Contextualising the Earthquake of 749 CE:

From High-Definition Archaeology to Global History

23–24 November 2020

The Royal Danish Academy of Sciences and Letters
Copenhagen, Denmark

Organisers:
Achim Lichtenberger, University of Münster
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WWU Münster
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Temple of Zeus. Photograph by American Colony photographer, 1898–1914. (@ G. Eric and Edith Matson Photograph Collection, Library of Congress, Prints & Photographs Division, LoC 06969)

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Conference Outline

The earthquake that hit parts of the Levant on the morning of 18th January 749 CE devastated vast parts of the region, including the former Umayyad capital, Damascus. It affected parts of modern-day central and northern Jordan, Israel, Palestine, Lebanon and Southern Syria. The region that for more than a millennium had been deeply entangled with the Graeco-Roman cultural spheres had, at this point in time, been under Islamic rule for more than a century. In 745 CE, The Umayyad Dynasty had moved the capital of its empire from Damascus to Harran, a city that was not destroyed by the earthquake. However, the move of the capital was done in a period when political upheaval and military unrest were already a factor in the region.

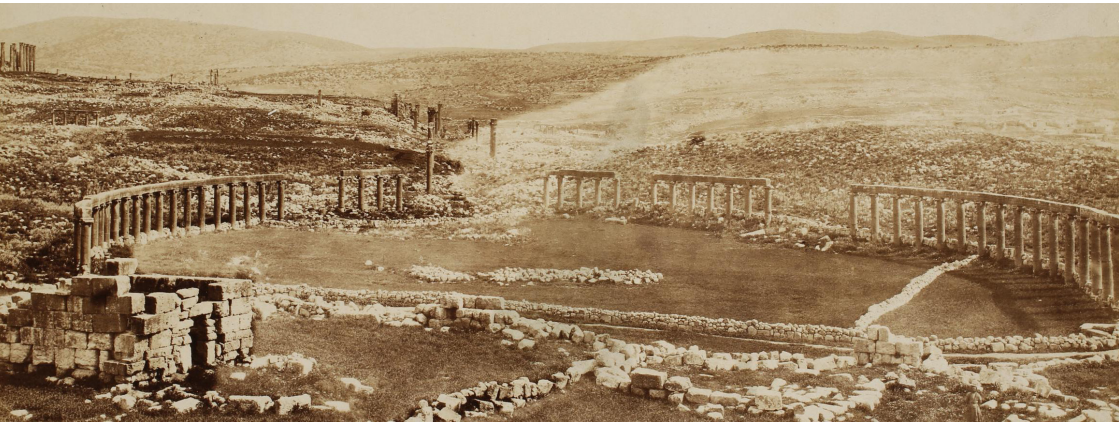
Cultural and religious changes have often been investigated for the period between the 6th and 8th centuries. Seldom, however, has this period been viewed in light of the impact that the earthquake had and the plentiful evidence it has left, or the event that before the earthquake might have impacted the state of the region and therefore the possibilities for societies to re-establish themselves.

Settlements and the economy of the region are often said to have declined under the new Abbasid rulers compared to the prosperity the region had encountered under the Umayyads. Although material evidence for Abbasid settlement in the region has been unearthed in recent years – keep in mind, that presence might have been larger than thought – it still needs to be asked, why the effect of the earthquake seems to have had such a profound impact, and why the region lacked resources and resilience for rebuilding and regeneration.

It is therefore crucial to look at evidence for earlier impactful earthquakes in the region – in particular the 363 CE earthquake and societal responses to this – as well as the question of slow climate change (the little ice age) and the regional impact this might have had.

The question regarding the end of the Umayyad dynasty and the transition to the Abbasid dynasty, which significantly changed the region and indeed has impacts that culturally and religiously have influenced the Mediterranean world and regions beyond until today, in this light remains understudied.

Therefore, the aim of this conference and the following publication is to revisit earthquake evidence from a number of sites across the region and to reassess the history of the region in light of what the earthquake evidence tells us about the region. Furthermore, a number of papers will focus on the history – local and global – and seismology of the region as well as the sources telling us about the earthquake in order to contextualise this period as solidly as possible within world history.



