custom.⁸⁷

Kinnamos also brought up the same incident, but in his narration, it was not entirely clear, whether it was an actual earthquake or a metaphor used to describe the undesirable situation of the Sultan's arrival. Also, it was reported very briefly.

Glorying in the magnitude of his successes the emperor made preparation for a triumphal procession from the citadel itself to the famed church of Hagia Sophia, so as to march in procession with him; yet he did not accomplish what he had intended. For [the Patriarch] Loukas who was then in charge of ecclesiastical matters was opposed to the action, saying that impious men must not pass by consecrated furnishings and priestly adornments. Then something else occurred to prevent the matter. When it was late at night, an immense upheaval suddenly shook the earth. The Byzantines, deeming that Loukas' counsels had been transgressed, declared that the undertaking was contrary to God's will.⁸⁸

However, when the two accounts are compared, it is understood that probably an actual trembling occurred during the Sultan's presence in the capital. And, in both of the histories, this was seen as the evidence for the disapproval of God.

⁸⁷ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 67.

⁸⁸ Kinnamos, *Deeds of John and Manuel Comnenus*, 157.

2.2 Atmospheric phenomena

Natural disasters like frosts, floods, droughts, and severe winters might be summarized under the title of atmospheric phenomena, which enables us to categorize fragmented information provided by the primary sources. Similar to the inclusion of earthquake cases in historical narratives, the accounts about weather conditions also depend very much on the personal choice of the author. While some of the historians like Skylitzes and Attaleiates preferred to give detailed explanations about such events—including their possible reasons or effects on economic or social life—some others might not even mention them. Therefore, the natural disaster narratives in the selected histories might be limited in explaining all the grain shortages or economic problems, but they still help to see how the Byzantines experienced and depicted those events.

Before analyzing the contemporary perceptions of certain events — which is the intention of the following chapter—this section will introduce a chronological list of weather related disasters during that time. Subcategories like storms, flood, severe winters etc. are not used because in most of the cases they are narrated related to each other making it hard to draw lines between those events.

The earliest account of an unusual atmospheric phenomenon between 867 and 1204 among the selected histories comes from the history of Skylitzes. He noted a severe thunderstorm that resulted in casualties in 887, during the first year of the reign of Leo VI (r. 886-912).

At that time there was an eclipse of the sun about the sixth hour of the day. The stars even appeared; violent winds blew; there were terrifying storms and dangerous lightning; there were fire-bearing thunderbolts by which seven men were burned up on the steps of [the church of] St Constantine in the forum.⁸⁹

⁸⁹ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 169.

In this passage, although Skylitzes does not make any direct correlation between the solar eclipse and the storm, as it is also going to be discussed extensively later, in many cases Byzantine historians see such astronomical events as a sign for other disasters. Also, they tend to record such events one after the other even if they do not openly emphasize the relation between such phenomena.

In 904, the Arabs sacked Thessaloniki, and John Kaminiates was captured as a prisoner of war. They took him first to Crete and then sailed with him to Syria for a prisoner exchange with Byzantines. During this travel, there was a severe sea storm that he was lucky to survive. He explained this survival as being by divine providence.

And He [God] made the storm a gentle breeze, smoothed the harshness of the waves and saved them from so great a danger, making it clear to a land virtually causing inanimate nature to proclaim how the God of wonders can rescue those who call upon Him in truth and in fear.⁹⁰

Skylitzes reported that during a visit by Emperor Leo VI to the Constantine Lips monastery in June 907 for the dedication service and a dinner; “Suddenly a strong wind they call ‘lips’ blew up from the south-west which shook many buildings. It disturbed and frightened the people so much that they all fled from their houses into the open air. Then a shower of rain put an end to this tempest.”⁹¹ The whole of the former paragraph in the account was devoted to Emperor Leo’s efforts that aim to be received in the great church by the patriarch, yet he was not successful. “It was the Emperor’s intention to proclaim a law permitting a man to have three or even four wives in succession and many illustrious persons were in favor of this move; but the patriarch [Nicholas had] opposed this with all his might.”⁹² Although

⁹⁰ Kaminiates, *The Capture of Thessaloniki*, 129.

⁹¹ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 180.

⁹² Ibid. Leo VI the wise or philosopher had to get married four times in order to have a male heir because all of his wives had died before they were able to give birth to a successor. When he got

there is no proof in the text, reporting such a tempest in this sequence might reflect author's approval for such rejection. If someone believes the tempest was due to Emperor Leo's effort to be accepted at Hagia Sofia, it would make sense for this historian to emphasize the juxtaposition of these two events.

The next account of extreme weather conditions is about an exceptionally severe winter. According to Skylitzes, the intensity of the winter of 927 was unprecedented.

The same month an intolerable winter suddenly set in; the earth was frozen for one hundred and twenty days. A cruel famine followed the winter, worse than any previous famine, and so many people died from the famine that the living were insufficient to bury the dead. This happened in spite of the fact that the emperor did his very best to relieve the situation, assuaging the ravages of the winter and the famine with good works and other aid of every kind.⁹³

The harshness of the season⁹⁴ was so great that it affected agricultural production and led to food shortages that resulted in a great number of deaths. Thus Romanos Lekapenos had to undertake measures to minimize the effects of this devastating

married for the fourth time, this created a problem because this was against both religious and state tradition, and thus emperor was banned to enter St. Sophia by the patriarch. See Timothy E. Gregory, *A History of Byzantium* (Malden: Wiley-Blackwell, 2005), 227.

⁹³ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 218.

⁹⁴ When the researches analyzed the pollen records from the lake of Nar, the scientific data also proved such a decline in temperatures. See. Adam Izdebski, Lee Mordechai, and Sam White, "The Social Burden of Resilience: A Historical Perspective," *Human ecology* 46, no. 3 (2018). Volcanic activities might be reason for unusual temperatures by blocking the sunrays reaching to the earth with sulfuric clouds. Between the years 750-950 there are eight major volcanic activities that might be related to such a sudden decrease in temperatures according to ice records. However, according to the conclusions of prof. McCormick, around 927 there is not any specific eruption that might led to such a decline in temperature according to ice records and thus the reason for such a severe winter must be something else. For Further information about climate researches see: Michael McCormick, Paul Edward Dutton, and Paul A Mayewski, "Volcanoes and the Climate Forcing of Carolingian Europe, Ad 750-950," *Speculum* 82, no. 4 (2007). and Elena Xoplaki et al., "Modelling Climate and Societal Resilience in the Eastern Mediterranean in the Last Millennium," *Human ecology* 46, no. 3 (2018). and Elena Xoplaki et al., "The Medieval Climate Anomaly and Byzantium: A Review of the Evidence on Climatic Fluctuations, Economic Performance and Societal Change," *Quaternary Science Reviews* 136 (2016).

The change in the temperatures also might be a result of change in the activity of sun which is usually observed looking at the sun spots and this affects the amount of energy reaching to the earth. See: John Haldon et al., "The Climate and Environment of Byzantine Anatolia: Integrating Science, History, and Archaeology," *Journal of Interdisciplinary History* 45, no. 2 (2014).

famine, like preventing people from stockpiling and exploiting the misery of the populace.⁹⁵

There is mentioning of another storm in December which most likely occurred in 944 A.D. However, it was recorded very briefly. “There was a terrific storm in the month of December; what are called the Demes collapsed and broke the steps below as well as the balustrades.”⁹⁶ No further information was provided about this event.

There is another statement of a storm in the time of a power struggle between Byzantines and Arabs over Sicily. The date is not precisely given in the source, but it might be dated to 959, during the reign of Constantine VII. When he sent an army over Sicily, the Arabs were shipwrecked and had to accept a truce.⁹⁷

As they [Arabs] were approaching Palermo, they encountered a severe storm; their boats were capsized by the waves (or rather by Christ who is God, blasphemed by them) and they all perished. Then they made a treaty with the Romans and peace was maintained until the accession of Phocas.⁹⁸

Obviously, Skylitzes considered the involvement of a storm in the defeat of Arabs as a sign of God’s anger towards Muslims, who were thought to be heretics. In the history of Theophanes Continuatus, on the other hand, although it is conveyed that the Byzantines defeated Arabs with the help of stormy winds, he did not specifically emphasize any divine intervention.⁹⁹

In Theophanes Continuatus (the sixth book of histories), there is mentioning of a grain shortage which occurred in 961, during the second year of the reign of Romanos II (r. 959-963). Immediately, ships were sent to purchase cereals. They

⁹⁵ Eric McGeer, *The Land Legislation of the Macedonian Emperors* (Toronto (Ont.): Pontifical Institute of mediaeval studies, 2000), 50.

⁹⁶ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 223.

⁹⁷ Warren Templeton Treadgold, *A History of the Byzantine State and Society* (Stanford, Calif.: Stanford University Press, 1997), 493.

⁹⁸ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 256.

⁹⁹ Theophanes Continuatus, "Theophanes Continuatus Book VI," in *The Rise and Fall of Nikephoros Ii Phokas : Five Contemporary Texts in Annotated Translations* (Leiden: Boston Brill, 2019), 37.

tried to prevent merchants from hoarding the grain, however the prices increased anyway.¹⁰⁰ Pseudo-Symeon cited the same scarcity more briefly and added that the prices of wheat and barley had doubled.¹⁰¹ However, in both cases, the reason for that famine was not explained, and one cannot be sure whether this famine was weather related.

In the history of Skylitzes, there is a long account of fierce winds which blustered during May 967 and severely damaged agricultural production. This destruction led to a severe famine following the report of a terrible earthquake in September 967. Skylitzes is highly critical about the callousness of Nikephoros Phokas, who ought to be responsible for the wellbeing of his subjects. Skylitzes blames him for not following the footsteps of Basil the Macedonian. He also did not affirm the emperor's economic regulations regarding the grain shortage and multiplied prices. Furthermore, he related an anecdote, which took place between the emperor and a pious citizen who had worn gloomy clothes instead of the festal robes on the Sunday Renewal in the Church of Holy Apostles. Nikephoros asked the reason for his disheartening look, and the pious citizen replied:

‘It is right and proper that you, majesty, and those around you should wear festal robes and rejoice, but not for those for whom the expectation of death is here. But maybe you are unaware that two bushels of grain are selling for one piece of gold on account of the ferocity of the winds?’¹⁰²

Upon this response, realizing the gravity of the situation, he immediately talked to his officials who had not informed him about the seriousness of the subject. Then he ordered to put the imperial and public grain reserves on the market with an affordable price. However, it seems that this solution was also not sufficient to reduce prices. The severity of the famine can be seen with another dialogue in the

¹⁰⁰ Ibid., 75.

¹⁰¹ Ibid., 121.

¹⁰² Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 266.

same account, in which an older man tries to enlist himself as a soldier, and the emperor asks him the reason for his application at such an old age.

[Nikephoros] said to him: ‘Why are you, old fellow in such a hurry to get yourself enlisted as one of my soldiers?’ He boldly replied: ‘Because I am much stronger now than when I was young.’ ‘How can that be?’ asked the emperor. ‘Because it used to require two asses to carry as much grain as you could purchase for one piece of gold; but under your government I can easily carry two gold pieces’ worth of grain on my shoulders.’¹⁰³

These are the rare cases of quotations that show personal dialogues between the emperor and his subjects. If these conversations are not fabricated to enhance the narration, then it is clear that the emperor tried to listen to the complaints of his subjects and take action accordingly.

In June 967, Leo the Deacon described an incredible storm that burst in Constantinople unlike any other tempest had occurred before. His depictions are extremely vivid.

The rain poured down so violently that one could not see drops of rain as usual, but it was like streams overflowing with water. There was no church or renowned building that was not filled with water from above, through the roof, although the inhabitants laboriously drained it off into the streets; but as much as they poured out, poured in, and the flood was unconquerable. For three hours the rain poured down continually, and one could see overflowing rivers in the narrow streets of the city, destroying whatever living thing they carried along with them. The people wailed and lamented piteously, fearing that a flood like that fabled one of old was again befalling them. But compassionate Providence, which loves mankind, thrust a rainbow through the clouds, and with its rays dispersed the gloomy rain, and the structure of nature returned again to its previous condition. It so happened that there was a later downpour, which was turbid and mixed with ashes, as in *the soot from a furnace*, and it seemed lukewarm to those who touched it.¹⁰⁴

¹⁰³ Ibid.

¹⁰⁴ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 118,19.

As a contemporary, it is highly possible that Leo the Deacon experienced this storm. He also gave many biblical references in order to underline the severity of the storm.¹⁰⁵

Skylitzes, on the other hand, talked about fierce winds and a severe famine during the same year in 967 in great detail, which was explained in the paragraph before. However, he did not mention such a great flood in his account, unlike Leo the Deacon. It was most likely because the sources that Skylitzes used did not include this flood.

On the famine of 967: Leo the Deacon recorded a continuous famine (unrelated to this tempest mentioned above) that ravaged the Byzantine Empire for three years, but he did not explain them in detail. After a short depiction, he wrote how the emperor solved this problem by importing grain. “He put an end to the relentless evil of famine by the importation of grain, which he collected quickly [and] with forethought from markets everywhere, stopping the spread of such a calamity.”¹⁰⁶

Byzantines captured the city of Dorostolon [Dristra] in 971 in the reign of John Tzimiskes (r. 969-976). There is mention of a night with heavy rain and thunderstorm during the siege of the city. Although that quotation offers a vivid description of the siege and enhances its narrative, the storm does not play any significant role in the course of the blockade.

Since the arrival of any relief from outside was prevented by the Romans, one dark and moonless night when heavy rain was falling from the sky, atrocious hail pelting down, thunder and appalling lightning all around, he embarked in drakkars \monoxyloi\ with two thousand men and went off to forage. Each

¹⁰⁵ For biblical references see, *ibid.*, 119. “a flood like that fabled one of old” (Genesis 6-8) n.79; “thrust a rainbow through the clouds” (Genesis 9:13-14) n.80; “*the soot from a furnace*” (Exodus 9: 8,10) no:82

¹⁰⁶ *Ibid.*, 152.

one gathered whatever he could of the necessities of life: grain, millet and so forth.¹⁰⁷

While Skylitzes does not make any reference to any positive impact of this storm in defeating the enemy, and there is no indication of divine intervention, Leo the Deacon narrated that victory differently. He conveyed that “a wind and rainstorm broke out, pouring down heavily from the sky, and struck the enemy, and the dust that was stirred up irritated their eyes.”¹⁰⁸ Then, he linked the story about the appearance of a mysterious cavalryman that helped the Byzantines, and the course war changed in favor of the Byzantines.

Following the appearance of a comet in 989, Leo the Deacon describes many calamities, including an earthquake (which is mentioned earlier), floods, drought, famines, plagues, and strong winds. Although he does not refer to any specific case for each calamity, he mentions a fierce wind that led to high waves and the destruction of a column standing by the sea. “[...] gales of violent winds (when the column in the quarter of Eutropios was knocked over by the force of the waves and the monk [who lived] on it was cruelly drowned in the currents of the sea) [...]”¹⁰⁹

The winter of 1010-11 was a harsh one, as well. It was, however, unlikely that it lasted long enough to destroy the crops. And there is no mention of any famine that follows this severe winter. “The following year there was a most severe winter; every river and lake was frozen, even the sea itself.”¹¹⁰ However, there is no mention of a famine that was related to these extreme weather conditions.

Skylitzes discussed a severe drought throughout the reign of Constantine VIII that “even unfailing springs and rivers dried up.” The date is not specified; but,

¹⁰⁷ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 287.

¹⁰⁸ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 197.

¹⁰⁹ *Ibid.*, 218.

¹¹⁰ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 330.

because Constantine ruled between 1025 and 1028, it most likely occurred around this time. Due to the drought, farmers were having difficulties in paying their taxes, and Skylitzes criticized Constantine for not being generous like Basil II, who always considered postponements on tax payments. When Constantine demanded the delayed taxes as well as the taxes of the next three years on time, this harshly affected both the poor and the wealthy.¹¹¹ Zonaras referred to the same drought along with the difficulties in tax payments and the impoverishment of the people¹¹² in parallel with Skylitzes' history.

