

# Introduction: Seasides of Byzantium and Maritime Dynamics in the Aegean Sea

The conference »Seasides of Byzantium. Harbours and Anchorages of a Mediterranean Empire«, from which the papers collected in the present volume emerged, took place in Athens at the National Hellenic Research Foundation (NHRF/IHR) between 29<sup>th</sup> May and 1<sup>st</sup> June 2017<sup>1</sup>.

The background to this event was provided by the increase of interest in the study of maritime installations and networks in the Roman and Byzantine Mediterranean over the last years, as became manifest in various projects and publications. The major Special Research Programme (SPP-1630) »Harbours from the Roman Period to the Middle Ages« with its interdisciplinary approach, funded by the Deutsche Forschungsgemeinschaft (DFG) between 2012 and 2021, constituted one core element of this development<sup>2</sup>. Within the framework of the SPP-1630 and its project »Harbours and landing places on the Balkan coasts of the Byzantine Empire (4<sup>th</sup> to 12<sup>th</sup> centuries)«<sup>3</sup>, the Römisch-Germanisches Zentralmuseum (RGZM) in Mainz<sup>4</sup> and the Institute for Historical Research of the National Hellenic Research Foundation (NHRF/IHR) in Athens<sup>5</sup> established a cooperation for joint research on harbours in Byzantine Greece and the creation of a common data base (fig. 1)<sup>6</sup>. Another element of this cooperation was the organisation of the conference »Seasides of Byzantium«, when historians, archaeologists and geoarchaeologists from Greece, Germany, Austria and other countries discussed the Byzantine Empire as a phenomenon of maritime history, especially from antiquity to the 13<sup>th</sup> century AD. General phenomena such as the harbours of the capital of Constantinople, lighthouses as well as the organisation of the Byzantine navy and its operations (for the example of the Danube delta) are presented in the papers of Aikaterini Delaporta/Flora Karagianni, Eleonora Kountoura Galaki, Max Ritter and Grigori Simeonov. Jean-Philippe Goiran and his team provide a fascinating insight into recent developments in geoarchaeological research methodologies in harbour archaeology. Owing to the research focus of both the project on the harbours and landing places on the Balkan coasts of the Byzantine Empire as well as the affiliated

scholars at the NHRF/IHR in Athens, however, most contributions at the conference and in the present volume (with the exception of Dimitar V. Dimitrov, who discusses the port of Sozopol on the Black Sea) examined case studies for the most important maritime core region of the Byzantine Empire, the Aegean Sea. This sea connected the remaining provinces of the Empire in south-eastern Europe and Asia Minor after the loss of Syria, Palestine, Egypt, and North Africa to the Arabs in the 7<sup>th</sup> century AD<sup>7</sup>.

The remaining pages of this introduction therefore provide a short overview of important aspects of the maritime dynamics in this region as background to most of the papers following in the volume. Like other regions of the Mediterranean, the areas around the Aegean Sea, which had become regular battlegrounds during the preceding period of civil wars, benefited from the *pax Romana* starting with the reign of Augustus (30 BC - AD 14). Existing routes and infrastructures were used more intensively and further expanded. This not only affected centres such as Thessalonike, Athens or Corinth, but also smaller cities, which were important for regional sea connections, such as Chersonesus on Crete, whose port was equipped with moles made of *opus caementicium* (Roman concrete) probably already under Augustus. Recent analysis revealed that the volcanic sands required for this type of construction, as for other such construction projects in the eastern Mediterranean, were brought all the way from the region around Naples (Vesuvius)<sup>8</sup>.

The »Roman Peace« in the Greek area became fragile, though, for the first time in the 3<sup>rd</sup> century AD, when the Goths advanced far into the Balkans from north of the Danube and from the Black Sea area in the 250s, not only by land, but equally through the Bosphorus into the Aegean Sea as far as Rhodes, Crete, Athens and Thessalonike<sup>9</sup>. However, the borders could be stabilized again by AD 300, and the 4<sup>th</sup> and especially the 5<sup>th</sup> century are considered periods of relative stability and economic prosperity in the Eastern Med-

1 For the programme, see <https://www.dasanderemittelalter.net/products/seasides-of-byzantium-harbours-and-anchorage-of-a-mediterranean-empire/>.