The Oval Piazza. Photograph by Adrien(?) Bonfils in the late 19th century.
(© Victoria and Albert Museum, London)

Programme

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17:00 – 17.:45	**The *Fitna* of Nature? Climatic and Socio-Political Dynamics in the Caliphate and across Afro-Eurasia in the Middle 8th Century CE** Johannes Preiser-Kapeller, University of Vienna
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10:45 – 11:15	**Earthquakes and Destructions of the Sanctuary of Zeus at Gerasa** Jacques Seigne, University of Tours
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11:45 – 12:30	**The Northwest Quarter of Gerasa/Jerash and the Earthquake Evidences of 749 CE: Rewriting the Urban History of Gerasa/ Jerash in a Longue Durée Perspective** Achim Lichtenberger, Westfälische Wilhelms-Universität Münster Rubina Raja, Aarhus University
12:30 – 13:15	**Urban Life after the Earthquake? New Evidence from Jerash's Southwest District** Louise Blanke, University of Edinburgh
13:15 – 14:15	Lunch

14:15 – 15:00	***Baysān* in the Umayyad Period: From Conquest to Destruction** Gabriel Mazor, Israel Antiquities Authority
15:00 – 15:45	**The 749 CE Earthquake at Hippos: The Straw that Broke the Horse's Back** Michael Eisenberg, University of Haifa
15:45 – 16:15	Coffee Break
16:15 – 17:00	**Digging the Unseen: the Friday Mosque of Tiberias after the 749 Earthquake** Katia Cytryn-Silverman, Hebrew University of Jerusalem
17:00 – 17:45	**The 749 CE Earthquake at Caesarea Maritima: Evidence, Problems and Challenges** Hendrik Dey, Hunter College, CUNY Beverly Goodman, University of Haifa
17:45 – 18:30	**Final Discussion: 749 – Catastrophic Event or Death Blow to a Declining Region?**
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Abstracts

The columns of the Temple of Artemis. Photograph by Tancrède Dumas, 1875. (Courtesy of Special Collections, Fine Arts Library, Harvard University).

Earthquakes as Events: Challenges and Insights

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Since Antiquity, commentators have attributed the decline and collapse of cities to earthquakes (and other disasters). A critical examination of the primary written sources for these earthquakes has begun to uncover the biases woven into their narratives, permitting us to deconstruct them to glean valuable information about how late antique societies interacted with such events.

My talk will begin by contextualizing disasters (focusing on earthquakes) at the interface between environment and society, drawing upon a few modern examples (e.g. hurricanes Katrina and Maria; the Port-au-Prince earthquake) that illuminate how we might approach our sources to better understand past earthquakes and the social reactions to them. I will then draw parallels to several late antique case studies of earthquakes in the late antique Eastern Mediterranean (incomplete list: Antioch in the 6th century; Beirut in 551; Apamea in 526 and 528). The talk will point to some of the challenges involved in disentangling history and historiography to better understand late antique earthquakes as events and their effects.

Modern Theory, Ancient Earthquakes: Resilience and the Earthquake of 749 AD?

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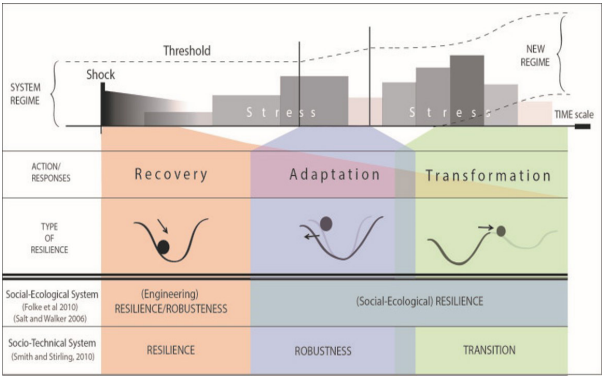
Can we characterise responses to the 749 earthquake as resilient? Strictly speaking, resilience describes the ability of a society to rebuild – both physical structures and social formations – to the status quo ante that preceded a natural disaster. Recovery from a disaster might include adaptation with changes that build robustness, and strengthen structures or institutions to resist shocks of greater magnitudes in the future, but without changes to the fundamental nature, format or organisation of the structures or institutions themselves. On the other hand, catastrophic shocks that exceed societal capacities for response and recovery to the status quo can also occasionally produce significant transformations of physical structures and social systems.

Rather than classifying the 749 earthquake into one or the other category, this paper offers an interrogation of the differences between resilience and recovery, robustness and adaptation, transition and transformation. Attention is given to how some of the most best-evidenced earthquakes from Antiquity, archaeologically – Pompeii in the mid-first century, Apamea in the second, Ephesus in the later fourth, Hierapolis in the fourth and later seventh, for example – preceded reconstructions that blurred the lines between these categories.