In October 1029, Skylitzes referred to a star fall; and, on that day, the Byzantine army was severely defeated in Syria. Then, as if all of these events were related, he wrote about extremely heavy rain, which lasted until March, and because of which "The rivers overflowed and hollows turned into lakes, with the result that nearly all the livestock was drowned and the crops were leveled."¹¹³ As a result of this flood, there was a great famine in the following season.

Skylitzes recorded a great hailstorm which probably occurred on Easter Day of 1034. It destroyed not only the trees but also the churches, and houses were demolished. Due to the damage to the crops, there was a shortage of all kinds of production, such as wine in that year. This narration continued with an unusual falling star, although the author does not create a direct correlation between those events.¹¹⁴

Probably in 1036 or 1037,¹¹⁵ there was a severe drought which would not let out a single drop of rain for six months. Thus, not only the brothers of the emperor

¹¹¹ Ibid., 352.

¹¹² Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 63.

¹¹³ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 356.

¹¹⁴ Ibid., 371.

¹¹⁵ In December 1036 there is mention of an earthquake, and Skylitzes continues his narrative without giving a new date. Thus, it seems that drought occurred around the same period.

but also the Patriarch and clergy held different processions through the city carrying the holy mandylion to pray to God for rain. The water they so desperately needed fell from the sky at last; but it came down as such a fierce hailstorm that it crushed the trees and destroyed the roof tiles. As a consequence, there was a famine in the city, and the inhabitants were saved only after importing grain from Peloponnese.¹¹⁶

There were also some events noted by Skylitzes without any additional detail. They are as follows: In 1039, there were frequent heavy rainfalls.¹¹⁷ Probably in the following year 1040, there was such a severe drought “that copious springs and ever-flowing rivers almost dried up.”¹¹⁸ Three years later, on September 1043, due to a violent wind, almost the entire vine fruit was destroyed, but he does not mention of any following wine shortage.¹¹⁹

When Psellos narrated the Russian attack in Constantinople in July 1043,¹²⁰ he mentioned a sudden hurricane, which destroyed the enemy ships and led to many casualties, along with the damage caused by Greek fire that the Byzantines used against the Russians.

Suddenly the sun attracted a mist off the low-lying land (most of the horizon consisted of high ground) and the weather changed. A strong breeze blew from east to west, ploughed up the sea with a hurricane, and rolled waves down on the Russians. Some of their ships were overwhelmed on the spot under the weight of tremendous seas; others were driven far away and hurled on to rocks and precipitous coasts. A certain number of these latter were hunted down by our triremes. Some they sank in deep water, with the crews still aboard. The fighting men in the triremes cut others in half and towed them, partially submerged, to nearby beaches. So a great massacre of barbarians took place and a veritable stream of blood reddened the sea: one might well believe it came down the rivers off the mainland.¹²¹

¹¹⁶ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 377,78.

¹¹⁷ *Ibid.*, 381.

¹¹⁸ *Ibid.*, 386.

¹¹⁹ *Ibid.*, 407.

¹²⁰ Jonathan Shepard, "Some Problems of Russo-Byzantine Relations C. 860-C. 1050," *The Slavonic and East European Review* (1974): 16.

¹²¹ Michael Psellus, *Fourteen Byzantine Rulers : The Chronographia*, trans. E. R. A. Sewter (Harmondsworth [Eng.]: Penguin Books, 1966), 202-03.

Psellos who was an eyewitness of this event, described the devastation wrought by the Russians in detail, but provided no further information about the natural event itself. Skylitzes also mentioned that part of was destroyed or captured by the Byzantines while another part of the Russian fleet was lost in storm and tempest, thus leaving them with not enough ships for the way back home. However, this description is quite limited compared to the depiction of Psellos.¹²² Zonaras, most likely based on the account of Skylitzes, also referred to the same event very similarly, emphasizing the role of the Greek fire and the tempest.¹²³

There was an extremely cold period during the winter of 1046-47, which caused the river Danube to freeze. Psellos,¹²⁴ Skylitzes, and Anna Komnene¹²⁵ all mentioned the same event. However, compared to the other two, Skylitzes explained the frost of this winter more detailed in the following way by emphasizing the extreme weather conditions.

It was toward the end of autumn and winter about to begin, the sun being in Capricorn: when a very strong wind arose from the north so that the river froze to a depth of fifteen cubits.¹²⁶ All guard duties being relaxed, Tyrach seized the opportunity for which he prayed: he crossed the Danube with all the Patzinaks, eighty thousand in number they say. They installed themselves on the other side, razing and devastating everything they came across.¹²⁷

Due to the extreme cold, the ice was so thick that it enabled the Pecheneg soldiers to pass over it.

The last account of an extreme weather event in the history of Skylitzes took place in 1054. In the summer of that year, many people and animals were killed by a

¹²² Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 407.

¹²³ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 101.

¹²⁴ Psellos, *Fourteen Byzantine Rulers : The Chronographia*, 318. Psellos, without giving a date, mentioned the crossing of the Pechenegs over the frozen Danube into Byzantine Territory.

¹²⁵ Komnene, *The Alexiad of Anna Comnena*, 122.who seems to have used Psellos as a source in this account.

¹²⁶ Fifteen cubits is about seven meters, which is clearly exaggerated. See *ibid*, p.429, n.153

¹²⁷ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 429.

great hailstorm.¹²⁸ Zonaras wrote about a shortage of corn and a famine which most likely took place within the same year¹²⁹ as the hailstorm. Because of the famine, the people were burdened with high taxes.¹³⁰ However, he did not mention any hailstorm, and whether it was the reason for the famine or not is unclear.

September of 1059 was exceptionally cold. During a campaign by Isaac Komnenos (r. 1057-1059) against the Pechenegs, his army on the way back to Constantinople was struck by an extreme cold weather. Four of our historians mentioned this event; Psellos, Attaleiates, Anna Komnene and Zonaras. Both Psellos and Attaleiates were contemporary historians to this event. While Attaleiates had a vivid depiction of the event, Psellos¹³¹ mentioned it quite briefly.

But when he encamped at the foot of a hill called Lobitzo, he suffered a fate that reflected the name of the place. For a torrential rain and a snowstorm suddenly struck the army – very unseasonably, for it was, after all, still during the month of September – and this caused great damage to the army many casualties. Almost all the cavalry and many of those who were present lost their lives after being exposed for so long to the constant and unbearable cold and rain. Also, the army suddenly found itself lacking in supplies, which were washed away by the flooding river and the wintry weather.¹³²

Anna Komnene's description also included the occurrence of thunder and lightning, and unseasonable nature of the snowstorm.

[...] a tremendous and unseasonable snowstorm overtook him (it was 24 September). The water level in the rivers rose and they overflowed their banks; the whole plain, on which the emperor and his army encamped, became a sea. All the supplies disappeared, swept away in the river currents, while the men and baggage animals were numbed with cold. In the sky there were constant rumbles of thunder, with frequent lightning flashes which followed one another in quick succession and threatened to set the whole countryside on fire.¹³³

¹²⁸ Ibid., 445.

¹²⁹ Zonaras does not indicate a specific date, but both Skylitzes and Zonaras talk about a plague around the same period. From the parallel descriptions, one can see that they must be talking about the same event. The hailstorm in Skylitzes' history and famine in Zonaras' history took place in the same year with the plague. Thus, hailstorm and famine also should take place in the same year.

¹³⁰ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 151.

¹³¹ Psellos, *Fourteen Byzantine Rulers: The Chronographia*, 320.

¹³² Attaleiates, *The History*, 123.

¹³³ Komnene, *The Alexiad of Anna Comnena*, 123.

Zonaras, on the other hand, preferred to give a summary by emphasizing the unusualness of the snowstorm for that time of year.¹³⁴

Attaleiates, Anna Komnene, and Zonaras' accounts wrote about Isaac's lucky survival from the fall of an oak tree in the following day of this storm. According to the *Alexiad* and the history of Zonaras, the emperor built an impressive chapel in honor of the proto-martyr Thekla upon that escape from death.¹³⁵ However, Attaleiates, as a contemporary historian, does not make any reference to the chapel. Therefore, Anna and Zonaras might be using some other source for that part of the story.

Attaleiates mentioned that, in December of 1068 (during the first eastern campaign of Romanos IV Diogenes, r. 1068-1071), there was a bitter and sudden cold that caused even men and animals to freeze to death since they had been unprepared for such icy temperatures.¹³⁶ Attaleiates himself was among them. He stated, "I myself escaped inescapable danger along the narrow road through Mount Tauros."¹³⁷ This might not be an extreme weather condition for December around Mount Tauros, but it reflects how they experienced that icy cold.

During another eastern campaign against Turkish attacks in 1070, there was a flood. The people who managed to escape from Turkish raids were suffering from torrents of water. When the news about the flood reached Attaleiates, he was feeling very depressed, he thought that this was a sign of divine anger, and not only Turks but also forces of nature were fighting against the Byzantines.¹³⁸

Within the years 1074-76, Attaleiates indicated lightning that struck 'the Immortals' in a public place located in the western part of the city, as a part of other

¹³⁴ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 125.

¹³⁵ Ibid., and Komnene, *The Alexiad of Anna Komnene*, 123.

¹³⁶ Attaleiates, *The History*, 219.

¹³⁷ Ibid., 221.

¹³⁸ Ibid., 257.

calamities occurring in the same period. However, the information is too limited for further conclusions.¹³⁹

In October 1080, the column in the forum of Constantine—at the top of which stands a bronze statue called Anelios—was struck by lightning. No man or animal was hurt, but the metal on the column was cut in pieces without any trace. Amazed by this event, Attaleiates started to share possible explanations for such an astonishing phenomenon. For almost three pages, he analyzed the ramifications of such an event and generally pondered what kind of materials might be harmed by thunderbolts.¹⁴⁰

Around the years 1081 and 1082, the Byzantines were having conflicts with the Normans over the rule of western territories. An example of one such power struggle is the conflict over Dyrrachium.¹⁴¹ Anna Komnene reported a sea storm that ruined the fleet of Robert, who was the ruler of the Normans and prepared an attack on Dyrrachium:

There was a heavy fall of snow¹⁴² and the winds blowing furiously from the mountains lashed up the sea. There was a howling noise as the waves built up; oars snapped off as the rowers plunged them into the water, the sails were torn to shreds by the blasts, yard-arms were crushed and fell on the decks; and now ships were being swallowed up, crew and all. And yet it was the summer season; the sun had already passed the Tropic of Cancer and was on its way to the Lion, the season when the Dog Star rises, so they say.¹⁴³

Anna Komnene described this event as God's wrath on the Normans because of Robert's 'insolent and overweening presumptuousness.' She believed that that is

¹³⁹ Ibid., 385.

¹⁴⁰ Ibid., 565,67,69.

¹⁴¹ A city also called Durac, Durres, Durazzo on the eastern coast of the Adriatic sea. After multiple attacks, the Normans, Robert Guiscard captured the city in 1081. See Kazhdan, *The Oxford Dictionary of Byzantium*, 668.

¹⁴² Although it is written as snow in multiple translations, most probably it was a hailstorm because the tempest took place in Summer time and it is very unlikely to snow around Adriatic sea in that season. If it was actually snowing, that would be a really extraordinary event, and Anna would have emphasized that.

¹⁴³ Komnene, *The Alexiad of Anna Comnena*, 132.

why the Lord did not listen to the prayers of Robert's crew but destroyed their ships. Most of his men and ships were ruined, but Robert's ship survived by chance.¹⁴⁴

Probably during the same summer that follows the storm mentioned above, the temperatures were extremely high, and there was such an intense drought that the Glycis river almost dried up. Therefore, Robert was having difficulty in dragging his ships down to the sea again.¹⁴⁵

The last disaster that Robert had to 'face' as it was narrated in the Alexiad was after his death on 17 July 1085. The ship that carried his dead body within a coffin was caught by a harsh storm that wrecked many of the vessels, but the crew managed to save the coffin. Upon this event, Anna referred to an astrologer who forecasted Robert's death in an oracle. In connection with that, she shared her ideas about astrology and the emperor's position towards such practices.¹⁴⁶

Anna Komnene recorded that the winter of 1090-91 was so severe that it snowed more than anyone remembered.¹⁴⁷

The date is not explicitly given, but probably in 1096, there was a severe storm in which a Duke named Ubus was caught while traveling from Bari to Illyria. He lost a significant number of ships and crews.¹⁴⁸

There are references to a sea storm in 1099. The storm burst out during the sea battle between Byzantines and Pisans. Both with the help of Greek fire and the storm that threatens them to sink, the enemy had to flee away, and Byzantines found a safe island for themselves.¹⁴⁹

¹⁴⁴ Ibid., 133.

¹⁴⁵ Ibid., 140.

¹⁴⁶ Ibid., 192.

¹⁴⁷ Ibid., 252.

¹⁴⁸ Ibid., 314.

¹⁴⁹ Ibid., 361.

Another sea storm occurred in 1104. Upon the news that the Genoese fleet was allying with Franks, the Byzantines wanted to be prepared for a possible attack. Hence they sent a fleet to the potential passage that Genoese might use, but they were struck by a storm in which many of the ships were damaged.¹⁵⁰

The last reference to a storm in Anna Komnene's history occurred in the capital in 1107. Zonaras also narrates the same event, emphasizing the fall of the bronze statue, which stands at the top of the Constantine column known as Anelios or Anthelios.

South-west winds blowing over a wide area from Africa suddenly blew this statue off its pedestal and hurled it [the statue] to the ground. At the time the sun was in the sign of Taurus. To most people this seemed no good omen, especially to those not well-disposed to the Emperor [Alexius I]. They whispered in secret that this accident portended his death.¹⁵¹

Both Anna Komnene and Zonaras were contemporary historians to this incident, and they both narrated it with an emphasis on the statue, but the details were quite different. Anna describes this event as an omen showing the providence of God according to many people. Thus, She discusses the relationship between the breaking of the figure and the emperor's health. Zonaras, on the other hand, does not create such a link and describes the natural happening itself in greater detail as follows.

At one time a strong and violent wind blew under this ruler during the spring, which caused many things to collapse. Among them was the statue - set on the big round porphyry pillar on the Plakoton - that also fell down, killing many pedestrians. The effigy that collapsed in the fall and broke into many pieces was of enormous size and of wonderful beauty. At another time, a very heavy downpour broke out, just on the feast day of the chief apostles of Christ, Peter and Paul; It started late in the evening and lasted until the same hour of the following day, without letting up. At that time, houses collapsed with pressure of the water, which filled the valleys and did not differ from any seas, and not a few people and many animals reached ruin.¹⁵²

¹⁵⁰ Ibid., 364.

¹⁵¹ Ibid., 380.

¹⁵² Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 176. English translation belongs to me. Translated from German:

He quotes a windstorm that not only broke the ancient statue but also led to the death of many people who were buried under the fallen figure. Moreover, he relates a substantial rain incident at another time (which was not specified) that the flood caused material damages but also many casualties, including men and animals. Anna does not mention either this flood or the victims.

According to Choniates, in 1139, there was an extraordinary winter that Cappadocians experienced fiercely. “The land of the Cappadocians is frost-bound and the climate bitter cold, and as the winter that year was uncommon, he contended with diverse evils. Supplies were practically depleted, and all the pack animals and war charges perished.”¹⁵³

Both Kinnamos and Choniates wrote about a flood that ruined the German camp during the Second Crusade on 7/8 September 1147. Although Byzantines needed the Latins' support in dealing with the Turkish threat, they were always skeptical about these foreigners who marched through their lands. Especially when they set up a camp around Choïrobacchoi (a point very close to Constantinople) Byzantines were quite perturbed that Crusaders might turn their face to Constantinople.¹⁵⁴ In this sense, natural events might be considered as signals from God that shows the Byzantines the honesty of the Germans in their intentions to be on the same side. Thus when the Melas (Karasu) river flooded and destroyed the

„Einmal wehte auch zur Zeit des Frühjahrs unter diesem Herrscher ein ganz starker und heftiger Wind, durch den vieles einstürzte. Auch die Statue, die auf der großen runden Porphyssäule auf dem Plakoton aufgestellt war, fiel herunter und tötete viele Passanten. Das Bildnis, das beim Sturz zerbrach und in viele Stücke zerfiel, war von gewaltiger Größe und wunderbarer Schönheit. Ein andermal brach ein sehr heftiger Regenguss los, gerade am Gedenktag der Hauptapostel Christi, Peter und Paul; er begann am späten Abend und dauerte bis zur selben Stunde des folgenden Tages, ohne nachzulassen. Damals stürzten durch den Andrang der Wassermassen Häuser ein, die Täler waren mit Wasser gefüllt und unterschieden sich durch nichts von Meeren, und nicht wenige Menschen sowie viele Tiere erreichte das Verderben.“

¹⁵³ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 20.