2 <https://gepris.dfg.de/gepris/projekt/198801704>.

3 <https://web.rgzm.de/en/research/research-areas/a/article/haefen-an-der-balkanueste-des-byzantinischen-reiches/>.

4 <https://web.rgzm.de/>.

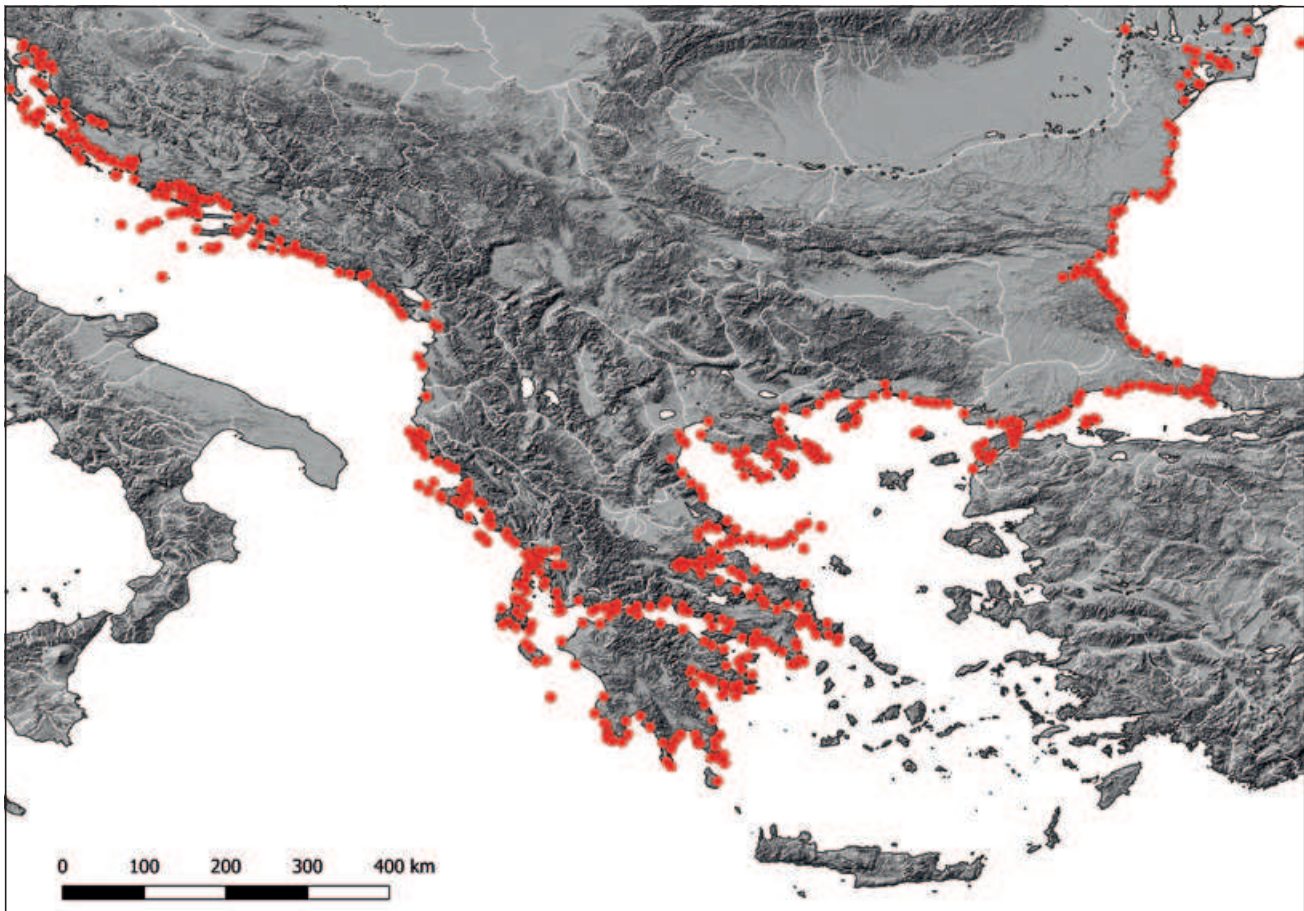
5 [http://www.eie.gr/nhrf/institutes/ihr/index-en\\_IHR.html](http://www.eie.gr/nhrf/institutes/ihr/index-en_IHR.html).