Earthquake Epigraphy in the Roman and Byzantine Near East

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The Near East has delivered a series of Greek and Latin inscriptions which document the earthquakes that struck the region between the early Roman Empire and the advent of Islam. Many available texts have been collected in the framework of the IGLS project ('Inscriptions grecques et latines de la Syrie', https://igls.mom.fr). The aim is to bring them together and to compare them with evidence from both literature and archaeology in order to detect the impact of seismic phenomena on cities in the area. The focus will be on the destruction and reconstruction of buildings, as well as on the consequences of natural disasters on local societies and the practice of sending embassies to seek help from emperors. Special attention will be paid to the earthquake of 551 CE, followed by a devastating tsunami that destroyed Berytus and forced teachers and students from the famous law school of the city to flee, first to Sidon and then to Constantinople.

Earthquakes in the Levant and Their Impact on Urbanism in the First Millennium CE

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Literary and archaeological sources attest to the impact of several earthquakes on urbanism in the Levant in the first millennium CE. This paper explores the impact of earthquakes in 115, 363, c. 593, and 749 CE. Recovery, or the lack of recovery, from these earthquakes depended on several factors, including governmental support, extent of damage, and cultural and religious factors.

Specifically, the earthquake of 115 severely damaged the cities of Antioch and Apamea. Both cities recovered quickly from both imperial and local building projects, whereas recovery from the 363 earthquake varied between cities. For example, the civic center of Petra was demolished and not subsequently rebuilt. Damage at Scythopolis is minimally present in the archaeological record because recovery was so quick. As both were capitals of provinces, something else must explain why the earthquakes had different long-term impacts. Petra seems to have been abandoned following an earthquake around the year 593. It was long thought that Jerash and Scythopolis were abandoned after the 749 earthquake, but it is clear that this was not the case. Nevertheless, the impacts on Jerash and Scythopolis were different.

This paper uses the differing outcomes of damage and recovery from these four earthquakes to understand civic resilience in the Levant in the first half of the first millennium and seeks to understand the factors that led to recovery or abandonment.

Earthquakes in Aqaba, Jordan, over the Past 2,000 Years: Evidence from Historical, Geological and Archaeological Data

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The city of Aqaba is situated at the northern end of the Gulf of Aqaba along the southern part of the Dead Sea Transform Fault. Based on historical accounts as well as archaeological and geological excavations, it is clear that earthquakes have played a significant role in the history of the region. Detailed investigation of the stratigraphy at the Roman-Byzantine Aila archaeological site reveals evidence for seven earthquakes. Based on subsidence across the fault, changes in floor elevations, offset and repaired walls, and layers of collapsed mudbrick, the archaeological data suggest that the site was ruptured in an early 2nd-century earthquake, an early 4th-century earthquake, and the 363 CE earthquake. In addition, two earthquakes are constrained to have occurred between the 6th and 8th centuries.

The most recent earthquakes, with 42 and 35 cm of dip slip, occurred sometime after the 8th century. These latter earthquakes likely affected the Islamic city of Ayla that was founded around 650 CE, and is documented to have suffered some damage as a result of the 749 CE (or 757 CE) earthquake, saw extensive reconstruction around the beginning of the Abbasid period, and collapse in the 1068 CE earthquake. Excavations of a revetment on the city seawall suggest that it was constructed after liquefaction damage. Paleoseismic trenches across active faults in the modern city of Aqaba indicate that at least two earthquakes have occurred after deposits dated to 1045–1278 CE (likely the earthquakes of 1068 CE and 1458 CE). These data document a long period of quiescence since the last phase of intense earthquake activity along the southern Dead Sea transform and highlight the elevated potential earthquake hazard in the region.

Did the End of the Late Roman Wet Period Pre-Condition the Fall of the Umayyad Caliphate? A Study of the Proxy Evidence and Paleoclimate Model Simulations

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Multiple paleoclimate proxies available from the Eastern Mediterranean and the Middle East show that the Arab conquest and the foundation of the Umayyad state started during a humid hydroclimatic phase (mostly related to increased winter precipitation), sometimes called the Late Roman Wet Period, which ended at different paces in different parts of this larger region.