¹⁵⁴ Jonathan Phillips, *The Second Crusade: Extending the Frontiers of Christendom* (New Haven, Conn: Yale University Press, 2007), 175.

German camp, that event was conceived as a sign of God's disapproval.¹⁵⁵ Although both of the historians narrate this event in their own ways, their perception towards the event is very similar; Choniates, as well, believed that God was punishing the Germans. "Those who witnessed this chance event concluded that the wrath of God had fallen upon the German camp, bringing the sudden rush of floodwaters which swallowed them up so that they were unable to save themselves."¹⁵⁶

A sea storm struck the Byzantine army, during a campaign against an alliance of Serbs, Germans, and Hungarians over Sicily in 1149. Not only Kinnamos but also Choniates recorded this event. However, none of these historians interpreted this calamity as the wrath of God in contrast with the previous paragraph about the German camp. They just reported this incident as a difficulty that the Byzantine fleet had to face. In the case of Kinnamos, generals were responsible for some of the shipwrecks, "many of the ships, overlooked by the general's negligence, were smashed"¹⁵⁷ On the other hand, Choniates emphasizes more on the harshness of the storm with violent winds and thunderclaps, and the efforts of the Byzantines could not save them. "Manuel attempted to make a hasty crossing, the sea gave no support to the ships, sending them down into the darkness of the deep [...]"¹⁵⁸

The following three accounts by Kinnamos are related to some severe winters. Although there is not any specific attribution to the extraordinary weather conditions, one can see the influence of low temperatures in taking political or military decisions.

During the campaign mentioned above, Manuel I decided to go back to Constantinople at some point due to the fierce winter of 1149-50. "[...]" when in a

¹⁵⁵ Kinnamos, *Deeds of John and Manuel Comnenus*, 63.

¹⁵⁶ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 38.

¹⁵⁷ Kinnamos, *Deeds of John and Manuel Comnenus*, 82.

¹⁵⁸ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 52.

living creature bodily heat is concentrated around the heart, in many cases injury attacks the extremities, he then thought of the road to Byzantium.”¹⁵⁹ It is not certain whether this was an unusual winter or not because there were no further explanations.

An account of a fierce winter in 1159-60 is conveyed concerning the eastern campaign of Manuel I (r. 1143-1180), but there is only a short statement about it. “With the said men [prisoners] the emperor returned to the army; since he perceived that winter was setting in very fiercely, he returned to Byzantium.”¹⁶⁰

In 1167, there was a snowy and cold winter, but none of the histories reported a disastrous impact. “It was around the winter solstice, and so much snow was piled on the ground that not only were all the ravines and clefs in the mountains concealed, but bodies were almost frozen by the excess of cold.”¹⁶¹

Kilij Arslan’s visit to Constantinople in 1162 was already mentioned in the section about the earthquakes. In order to condemn the visit by the Sultan, who was clearly an infidel according to Choniates, he also stated “unstable and violent atmospheric conditions,” which are supposed to prove God’s anger.¹⁶² However, there was no further information, and one cannot be sure whether it reflects the actual atmospheric condition or whether it is just a rhetorical device that indicates the anger of the historian for welcoming such an ‘infidel’.

Choniates reported a sand storm during the battle of Myriokephalon in 1176 against the Seljuks, which affected both armies, it blocked their sight.

Then a strong wind blew, whipping the sandy soil into a violent sand storm that enveloped both armies. They fell upon one another, attacking their adversaries as though they were fighting in the night, and in the darkness that

¹⁵⁹ Kinnamos, *Deeds of John and Manuel Comnenus*, 83.

¹⁶⁰ *Ibid.*, 147.

¹⁶¹ *Ibid.*, 200.

¹⁶² Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 67.

can be felt, they slaughtered their own friends for it was impossible to distinguish between countryman and foreigner.¹⁶³

Obviously, this storm was not decisive in the course of the battle, but such detail about weather condition provides a more vivid description of the combat.

Choniates records a sea storm that struck the Sicilian fleet in 1185 in the period of a conflict with Byzantines. “It is said that many ships, men and all, sank in the deep when they encountered tempestuous winds, while famine and disease emptied out others.”¹⁶⁴

In 1200, after Alexius III (r. 1195-1203) marched out to the east to quell the rebellion of Michael, he made a break in the hot springs during his return to Constantinople and then wanted to make sea voyage. However, a fierce storm hit his ship, yet he managed to survive.¹⁶⁵

After the Latins conquered Constantinople in 1204, they intended to capture Thracian cities, as well. Therefore, in 1205, they camped outside of the city called Didymoteichon¹⁶⁶ and prepared for an attack to the town. However, suddenly, clouds covered the sky, and it started to rain in torrents. Thus, the overflowing of the nearby river called Evros (Maritsa) destroyed the Latin camp, including men and other war equipment and ruined the army. Then “The remainder of the troops, deeming the catastrophe a miracle, quickly withdrew.”¹⁶⁷

There is only one example of fog, reported in the selected narrative histories, that is presented as an unusual happening. When Kaloyan of Bulgaria, also known as Ioannitsa, besieged Adrianople, fog covered the region in May 1207.

¹⁶³ Ibid., 103, 04.

¹⁶⁴ Ibid., 201.

¹⁶⁵ Ibid., 291.

¹⁶⁶ A town still called “Didymoteicho” located in northwestern Greece.

¹⁶⁷ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 342.

[...] God performed afterwards. A fog rose up from the rivers and flowed by the city to cover the enemy troops like the darkness that may be felt; and so, rising up, the enemy departed from there and fled to their own country, deeming this event an awesome sign from God, who manifestly came to the aid of the defenders.¹⁶⁸

Although this event itself cannot be considered as a calamity, Choniates interpreted this event as a sign from God, and for him, the enemy fled because they considered it as a sign as well thinking that God came to the aid of the people in the city. The actual reason for this withdrawal is not certain, but our historian interpreted it in this way.

2.3 Pestilence and pests

Diseases and pests were among the gravest disasters as the causes of mass deaths, destruction of livestock and crops. Therefore, without focusing on any specific kind of plague such as Bubonic Plague, any epidemic that led to the death of immense numbers of people or animals, in the selected Middle Byzantine historical accounts will be considered in this section. Thus, references to the personal sufferings of sick emperors, for instance, are not included. Yet cases of Siamese twins are included because Byzantines considered them as abnormal and an evil omen of God as in the case of most of the natural disasters.

Epidemics that affect farm animals, and pests that harmed crops (locusts, in the case of presented sources) are also considered as disasters which might be the causes of severe famines. Especially for pre-modern people who were mainly dependent on local food production, such animal plagues or pest infestations often had devastating consequences.¹⁶⁹ Some scholars also think that there might be a

¹⁶⁸ Ibid., 349.

¹⁶⁹ Timothy P Newfield, "Livestock Plagues in Late Antiquity, with a Disassembling of the Bovine Panzootic of Ad 376-386," *Journal of Roman Archaeology* 30 (2017): 492.

relation between dreadful famines and the spread of plagues among people as a result of a weakened immune system.¹⁷⁰ However, all of the recorded disasters are only a small portion of what had been experienced because not every historian related such cases.

Skylitzes reported a famine and a locust plague ravaging the land of Bulgars in 927 when their king Symeon I (r. 893-927) died. "The Bulgar nation was suffering a severe famine and a plague of locusts which was ravaging and depleting both the population and the crops [...]"¹⁷¹ By looking at this quotation, the cause of the severe famine might be considered as the locusts, which destroy agricultural production. However, due to the unusually harsh winter and frosts in 927, the Byzantine lands were also suffering from a terrible famine. Thus, another reason for such a shortage in Bulgaria might be related to extreme weather conditions, along with the locust outbreak. As neighboring territories, they were probably influenced by the same extreme weather conditions.

In the year 944, the Byzantines had unusual visitors coming to Constantinople from the region of Cappadocia. They were male Siamese twins whose bodies were attached from their bellies. Leo the Deacon described them as follows:

I myself, who am writing these lines, have often seen them in Asia, a monstrous and novel wonder. For the [various] parts of their bodies were whole and complete, but their sides were attached from the armpit to the hip, uniting their bodies and combining them into one. And with their adjacent arms they embraced each other's necks, and in the others they carried staffs, on which they supported themselves as they walked. They were thirty years old and well developed physically, appearing youthful and vigorous. On long journeys they used to ride on a mule, sitting [sideways] on the saddle in the female fashion, and they had indescribably sweet and good dispositions. But enough about this.¹⁷²

¹⁷⁰ "Mysterious and Mortiferous Clouds: The Climate Cooling and Disease Burden of Late Antiquity," *Late Antique Archaeology* 12, no. 1 (2016): 98.

¹⁷¹ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 215.

¹⁷² Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 207.

He was amazed by them and explained their external appearance in detail, but he did not make any portentous attributions to their arrival. Skylitzes, on the other hand, cited the same event in an entirely different fashion.

In those days a monstrous thing came to the imperial city from Armenia: a pair of Siamese twins, males sharing a single belly, but they were driven out of the city as an evil portent. Then they came back in the [sole] reign of Constantine [VII]. When one of the twins died, some experienced doctors tried to excise the dead portion — and they were successful, but the living twin survived only a short while and then died.¹⁷³

In Skylitzes' text, the twins were perceived as an evil portent.¹⁷⁴ Additionally, different from Leo the Deacon, who was an eyewitness, he gave the information about the death of the twins that was illustrated in *Madrid Skylitzes*. (Appendix B, figure 1)

A cattle disease, which was called *krabra* by then, was ravaging Byzantine lands in 961. According to Skylitzes, enormous amounts of bovines perished as a result of it since the time of Romanos I Lekapenos (r. 920-44). The author did not indicate the regions that were affected by it, nor did he explain the symptoms of this disease. Still, his musings about the disease's origins are revealing:

It is said that when he was constructing a palace in which to gain relief from the summer heat close to the cistern of Bonos/ the head of a marble ox was found while the foundations were being dug. Those who found it smashed it up and threw it into the limekiln; and from that time until this there was no interruption in the destruction of the bovine race in any land that was under Roman rule.¹⁷⁵

Although the relation established between the destruction of the marble ox head and the spread of the disease sounds quite mythical from a present perspective, for Byzantines, it seems that it was a convincing argument. (Appendix B, Figure 2)

¹⁷³ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 224.

¹⁷⁴ Skylitzes was not a contemporary historian. He must be using the history of Theophanes Continuatus. For further information about the Siamese twins in Byzantium, GE Pentogalos and John G Lascaratos, ""Notes and Comments": A Surgical Operation Performed on Siamese Twins During the Tenth Century in Byzantium," *Bulletin of the History of Medicine* 58, no. 1 (1984).

¹⁷⁵ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 242-43.

In 1031, Skylitzes quoted that the Byzantine army was suffering from dysentery due to “extravagant living”. The Arabs overwhelmed many of them with an unexpected attack.¹⁷⁶ Although dysentery itself is not a contagious disease, because of the unhealthy and common living conditions, it affected the soldiers as a group. Skylitzes presented this disease as the cause of the Byzantine army's weakness and thus being slaughtered by the Arab army.

In 1032, famine and pestilence caused great trouble to the people of Cappadocia, Paphlagonia, the Armeniakon theme, and the Honoriad. As a result, a migration towards other regions of the empire started. Thus, in order to prevent this population movement, the emperor tried to compel them to return to their ancestral homes by supporting them with money and other materials for a living.¹⁷⁷ The reason for the famine, or the kind of epidemic, was not specified. Also, other factors, which might have affected people's departure, are not mentioned. However, these disasters were counted among a list of calamities following an unusual star fall. Furthermore, this part shows how such disasters might influence social mobility, and it shows the solutions that the emperor tried to create to prevent this migration.

Although the precise region is not explicitly stated, both Skylitzes and Zonaras reported about a locust plague that affected eastern provinces in 1034.

Skylitzes described it as follows:

For some time the eastern themes had been consumed by locusts, compelling the inhabitants to sell their children and move into Thrace. The emperor gave to every one of them three pieces of gold and arranged for them to return their home. The locusts were finally carried away by a powerful wind, fell into the high sea off the Hellespont and perished. They were washed up onto the shore where they covered the sand of the beach.¹⁷⁸

¹⁷⁶ Ibid., 362.

¹⁷⁷ Ibid., 364.

¹⁷⁸ Ibid., 367.

Skylitzes tried to demonstrate the severity of the situation by stating that people had to leave their homeland by selling their own children. Thus, locust plague also led to mass migration, similar to the epidemic of two years ago. Moreover, the measures of the emperor were almost the same. It is likely because both pestilence and locust plague had similar outcomes and measurements in Skylitzes' history, in the history of Zonaras, the pestilence in Cappadocia, Armeniakon, and Paphlagonia in 1032, and the locust plague in the eastern regions in 1034 are reported in conjunction with as if they were the same events. Zonaras was probably summarizing what had been conveyed in Skylitzes' history, but he might be confused due to the similarities as mentioned earlier.¹⁷⁹

In 1034, Skylitzes reported locust swarms in Thrakesion (continued for three years) as well as in Pergamon. It seems that the pests attacked not only the eastern but also the western regions in the same year. Therefore, they could be moving from east to west. Also, Skylitzes mentioned a vision that predicted the arrival of grasshoppers to Pergamon. The locust plague and this vision were described as follows.

The swarms of Locusts which had expired (as we reported) on the sands of the shore of the Hellespont now spontaneously regenerated and overran the coastal regions of the Hellespont again, devastating the Thrakesion theme for three whole years. Then they appeared in Pergamon but perished there, as one of the bishop's servants saw beforehand in a vision [395] (not a dream, for he was awake). It was as though he saw a eunuch dressed in white, of radiant appearance. [This apparition] was ordered to open and empty the first of the three sacks lying before him, then the second, and after that the third. He did as he was commanded; the first sack poured out snakes, vipers and scorpions; the second, toads, asps, basilisks, horned serpents and other venomous creatures; the third, beetles, gnats, hornets and other creatures with a sting in the tail. The man stood there speechless; the bright apparition stood close to him and said: 'These came and will come upon you because of your transgression of God's commandments and the desecration of the emperor Romanos which has taken place and the violation of his marriage bed.' That is what happened so far.¹⁸⁰

¹⁷⁹ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 68.

¹⁸⁰ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 372.

In the year 1036, Skylitzes presented another swarm of locusts in the theme of Thrakesion. He wrote that the crops were damaged, but did not provide further information.¹⁸¹

When Skylitzes wrote about earthquakes and heavy rainfalls in 1039, he also mentioned an epidemic of quinsy that led to the death of such an enormous amount of people that “the livings were unable to carry away the dead”.¹⁸² However, this was probably hyperbole to communicate the sheer inconceivable amount of death rather than reflecting the reality. None of the other sources, including Psellos, Zonaras, or Attaleiates, convey such an enormous amount of casualties.

During the conflict years of 1047-53 between the Byzantines and the Pechenegs, Attaleiates listed a pestilent disease that spread among the enemy since they were foreign to the lands of the Byzantines.¹⁸³ Even though he gave no clue about this pandemic, it might be an influenza epidemic due to the change in weather conditions.