6 The digital information on 667 harbours and landing sites identified during the project was made accessible as open data via the European Harbour Data Repository, see [https://www.db-thueringen.de/receive/dbt\\_mods\\_00038384](https://www.db-thueringen.de/receive/dbt_mods_00038384).

7 On terminology and definitions of the Aegean in the Byzantine period, see Koder, Aigaion Pelagos 49-54.

8 Brandon et al., Building for Eternity 89-93.

9 Wolfram, Die Goten. – Koder, Aigaion Pelagos 72. – Belke, Bithynien und Hellespont 120-121.



**Fig. 1** Map of the on 667 harbours and landing sites identified during the DFG-funded project »Harbours and landing places on the Balkan coasts of the Byzantine Empire (4<sup>th</sup> to 12<sup>th</sup> centuries)« at the RGZM Mainz. – (Data from [https://www.db-thueringen.de/receive/dbt\\_mods\\_00038384](https://www.db-thueringen.de/receive/dbt_mods_00038384). Map J. Preiser-Kapeller, 2020).

iterranean. A new factor in these centuries was the Christian church, which since the reign of Constantine I (305/324-337) was not only tolerated but soon also supported by the Roman state; many bishoprics were established in important port cities. Architecturally, too, the church's influence in the port areas became visible, for example with the largest basilica in Greece that was built around AD 450 in Lechaion, the western port of Corinth (**fig. 2**)<sup>10</sup>. Another factor was the urban metabolism of the new capital of Constantinople founded by Constantine I at the Bosphorus, whose growing demands for supplies were met by maritime transports across the Aegean. For this purpose, new infrastructure was created such as the granaries on the island of Tenedos (today Bozcaada) built at the order of Emperor Justinian I (527-565) for temporary storage of the grain coming every year from Egypt and destined for the capital<sup>11</sup>.

The port architecture of this period was clearly influenced by earlier Roman traditions. Larger port cities, but also smaller ports, were still provided with a central harbour infrastructure. The elements of this infrastructure that run along the coast, such as quays, formed front façades made of large, carved stone blocks with notches for mortar or metal bonds to achieve high stability and long-term durability<sup>12</sup>. This façade was followed by a compact conglomerate of rubble and mortar. This construction system can be clearly observed not only in major early Byzantine ports such as the Theodosius harbour of Constantinople (excavated in Istanbul's Yenikapı since 2004) or the harbour of Ephesus<sup>13</sup>, but also along the Balkan peninsula, such as the ports of Demetrias, Thessalian Thebes, Larymna, Aegina or the already mentioned harbour of Lechaion near Corinth<sup>14</sup>. Structures protruding into the water, such as breakwaters and jetties, also followed the Roman tradition. While breakwaters of the »mound«-type, common

10 Rothaus, Lechaion.

11 Koder, Aigaion Pelagos 99. 287. 289-290.

12 Ginalis, Byzantine Ports 166-167. 184.

13 Erçan, Yenikapı Fig. III. 9, Fig. III. 44-45, Fig. III. 78, Fig. III. 54. – Steskal, Ephesos 335-336. – For the Byzantine harbours of Constantinople see also another publication of the RGZM-project on the Balkan coasts: Daim, Häfen (an English translation of this volume is currently in progress).

