

# Catastrophes in Context: The Archaeology of Catastrophes from the 1st–8th centuries CE in the Mediterranean Region

17–18 April 2023

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All Souls College  
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Volcano eruption (Creative Commons).

**Front cover**

The eruption of Mt. Vesuvius, Pierre-Jacques Volaire (Wikimedia Commons).

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## Outline

Past catastrophes and their impacts – also economically speaking – on the societies of their time have been studied for decades. From the wide spectrum of catastrophic events in the ancient world, the eruption of Vesuvius in 79 CE and the study of Pompeii and Herculaneum very famously stands out as ‘frozen moments in time’. These are sites that keep on revealing new evidence. Other much studied catastrophes include numerous epidemics, such as the Justinianic Plague as well as the invasion of Rome by the Visigoths in 410 CE. However, there are countless other examples of local, regional, and much broader impact on the Mediterranean world. Catastrophes in their broadest sense, including invasions, wars, epidemics, and natural catastrophes, have fascinated scholars for centuries.

The study of the immediate impacts these events left behind have often distracted attention from broader issues which also need to be studied, among these the ability of societies to bounce back, depending on the nature of the catastrophe that hit them. This, in turn, is related to their resources and vulnerabilities in the time before they were hit. More often than not, we struggle with compiling, analysing, and disentangling the datasets that would allow us to understand how societies reacted to such events, both in short- and long-term perspectives, through a firmer integration of archaeological and historical approaches to the material evidence. Relatively little scholarship exists on the perspective of ‘what happened before’, namely the time leading up to the events; we need to gain a more firmly contextualized archaeological and historical perspective by considering catastrophes and the response to them in a *longue durée* perspective including the period before and the effects afterwards.

This conference, organized jointly by Rubina Raja, Centre for Urban Network Evolutions, Aarhus University, and Andrew Wilson, All Souls College, University of Oxford, aims at tackling such problems and questions through an assessment of datasets from a range of time periods and sites in the Mediterranean from the 1st until the 8th century CE. We are inviting a set of scholars to address particular events, sites, and datasets connected to them in a local and broader perspective to bring to the forefront how we can work with archaeological and historical datasets in a more contextualized manner by not only focusing only on the immediate impacts of catastrophes and crises but also looking at the time before and after.



The Artemis Temple in Jerash (Danish-German Jerash Northwest Quarter Project).

**Programme: Monday 17 April**

9:15–10:00 **Welcome and Introduction**  
Rubina Raja (Aarhus University)  
Andrew Wilson (University of Oxford)

**SESSION 1 (Chair: Andrew Wilson)**

10:00–10:45 **The Boudican Revolt: An Interpretation of Responses to Catastrophe**  
Lacey Wallace (University of Lincoln)  
10:45–11:00 Discussion  
11:00–11:30 **Coffee Break**  
11:30–12:15 **Revaluating the Impact of the Earthquake(s) of AD 62/3 in Roman Pompeii**  
Michael A. Anderson (San Francisco State University)  
12:15–12:30 Discussion  
12:30–14:00 **Lunch**

**SESSION 2 (Chair: Rubina Raja)**

14:00–14:45 **Vesuvius AD 79: The Day After**  
Girolamo Ferdinando De Simone (Independent researcher)  
14:45–15:00 Discussion

15:00–15:45 **The Catastrophic 79 CE Eruption of Vesuvius: Post-Eruption Intervention at the Local and Imperial Level**  
Steven L. Tuck (Miami University)

15:45–16:00 Discussion

16:00–16:30 **Afternoon Tea**

**SESSION 3 (Chair: Andrew Wilson)**

16:30–17:15 **Living on the Edge of the Hau-Nebut: The Dynamic Landscape of Thonis-Heracleion**  
Damian Robinson (University of Oxford)  
17:15–17:30 Discussion  
17:30–18:15 **Catastrophic (?) Floods in the Roman North: Chronologies, Causes, and Contexts**  
Tyler Franconi (Brown University)  
18:15–18:45 Discussion and wrap-up of first day  
18:45–19:30 **Pre-Dinner Drinks**  
19:30 **Dinner (Conference Speakers)**