Not only Skylitzes but also Zonaras wrote about a plague that brought about numerous deaths in July-September 1054, following a food shortage in Constantinople. Skylitzes narrated this event in a manner almost identical with the 1039 epidemic: “the capital was visited by plague; the living were unequal to the task of hearing away the dead.”¹⁸⁴ Zonaras also explained the severity of the condition nearly word for word identical¹⁸⁵ with Skylitzes’ account most likely by copping it.

¹⁸¹ Ibid., 376.

¹⁸² Ibid., 381.

¹⁸³ Attaleiates, *The History*, 53.

¹⁸⁴ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 445.

¹⁸⁵ The reason for such similarity might be because Skylitzes’ history was among the sources of Zonaras.

However, he additionally underlined the sorrowfulness of the citizens as a consequence of these deaths besides the oppressing unjust taxes.¹⁸⁶

Attaleiates reported an epidemic disease that destroyed the army of Ouzoi (a Turkic tribe) in 1064, but no further information was indicated about the illness period “Among those who were left behind, however, a vast horde still, some were devastated by an epidemic disease and hunger and were only half alive [...]”¹⁸⁷

The account on Siamese twins in the beginning of this section showed that the Byzantines considered some genetic abnormalities as evil portents. Another example of such a perception was conveyed during the years of the uprising of Rouselios¹⁸⁸ (1074-76), but the precise date was not given.

In that year a number of portents were observed in City of Byzas. A three-legged chicken was born as well as a baby with an eye on its forehead (and having single eye at that) and the feet of a goat. When it was exposed in the public avenue in the area of Diakonissa, it uttered the cries of a human baby.¹⁸⁹

Other portents that are mentioned along with the quoted cases were thunderbolts that killed people, and a comet that appeared in the sky. Thus, clearly the Byzantines saw these events as somehow related to their bad political conditions, like revolts, or wars.

Another army that suffered from epidemic diseases was under the command of Robert,¹⁹⁰ the king of the Normans, during the years 1081-82. According to Anna

¹⁸⁶ Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 151.

¹⁸⁷ Attaleiates, *The History*, 157.

¹⁸⁸ Roussel de Bailleul was a Norman mercenary. He was born in Bailleul Normandy, and in 1074 he started a rebellion against Michael VII (r. 1067-1078). Kazhdan, *The Oxford Dictionary of Byzantium*. vol.3, 1814.

¹⁸⁹ Attaleiates, *The History*, 385.

¹⁹⁰ Robert of the Normandy was born around 1054 and died in February 1134. He was the leader of first crusade. Kazhdan, *The Oxford Dictionary of Byzantium*. vol.3, 1800.

Komnene, the combination of famine and disease caused immense numbers of soldiers to perish: around ten-thousand men within three months.¹⁹¹

In the historical accounts of both Zonaras and Komnene, who were contemporaries of each other, the details of the arrival of Latins to the Byzantine lands during the first crusade (around 1096) were reported differently. However, they share one common narrative on westerners' arrival; the locust swarm. The appearance of the locusts just before the Frankish army should have been considered as a bad sign among Byzantines as common sense. Zonaras quotes it as a providential signal, "[...] a divine sign had predicted their movement. For a great number of grasshoppers that came from the West and were so numerous that they were like the clouds in flight and darkened the sun, [...]"¹⁹² Likewise, Komnene also considers the Franks' arrival as a divine sign, but she elaborates more on this topic and explains locusts as the symbol of the defeat of the Muslims.

The arrival of this mighty host was preceded by locusts, which abstained from the wheat but made frightful inroads on the vines. The prophets of those days interpreted this as a sign that the Keltic army would refrain from interfering in the affairs of Christians but bring dreadful affliction on the barbarian Ishmaelites who were slaves to drunkenness, wine, and Dionysus. [...] Each army, as I have said, was preceded by a plague of locusts, so that everyone, having observed the phenomenon several times, came to recognize locusts as the forerunners Frankish battalions.¹⁹³

In both of these histories, rather than the material destruction of the pests, the authors concentrated on their symbolic connotations. They saw them as a way of conveying the message of God. Komnene makes another reference to this event as a portent when she relates the arrival of the emperor in Thessaloniki against the attack of

¹⁹¹ Komnene, *The Alexiad of Anna Comnena*, 139.

¹⁹² Zonaras, *Militärs Und Höflinge Im Ringen Um Das Kaisertum*, 1118, 168. English translation is belong to me: "...ein göttliches Zeichen hatte deren Bewegung vorausgesagt. Denn eine ungeheure Zahl von Heuschrecken, die aus dem Westen stammten und so viele waren, dass sie im Flug den Wolken glichen und die Sonne verdunkelten, ..."

¹⁹³ Komnene, *The Alexiad of Anna Comnena*, 309,10.

Bohemond. This time, however, the omen is a comet instead of locusts. “The locust did not precede the Kelts as on previous occasions, but a great comet appeared in the sky, greater than any seen in the past.”¹⁹⁴

Those records which do not specify times or dates will be presented last. These usually do not refer to any specific incident. Instead, they are used to describe the severity of the condition.

Leo the Deacon mentions a plague as one of the calamities that occurred following the comet that appeared in 915, but he does not give any specific details.¹⁹⁵ Again similar to this case, during the capture of Cherson in 989, the rise of a star was related to other disasters like earthquakes, and adverse weather conditions, which were described in more detail by Leo the Deacon. However, in the case of the plague, there is not any specific attribution.¹⁹⁶

Anna Komnene reported on plagues in general without any particular case and evaluates on the natural reasons of them with several examples like inequalities of the climate and so on. However, according to her the actual cause of these plagues is the weakness of the Byzantines.¹⁹⁷

¹⁹⁴ Ibid., 378.

¹⁹⁵ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 211.

¹⁹⁶ Ibid., 218.

¹⁹⁷ Komnene, *The Alexiad of Anna Comnena*, 52.

CHAPTER 3

EXPLANATIONS FOR NATURAL DISASTERS DEPICTED IN NINTH TO THIRTEENTH CENTURY HISTORIES

When all of the aforementioned natural disaster narratives are taken into consideration, there are three ways of dividing these common perceptions under sub-categories. These divisions are; explaining the disasters with their natural causes, divine intervention in their occurring, and their relationship with astronomic phenomena. However, it is not always easy to create clear-cut divisions between these categories because all of the perceptions indicated earlier are somehow connected to the Christian doctrine. In other words, even if the natural causes are reported in a more ‘scientific’ way, still religion plays an essential role in their conclusions. However, one must not reflect the modern perception of science to the Byzantine world, which would be anachronistic. The word ‘scientific’ was chosen to underline the consideration of natural observation by the Byzantines. Thus, these are not entirely independent, but interconnected categories that are formulated to grasp how Byzantine historians interpreted the calamities that they chose to narrate. In the Byzantine understanding of the laws of nature and universe, all ‘philosophy’, ‘science’, and ‘pseudo-science’ have common goals and roles.¹⁹⁸ However, they approach the world from different angles; while Byzantine philosophy is more related to Christian doctrine, science is based on direct observation of nature, and pseudo-science is relevant to astrological explanations. Therefore, understanding of the Byzantine perception of natural disasters can also contribute to the comprehension of all of these three fields.

¹⁹⁸ Maria Mavroudi, "Occult Science and Society in Byzantium: Considerations for Future Research " in *Occult Sciences in Byzantium*, ed. Maria Mavroudi Paul Magdalino (Geneva: La Pomme d'Or, 2006), 47.

3.1 Natural explanations

While writing on the medieval period, it is not possible to talk about any perception, which focuses purely on the natural causes of the events without any religious attributions. On the other hand, labeling the Middle Ages with religious dogmas seems to be quite unfair.

As a part of their curriculum, besides their religious education, Byzantine historians were very well aware of the classical teaching, and thus other possible explanations of natural disasters. Hence, sometimes these classical explanations, primarily influenced by the Aristotelian view, reflected on writer's evaluation of the reasons for such events.¹⁹⁹ Therefore, the historians who adopted the ideas of Aristotle on the origins of natural disasters like earthquakes and thunderbolts are going to be comparatively discussed in more detail. However, to comprehend the cultural background of the authors that must have played a role in the causes they attributed to disastrous events, it will be useful, to begin with, a discussion of the education system that Byzantine historians were raised in, and their understanding of philosophy and science.

3.1.1 Education: Classical versus Christian doctrines

The aim of this part is neither to explain the educational system of the Byzantines in detail, nor to enter a discussion over the Byzantine perception of science and religion based on their classical or religious training, which is an expansive field of study in itself. Instead, the purpose is to understand dominant discourses and interpretation

¹⁹⁹ Until the medieval period many other Byzantine intellectuals made use of the ideas of Aristotle, and one cannot claim that the historians mentioned in this thesis were using direct references from Aristotle. However, even if our historians were using some intermediary authors who used Aristotelian ideas, still the purpose of here to emphasize the view based on natural observation.

schemes in depicting natural disasters, which was shaped for the most part through the education they got.

Besides religious education, the Byzantine education system was primarily based on the classical texts and curriculum, which includes seven liberal arts of antiquity that are grouped under two main categories: quadrivium (arithmetic, geometry, astronomy, and harmonics) and trivium (grammar, rhetoric, logic). The basis of the syllabus was a philosophical argument, and then students were studying more complex texts like Plato and Aristotle only at the advanced levels.²⁰⁰ On the other hand, education was run privately, and there was not a strict timetable invariably implemented by everyone. Also, not everyone has the opportunity to get this education, primarily because of the high tuition fees.²⁰¹ Thus, it is not a coincidence that all of the historians mentioned in this work come from the upper classes of the Byzantine society. In the time of Constantine Porphyrogenitus, the state was more involved in the institutionalization of secular education, realizing that non-religious sciences were neglected for a long time, and sent officials to the towns in order to organize these schools.²⁰²

By all means, besides the issues mentioned above and classical texts, students read religious texts and were educated in religious philosophy in various churches

²⁰⁰ Judith Herrin, *The Surprising Life of a Medieval Empire* (London: Allen Lane : [distributor] Penguin Books Ltd, 2007), 120.

²⁰¹ Athanasios Markopoulos, "Education," in *The Oxford Handbook of Byzantium*, ed. John Haldon and Robin Cormack Elizabeth Jeffreys (New York: Oxford University Press, 2008), 786, 87.

²⁰² E. Nicolaidis and S. Emanuel, *Science and Eastern Orthodoxy: From the Greek Fathers to the Age of Globalization* (Baltimore: Johns Hopkins University Press, 2011).

Skylitzes wrote about this movement: "On his own initiative he brought about a restoration of the sciences of arithmetic, music, astronomy, geometry in two and three dimensions and, superior to them all, philosophy, all sciences which had for a long time been neglected on account of a lack of care and learning in those [238] who held the reins of government. He sought out the most excellent and proven scholars in each discipline and, when he found them, appointed them teachers, approving of and applauding those who studied diligently. Hence he put ignorance and vulgarity to flight in short order and aligned the state on a more intellectual course." Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 229.

not only around Constantinople including Hagia Sophia and Holy Apostles,²⁰³ but in the churches and monasteries all over the empire. Therefore, these two main pillars (classical and Christian) were the foundation of our historians' educational and cultural background.

However, while analyzing the education of science and religion in the Byzantine world, we should put aside our modern conceptions. Especially with the Enlightenment views and the division of disciplines in the nineteenth century, there was a tendency to see a controversy between religion and science, which was never the case for Byzantines.

After a long period during which most intellectuals saw the relationship between science and religion as a conflict symbolized by the trial of Galileo (perceived through the play by Bertolt Brecht), we now see this tendency changing, even reversing.²⁰⁴

However, it does not mean that all of the fields were considered unified. There was a kind of departmentalization for a different area of interests. Psellos, for instance, depicts explicitly that different people were specialized in various fields of study. Astrologers were focusing on the study of heavens; geometricians studied geometrical figures, scientists discovered the secrets of nature, and philosophers were interested in the syllogism.²⁰⁵

Eudoxi Delli's explanations on the classical considerations of sciences help us to understand Byzantine adaptation of them into a Christian worldview.

The ancient concept of Sciences had acquired its basic meaning formed mainly by philosophers, especially Plato and Aristotle. Their conception of Science and especially natural Sciences was associated with the vision of a coherent Universe, a model of Perfection and Goodness serving as a guide to

²⁰³ Jonathan Harris, "Institutional Settings: The Court, Schools, Church, and Monasteries," in *The Cambridge Intellectual History of Byzantium*, ed. Niketas Siniouoglou Anthony Kaldellis (United Kingdom: Cambridge University Press, 2017), 32.

²⁰⁴ Nicolaidis and Emanuel, *Science and Eastern Orthodoxy: From the Greek Fathers to the Age of Globalization*, ix.

²⁰⁵ Psellus, *Fourteen Byzantine Rulers : The Chronographia*, 369.

wisdom and happiness. The rational order of Cosmos had to be imitated and transformed in human experiences, self-knowledge and perfection. The way the World worked and the Meaning of Life, in all its expressions, were closely interconnected.²⁰⁶

In other words, natural sciences are not merely tools to understand how things work, but they might have a more spiritual side to understand the universe and meaning of life, which are features that Christian theology also might make use of. However, although Christian scholars took advantage of these ideas, they did not refrain from calling classical authors impious.²⁰⁷

The concept of the philosopher, like science, also had different connotations for the Byzantines. Psellos, for instance, mentioned a lot about philosophers and in one case made a difference between ancient Greek philosophers and Byzantine ones. He uses the term philosopher, but to prevent any misunderstanding between these two; he explains to whom he is referring to as follows.

Not only did he regularly attend Holy Church, but he paid particular heed to the philosophers. By the word 'philosophers' here I do not mean those who have tried to discover the principles of the universe -- and neglected the principles of their own salvation -- nor those who have examined the essence of nature. I mean those who have scorned the World and who live with the Beings above this world. Who, then, that lived such a life, escaped the emperor's notice?²⁰⁸

Thus, according to him, any philosophical work that does not include religious philosophy²⁰⁹ is not included in his definition of the philosopher, and the attempt to understand the essence of the universe without referring to the Christian God, as in the case of ancient writers, will be against their salvation.

²⁰⁶ Eudoxi Ddelli "Eudoxi Delli, "Science and Religion in Byzantium: A Preliminary Mapping of the Field", 3

²⁰⁷ Attaleiates, for instance, while explaining the causes of the earthquakes, writes; "but everything, according to those who think in a pious way, depends on the divine will." So, the ones who does not explain from a religious point of view must be impious. Attaleiates, *The History*, 163.

²⁰⁸ Psellus, *Fourteen Byzantine Rulers : The Chronographia*, 106,07.

²⁰⁹ 'Religious philosophy' is only used in order to make a distinction from classical doctrine and Byzantine themselves never considered it like that.

All in all, the dual legacy in the education system (classical heritage and Christian theology) reflected on the author's explanation of natural disasters as a combination of these various backgrounds. Thus, although in most of the cases they are not interested in the origins of natural calamities and attribute them to God's will, sometimes influenced by Aristotle's ideas, they comment on the possible natural causes.

3.1.2 Influence of the Aristotelian view

Although classical philosophy, including especially the teachings of Plato and Aristotle, was modified and accepted by the Alexandrian school from the third century onwards, this was not the case in Constantinople until the time of Heraclius in the sixth century. From then on, these two figures became a part of the classical education of the Byzantines. After the foundation of the Academy of Constantinople, the studies on these two figures were even intensified in the eleventh century.²¹⁰

However, within the boundaries of this thesis, the purpose is not to discuss the effects of the entire Aristotelian philosophy on the Byzantine intellectual life, but to present his perception about the causes of natural phenomena based on natural observations.

In this sense, his impressive work, *Meteorology*, in which he depicts his ideas on natural occurrences, will be the focal point. The title of the book 'Meteorology', however, used in a broader sense which covers not only the explanations²¹¹ of

²¹⁰ Klaus Oehler, "Aristotle in Byzantium," *Roman and Byzantine Studies* 5 (1964): 135-37.