14 Ginalis, Byzantine Ports 184. 242. – Knoblauch, Ägina 74. – Raban et al., Sebastos 65-66. – Rothaus, Lechaion 297-299. – On the role of seismic activities and other physical factors for the change of the seaside at Lechaion see also Mourtzas/Kissas/Kolaiti, Lechaion.





**Fig. 2** Aerial view on the basilica at the harbour of Lechaion, 5<sup>th</sup> century AD. – (Photo by courtesy of the Ephorate of Antiquities of Corinthia).

at that time, were built with great precision and carefully selected materials, mole structures were made of hydraulic concrete. This consisted of a compact and linearly shaped mortar composition of cement, crushed stone and ceramic mixed with an aggregate, which was poured into wooden form-work sunk in the water<sup>15</sup>. Contrary to previous assumptions, this demanding but efficient and fast building method was used not only for imperial ports such as the previously mentioned Theodosius harbour of Constantinople<sup>16</sup>. As in the early imperial period (see the above-mentioned example from Chersonesus in Crete), numerous sites in the Balkans show that hydraulic concrete structures were also used in smaller ports, markets towns and even for maritime installations of individual coastal villas (so-called *villae maritimae*)<sup>17</sup>.

In the later 5<sup>th</sup> century AD, the collapse of Roman power in the western Mediterranean area also affected the security of the Greek coasts. In 474, Nikopolis, the capital of the province of Epirus Vetus in the north-west of what is now Greece, at the entrance to the Ambracian Gulf, was sacked by the

Vandals from North Africa. The new city walls of Nikopolis that were subsequently erected enclosed only one sixth of the previous settlement area, and the three ports of the city gradually fell out of use in the following centuries (fig. 3)<sup>18</sup>. The 6<sup>th</sup> century, however, saw the attempt by Emperor Justinian I (527-565) to bring the west of the Mediterranean under Roman rule once again, with the sea connections from the Aegean in westerly direction playing an important role during the campaigns to North Africa and Italy<sup>19</sup>. Numerous ports were built or repaired as part of the extensive construction program under Justinian to secure the maritime trade and communication network. Structurally, these projects reflect a continuity of the Roman building tradition of hydraulic concrete, but a different way of using it in terms of composition, architecture, and layout. For quay systems, instead of the previous expensive wooden form-works under water, the same were now used for more efficient, faster and, above all, more cost-effective mass production of individual blocks on land, which were filled with waste material such as rubble and set

15 Procopius Caesariensis, De aedificiis, I. 11. 18-20. – Vitruvius Pollio, De Architectura, V. 12. 3. – Brandon et al., Building for Eternity 189-222. 234-235.

16 Raban, Caesarea Maritima 64-66.

17 Ginalis, Byzantine Ports 243. – Brandon et al., Building for Eternity 135-136.

18 Preiser-Kapeller, Mapping maritime networks. – Heher/Preiser-Kapeller/Simonov, Staatliche und maritime Strukturen 100-103. – Koder, Aigaion Pelagos 72.

19 Koder, Aigaion Pelagos 72-73.



**Fig. 3** Satellite view on the site of the ancient city of Nikopolis; red line: city fortifications of the Roman period; yellow line: city fortifications after the Vandal attack of 474. – (J. Preiser-Kapeller, 2020. Base map by courtesy of GoogleEarth).

as a classic *opus quadratum*<sup>20</sup>. Piers with solid substructures were also set in the classic *opus quadratum* design, but provided with double joints, i. e., increased hydraulic concrete, to avoid time-consuming stone carvings<sup>21</sup>.