**Programme: Tuesday 18 April****SESSION 4 (Chair: Peregrine Horden)**

- 10:00–10:45 **Cyrenaica and the Plague of Cyprian**  
Andrew Wilson (University of Oxford)
- 10:45–11:00 Discussion
- 11:00–11:30 **Coffee Break**
- 11:30–12:15 How to Track the Impact of a Catastrophe and an Urban Society's Resilience: Archaeological 'Big Data' and the Historical Record of Palmyra**  
Rubina Raja (Aarhus University)
- 12:15–12:30 Discussion
- 12:30–14:00 **Lunch**

**SESSION 5 (Chair: Fanny Bessard)**

- 14:00–14:45 **Bookending the Mid-Sixth Century: The Mediterranean World Before and After Two Late Antique Calamities**  
Brandon McDonald (University of Basel)
- 14:45–15:00 Discussion
- 15:00–15:45 **Settlements in Southwest Anatolia: Before and After the Late Antique Little Ice Age and Justinianic Plague**  
Jordan Pickett (University of Georgia)
- 15:45–16:00 Discussion

16:00–16:30 **Afternoon Tea****SESSION 6 (Chairs: Rubina Raja and Andrew Wilson)**

- 16:30–17:15 **Late Antique and Late Late Antique Resilience at Aphrodisias: A View from the Tetrapylon Street**  
Ine Jacobs (University of Oxford)
- 17:15–17:30 Discussion
- 17:30–18:00 **Closing Remarks and Discussion**  
Rubina Raja (Aarhus University)  
Andrew Wilson (University of Oxford)



## Abstracts



Fire explosion (Pixabay).

### The Boudican Revolt: An Interpretation of Responses to Catastrophe

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Examining the archaeological evidence for destruction and reconstruction of Colchester (Camulodunum), London (Londinium), and St. Alban's (Verulamium) during and after the Boudican Revolt (AD 60/61) demonstrates how the urban inhabitants responded to these catastrophes. The evidence for destruction by fire c. AD 50–70 and closely dated features (e.g. using dendrochronologically dated wood) provide a basis to understand the events. Interpretations of these data have, however, been significantly coloured by literary evidence and modern events. The historical accounts of the Revolt provided by Tacitus (*Annals* XIV; *Agricola*) and Dio Cassius (*Roman History* 62) provide narratives that we have used to explain the contemporaneous destruction levels, but these authors wrote with specific aims and for a specific audience, as well as at a considerable temporal and geographic distance from the events. Moreover, the experiences of archaeologists and historians themselves, especially those familiar with the enduring debris of post-Blitz London, have affected interpretations of the effects of the Revolt.

This paper will explore examples of the nature of the destruction and reconstruction, focusing on examples from Londinium. It will examine the difficulties with using literary evidence and analogies of modern catastrophes to interpret archaeological evidence. It will examine the different reactions and plans for rebuilding that can be witnessed between the 'official' and military response and the actions of individuals and local groups. Finally, it will explore the ways in which the Flavian town and the people live there were changed by the events of AD 60/61.

## Revaluating the Impact of the Earthquake(s) of AD 62/3 in Roman Pompeii

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The pre-eruption earthquake(s) that, as documented by Seneca and Tacitus, severely damaged Pompeii and surrounding areas from AD 62/3 onwards, have cast a long shadow over the study of the Campanian sites and their final phases of occupation. The destruction caused has been used to question the extent to which the material assemblage recovered can or should be seen as representative of 'normal' daily life; has provided overly simplistic justifications for any construction or renovation that occurred during the final years; and long functioned erroneously as a key horizon in the development of the fourth Pompeian wall-painting style. Moreover, following the conclusions of Maiuri, evidence of damage has been used to hypothesize widespread abandonment during the final years, especially by elites. But the actual details of the evidence left behind by these destructive events also illuminate diverse responses to trauma, including signs of resilience and persistence, indications of municipal intervention, and even efforts to take advantage of the opportunities created by these changes. This paper will consider archaeological evidence of responses driven by the earthquake and aftershocks at Pompeii at several scales of analysis: from individual results recovered in subsurface excavations undertaken by the University of Bradford and San Francisco State University to the examination of the visual and spatial contexts of house contents present in AD 79 across the site, and will question the degree to which processes of change after the earthquake(s) actually differed from those before a period of catastrophe.