The Eastern Mediterranean and the Middle East are climatically very diverse regions, and even in the northern and the southern parts of the Levant, the climatic variability could have followed different patterns. In the core area of the Umayyad state, in Southern Syria, the humid phase could have ended as late as the first decades of the 8th century. While there is abundant evidence to argue for the positive role of the increased winter precipitation across the Middle East as a factor that encouraged/facilitated agriculture and settlement on hitherto drier lands, it may thus be possible that the early 7th-century shift to the drier regime weakened the Umayyad state and preconditioned its fall. This, however, requires a careful analysis of the available hydroclimate proxies, including their spatial relevance (based on modern data), the spatial temperature reconstructions and a careful look at the possible climate patterns in the period of 650–750, based on paleoclimate model simulations.

Additionally, one could also take into account the seasonal temperature changes, related to the so-called Late Antique Little Ice Age (occurred in the 6th and early 7th century) and later temperature variability: There are no temperature proxies for the Levant in this period, but again the probability of occurrence of extreme seasons could be inferred from the paleo-climate models. In sum, we propose a specific hypothesis related to the wider context of the 749 CE earthquake – that of socio-ecological vulnerability pre-conditioned by a shift to drier conditions – and a promising methodology to verify it.

The *Fitna* of Nature? Climatic and Socio-Political Dynamics in the Caliphate and across Afro-Eurasia in the Middle 8th Century CE

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For the middle 8th century CE, as for other periods of late antique and medieval history, systematic surveys in recent years of the 'archives of society' (written sources) as well as new data from the 'archives of nature' (proxies such as tree rings or speleothems) have contributed to a more detailed picture of climatic trends during these decades, which can be connected to over-regional oscillations as well as volcanic climate forcing. On this basis, a more nuanced evaluation of the actual interplay between environmental change and socio-economic as well as political dynamics across various spatial (from local to global) and temporal (from subannual to decadal) scales is necessary.

The years before and after the 'Abbasid revolution' (747–750 CE) were characterised by extreme events (such as droughts, cold spells or plagues of locust) in Syria, Mesopotamia and adjacent regions, adding trials of nature to the tribulation (Arabic: *fitna*) of civil war; similar phenomena can be observed across the Mediterranean in the Byzantine and Carolingian Empires, but also in Tang China. The paper embeds the analysis of the potential contribution of these disasters to the destabilisation of the Umayyad Caliphate within a global perspective on climate-induced challenges for imperial regimes across mid-8th century Afro-Eurasia.

Damascus and Syria between the Umayyads and Abbasids: Changing Fortunes by Environmental Impacts of Political Considerations

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Around the time of the earthquake of 749, the fortune of Sham turned, from being the prosperous caliphal centre to being relegated the status of a marginal province. What impacted the political choices, and what role might the devastating natural disaster (Black death, earthquakes) have played. This presentation looks into the reasons why Sham has not regained its importance after the earthquake. It tries to evaluate the entangled impacts of the disasters and the political changes.

Why Geologists are Interested in the Levant Mid-8th-Century Earthquakes?

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The occurrence and possible effects of future earthquakes may be evaluated on the basis of our knowledge of the past ones. To this end, we collect historical accounts as well as archaeological and geological observations. The particular case of the mid-8th-century earthquakes demonstrates the crucial role of multidisciplinary research that can resolve the number of earthquakes, their location, their effect on the society and the influence of this knowledge on the seismic hazard assessment in the region.

Based on combined geological, archaeological, historical, mechanical and engineering research, our current understanding is that at least two earthquakes occurred around the years 747–750, one of them occurred on 18 January, 749. It ruptured the Jordan Valley segment of the Dead Sea Fault between the Dead Sea and the Sea of Galilee, with a magnitude of ~7. It is one in an earthquake sequence: 31 BCE, 363 CE, 749 CE, and 1033 CE (mean interval ~350±60 yrs), followed by a millennium-long quiescence. GPS-based measurements, which yield an annual slip rate of 4.5 mm/yr, indicate that the accumulated strain is ~4.5 m. This strain will be released during the next earthquake(s).

The Transformative Impact of the 749 Earthquake in the Central Area of Urban Jerash

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This paper reflects on the theme the 749 CE earthquake in Jerash, a city in northern Jordan, with a focus on evidence from recent excavations in the city centre. It discusses the multiple construction phases of an early Islamic mosque and associated marketplace shops along the streets of central Jarash, as well as the material culture from these contexts. The body of evidence provides a way of understanding how urban life continued after the 749 CE earthquake. It demonstrates the urban renewal strategies employed and the role of wider influences underway in the early Islamic period. It considers what is at stake in explaining political change in the 8th century and complicates predominant views of urban decline and destruction linked to the earthquake.