But then climatic changes and in particular outbreaks of the plague from 541 onwards, which also spread across the entire empire via the maritime routes, marked the beginning of a crisis-ridden epoch of great uncertainty. This pandemic equally indicates the need to embed developments in the Mediterranean and Aegean into wider, »global« maritime networks of exchange: as recent palaeogenetic analysis has demonstrated, the plague pathogen (a variant of the bacterium *Yersinia pestis*) most probably had travelled from East Asia to India and via the sea routes in the Indian Ocean and the Red Sea to Egypt, from where it entered the Mediterranean circuits (from Pelusion)<sup>22</sup>. The far-reaching connectivity of the Aegean ahead of the plague (which allowed for its further diffusion) is equally documented by the wide distribution of ceramic containers produced in Western Asia Minor in the Mediterranean and beyond to the British Isles<sup>23</sup>.

By the early 7<sup>th</sup> century, Constantinople had lost control of large parts of mainland Greece. But although Slavic groups,

which had migrated southwards from beyond the Danube, used seaworthy watercrafts (in 623, some Slavic raiders even reached Crete), remnants of Byzantine rule at the coasts continued to be supplied by the still superior fleet via the sea, even in the event of sieges, as described by the »Miracula Sancti Demetrii« for Thessalonike. Places that were difficult to access from land, such as Monembasia on a narrow strip to the southeast coast of the Peloponnese, or the islands in the Saronic and Ambracian Gulf also offered new homes for people fleeing from the mainland. In addition, people migrated from the Peloponnese by sea to Sicily, which among the territories remaining after the Arab conquests of the 7<sup>th</sup> century (see above) played a particularly important role in supplying Constantinople with grain and other resources. Accordingly, the east-west connection between the Aegean Sea, the Peloponnese, Southern Italy, and Sicily still represented a main maritime axis of the Byzantine Empire. It was also used by »long-distance travellers« such as the Anglo-Saxon Willibald, who made a pilgrimage from Italy to the Holy Land in the 720s. However, in 747 the plague from Sicily (where it was probably introduced from North Africa) reached once more Constantinople via Calabria and the Peloponnese (Monembasia) via this route<sup>24</sup>.

20 Ginalis, Emperor or Bishop 255-257. – Ginalis, Byzantine Ports 151-152. 243-244.

21 Ginalis, Anthedon. – Schläger/Blackman/Schäfer, Anthedon 67-68.

22 Preiser-Kapeller, Der Lange Sommer und die Kleine Eiszeit 29-79, with further literature.

23 Papaioannou, A Reconstruction of Maritime Trade Patterns.

24 Koder, Aigaion Pelagos 75-76. – McCormick, Origins of the European Economy 502-508. 565-569. – Kislinger, Regionalgeschichte als Quellenproblem, particularly on population movements between the Peloponnese and Sicily in the late 6<sup>th</sup> century, 33-34 on the course of the spread of the plague 746/747. – Kislinger, Verkehrsrouten zur See. – Heher/Preiser-Kapeller/Simeonov, Vom Lokalen zum Globalen. – Preiser-Kapeller/Werther, Connecting Harbours.





Fig. 4 View of the ancient harbour basin of Larymna at the Gulf of Euboea. – (Photo Schuppi, Larymna6, CC BY-SA 3.0).

As part of the attempts to secure the remaining areas in the Aegean Sea and the important west-east connection, there was another phase of imperial port construction activity in Greece between the end of the 7<sup>th</sup> and the middle of the 8<sup>th</sup> century. This can be observed at the trans-shipment and trading centres of Thessaly, Boeotia, and the Aegean islands such as Demetrias, Thessalian Thebes, the Lechaion port of Corinth, Anthedon, Larymna (fig. 4), Atalante, Eretria or Aegina. Based on the construction technology of the 6<sup>th</sup> century, a new, efficient as well as fast and cheap production method was developed. Both the quays and the piers consisted of a complex system of chambers made up of longitudinal and transverse walls. The individual sections of these chambers were filled with hydraulic concrete, rubble stones and bricks<sup>25</sup>. Despite the execution of state-initiated port construction, maritime activities gradually shifted from