## Vesuvius AD 79: The Day After

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For more than three centuries, both scientific and fictional narratives concerning Mt. Vesuvius have focused on the 'frozen moment' buried by the AD 79 eruption, neglecting the immediate and mid-term effects of the volcanic debris as well as the human resettlement of the area. The lack of research in these fields has led to the assumption that the landscape, including both nature and human interaction with it, did not recover from the natural disaster. However, recent multidisciplinary fieldwork has brought new datasets that suggest a more complex scenario.

This paper provides a summary of the damages caused by the Vesuvian eruption of AD 79 and describes the political and settlement responses to it. The first section analyses and plots each effect of the eruption, such as pyroclastic flow and bradyseism, and discusses the affected areas and recovery times. The second section summarizes the interventions implemented by Emperor Titus to recover survivors, settlements, and crops, as well as the archaeological evidence of resettlement.

Lastly, this paper provides an overview of the timing and areas affected by post-eruption resettlement, highlighting the differences between the various slopes of Vesuvius. This spotlights the contrast between the optimistically ideal resettlement scenario and the actual cultural response to the eruption, providing useful insights to explain the divergences.

## The Catastrophic 79 CE Eruption of Vesuvius: Post-Eruption Intervention at the Local and Imperial Level

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Tracing survivors from the AD 79 eruption of Vesuvius I began from 4079 inscriptions at Pompeii and 564 inscriptions from Herculaneum. These were compared with *nomina* found on 17,172 inscriptions from 48 communities throughout Campania and Latium. The result was the recovery of 51 *nomina* representing 189 named individuals I conclude escaped from Pompeii or Herculaneum, a straightforward – if tedious – process of compiling and analysing datasets. A more complex component of my study has been exploring correlation between evidence for and distribution of survivors and government response.

In *Vesuvius A Biography* Alwyn Scarth states about the aftermath of the 79 eruption that ‘... no descriptions have survived of the kinds of public works that were undertaken at the time’ and ‘it is unlikely that the psychopathic Domitian had time for public works and regional regeneration in Campania’. In conflict to these statements is documentation for the public works, some undertaken by Domitian, in the post-eruption period in Campania. I argue that historical references, testimony from the poets Statius and Martial, imperial rebuilding inscriptions, and archaeological evidence all provide the densest evidence for post-disaster reclamation operation in the Roman world. The pattern that emerges suggests that imperial government targeted its rebuilding responsibility, focusing on the type of large-scale infrastructure that was not only more expensive than local government or officials might be able to afford, but also possibly selected to encourage further investment by local or private sources. The answer to Karen Carr’s question ‘Did Roman Government Matter?’ in this case seems to be yes.

## Living on the Edge of the Hau-Nebut: The Dynamic Landscape of Thonis-Heracleion

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Nestled behind the sand dunes in the *hone*, a place conceived by the ancient Egyptians as being neither land nor sea, the port of Thonis-Heracleion was founded to oversee access to the Canopic branch of the Nile. As a guard post, customs office, emporium, religious centre and likely home to the fleet, the city flourished through the last years of native pharaohs and into the Ptolemaic period, with a later revival in the Byzantine era. This paper will provide an overview of life across the *longue durée* in a dynamic landscape. The slow rise of sea level coupled with more dramatic, but relatively localized, sedimentary liquefaction events brought on by seismic activity tested the resilience of its population in the face of catastrophes. The economic opportunities and requirements of the state kept people living on the edge of the hau-nebut, but all this changed with the foundation of Alexandria and when the city was struck by another catastrophic event at the end of the second century BC, Thonis-Heracleion was abandoned. It took the changing religious currents of the Late Roman period to bring this isolated, ruined landscape, back into life with monastic communities. Yet the failure of the Canopic branch of the Nile, an anthropogenic catastrophe, hastened the end of this revival, accelerating the erosion of what remained of the land, reducing it to islands in the bay, which themselves were lost to the sea in a final liquefaction event shortly after the Arab conquest.