²¹¹ He makes his explanations as he called it by looking at 'signs' like wind, behaviors of the animals or the temperature etc. and all of the signs that occurred before, during and after the event constitute his proofs. For more information, see. Cynthia A. Freeland, "Scientific Explanation and Empirical Data in Aristotle's *Meteorology*," in *Aristotle: Logic and Metaphysics*, ed. Lyod P. Gerson (Taylor & Francis, 1999).

atmospheric phenomena, but also terrestrial happenings like earthquakes, and cosmological events like comets.

In *Meteorology*, Aristotle states the reasons for the natural occurring by giving references to the opinions of the other thinkers like Anaxagoras or Democritus. Thus, these theories do not purely reflect his ideas but are the outcome of the accumulation of knowledge in the classical age.

In Middle Byzantine histories, there were two examples of natural disasters that can be compared to the descriptions of Aristotle: earthquakes and lightning.

About earthquakes:

In the case of the causes of earthquakes, for instance, Aristotle records: Democritus says that the earth is full of water and that when a quantity of rainwater is added to this an earthquake is the result. The hollows in the earth being unable to admit the excess of water it forces its way in and so causes an earthquake. Or again, the earth as it dries draws the water from the fuller to the emptier parts, and the inrush of the water as it changes its place causes the earthquake.²¹²

In the quotation mentioned above, the force of flowing water is depicted as the reason for shakings. According to other explanations, however, evaporation and wind power might also lead to such trembling.

We have already shown that wet and dry must both give rise to an evaporation: earthquakes are a necessary consequence of this fact. The earth is essentially dry, but rain fills it with moisture. Then the sun and its own fire warm it and give rise to a quantity of wind both outside and inside it. This wind sometimes flows outwards in a single body, sometimes inwards, and sometimes it is divided. All these are necessary laws. Next we must find out what body has the greatest motive force.²¹³

In the following pages, his descriptions went further by including the details, like how the earthquakes might occur at different times of the year, in different hours of the day, and at various places. These explanations are not included in the texts

²¹² Aristotle, *Meteorology*, trans. Erwin Wentworth Webster (Raleigh, N.C: Alex Catalogue, 2000), Book 2, Chapter 7.

²¹³ Ibid., Book 2, Chapter 8.

written by Byzantine historians, but instead, they focused on the causes of the earthquakes in a very similar fashion with the quoted part.

One author, who makes an attribution to the analysis of Aristotle from the period that covered in this thesis, is Leo the Deacon. Although he seems not convinced by the natural explanations that are provided in the classical texts, he cautiously related the possible causes of earthquakes in detail.²¹⁴

Mathematicians tell the tale that the cause of such a quake and trembling is certain vapors and fumes, confined in the bowels of the earth, which are then combined into a stormy wind; since the vapors cannot all escape together, because of the narrow outlets, they compress together, whirl about, and spin round the hollows [of the earth] with a violent movement, and shake everything that is covering and containing them, until they explode from their confined area, and after being blown outside are dispersed into the kindred air. The foolish babbling of the Greeks has explained these things the way they want it; but I would go along with the holy David and say that it is through the agency of God that such quakes happen to us, when, as He watches over our ways of life, [He sees] acts contrary to divine ordinance, in the hope that, terrified in this way, men may avoid base deeds, and strive rather for praiseworthy ones.²¹⁵

He considered these definitions as 'the foolish babbling of the Greeks'. Then he gave the opinions of the Holy David²¹⁶ as a counter-argument and emphasized the divine intervention. He argued that earthquakes are sent as a warning when people move away from God's commandments.

Leo the Deacon as a member of the higher clergy definitely rejected the natural causes of the earthquakes. He most likely gave such a detailed explanation to refute these claims. However, it is noteworthy that even if one had a religious career, he was still well educated on the classical texts.

²¹⁴ About the influence of the Aristotelian view see, Erhard Oeser et al., *Historical Earthquake Theories from Aristotle to Kant* (Wien: Geologische Bundesanstalt, 1992), pp.12-18.; Guidoboni et al., *Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th Century*, pp.42-46.; Bakır, "Impact and Consequences of Earthquakes in Byzantine Constantinople and Its Vicinity, A.D.342-1454," pp.99-106.;

²¹⁵ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 118.

²¹⁶ See footnote n.73 *ibid.* (See Ps. 103 (104):32:"[the Lord], Who looks upon the earth and makes it tremble.")

The choice of the term ‘mathematician’ here is also worthy of attention since it helps us to evaluate the Byzantine understanding of science. The word indicates here most likely the intellectuals who were interested in the field of natural sciences. The observations and calculations of the natural phenomena, including the observations of cosmological events, might have been considered to be natural sciences, but one should be aware that it is beyond our understanding of modern science. Anna Komnene mentions another mathematician, for instance: “A certain mathematician called Seth²¹⁷ who boasted loudly of his knowledge of astrology had forecast Robert’s death, after his crossing to Illyricum. The prediction set out in the form of an oracle on a paper and sealed.”²¹⁸ These observations were also used as signs in order to predict the future even if there is no causal relations. Therefore, clearly the concept of mathematician is not entirely differentiated from the field of metaphysics.

Attaleiates is another historian who quotes earthquake theories in Aristotle’s *Meteorology*. Unlike Leo the Deacon, Attaleiates considers the natural causes of earthquakes, but still, he sees Divine providence as the primary factor.

For this reason one theory of those who investigate earthquake as natural phenomena was overturned, namely that tremors are caused at random and without warning by the flow of water in the hollows of the earth and the turbulence of the winds there. For if the motion was caused, as they claim, solely by the violence of those elements as they twist around in the hollows of the earth and create flows of compressed air, then the tremors would not have any order to them and their vast and irrepressible force would not cease at the point of collapse, lest the entire world be subsequently destroyed. On this occasion the tremor was revealed as a sign sent from God, given that the turbulent motion was both large and also orderly, and its purpose was to restrain and control human urges. This sanction is the work of divine forbearance whose goal is not to utterly destroy mankind but turn it to a better path. That earthquakes are caused by air flows or the motion of the waters is not out of place considering the interconnected structure of the nature and it is even likely to be true to a certain extent. However, the shaking does not

²¹⁷ Symeon Seth was interested in pseudo-science and he was a contemporary to Psellos. Komnene, *The Alexiad of Anna Komnene*, 193. See footnote n. 19.

²¹⁸ *Ibid.* 193

happen randomly – this is what is being refuted by us – rather, it is caused by divine will, given that God does not govern the things of this world in an unmediated way. Thus, the immediate cause of rain appears to be the gathering of clouds and the cause of thunder and lightning their crashing together, but everything, according to those who think in a pious way, depends on the divine will.²¹⁹

According to Attaleiates, the random feature of the earthquakes and their natural explanations were overturned. As in the case of rain, by all means, every natural event occurs within a natural cause. Thus, he does not deny the factors that can lead to such tremors and indicates each possible natural reason. For him, on the other hand, they do not occur arbitrarily, and thus, these explanations are not entirely sufficient to explain the process. Therefore, although there might be some obvious natural causes for earthquakes, the main reason for them is the displeasure of God and the desire of his to send a warning to the human being. In other words, without a complete rejection of natural causes, he tries to find a compromise between religious and divine explanations.

About lightning: Another natural phenomenon, which was also discussed in the *Meteorology* and which might lead to disastrous consequences is lightning.

Aristotle depicted its causes as follows:

But if any of the dry exhalation is caught in the process as the air cools, it is squeezed out as the clouds contract, and collides in its rapid course with the neighboring clouds, and the sound of this collision is what we call thunder. This collision is analogous, to compare small with great, to the sound we hear in a flame which men call the laughter or the threat of Hephaestus or of Hestia [...] there is actually fire in the clouds. Empedocles says that it consists of some of the sun's rays which are intercepted: Anaxagoras that it is part of the upper ether (which he calls fire) which has descended from above. Lightning, then, is the gleam of this fire, and thunder the hissing noise of its extinction in the cloud.²²⁰

Then he continued with the description of how a thunderbolt may create damage:

²¹⁹ Attaleiates, *The History*, 163.

²²⁰ Aristotle, *Meteorology*, Book 2, Chapter 9.

When there is a great quantity of exhalation and it is rare and is squeezed out in the cloud itself we get a thunderbolt. If the exhalation is exceedingly rare this rareness prevents the thunderbolt from scorching and the poets call it 'bright': if the rareness is less it does scorch and they call it 'smoky'. The former moves rapidly because of its rareness, and because of its rapidity passes through an object before setting fire to it or dwelling on it so as to blacken it: the slower one does blacken the object, but passes through it before it can actually burn it. Further, resisting substances are affected, unresisting ones are not. For instance, it has happened that the bronze of a shield has been melted while the woodwork remained intact because its texture was so loose that the exhalation filtered through without affecting it. So it has passed through clothes, too, without burning them, and has merely reduced them to shreds.²²¹

It is not clear whether Aristotle would agree with the other people who claim that lightning is the 'laughter' or the 'threat' of Gods. However, while explaining the nature of thunder, he gives reference to ancient Gods, as well. His explanations are mainly depending on his observations of nature. All the same, this text does not attempt to illustrate Aristotle as a 'positivist intellectual' who has nothing to do with religious attributions (which would be anachronistic to claim). Although he aimed to explain the nature of things based on the evidence, still one cannot assert a complete rejection of religious doctrine.

Attaleiates, similar to the case of earthquakes, used the information provided by Aristotle once more while explaining the occurrence and nature of lightning.

However, besides giving a reference to the Aristotelian view based on natural observation, he also added the opinions of 'ordinary' men.

As for the causes of lightning, each person offered a different explanation, all-different from each other. For those who study these matters suggest, on the basis of the science of the nature, that it is a river of fire generated by the collision and disruption of clouds. The lightning is extremely fine and strikes against objects in its path with incredible force and thrust, bursting through them violently and suddenly. And they say that the lightning fire is so naturally fine that it cannot harm object of loose texture or ant porous body or with small pores, like veils among fabrics and other similar things. Thus if it happens that lightning falls upon a strip of linen, cotton, or some other

²²¹ Ibid., Book 2, Chapter 9.

material under which is layered gold, it melts the gold and turns it into a metal blob, as if in a fiery furnace, but leaves the material of the fabric unharmed. The same is true with people, for lightning enters the body through its invisible pores and burns up the interior organs because of their greater solidity and the fact that they have no pores, while often the exterior of the body is not burned and is found hollow, left behind without its entrails. But laymen counter this theory by saying that the cause of the damage is a huge dragon like serpent which is seized by some invisible force and tears apart anything that it encounters with its claws and the strength of its roughness and coiling motions, when it happens, that is, that its resistance and spasm thrust violently and drag against those who attract it. Such was the nature and the importance of the omen from the air, at least for those who are interested in these matters.²²²

For the natural causes, he uses the data from *Meteorology*, but he does not directly refer to Aristotle. For him, this information comes from the people who study the science of nature ‘*φυσιολογία*’. The observation of nature is the basis of his descriptions like, collisions of the clouds or the texture of the material that might be hit by the lightning, etc.

As a counter-argument, he mentions the theories of the laymen. According to that, a dragon-like creature is a reason for the thunderbolts. This kind of explanations was neither based on natural observations nor religious texts. This is a kind of mythical explanation that is most likely a part of the oral tradition.

Unlike the earthquake definition, Attaleiates did not clearly state his ideas in describing the causes of lightning. He depicts the information regarding different explanations ‘for those who are interested in’ these matters, yet there is no indication of his own position. He seems to be in equal distance to both natural and supernatural explanations that include a dragon-like serpent. However, based on his use of the words ‘the omen from the air’ in his last sentence, one can assume that he considered the lightings to be sent by God, but it was not discussed in detail. Nevertheless, by looking at the earthquake description one can still assume that he believed in divine

²²² Attaleiates, *The History*, 567-69.

intervention as the original cause, although essentially he agreed with the observable natural evidence.

The natural causes without Aristotelian references: Until this point, a direct comparison of the natural disaster narratives with the work of Aristotle was possible. However, although it might not be directly identified as Aristotelian view other attempts to understand the nature of things is also worth mentioning.

Anna Komnene, for instance, wrote about the possible origins of deadly plagues.

It seems to me that if a body is sickly, the sickliness is often aggravated by external causes, but that occasionally, too, the causes of our illnesses spring up of themselves, although we are apt to blame the inequalities of the climate, indiscretion in diet, or perhaps, too, the humors of our animal juices, as the cause of our fevers. Similarly, like these physical ailments, I fancy the weakness of the Romans at that time was partly the cause of these deadly plagues: I mean the various men before mentioned, the Ursels, the Basilacii, and all the crowd of pretenders, but partly, too, it was Fate that introduced other aspirants to the throne from abroad, and foisted them on the Empire like an irremediable sore and incurable disease.²²³

In this case, she seems to be in general convinced by the physical and observable causes of the plagues. However, she claimed that these epidemics might be also the result of the weakness of the state. Nevertheless, this may also be an analogy between the bad political conditions and the diseases rather than showing these conditions as the actual causes for such pestilence. Either way, she seems to be well-informed about physical causes of such plagues.

Although storms were considered as resulting from God's will in most of the cases, there are also cases indicating that they were considered as part of a natural cycle. Especially for the time of equinoxes, the stormy weather was something expected. Kinnamos, for instance, narrates a great sea storm in which many ships

²²³ Komnene, *The Alexiad of Anna Comnena*, 52,53.

were wrecked. “So when a great storm suddenly arose (for it was about the Autumn equinox), many of the ships [...]”²²⁴ In this description, he did not relate the storm to any metaphysical cause, and the stormy weather was considered to be a part of the annual cycle.

3.2 Religious explanations

The seventh Angel poured his bowl into the air, and a great voice came out of the temple, from the throne, saying, “It is done!” And there were flashes of lightning, loud noises, peals of thunder, and a great earthquake such as had never been since men were on the earth, so great was that earthquake. The great city was split into three parts, and the cities of the nations fell, and God remembered great Babylon to make her drain the cup of the fury of his wrath. And every island fled away, and no mountains were to be found; and great hailstones, heavy as a hundred weight, dropped on men from heaven, till men cursed God for the plague of the hail, so fearful was that plague.²²⁵

Both Old and New testaments are full of stories that depict natural disasters like plagues, earthquakes, storms, and locusts as God’s wrath on human beings.

Therefore, for Byzantines, who were raised by listening to or reading such biblical stories within a highly religious society, interpreting the natural disasters from a religious perspective should not be surprising. However, when the natural disaster cases mentioned in the previous chapter are analyzed, God’s intervention was not always emphasized in each natural disaster narrative. In many cases, how this event occurred or what was the damage that has been done by the disaster was in focal point without emphasizing God’s providence. Although it is not mentioned every time, however, one can still assume that for the Byzantines, God’s intervention in such event was already something commonly accepted. Although in most of the

²²⁴ Kinnamos, *Deeds of John and Manuel Comnenus*, 82.

²²⁵ Herbert G. May and Bruce Manning Metzger, *The Oxford Annotated Bible* (New York: Oxford University Press, 1965), 1505. Revelation:17

cases, there is not a direct reference to the biblical stories, divine intervention was underlined in many of them.

On a different note, sometimes the biblical stories were effective in enhancing natural disaster narratives rather than implying God's involvement. As in the case of locust swarms, for instance, even if they were devastating in only a few kilometers across, the damage might be conveyed even more dramatically than it actually happened, probably as a reflection of catastrophic narratives in the bible.²²⁶ Or sometimes as Leo the Deacon did, in order to underline the fierceness of the flood he compares it with the biblical flood story "The people wailed and lamented piteously, fearing that a flood like that fabled one of old was again befalling them."²²⁷

The collected evidence for religious perspectives in natural catastrophe narratives can be grouped under four main subdivisions; the wrath, aid, and omen of God, including the work of demons, which is not a common way of interpretation, in any case. The wrath of God is the most emphasized one, but it does not have to be always a bad thing. If the wrath of God is on the enemy, the natural disasters were sometimes considered as the opposite; as help from God. Another common perception of calamities is considering them as signs from God, especially as indications of political crisis. In addition to these three, some events are considered demonic signs. Although it is quite rare, it is worthy of mention as a reflection of the religious point of views.