Earthquakes and Destructions of the Sanctuary of Zeus at Gerasa

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The Sanctuary of Zeus at Gerasa had the particularity of being composed of two large architectural complexes stepped on the slope of a hill: a large peripteral temple on a podium overlooking a large courtyard surrounded by vaulted corridors and preceded by a cupola on columns forming the propylaeum. The various architectural structures were destroyed by different earthquakes, the collapses of the various stone vaults, walls and colonnades sealing important levels of occupation, allowing us to know precisely the dates of the different seism.

The Northwest Quarter of Gerasa/Jerash and the Earthquake Evidences of 749 CE: Rewriting the Urban History of Gerasa/Jerash in a Longue Durée Perspective

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Written sources tell us about the earthquake that devastated large parts of the Levant on 18 January 749 CE. Archaeological sources confirm the impact of this earthquake in numerous cities across the region. In Gerasa/Jerash, the last decades have also brought new archaeological evidence to light –including, and prominently, the excavations undertaken by the Danish-German Jerash Northwest Quarter Project since 2011.

In particular, evidence stemming from a domestic quarter of the early Islamic period on the so-called Eastern Terrace has yielded new insights into the cultural and social history of the city at the time of the earthquake, underlining the fact that society was flourishing. But held up against a broader study involving studies of the hinterland, our project has also shown that the hinterland management had been under pressure for centuries by the middle of the eighth century, which might have been one of the factors why the city's society did not seem to have managed the earthquake destruction with any large resilience. Other missions working in the city have also alluded to the evidence of the 749 CE earthquake, but without bringing the hinterland into the equation.

In this paper, we therefore present and re-evaluate the evidence that comes from our project and hold it up against other published evidence from the archaeological missions working in the city. On the one hand, this shows the need for much more detailed studies of the already known evidences and open data publication strategies and, on the other hand, the paper shows that Gerasa/Jerash was hit hard by the earthquake and never recovered fully, and that its urban history needs to be revisited in this light – first and foremost in a longué durée perspective.

Urban Life after the Earthquake? New Evidence from Jerash's Southwest District

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The series of earthquakes that shook southern Syrian around 749 have traditionally been seen as devastating. The chronicle of Theophanes the confessor (c. 758–817) records several major quakes that affected the region. The chronicle describes, for example, how some cities were half-demolished, while others were completely destroyed.

Until recently, scholars saw these seismic events as marking the end of several urban settlements near the epicentre in northern Palestine, among these was Jerash in modern Jordan. Archaeological fieldwork in the 20th century saw a devastated cityscape marked by collapsed monuments and discontinued civic institutions, but recent archaeological research carried out by two projects in Jerash's central and south-western districts has begun to challenge this picture. Archaeological investigation in the urban centre reveals how Jerash's congregational mosque was rebuilt in its entirety along with a major administrative complex, shops and residential units located west of the mosque. Excavations at Jerash's south-west hilltop has uncovered a residential quarter, which was maintained well beyond the earthquake in 749.

This paper summarises our main results concerning the continuation of urban life in Jerash and contextualises these results into other urban settlements in the region.

Baysān in the Umayyad Period: From Conquest to Destruction

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The first half of the 7th century CE was marked by significant historical and cultural events in Syria-Palaestina: the Persian/Sassanian conquest (614 CE), the Arab conquest (634-636 CE), the retreat of the Byzantine empire and the complete breakdown of government and municipal authority. Despite al-Tabari's account of a battle outside the city, archaeological evidence shows that Nysa-Scythopolis was not conquered by force by the Arabs as the city was included in the *'ala sul Dimashq* surrender terms.

The administrative division of *Bilād al-Shām* at the early Umayyad period corresponded in great measure to the Byzantine structure. *Palaestina Secunda* became *Jund al-Urdunn*. Nysa-Scythopolis, no more the capital of a *province*, resumed its ancient Canaanite name Baysān, though it seems to have retained its administrative status and social and economic standing. At the end of the 7th century CE, as part of the reform and establishment of Umayyad rule, the capital of Jund al-Urdunn was moved to Tiberias by *Mu'awiya ibn Abi Sufyan* ruling Damascus.