state-imperial control to the »private sector«, especially the church. From the 7<sup>th</sup> century onwards, there are hardly any port facilities without an associated ecclesiastical infrastructure<sup>26</sup>. The development of independent port facilities of churches, monasteries and *metochia* as an economic impulse, which began in the 6<sup>th</sup> century, was completed by the 7<sup>th</sup> century at the latest. This is indicated by the establishment of numerous independent so-called *ekklesiastikai skalai* and by written sources such as the *Vita et Miracula Sancti Demetrii*<sup>27</sup>. Political instability and demographic losses, however, contributed to a decline of agricultural activity such as the amount of the cultivation of olives; this was recently documented for the 7<sup>th</sup> to 8<sup>th</sup> centuries also with pollen analyses of harbour areas, such as in Elaia in Aeolia in Western Asia Minor or in Tristinika on Chalkidike<sup>28</sup>. A decrease of port activity is equally indicated by the decline of the lead concentration in the harbour

25 Ginalis, Byzantine Ports 176-177. 190. – Paris, Lechaion 10-11. Knoblauch, Ägina 73. – Rothaus, Lechaion 295-296. – Schäfer, Larymna 533-537. – Schläger/Blackman/Schäfer, Anthedon 52-64. – Triantafyllidis/Koutsoumba, Aegina 169. 26 See Thessaloniki, Thebes or Lechaion: Ginalis, Byzantine Ports 191-192. – Karagiorgou, Thessaly 59. – Krautheimer, Architecture 556. – Leivadioti, Thessaloniki 56. – Ntina, Thessalia 422-423. 27 Leivadioti, Thessaloniki 56-59. – Lemerle, Miracles 186. – Also, in central Greece, various archaeological findings point to the existence of *εκκλησιαστικά*

*σκάλαι*: Ginalis, Byzantine Ports 192. 201. – On the archaeological evidence for this period see also Poulou-Papadimitriou, Aegean. 28 Shumilovskikh et al., The harbour of Elaia. – Panajiotidis/Papadopoulou, Human-landscape interactions in Halkidiki. – For a more general analysis of palynological evidence see Izdebski/Koloch/Słoczyński, Exploring Byzantine and Ottoman economic history. – On the dynamics on olive cultivation in the Byzantine provinces see also now Olson, Environment and Society in Byzantium.



Fig. 5 View from the fortress to the harbour basin of Naupaktos. – (Photo Dimkoa, Naupaktos old port).

basin of Ephesos from the mid-6<sup>th</sup> century onwards<sup>29</sup>. These observations overlap with a general decline in the number of shipwrecks especially in the 7<sup>th</sup> and 8<sup>th</sup> centuries<sup>30</sup>.

Nevertheless, after the repulse of the great Arab attacks on Constantinople of the late 7<sup>th</sup> and early 8<sup>th</sup> century, whose maritime operations had also perturbed the Aegean, the existence of the Byzantine Empire no longer seemed directly threatened<sup>31</sup>. It was, however, in the early 9<sup>th</sup> century that the maritime power relations and the security situation in the Aegean area changed again dramatically. Expelled due to an uprising from Islamic Spain, a group of émigrés, after a »stop-over« in Egypt, between 824 and 828 conquered the island of Crete and established an Arab emirate. From there, but also from other ports in the Levant, Arab pirates repeatedly carried out devastating raids throughout the Aegean region and beyond to Nikopolis in western Greece in the following decades. The sack of Thessalonike, the second largest city in the empire after Constantinople, in 904 caused a special sensation. In view of this danger, travellers between Italy and the Aegean now often chose a northern itinerary instead of the southern

route along the Peloponnese, which led across the Adriatic to north-west Greece and from there by land to Thessalonike and on to Constantinople<sup>32</sup>. This in turn benefited port towns such as Naupaktos east of the Rion/Antirion strait at the entrance to the Gulf of Corinth, which replaced Nikopolis as the administrative centre in the region and, between 880 and 899, became the capital of the new district (*thema*) Nikopolis, which was still named after the old metropolis. Naupaktos and its smaller port were less convenient in terms of transport compared to Nikopolis, but easier to defend and monitor, factors that had become decisive for the choice of location since the late 6<sup>th</sup> century (fig. 5)<sup>33</sup>.