²²⁶ This prediction is not for the Byzantine era, but might be useful in considering the extent of the damage. Rohr, "Writing a Catastrophe. Describing and Constructing Disaster Perception in Narrative Sources from the Late Middle Ages," 92.

²²⁷ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 119.

3.2.1 Wrath of God

The wrath of God is the most common interpretation in depicting natural disasters, but on many occasions, it was underlined when a disaster happens to the enemy. The examples below show the cases that the Byzantines themselves were punished as a result of their misdoings.

The reign of Michael II Amorion (r. 820-829) is not covered in the scope of this thesis. However, because it gives hints about Skylitzes'²²⁸ interpretation of natural disasters, the quotation below is worth pointing out, although it is outside of the focused period.

Michael II was an iconoclastic emperor, and another defining feature of his reign was the revolt of Thomas the Slav.²²⁹ Although there is no evidence of exceptionally calamitous period in terms of natural anomalies, the historian creates a connection between some hazards, and crisis period of the uprising as if they were part of a period of disasters. This is probably because the writer seems to be not in favor of Michael II as being an iconoclast emperor. Therefore, he should be thinking of; not only this political crisis but also the iconoclastic attitude as a result of God's anger.

That is how the uprising was completely extinguished and stamped out; but the sequence of disasters was not going to end there. For after the two land masses (I mean Asia and Europe, like the head and tail of the same body) underwent the wrath of the Lord (even though not conscious of it), afflicted by killings, burnings, earthquake, brigandage, civil war, hopeless dislocation of cities, portents in the sky, portents in the air; then it was the wretched islands, located as it were in the middle, that disasters struck in order to afflict the entire body. But there was no correcting those who refused to revere the likeness of the God-man.²³⁰

²²⁸ Although it is not the interpretation of Skylitzes himself, he was conveying the perception of another Byzantine historian that he used as a source. By keeping the same way of writing about such disasters, it can be claimed that he was convinced and agreed with the original author.

²²⁹ Robert Browning, *The Byzantine Empire* (Washington: The Catholic University of America Press, 1992), 64.

²³⁰ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 44.

According to Skylitzes, as a result of the emperor's refusal of the icons, God wanted to punish the emperor and sent any natural disasters one can imagine. As a non-contemporary historian, Skylitzes should be only conveying the same perspective agreeing with the previous author.

Leo the Deacon considers the earthquake of Klaudiopolis as God's wrath, but in this case, there is not any specific attribution to any misdoing that might be a reason for such an earthquake. However, in the part in which he outlined the causes of earthquakes -- already discussed in the previous chapter -- he explains that the cause of earthquakes, in general, is the wrongdoing of people. Thus, this earthquake is the one that led him to create such a discussion on the causes of them and reflects his ideas about earthquakes in general without any specific wrongdoing of any specific person.

In any case, all Klaudiopolis was at that time destroyed from its foundations by the force of the earthquake, and obliterated, *draining the cup of God's untempered wrath*. Also during this year, around the middle of summer, just as the sun was entering the sign of Cancer, a storm burst forth in Byzantium and its environs, such as had never occurred before.²³¹

This quotation also illustrates that not only earthquakes but also storms might be perceived as the result of God's anger.

Both Kinnamos and Choniates wrote Sultan Kilij Arslan's visit in Constantinople from a very similar perspective. They were not in favor of an infidel being welcomed in the capital, and disasters were proving that it was against God's will as well.

Sultan was about to make his appearance before the citizens to receive their applause, *God annulled the splendors of that day*. *The earth shook* and many splendid dwellings collapsed, the atmospheric conditions were violent and unstable, and other such terrors took place so that one could not pay heed to the triumph, and the mind swooned. The clergy of the holy church, contended

²³¹ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 118.

(and the emperor himself received their words as evil omens) that *God was wrathful* and that under no circumstances would tolerate an impious man to show himself and participate in a triumph adorned by all-hallowed furnishings and embellished by the likeness of the saints and sanctified by the image of Christ.²³²

In this case, personal disapproval of some political moves tried to be supported by the simultaneous natural disasters, which is considered to be the proof of the divine dissatisfaction.

3.2.2 Aid of God

This perspective is not entirely different from the one that sees the natural calamities as the wrath of God. However, from a Byzantine perspective, these disasters can be considered as God's aid since they happen to the enemies. In many cases, there are reports that the Byzantines became advantageous since a storm struck the foe.

Anna Komnene, for instance, described a fierce storm that gave great damage to Robert's crew while they were preparing to march against the Byzantine fleet.

A terrible cry arose as they groaned and lamented, calling on God, imploring His aid and praying that they might see the mainland. But the tempest did not die down, as if God were venting his wrath on Robert for the unyielding, presumptuous arrogance of the men; as if he were showing by a sign at the very outset that the end would be disastrous.²³³

According to her, this storm should have been an outcome of the misbehaviors of Robert. God was so furious against him that he was not listening to the prayers of Robert's crew, and sent all of his rage against them so that they could not achieve what they had set out to. Anna Komnene should have believed that God was trying to prevent Robert's attack against the Byzantines.

²³² Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 67.

²³³ Komnene, *The Alexiad of Anna Comnena*, 132.

Leo the Deacon also referred to a windstorm that enfeebled the enemy, and then further added a story as a proof of God's intervention in their defeating the enemy. According to this story, a man on a white horse appeared during the course of the battle, and—with the help of this man—the enemy was destroyed. After the battle, nobody was able to find this man, and they were totally convinced that he was actually the martyr Theodore who was sent by Virgin Mary in order to help the Byzantine army, as it had been foretold in a dream the night before the battle.²³⁴ Thus, according to the history of Leo the Deacon, the outbreak of the storm, and appearance of this man were related to the divine causes. This divine intervention was revealed in a dream. This is how the Byzantines managed to defeat their enemy.

Skylitzes thought that the storm that destroyed the Arabs while they are sailing against Sicily was the result of God's wrath on them. "As they [Arabs] were approaching Palermo, they encountered a severe storm; their boats were capsized by the waves (or rather by Christ who is God, blasphemed by them) and they all perished."²³⁵ Thus, according to Skylitzes, this storm was beyond being a natural phenomenon, a way of depicting God's fury. This storm was crucial in defeating the Arab army; consequently, they had to sign a peace treaty with the Byzantines.

Both Kinnamos and Choniates related the storm that struck the German camp as God's wrath on them during the Second Crusade. However, from a Byzantine perspective again, this storm was something very advantageous. Choniates' take on the same event is again very close in terms of divine intervention.

A disaster beyond description allegedly happened to them there, from which one might reasonably guess that Divinity was angry at them, who had falsified their oaths and who practiced great inhumanity toward people who were of the same religion and who had done them no wrong.²³⁶

²³⁴ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 197.

²³⁵ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 256.

²³⁶ Kinnamos, *Deeds of John and Manuel Comnenus*, 63.

In the stories mentioned above, it was underlined that extreme weather condition considerably helped the Byzantines in their victories without depicting God being on the side of the Byzantines. However, this time, it was emphasized that the reason for God's anger on the Germans was breaking their agreement with the Byzantines, and having the intention to attack people who belonged to the same religion. Therefore, according to Kinnamos, without any doubt, God was on the side of Byzantines and punishing the Germans for their malice.

In another case of a fierce storm, hereafter the conquest of Thessaloniki by the Arabs, God is not showing his wrath against people, but his mercy. Hence, Kaminiates relates the story not as if God is the reason for that storm, but as if he is the one who took control of it by listening to prayers.

But the Lord, who knows what is invisible and who searches out what is hidden, did not allow it to happen, and when he saw that the hearts of all had abandoned all hope and were manifesting their helplessness to Him who by His will alone can do all things, He turned His face towards them. And He made the storm a gentle breeze, smoothed the harshness of the waves and saved them from so great a danger, making it clear to a land virtually causing inanimate nature to proclaim how the God of wonders can rescue those who call upon Him in truth and in fear.²³⁷

When the Arabs took Kaminiates as a captive, their ship had faced a severe storm. However, God heard the honest prayers of all the prisoners, and he calmed the storm down. Thus, this is proof of how the perception of the authors affect the way they interpret a disaster. If he believed that the people in that ship were evil in their character, he would probably focus on the fierceness of the storm and the Wrath of God on them. However, this time, he chose to emphasize God's mercy on the prisoners.

²³⁷ Kaminiates, *The Capture of Thessaloniki*, 129.

3.2.3 Omen of God

In Byzantine sources, Astronomical phenomena are the events that were considered most prominently as signs from God. However, the natural events themselves sometimes also might be used as signals that presage the other disasters.

Leo the Deacon, for instance, approaches natural disaster from a more ‘apocalyptic’ perspective. According to him, all of the disasters that happened in his lifetime are signs from God which shows that the end of the world is near.

Many extraordinary and unusual events have occurred in novel fashion *in the course of my lifetime* fearsome sights have appeared in the sky, unbelievable earthquakes have occurred, thunderbolts have struck and torrential rains have poured down, wars have broken out and armies have overrun many parts of the inhabited world, cities and whole regions have moved elsewhere, so that many people believe that life is now undergoing a transformation, and that the expected Second Coming of the Savior and God is *near, at the very gates*. For these reasons I have resolved not to pass over *in silence* events that are full of horror and *worthy of amazement*, but to recount them openly, so that they may be a lesson to later generations.²³⁸

This perspective interpreting the disasters as the sign of the apocalypse is the result of the influence of the biblical explanations. In the New Testament Matthew 24²³⁹ and Mark 13,²⁴⁰ it is written that many disastrous events like wars, earthquakes, extreme weather conditions, astronomic abnormalities would signify Christ’s arrival on earth, and thus will signify the end of the world. Knowing about these signs, Leo the Deacon should be thinking that it was the end of time as an observer of such disasters.

Attaleiates likewise conceived of natural disasters as omens. While explaining the possible causes of earthquakes, he concluded that they occur

²³⁸ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 55,56.

²³⁹ Matthew, "Matthew 24," in *The Holy Bible King James Version*, ed. Gordon Campbell (Oxford: Oxford University Press, 2010).

²⁴⁰ Mark, "Mark 13," in *Holy Bible, New King James Version*, ed. Gordon Campbell (Oxford: Oxford University Press, 2010).

according to God's will and "the tremor was revealed as a sign sent from God"²⁴¹ in order to warn people for their misdoings.

In the following case, Attaliates, Zonaras, and Anna Komnene all talk about the 'miraculous' survival of Emperor Issac Komnenos from several disasters as the sign of God's concern about him, not the disasters themselves were represented as signs.

After surviving from a fierce storm, the emperor luckily managed to avoid a falling tree. "At once, as though at a signal, the tree was torn up by the roots and lay in full view on the ground. Isaac stood before it marveling at God's care for him."²⁴² Thus, he considered this miraculous survival from two disasters as a sign of God's care for him.

As an opposite example of the God-favored emperor, Skylitzes constructed a relationship between political misbehaviors of tyrants and natural disasters. He believed that natural disasters are the signs or proof of upcoming political catastrophes for the tyrants.

Everybody living under this grievous tyranny persisted in interceding with the Deity, appealing for some relief. God frequently shook the earth; the inhabited world was assailed by awesome and fearful [portents]: comets appearing in the sky, storms of wind and rain in the air, eruptions and tremblings on earth. In my opinion, these things presaged the forthcoming unparalleled catastrophe for the tyrants.²⁴³

In the case of a locust plague that arrived just before the Frankish crusader army, Anna Komnene stated that the arrival of the locusts is the sign for the Christian victory over the impious Muslims.

The arrival of this mighty host was preceded by locusts, which abstained from the wheat but made frightful inroads on the vines. The prophets of those days interpreted this as a sign that the Keltic army would refrain from

²⁴¹ Attaleiates, *The History*, 163.

²⁴² Komnene, *The Alexiad of Anna Komnene*, 123.

²⁴³ Skylitzes, *John Skylitzes : A Synopsis of Byzantine History, 811-1057*, 383.

interfering in the affairs of Christians but bring dreadful affliction on the barbarian Ishmaelites²⁴⁴ who were slaves to drunkenness, wine, and Dionysus.²⁴⁵

Here the emphasis of the historian is neither on the economic damage done by the locust plague nor on any food shortages. However, what is underlined by this plague is that this was a sign for the defeat of the Muslims.

In the following instance, the fall of a statue as a result of a violent wind was interpreted as a sign that foretells the death of the emperor. After a religious discussion that there cannot be a relation between a statue and death, she concludes that everything happens according to the providence of God.

He made light of it: "I know of one Lord of life and death. The collapse of images, I am absolutely certain, does not induce death. Come, tell me now, when a Pheidias²⁴⁶ or one of the stonemasons works at the marble and turns out a statue, will he produce living beings, will he rise up the death? And suppose he does, what then will be left for the Creator of all things? He says, 'I will destroy and I will make to live.' That cannot be said of the fall or setting up of this or that statue." In fact, he ascribed everything to the mighty providence of God.²⁴⁷

Thus, the natural occurrences do not only symbolize the anger or favor of God, but sometimes the Byzantines tried to interpret them in order to predict future happenings.

Choniates depicts us how natural disasters were considered as signs of other calamities in the past. Thus, after the sack of Constantinople by Latins during the fourth crusade, Choniates complains that there was no sign that foretell this disaster will happen to the Byzantines. "O Christ our Emperor, what tribulation and distress

²⁴⁴ Like Hagarens another name used for Turks. See fn. n.24 in Komnene, *The Alexiad of Anna Comnena*, 309. However, it means the descendants of Ishmael, and might also refer to Muslims in general.

²⁴⁵ Ibid., 309.

²⁴⁶ A famous ancient Greek sculpturer. Kenneth DS Lapatin, "Pheidias Ἐλεφαντουργός," *American Journal of Archaeology* (1997): 663.

²⁴⁷ Komnene, *The Alexiad of Anna Comnena*, 380.

of man at that time! The roaring of the sea, the darkening and dimming of the sun, the turning of the moon into blood, the displacement of the stars – did they not foretell in this way the last evils?”²⁴⁸ He was so shocked by the fact that such a great disaster (losing the Roman capital to the Latin forces) had occurred without any portent. Therefore, in the following pages he underlined his surprise once more. By claiming that no terrestrial or celestial sign was sent in order to warn the Byzantines against the approaching Latin disaster.²⁴⁹

3.2.4 Natural disasters as demonic acts

Although it is a rare interpretation, some natural disasters were interpreted as work of demon in two different histories. Because there were only two examples of such an approach, it might be hard to make a general conclusion about this perspective.

However, they still reflect a different kind of position that one should depict.

One of these accounts is *Alexiad*. Anna Komnene discussed an earthquake that struck a group of religious men that she had considered heretics. She stated that at first, they were not afraid because they thought that the tremor was the work of a demon.

The fall of stones was followed by a sudden earthquake which rocked the ground, and the roof-tiles had rattled. Nevertheless Parasceviotes, before he realized that this was devil’s work, had (according to his story) been; unafraid, but when he saw that the stones raining down, as it were, from heaven and that the wretched old heresiarch had slunk inside and closed the door behind him, he decided that this was in deed the doings of demons and knew not what to make of it.²⁵⁰

Although she did not claim that the earthquake was caused by demons, she conveyed the event as if she read the mind of the monk who was buried under the wreckage. In

²⁴⁸ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 316.

²⁴⁹ *Ibid.*, 322.

²⁵⁰ Komnene, *The Alexiad of Anna Comnena*, 499.

this case, because the religious figures who suffered the earthquake belonged to an unorthodox sect of Christianity, she tried to relate their activities to demonic acts. Thus, she narrated the event as if the monks were in contact with the demons. That is why they were not surprised by the tremors at first. Although she did not state it clearly, she might depict the earthquake as a punishment for their cooperation with the devil. Nevertheless, it is not obvious whether the demonic attribution was as an outcome of the marginal position of this religious group in society.

Another account that mentions demonic interference is in the history of Choniates. Before the Cuman attack on Thrace, he reported the arrival of vast numbers of jackdaws and ravens. There were also fierce storms hitting the region, and he identified demonic forces probably related to such wretchedness.