The establishment of the Umayyad caliphate marks a new era, both historically and archaeologically. It effected its strict rule over Bilād al-Shām and brought about increased involvement in construction and investment in the region. Baysān benefitted from the patronage of *'Abd al-Malik* and his son *Hishām*. The reform of the former introduced Islam to the region and renewed the growth of *Baysān*, while the latter widely contributed to the city economy. *Baysān* became during the first half of the 8th century CE a major commercial and industrial centre, in which projects were instigated by local administrators as well as by private entrepreneurs.

In AH 131, 18 January, 749 CE, the region was affected by a strong earthquake. *Baysān* was totally destroyed. Following this devastation, a few scattered Abbasid residential quarters were constructed, presumably by the survivors, over the city ruins.

The 749 CE Earthquake at Hippos: The Straw that Broke the Horse's Back

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Antiochia Hippos (Sussita) is among the well-known *poleis* of the Decapolis, located 2 km east of the shores of the Sea of Galilee. Following more than two decades of excavations (2000–2020) we are able to draw a firm line as to the decline and end of settlement at Hippos as a result of the 749 CE earthquake, never to be resettled. The decline starting point and its reasons in the late Byzantine period as well as the transition into the early Islamic period are by far more complex, though better understood today.

As a Roman regional capital and later a seat of a bishopric, Hippos enjoyed a long-lasting dominance over its territory. The early 7th-century Muslim conquest changed this situation dramatically for Hippos and its Christian inhabitants as the city of Ṭabariya, on the western side of the lake, became the Umayyad capital of Jund al-Urdunn. The crisis strengthens until Hippos is no longer a city by the late 7th–early 8th century, but rather a declining industrial town. The 749 earthquake is merely the last straw for the town.

Hippos and its territory experience a crisis in the 7th–8th centuries, which cannot be reflected merely as a 'change'.

Digging the Unseen: The Friday Mosque of Tiberias after the 749 Earthquake

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The Friday Mosque of Tiberias, most probably first erected in the 7th century, lasted c. 400 years, until it collapsed in the 11th century, apparently following the 1068 earthquake. During this long period, the building underwent considerable changes and refurbishing, the main one having taken place during the 720s–730s, when it was transformed from a simple hypostyle structure into a typical monumental Umayyad mosque. The different phases are mainly reconstructed based on the foundations and sections of the different floors, as very little of the building elevation was left due to the quarrying for building material after 1068.

One thing is clear: While the political and natural events of the 11th century kept the mosque from being rebuilt, the monumental Umayyad mosque of the 8th century was quickly fixed, to continue and serve as the region's congregational mosque. Also clear is that even if the quake affected Tiberias as dramatically as documented in Beth Shean (as inferred by the findings at Tiberias Roman theatre), little of its debris was left in situ to be exposed by archaeological excavations. Yet, the unseen disaster can be clarified by following what happened in the mosque's following stage when new rows of columns were added, as well as in adjacent areas – mainly the cardo with shops abutting the mosque's western wall.