## Catastrophic(?) Floods in the Roman North: Chronologies, Causes, and Contexts

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Life in northwestern Europe was inextricably tied to its numerous waterways that provided everything from transportation and communication routes to defensive networks. While these rivers offered many opportunities, they also provided many obstacles to daily life, including floods, droughts, sedimentation, and channel movements. This paper focuses on the history of riverine flooding in the provinces of Roman Germany, using a varied dataset of archaeological, historical, and palaeoenvironmental indices to reconstruct chronologies of flooding throughout the Rhine River basin in the first five centuries AD. These flood events could be driven by both anthropogenic and climatological factors whose entanglements need to be carefully considered in order to understand better their environmental and social contexts. The incidence and severity of flooding was highly heterogeneous in this region, as was the social response to these events. The societal resilience and adaptation that become evident in the historical and archaeological record are, however, equally heterogeneous, and a focused investigation reveals that a broad-brush application of such ideas obscures important realities of social and environmental inequality in this region over time. The Roman State and military were especially privileged in their ability to adapt to changing hydrological situations, while civilian cities, towns, and rural settlements were often far less resilient. The Rhine region thus provides a highly resolved case study for understanding the impacts of flooding in the Roman world.

## Cyrenaica and the Plague of Cyprian

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Urban life in Cyrenaica was severely disrupted in the third century AD. The clearest evidence comes from Berenice (Benghazi), where opulent peristyle houses were abandoned and a wall circuit built defending a much reduced area of the city. Forty-four bodies were dumped in a cistern. Large houses were abandoned also at Ptolemais and Cyrene, and at Cyrene the former agora was overbuilt with tight-packed dwellings crammed within a defensive wall built using material spoliated from public buildings. The city of Hadrianopolis seems to have been abandoned entirely.

There is no consensus as to why. Scholars have avoided monocausal explanations, but have placed very different emphasis on possible factors: earthquake, raids by Saharan tribesmen, or more general economic decline. Despite the mass burial from Benghazi strongly suggestive of epidemic disease, plague has not been seriously considered as a factor, perhaps because the excavators dated this cistern deposit earlier in the third century. A reassessment of the ceramic dating, however, suggests that it is better placed around AD 250. This in turn raises the possibility that the catalyst for Cyrenaica's urban decline was depopulation caused by the Plague of Cyprian: it left the cities vulnerable to attack, and unable fully to recover from the damage of the earthquake of 262. Economic decline, a result of depopulation and insecurity in the face of barbarian raids, hampered recovery. The paper also considers why, if this explanation is correct, Cyrenaica suffered more severe, and longer-term, effects from the Plague of Cyprian than did neighbouring provinces.

## How to Track the Impact of a Catastrophe and an Urban Society's Resilience: Archaeological 'Big Data' and the Historical Record of Palmyra

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Palmyra, an oasis city in the Syrian Desert which flourished in the first three centuries AD, has offered a wealth of archaeological and written sources, which until recently have never been pulled together in an overview study of the site and its development. Over the course of the past decade, a series of research projects focusing on the city and its hinterland as well as its embedment into a wider global network have been undertaken at Aarhus University. These projects have focused on a wide range of issues such as sculptural production in the city, the several thousand inscriptions from the city, the city's development, the economies that were in place in the city, and finally issues of population size and food security. This paper addresses observations made during the course of these projects and highlight the ways in which these may provide further insight into known events, such as pandemics and economic and military unrest – both in a local and a wider perspective. The paper will also draw attention to – perhaps even more interestingly – the until now unknown events, or events that we hitherto did not think had an immediate effect on the Palmyrene society. The paper will discuss how mapping and analysing a variety of material and written evidence can lead to entirely new insights into historical processes and their impacts on urban societies, and how we might also apply such research agendas on other sites in the future.