Before this Cuman incursion through the Thracian plains, armies of jackdaws from the north and ravens from the south came together in the same place, as the result of fate and not by chance; they clashed, and the ravens prevailed, putting the phalanxes of the jackdaws from the south to flight. It was only the Thracian provinces that the demon reduced to such wretchedness, but the sea also burst forth, wreaking havoc, and rolling storm of pernicious evils and calamitous tempests were whipped up; neither did the western provinces suffer any the less.²⁵¹

It might be claimed that the Cuman invasion was qualified as demonic acts and other natural disasters were also accompanying the disastrous conditions. Thus, he considered a direct link between unfavorable conditions with the arrival of the Cumans and severe weather conditions. However, it is not apparent whether he refers demon to depict wickedness of the enemy or interference of the devil.

²⁵¹ Niketas, *O City of Byzantium : Annals of Niketas Choniates*, 350.

3.3 Astronomic events as signs of natural disasters

In many cases, astronomic phenomena like comets, meteors, eclipses or unusual stars were mentioned along with the natural and/or political disasters. This is because Byzantine historians believed that there was a direct connection between these events. Thus, how the Byzantine historians saw this relationship would be examined through various examples without touching upon each case that mentions astronomic phenomena in the sources since not every one of them is related to natural disasters.

Except for the comet that appeared before the birth of Constantine VII,²⁵² in most of the cases, Middle Byzantine historians refer to astronomical events as the omens of catastrophic events. However, these calamities do not have to be always stemmed from natural causes. According to Byzantine historians, astronomic phenomena might also portend uprisings, defeats, or the death of emperors. There is not, however, any case that mentions direct damage. Thus, in the analytical framework of this thesis, the astronomical phenomena are not treated as disasters themselves, but rather as omens that foretell the upcoming calamities.

Leo the Deacon, for instance, gives great importance to the astronomical events. He related comets, meteors, or eclipses in great details on five different occasions. First, he mentioned, “fearsome sight appeared in the sky”, and how it was a sign for other calamities such as earthquakes and plagues that occurred during his lifetime. Then he referred to two different comets; one appeared at the birth of Constantine VII, and the other during the reign of John Tziskes (r. 969-976), from August to October 975 AD. In order to understand the meaning behind its appearance, the emperor consulted some astronomers about the comet. Although

²⁵² Theophanes Continuatus, Leo the Deacon, Skylitzes, and Zonaras all talk about this comet in connection with Constantine VII’s birth.

their interpretation was that the emperor would have a victorious and long life ahead, the opposite happened to him.

But the appearance of the comet did not foretell these events, which the men told the emperor to please him, but bitter revolts, and invasions of foreign peoples, and civil wars, and migrations from cities and the countryside, famines and plagues and terrible earthquakes, indeed almost the total destruction of the Roman empire, all of which I witnessed as the events unfolded.²⁵³

He also mentioned a sun eclipse. In this case, he did not directly refer to any specific calamity that they experienced due to this eclipse, but he gave an example from the time of Christ that there was also a similar eclipse when he was crucified. Thus, the eclipse was related to something evil, but not a contemporary disaster was depicted.

Even if there was not such an extraordinary case like a comet or eclipse, in two cases (one is a meteor, and the other one is a rising star), Leo the Deacon still tried to establish connections with calamities like defeats or unusual natural conditions. Therefore, it could be argued that by acknowledging the relationship between the astronomical occurrence and catastrophes on earth, he wanted to find heavenly clues for such happening.

Psellos, on the other hand, held a different view. "I certainly do not believe that the positions or the appearance of stars affect what goes on in the sublunary world."²⁵⁴ Thus, most likely due to this approach, his account does not include any astronomic event related to any disaster.

Skylitzes who was a contemporary writer to Psellos, on the other hand, is among the historians who make attributions to the astronomical phenomena the most. His account, like Leo the Deacon is full of narratives that cover influences of comets, star falls and eclipses.

²⁵³ Leo, *The History of Leo the Deacon : Byzantine Military Expansion in the Tenth Century*, 211.

²⁵⁴ Psellos, *Fourteen Byzantine Rulers : The Chronographia*, 266.

In five different occasions, he mentioned comets appearing in the sky. However, only one of them was directly associated with natural disasters, which was an earthquake. All the other cases were related to political misfortunes, except the one that appeared at the birth of Constantine VII.

He also talks about four star-falls, and this time, each one of them associated with various natural disasters like floods, storms, famine, earthquakes, and pestilences, but at the same time some political problems like Arab attacks. There are also four occasions that he refers to sun and moon eclipses. Two of them remain without any explanation, but one of them is considered to be related to a fierce storm and lightning.

Both Zonaras and Attaleiates wrote about the same comet in their narrative, but they did not associate it with any natural disasters directly. Nevertheless, even if they did not comment on any relationship between those events, both of them still mentioned this comet just after an earthquake narrative.

Attaleiates referred to one more comet and one moon eclipse case in his history. Each of them was considered as portents. In the case of the moon eclipse, for instance; “[...] an eclipse of the moon had occurred which also presaged his [Bryennios] impending downfall.”²⁵⁵

Anna Komnene, who was an admirer of Psellos, seems to be thinking similarly with him. Apparently, she was not totally convinced by the astronomical explanations: “for never would I attribute our fate to the movements of the stars.”²⁵⁶ However, in one case she talks about a comet as a sign.

The locust did not precede the Kelts as on previous occasions, but a great comet appeared in the sky greater than any seen in the past. Some likened it to a small beam, others to a javelin. Of course it was natural that the strange events about to take place should in some way be heralded by signs in the

²⁵⁵ Attaleiates, *The History*, 523.

²⁵⁶ Komnene, *The Alexiad of Anna Comnena*, 458.

heavens. It was visible for days and nights, moving across the sky from west to east. All who saw it were terrified and asked what it portended.²⁵⁷

Following this occasion, she related her father's opinion about astronomy. The Emperor did not want to give credits to such explanations, "for he [emperor] was of opinion that they [comets] arose from some natural cause,"²⁵⁸ but at the same time he wanted to be sure whether the observation of heavens is helpful to predict the future and consulted some astrologers.

Astronomy (like the observation of stars or calculations based on movements of heavenly structures) was part of the Byzantine educational system. In this sense, the Byzantine historians or other intellectuals would not consider these observations problematic at all. However, in some cases, when this science was used to get news from the future, there were oppositional arguments.²⁵⁹ Therefore, the Byzantines saw a difference between astronomy and astrology. While astronomy is the observation and calculation of heavenly bodies, astrology is the applied form of it, which means to predict the future by looking at the positions of stars.²⁶⁰ It is thought that the only being which has the ability to know the future is God, and thus many Christian intellectuals were strongly against the study of astrology which became popular among Byzantines around the eleventh century.

Anna was among these people who were skeptical about this science the reasons were explained while she was expounding the position of the emperor on this matter.

²⁵⁷ Ibid., 378.

²⁵⁸ Ibid., 378.

²⁵⁹ For further insight: The argument between Michael Glykas and Manuel I Komnenos is a great example to understand the perspectives of different oppositional parties in the matter of astrology. Demetra George, "Manuel I Komnenos and Michael Glykas: A Twelfth Century Defense and Refutation of Astrology" (University of Oregon, 2000).

²⁶⁰ Such a difference is still valid today. However, not every writer is strict on this terminology difference, and in some cases they might use these terms interchangeably.

The art of divination is a rather recent discovery, unknown to the ancient world. In the time of Eudoxus,²⁶¹ the distinguished astronomer, the rules for it did not exist, and Plato had no knowledge of the science; even Manetho²⁶² the astrologer had no accurate information on the subject. In their attempts to prophesy they lacked the horoscope and the fixing of cardinal points; they did not know how to observe the position of the stars at one's nativity and all the other things that the inventor of this system has bequeathed to posterity, thing intelligible to the devotees of such nonsense. I myself once dabbled a little in the art, not in order to make use of any such knowledge (Heaven forbid!) but so that being better informed about its futile jargon I might confound the experts.²⁶³

Choniates, on the other hand, seems to be more convinced by the idea that astronomic phenomena can be portents for calamities. In the case of the occupation of Constantinople by Latins, for instance, he was questioning of not having any 'celestial signs'. He also talks about one comet and two eclipses, but no specific attributions were made to the natural disasters.

²⁶¹ Eudoxus of Cnidus (c. 408-355 B.C.) was an ancient astronomer and mathematician who was studied under platon. See ftn. n.20 in Komnene, *The Alexiad of Anna Comnena*, 193.

²⁶² Manetho was an Egyptian priest who lived in the third century B.C. See ftn. n.21 in *ibid.*

²⁶³ *Ibid.*, 193,94.

CHAPTER 4

CONCLUSION

This thesis has presented and analyzed in chronological order the natural disasters, which occurred between 867 and 1204 and recorded in some selected Middle Byzantine histories. This presentation not only allows the reader to get informed about the natural disasters recorded in the Middle Byzantine histories but also through an examination of the disaster narratives themselves, allows concluding the perceptions of the Byzantine historians on those extraordinary events.

The chronological depiction of natural disaster narratives was categorized under three main subtitles according to the type of natural disasters, which were earthquakes, atmospheric phenomena, and pestilence and pests. This division is supposed to allow the reader to compare the extent to which the calamities differed from one another. However, it is understood that natural disasters, regardless of their type, were considered as calamities in general by the contemporary historians and the way of narrating these events have standard features in depicting their causes. Thus, this division is an analytical one and not according to how the Byzantines described these events; instead, it helps to understand what kind of natural disasters were mentioned in the histories and allows categorizing data that includes various natural disaster narratives.

The natural disaster cases were depicted either related to each other or as separate cases. Nevertheless, in most of the cases, they were recorded one after the other even if they were different types of events that were irrelevant to each other or even if they occurred in different regions of the empire. In this sense, when the Byzantine historians were discussing the events, which took place within a year, they

would narrate all the natural phenomena in one paragraph or the same page even if they do not mention any relation between those events. Thus, it might be argued that the Byzantine historians saw a similarity in nature of such occurrence even if they do not directly call them as natural disasters. Natural disasters, being in nature uncontrollable and unpredictable phenomena, were considered alike, and the Byzantines had common interpretations of each natural disaster.

When the depiction of such calamities in the third chapter is examined, the way the historians explained them might be summarized under two main approaches. Firstly, a 'scientific' approach, which means the observation of nature, and, secondly, a religious one, which emphasizes divine providence. The relationship with astronomical events can also be considered as another way of approaching the interpretation of natural disasters. However, when the natural disaster cases conveyed in relation with the astronomical events, such as comets or meteors, were analyzed, it seems that they were only considered as omens of other disasters, not the disasters themselves or the reasons for the disasters.

To be able to understand these conceptualizations of natural disasters, the education system in which our historians were raised and the Middle Byzantine perception of science and religion were briefly mentioned. In this sense, the role of education patronage of the Macedonian Dynasty, especially light was shed on the efforts of Constantine VII Porphyrogenetos. This period was characterized by an increasing study of classical texts and book production. It was not, however, possible within the scope of this thesis, to see whether such developments in the education policy made a difference or not. To be able to do that, one should analyze the natural disaster narratives that were recorded before the Macedonian period and should compare the interpretations before and after.

Before the depiction and evaluation of natural disaster narratives, the second chapter gave brief information about the historians and their works examined within the scope of this thesis. All of the mentioned historians had high positions either in religious or civil services, and they were highly educated both in Christian and classical texts. Hence, they were familiar with the depictions of natural calamities in the earlier sources, and ancient explanations about the reasons for natural phenomena. In their representations of natural disasters, however, the most plausible explanation for the Byzantine historians seemed to be the divine providence. However, they also tried to put forward other possible reasons for the natural occurring such as the explanations based on the observation of nature. As the analyses of the natural disaster narratives suggest, religious perceptions seem to have been more plausible than natural explanations.

However, as there were slight differences in these religious interpretations, this category subsumes a variety of explanations. In some cases, they are considered as signs for other political disasters or a way of warning people for their misdoings. Sometimes they regarded as the calamity itself, which shows God's wrath on the Byzantines. Sometimes it shows the aid from God to defeat the enemy, and very rarely it might indicate the interference of demonic forces. Altogether, they prove to what extent the "religious" sphere is entangled with the "political."

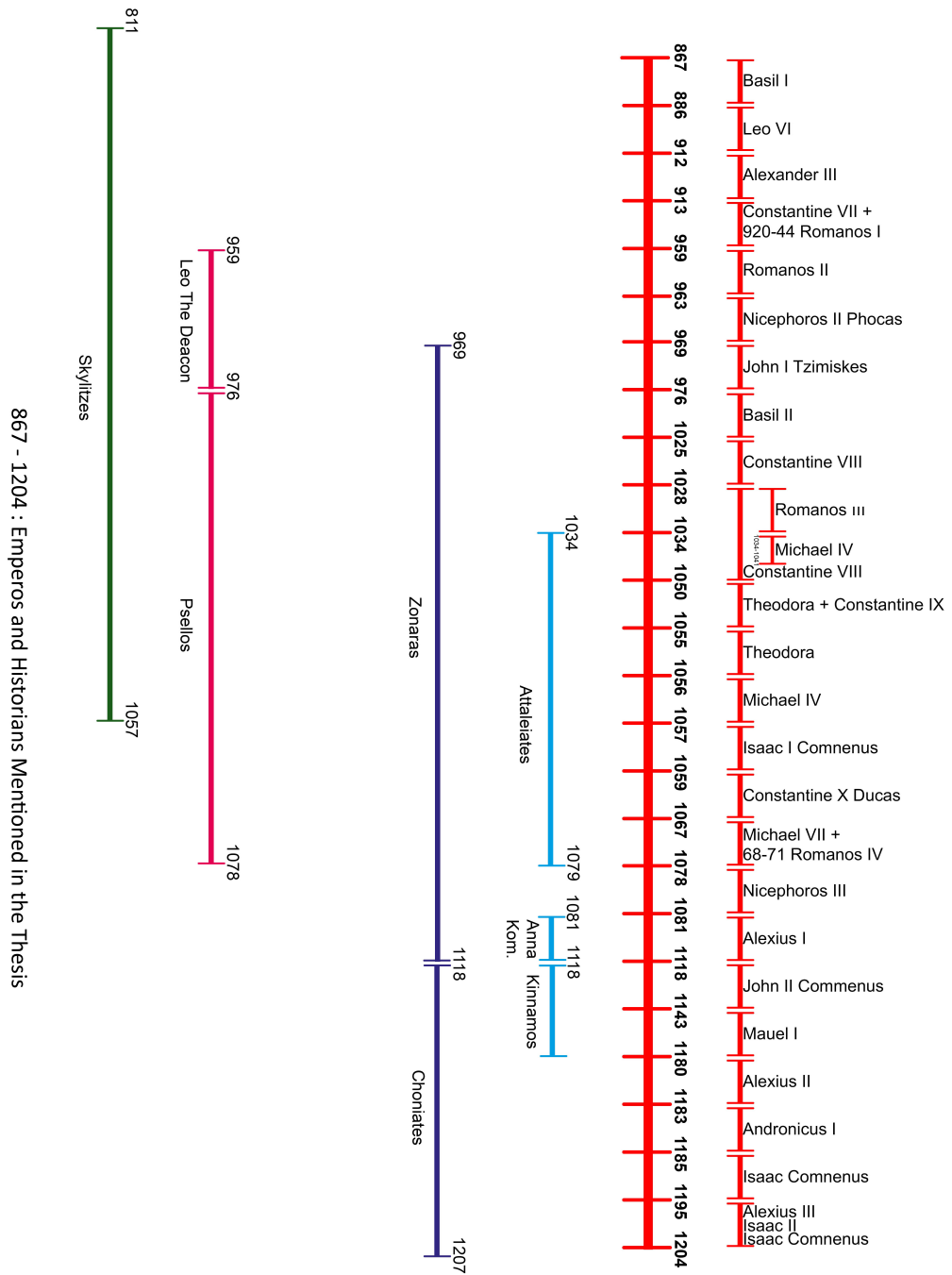
This leads us to the central tension of the thesis, i.e., the construction and workings of sense-making in the broader sense, be it religious or scientific. In that sense, this thesis has raised more questions than it has answered. One preliminary finding would be that these categories overlap in depictions and analyses of natural disasters. Therefore, this would be a good entry point for future studies, which should try to analyze further when precisely religious explanations started to become

more dominant than the explanations based on natural observations, or in which circumstances this shift was experienced.