The 749 CE Earthquake at Caesarea Maritima: Evidence, Problems and Challenges

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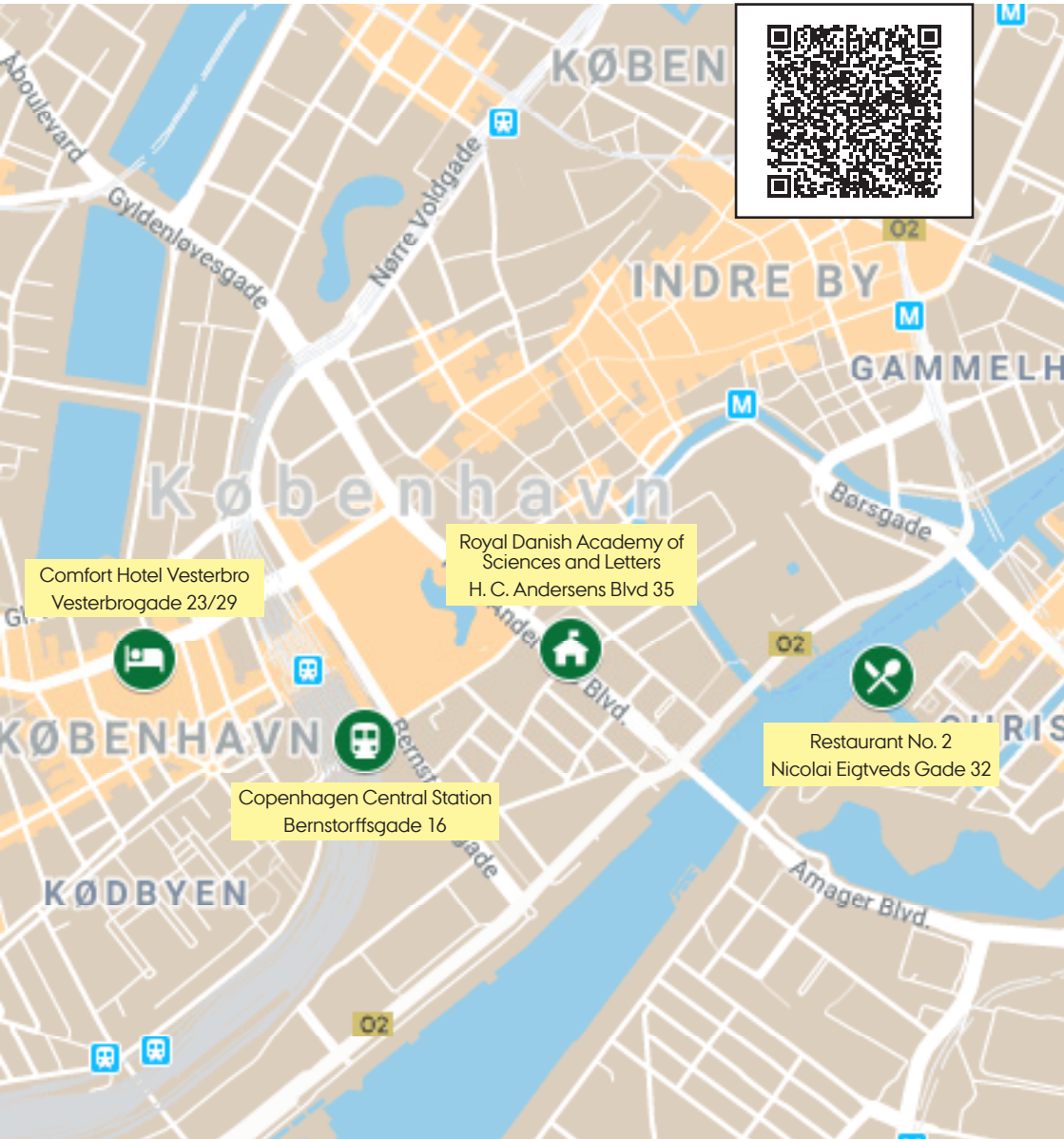
While there are historical records of many earthquakes in the Levant, only the event of 749 CE left widespread traces of damage in the archaeological record at Caesarea. Fallen columns, broken floors and compromised walls were documented near the upper temple mount (site of an octagonal church and then a mosque) by 20th-century archaeologists. More recently, a review of previously published archaeological reports suggests that thick sequences of deposits, located mostly outside the most frequented areas of the early medieval town centre, fit the criteria for a tsunamigenic interpretation and probably result from a tsunami caused by the earthquake of 749. Interestingly, while material traces of earlier tsunamis caused by earthquakes in the 2nd and 6th century CE have been identified at Caesarea, the 8th-century deposits are considerably more extensive and better preserved.

New evidence for such deposits continues to emerge: In 2016, excavations in an Umayyad/Abbasid-period warehouse near the inner harbour basin revealed a level of destruction and infilling suggestive of a powerful marine incursion, which was then subjected to close analysis and sampling. Cores and sediment samples were collected during the excavation and analysed using granulometry (LS Beckman Laser Particle Size), micropaleontology (foraminifera) and P-OSL (Portable Optically Stimulated Luminescence dating); they were then compared with other samples collected from the floors and fills of buildings located inside the early Islamic town centre and from nearby dunes, beaches and submerged offshore contexts. The stratigraphic sequence in the warehouse indicates that the building was damaged in the mid-8th century by a powerful surge of sand-laden water that collapsed the harbour-facing sides of the building and extinguished a raging fire within the warehouse.

In contrast to earlier tsunami events, the deposits were not removed from this location at the heart of the town centre, and the building was left abandoned for some decades, until a new phase of construction in the late 8th century sealed the undisturbed tsunami deposit beneath a floor. Thus, while the earthquakes and tsunamis of 551 and 749 may have been of similar magnitude, the human responses to the two events were very different. The changing nature of these responses can tell us something about the urbanistic and demographic trajectory of the city across the crucial period of transition from Byzantine to Islamic rule in the Levant.