## Bookending the Mid-Sixth Century: The Mediterranean World Before and After Two Late Antique Calamities

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Written, archaeological, and paleoclimatic evidence suggest that the mid-sixth century AD was turbulent for societies of the Mediterranean world. In the later 530s, two massive volcanic eruptions occurred just a few years apart, ushering in a cold phase – termed the Late Antique Little Ice Age (LALIA) – that is attested in various paleoclimatic proxies in the Mediterranean region and beyond. Written and archaeogenetic evidence demonstrate that the first wave of the Justinianic Plague (541–544) – a highly virulent and fast-spreading pandemic of true plague, caused by the bacterium *Yersinia Pestis* – broke out just a few years after the second eruption (539/540), followed by three more waves in the later sixth century and several more in the two succeeding centuries.

While debates about the respective effects of the LALIA and the Justinianic Plague are ongoing, few doubt that both were on some level consequential to various Mediterranean civilizations. Less discussed, however, is the fabric of societies prior to the disturbances, as well as their resiliency in the decades to centuries after the events materialized. Through historical and scientific evidence, this paper looks at Mediterranean settings leading up to the 530s/540s, homing in on vulnerabilities both environmental and societal that contributed to the consequences of the LALIA and the pandemic. It also considers societal characteristics that allowed civilizations to withstand or rebound from the influence of these ecological adversities.

## Settlements in Southwest Anatolia: Before and After the Late Antique Little Ice Age and Justinianic Plague

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Compounded catastrophes in the middle of the sixth century – the AD 536 Dust Veil Event and the so-called Late Antique Little Ice Age that followed, with up to four degrees Celsius volcanically induced cooling in the Northern Hemisphere, alongside the outbreak of Justinianic Plague after AD 541 that recurred into the eighth century – have been increasingly well studied in recent years from the perspectives of paleoclimatology and aDNA. Apart from notable studies from Scandinavia, the Peloponnese, and the Levant, Michael McCormick's 2021 statement from *Speculum* largely holds true, that 'the archaeology of settlement patterns ... will likely contribute [to on-going debates around Late Antique catastrophe impacts], but focused archaeological investigation has barely begun and opinions differ greatly today, since epidemics [or climate change] do not destroy buildings, and archaeological dating usually has wide margins.' The present paper takes that gap as its objective: building on a study of 381 settlements from SW Anatolia alongside paleoenvironmental and paleoclimatological data published last year in *PLOS One*, here we consider archaeological evidence for Lycia and Pamphylia, *before* and *after* the 536 DVE / 541 outbreak of Justinianic Plague. Of especial note is evidence we present for cultural and economic adaptation during climate perturbations of the fifth and earlier sixth century, before widespread (52% or 132/255) abandonment of recorded sites after the catastrophes of the mid-sixth, simultaneous to important changes visible in those settlements which remained, including symptoms of decreased density via e.g. the contraction of urban churches and changes to regional agriculture visible in the pollen evidence.

## Late Antique and Late Late Antique Resilience at Aphrodisias: A View from the Tetrapylon Street

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Aphrodisias (Caria, SW Turkey) was impacted by multiple 'catastrophes' in Late Antiquity, including an earthquake at the end of the fifth century, widespread fires related to a Persian attack c. 617 and another earthquake a few years thereafter. Excavations at the Tetrapylon Street, the main north-south street of the city, have uncovered evidence related to these events and their aftermath. They make it possible to study the extent of the population's responses, response speed, construction strategies, and materials used and reused after each catastrophe. They also provide information on the various actors involved in renovations, repairs, and clean-ups, and indeed their ability to bounce back. Placing back this evidence into the larger historical framework furthermore enables us to examine the organization and resilience of the settlement at large between Late Antiquity and late Late Antiquity.

## Venue



## Organisers



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## Conference webpage

<https://urbnet.au.dk/news/events/2023/catastrophes>







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