A permanent stabilisation of the maritime security situation in the Aegean was only achieved when the Byzantine general and later Emperor Nikephoros (II) Phokas recaptured the island of Crete in 960/961. The economy and regional and supra-regional (sea) trade benefited from this as well as from the general rise of Byzantine power. This was recently confirmed by pollen analyses, which indicate an increase of agricultural

29 Delile et al., Demise of a harbour.

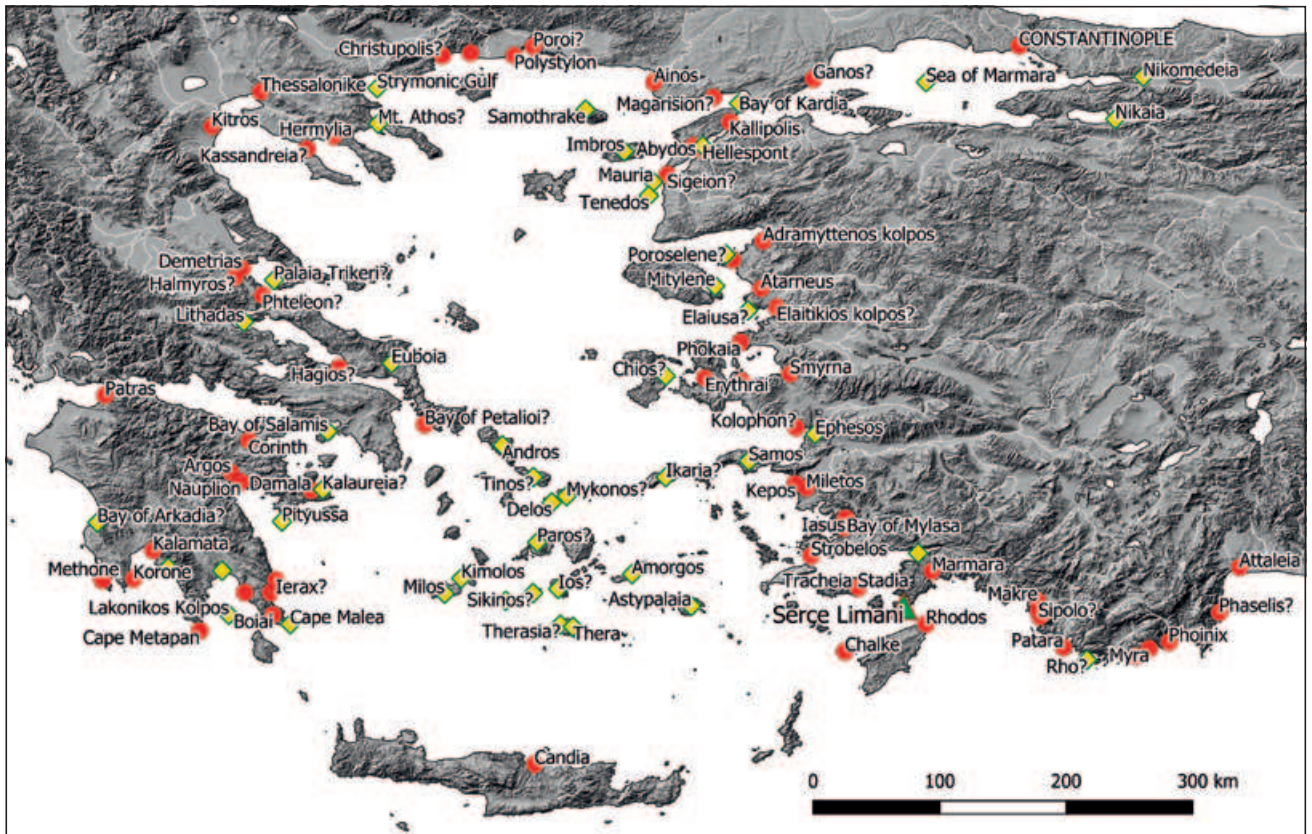
30 Wilson, Developments in Mediterranean Shipping, modifying the earlier statistics of Parker, Ancient Shipwrecks.