Venues

Scan the QR code to get the map on your phone



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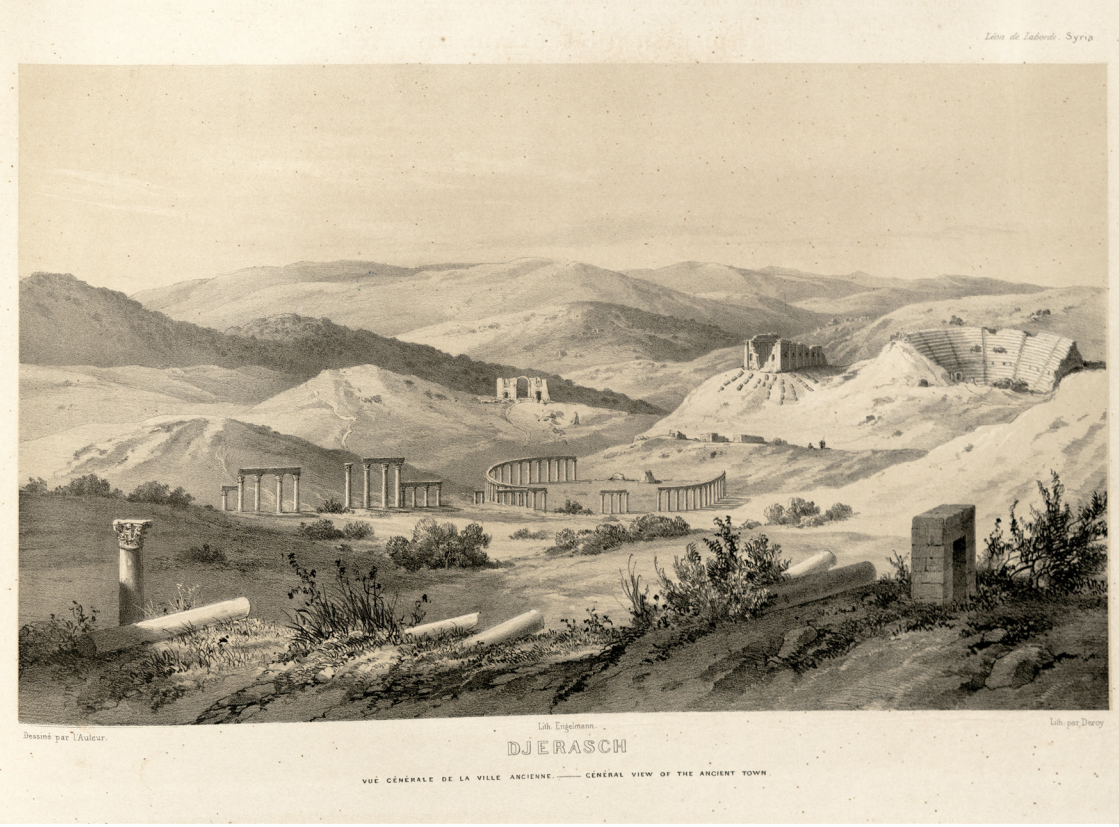
https://urbnet.au.dk/news/events/2020/749/

Note: We will take photographs during the conference, which we store and use for e.g. reporting purposes. If you do not want us to use photos in which you are depicted, please contact Christina Levisen: levisen@cas.au.dk.

Notes



Book of Abstracts
Contextualising the Earthquake of 749 CE: From High-Definition Archaeology to Global History, 23–24 November 2020

Editors: Christina A. Levisen, Achim Lichtenberger and Rubina Raja

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Organisers: Achim Lichtenberger (University of Münster) and Rubina Raja (Aarhus University)

Front cover: View of Camp Hill with tents to the left and the Temple of Zeus to the right. The columns in front of the temple seem to have fallen in straight lines, perhaps indicating that they had fallen due to seismic activity. (From de Laborde 1837: *Voyage de la Syrie par Mrs. Alexandre de Laborde, Becker, Hall, et Léon de Laborde, Paris: Firmin Didot*, Frères Editeurs)

Back cover: View of Camp Hill, the Oval Piazza, the Gate of Hadrian as well as the Temple of Zeus. The columns of the temple seem to have fallen in straight rows in front of the temple, perhaps indicating seismic activity. (From de Laborde 1837: *Voyage de la Syrie par Mrs. Alexandre de Laborde, Becker, Hall, et Léon de Laborde*, Paris: Firmin Didot, Frères Editeurs)

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