APPENDIX A

EMPERORS AND MENTIONED HISTORIANS (867-1204)



APPENDIX B

FIGURES FROM MADRID SKYLITZES

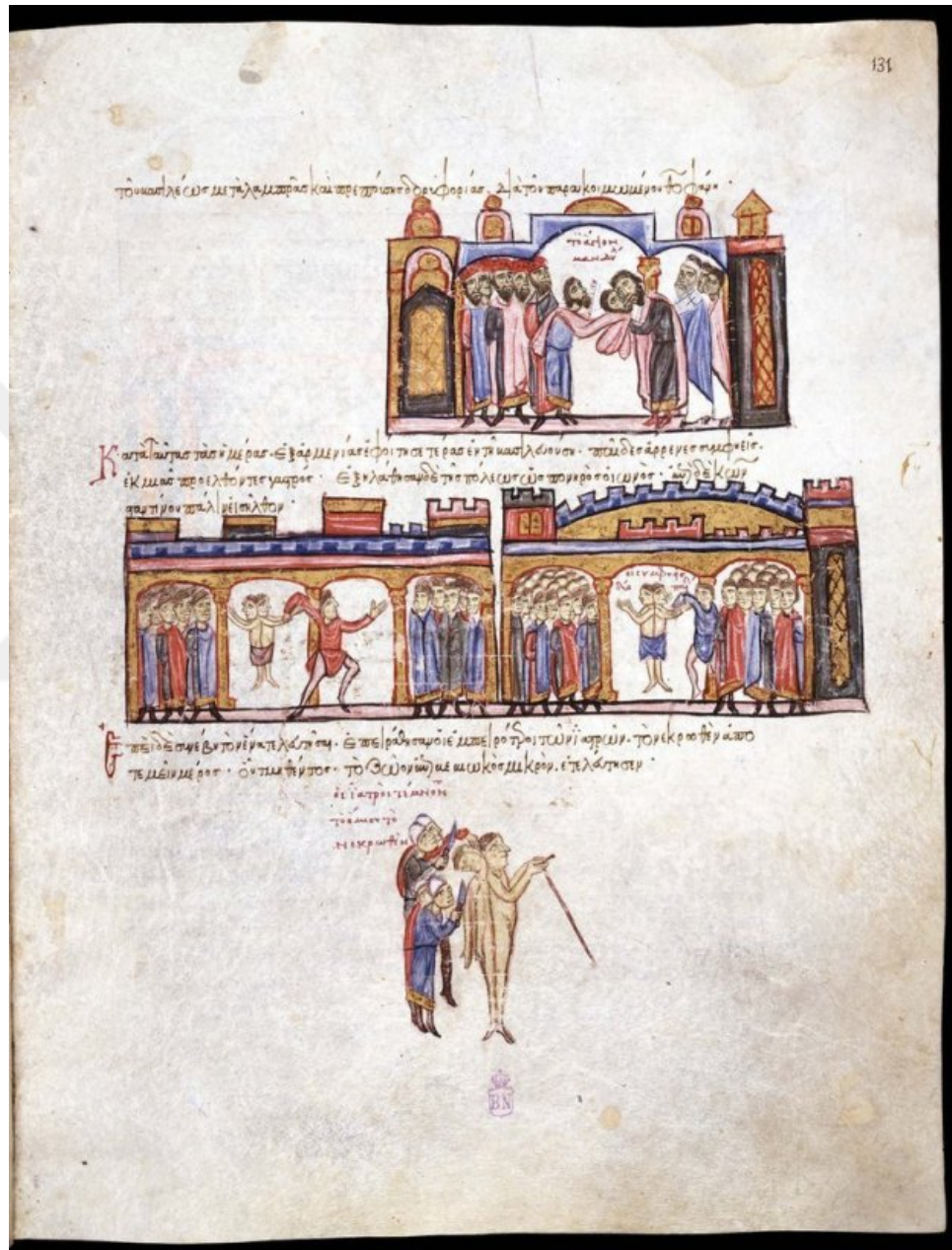


Figure B1, *Madrid Skylitzes*, *Codex Matritensis Bibliotheca Nacional Vitrinas 26.2*, 131.



Figure B2, *Madrid Skylitzes*, *Codex Matritensis Bibliotheca Nacional Vitrinas 26.2*, 141.

REFERENCES

PRIMARY SOURCES

- Aristotle. (2000). *Meteorology* (E. W. Webster, Trans.). Raleigh, N.C: Alex Catalogue.
- Attaleiates, M. (2012). *The history* (A. Kaldellis & D. Krallis, Trans.). Cambridge, Massachusetts: Harvard University Press.
- Choniates, N. (1984). *O city of Byzantium : annals of Niketas Choniates* (H. J. Magoulias, Trans.). Detroit: Wayne State University Press.
- Continuatus, T. (2006). *Chronographiae quae Theophanis Continuati nomine fertur Liber V quo Vita Basilii Imperatoris amplectitur* (I. Sevckenko, Trans.). Berlin: De Gruyter.
- Continuatus, T. (2019). Theophanes Continuatus book VI (D. Sullivan, Trans.) *The rise and fall of Nikephoros II Phokas : five contemporary texts in annotated translations*. Leiden: Boston Brill.
- Kaminiates, J. (2000). *The capture of Thessaloniki* (D. Frendo, Trans.). Perth: Australian Association for Byzantine Studies.
- Kinnamos, J. (1976). *Deeds of John and Manuel Comnenus* (C. M. Brand, Trans.). New York: Columbia University Press.
- Komnene, A. (1969). *The Alexiad of Anna Comnena* (E. R. A. Sweter, Trans.). London: Penguin Books.
- Leo, D. (2005). *The history of Leo the Deacon : Byzantine military expansion in the tenth century* (D. Sullivan & A.-M. M. Talbot, Trans.). Washington, D.C.: Dumbarton Oaks Research Library and Collection.
- Mark. (2010). Mark 13 (T. Nelson, Trans.). In G. Campbell (Ed.), *The holy Bible, new king James version*. Oxford: Oxford University Press.
- Matthew. (2010). Matthew 24. (T. Nelson, Trans.). In G. Campbell (Ed.), *The holy Bible king James version*. Oxford: Oxford University Press.

May, H. G. and Metzger, B. M. (1965). *The Oxford annotated Bible*. New York: Oxford University Press.

Psellus, M. (1966). *Fourteen Byzantine rulers : the chronographia* (E. R. A. Sewter, Trans.). New York: Penguin Books.

Psellus, M. (2006). *Mothers and sons, fathers and daughters the Byzantine family of Michael Psellos* (A. Kaldellis, Trans.). Notre Dame, Indiana: University of Notre Dame Press.

Skylitzes, J. (2011). *John Skylitzes : a synopsis of Byzantine history, 811-1057* (J.-C. Cheynet, B. Flusin, & J. Wortley, Trans.). Cambridge: Cambridge University Press.

Zonaras, J. (1986). *Militärs und höflinge im ringen um das Kaisertum* (E. Trapp, Trans.). Graz: Styria Press

SECONDARY SOURCES

Bakır, M. (2002). *Impact and consequences of earthquakes in Byzantine Constantinople and its vicinity, A.D.342-1454* (Unpublished master's thesis). Boğaziçi University, İstanbul, Turkey

Browning, R. (1992). *The Byzantine empire*. Washington: The Catholic University of America Press.

Casta, S. (2017). *Natural disasters and the crusades: framing earthquakes in historical narratives, 1095-1170* (Unpublished master's thesis). The University of Waterloo, Ontario, Canada.

Cheynet, J.-C. (2010). Introduction: John Skylitzes, the author and his family. In J. Wortley (Eds.), *John Skylitzes: a synopsis of Byzantine history, 811–1057*. Cambridge: Cambridge University Press.

Downey, G. (1955). Earthquakes at Constantinople and vicinity, AD 342-1454. *Speculum*, 30(4), 596-600.

Ergin, K., Güçlü, U., & Uz, Z. (1967). *Türkiye ve civarının deprem katalogu, miliattan sonra 11 yılından 1964 sonuna kadar = A catalog of earthquakes for Turkey and surrounding area, 11 A.D. to 1964 A.D.* İstanbul: T.C., İstanbul Teknik Üniversitesi, Maden Fakültesi, Arz Fizigi Enstitüsü.

- Fine, J. V. A. (2000). *The early medieval Balkans : a critical survey from the sixth to the late twelfth century*. Ann Arbor: University of Michigan Press.
- Foss, C. F. W. (1991a). Armeniakon. In A. P. Kazhdan (Ed.), *The Oxford dictionary of Byzantium: Volume 1* (p. 177). New York: Oxford University Press.
- Foss, C. F. W. (1991b). Paphlagonia. In A. P. Kazhdan (Ed.), *The Oxford dictionary of Byzantium: Volume 3* (p. 1579) New York: Oxford University Press.
- Freeland, C. A. (1999). Scientific explanation and empirical data in Aristotle's meteorology. In L. P. Gerson (Ed.), *Aristotle: logic and metaphysics* (pp.177-208). Abingdon: Taylor & Francis.
- George, D. (2000). *Manuel I Komnenos and Michael Glykas: a twelfth century defense and refutation of astrology*. (Unpublished master's thesis), University of Oregon, Eugene, United States of America.
- Gregory, T. E. (2005). *A history of Byzantium*. Malden: Wiley-Blackwell.
- Guidoboni, E., Phillips, B., Traina, G., & Comastri, A. (1994). *Catalogue of ancient earthquakes in the Mediterranean area up to the 10th century*. Rome: Istituto Nazionale Di Geofisica.
- Haldon, J., Roberts, N., Izdebski, A., Fleitmann, D., McCormick, M., Cassis, M., . . . Ladstätter, S. (2014). The climate and environment of Byzantine Anatolia: integrating science, history, and archaeology. *Journal of Interdisciplinary History*, 45(2), 113-161.
- Harris, J. (2017). Institutional settings: the court, schools, church, and monasteries. In Kaldellis, A. & Siniosoglou, N. (Eds.), *The Cambridge intellectual history of Byzantium* (pp. 27-36). Cambridge: Cambridge University Press.
- Herrin, J. (2008). *The surprising life of a Medieval empire*. London: Penguin Books
- Izdebski, A., Mordechai, L., & White, S. (2018). The social burden of resilience: a historical perspective. *Human ecology*, 46(3), 291-303.
- Kaldellis, A. (1999). *The argument of Psellos' chronographia*. Leiden: Brill.
- Kazhdan, A. P. (Ed.) (1991b). *The Oxford dictionary of Byzantium: Volume 1*. New York: Oxford University Press.

- Kazhdan, A. P. (Ed.) (1991a). *The Oxford dictionary of Byzantium: Volume 3*. New York: Oxford University Press.
- Kesik, M. (2010). İstanbul'da doğal afetler (1100-1250). In M. A. Beyhan & S. Öztürk (Eds.), *Afetlerin gölgesinde İstanbul tarih boyunca İstanbul ve çevresini etkileyen faktörler* (pp. 61-82). İstanbul: İstanbul Büyükşehir Belediyesi.
- Lapatin, K. D. (1997). Pheidias ἐλεφαντουργός. *American Journal of Archaeology*, 663-682.
- Little, L. K. (2007). *Plague and the end of antiquity : the pandemic of 541-750*. Cambridge: Cambridge University Press.
- Markopoulos, A. (2008). Education. In Cormack, R., Haldon, J., & Jeffreys E. (Eds.), *The Oxford handbook of Byzantine studies* (pp. 785-796). Oxford: Oxford University Press.
- Mavroudi, M. (2006). Occult science and society in Byzantium: considerations for future research In Magdalino, P., & Mavroudi, M. (Eds.), *Occult sciences In Byzantium* (pp. 39-96). Geneva: La Pomme d'Or.
- McCormick, M. (2003). Rats, communications, and plague: Toward an ecological history. *Journal of Interdisciplinary History*, 34(1), 1-25.
- McCormick, M., Dutton, P. E., & Mayewski, P. A. (2007). Volcanoes and the climate forcing of Carolingian Europe, AD 750-950. *Speculum*, 82(4), 865-895.
- McGeer, E. (2000). *The land legislation of the Macedonian emperors*. Toronto: Pontifical Institute of Mediaeval Studies.
- Meier, M. (2016). The "Justinianic plague" : the economic consequences of the pandemic in the eastern Roman empire and its cultural and religious effects. *Early medieval Europe*, 24(3), 267-292.
- Neville, L. A. (2018). *Guide to Byzantine historical writing*. Cambridge: Cambridge University Press.
- Newfield, T. P. (2016). Mysterious and mortiferous clouds: The climate cooling and disease burden of late antiquity. *Late Antique Archaeology*, 12(1), 89-115.

- Newfield, T. P. (2017). Livestock plagues in late antiquity, with a disassembling of the bovine panzootic of AD 376-386. *Journal of Roman Archaeology*, 30, 490-508.
- Nicolaidis, E., & Emanuel, S. (2011). *Science and Eastern Orthodoxy: From the Greek fathers to the age of globalization*. Baltimore: Johns Hopkins University Press.
- Oehler, K. (1964). Aristotle in Byzantium. *Roman and Byzantine Studies*, 5, 133-146.
- Oeser, E., Gutdeutsch, R., Hammerl, C., Grünthal, G., & Eisinger, U. (1992). *Historical earthquake theories from Aristotle to Kant*. Vienna: Geologische Bundesanstalt.
- Papaioannou, S. (2013). *Michael Psellos : Rhetoric and authorship in Byzantium*. Cambridge: Cambridge University Press.
- Pentogalos, G., & Lascaratos, J. G. (1984). "Notes and comments": A surgical operation performed on siamese twins during the tenth century in Byzantium. *Bulletin of the History of Medicine*, 58(1), 99-102.
- Phillips, J. (2007). *The second crusade: extending the frontiers of christendom*. New Haven, Conn: Yale University Press.
- Rohr, C. (2007). Writing a catastrophe. Describing and constructing disaster perception in narrative sources from the Late Middle Ages. *Historical Social Research/Historische Sozialforschung*, 32(3), 88-102.
- Shepard, J. (1974). Some problems of Russo-Byzantine relations c. 860-c. 1050. *The Slavonic and East European Review*, 52, 10-33.
- Stathakopoulos, D. C. (2004). *Famine and pestilence in the late Roman and early Byzantine empire : a systematic survey of subsistence crises and epidemics*. Aldershot: Ashgate.
- Subaşı, Ö. (2015). XI. yüzyılda Anadolu'da meydana gelen doğal afetler. *Atatürk Üniversitesi Türkiyat Araştırmaları Enstitüsü Dergisi*, 54, 505-535.
- Treadgold, W. T. (1997). *A history of the Byzantine state and society*. Stanford: Stanford University Press.

Treadgold, W. T. (2013). *The middle Byzantine historians*. New York: Palgrave Macmillan.

Tucker, W. (1999). Environmental hazards, natural disasters, economic loss, and mortality in Mamluk Syria. *Mamluk Studies Review*, 3, 109-128.

Xoplaki, E., Fleitmann, D., Luterbacher, J., Wagner, S., Haldon, J. F., Zorita, E., . . . Izdebski, A. (2016). The medieval climate anomaly and Byzantium: a review of the evidence on climatic fluctuations, economic performance and societal change. *Quaternary Science Reviews*, 136, 229-252.

Xoplaki, E., Luterbacher, J., Wagner, S., Zorita, E., Fleitmann, D., Preiser-Kapeller, J., . . . Haldon, J. F. (2018). Modelling climate and societal resilience in the Eastern Mediterranean in the last millennium. *Human ecology*, 46(3), 363-379.