31 Leontsini, The Byzantine and Arab navies. – Belke, Bithynien und Hellespont 142-147.

32 Koder, Aigaion Pelagos 76-77. – Kislinger, Verkehrsrouten zur See. – Leontsini, The Byzantine and Arab navies. – Belke, Bithynien und Hellespont 158.

33 Heher/Preiser-Kapeller/Simeonov, Staatliche und maritime Strukturen 100-103. – Veikou, Byzantine Histories.





**Fig. 6** Harbours and anchorages (red) and landmarks (yellows) mentioned for the Aegean in the 11<sup>th</sup> century Arab »Book of Curiosities« (created in Egypt). – (J. Preiser-Kapeller, 2020).

activity on both sides of the Aegean, from the 9<sup>th</sup> century onwards in Asia Minor, from the 10<sup>th</sup> century in Greece<sup>34</sup>. The composition of the ceramics in archaeological findings such as the shipwreck from Cape Stoba, Mljet, Croatia, dated to the 10<sup>th</sup>/11<sup>th</sup> century, document again wide-ranging maritime networks from the Adriatic to the Aegean, the Levant, and the Black Sea<sup>35</sup>. The 11<sup>th</sup> century shipwreck of Serçe Limani in Caria in south-western Asia minor indicates another axis of commerce across the Mediterranean to Fatimid Egypt, from which most of the freight destined maybe for Constantinople – glass – came<sup>36</sup>. The density of ports, anchorages, and landmarks along the Byzantine coasts and in the Aegean Arab seafarers were aware of is equally illustrated in the so-called »Book of Curiosities«, which was created in Egypt in the 11<sup>th</sup> century (fig. 6). The maps in this manuscript depict a Mediterranean still dominated by Arab and Byzantine actors, with Western Europe only visible at the north-west margins<sup>37</sup>.

This prosperity, however, already since the 9<sup>th</sup> century attracted new players, particularly merchants from the Italian cities such as Venice, Genoa, Pisa, and Amalfi<sup>38</sup>. And the

established balance of power in the Eastern Mediterranean between the Byzantine Empire and the Fatimid Caliphate was destroyed from the 1060s onwards by Turkish groups and dynasties such as the Seljuks advancing from Central Asia to the Middle East and onwards to the Levant and Asia Minor. By 1090, Turkish emirs such as Tzachas (Çaka) in Smyrna had established themselves as challenger of Byzantine naval power even in the Aegean. Only in the wind shadow of the First Crusade 1096/1097, Constantinople was able to regain control over the Aegean coast of Asia Minor<sup>39</sup>. Nevertheless, the Byzantine emperors reacted with a certain distrust to this new form of »Holy war« of Western Christendom, especially due to the participation of Normans from Southern Italy in the First Crusade. The Normans had not only smashed the last remains Byzantine rule in Italy until 1071 but had also crossed the Adriatic to attack Greece. Since the decline of Byzantine power in the decades before had left Constantinople's naval forces in very contracted state<sup>40</sup>, Constantinople resorted to an alliance with the boosting sea power of Venice. The Venetians, however, in return demanded and received in a

34 Izdebski/Koloch/Słoczyński, Exploring Byzantine and Ottoman economic history.  
 35 Kralj et al., A Byzantine Shipwreck.  
 36 Bass et al., Serçe Limani. – Jacoby, Byzantine maritime trade.  
 37 Book of Curiosities. – Rapoport/Savage-Smith, Lost Maps of the Caliphs.

38 McCormick, Origins of the European Economy. – Jacoby, Byzantine maritime trade.  
 39 Belke, Bithynien und Hellespont 173-178.  
 40 Kislinger, Ruhm. – Jacoby, Byzantine maritime trade.

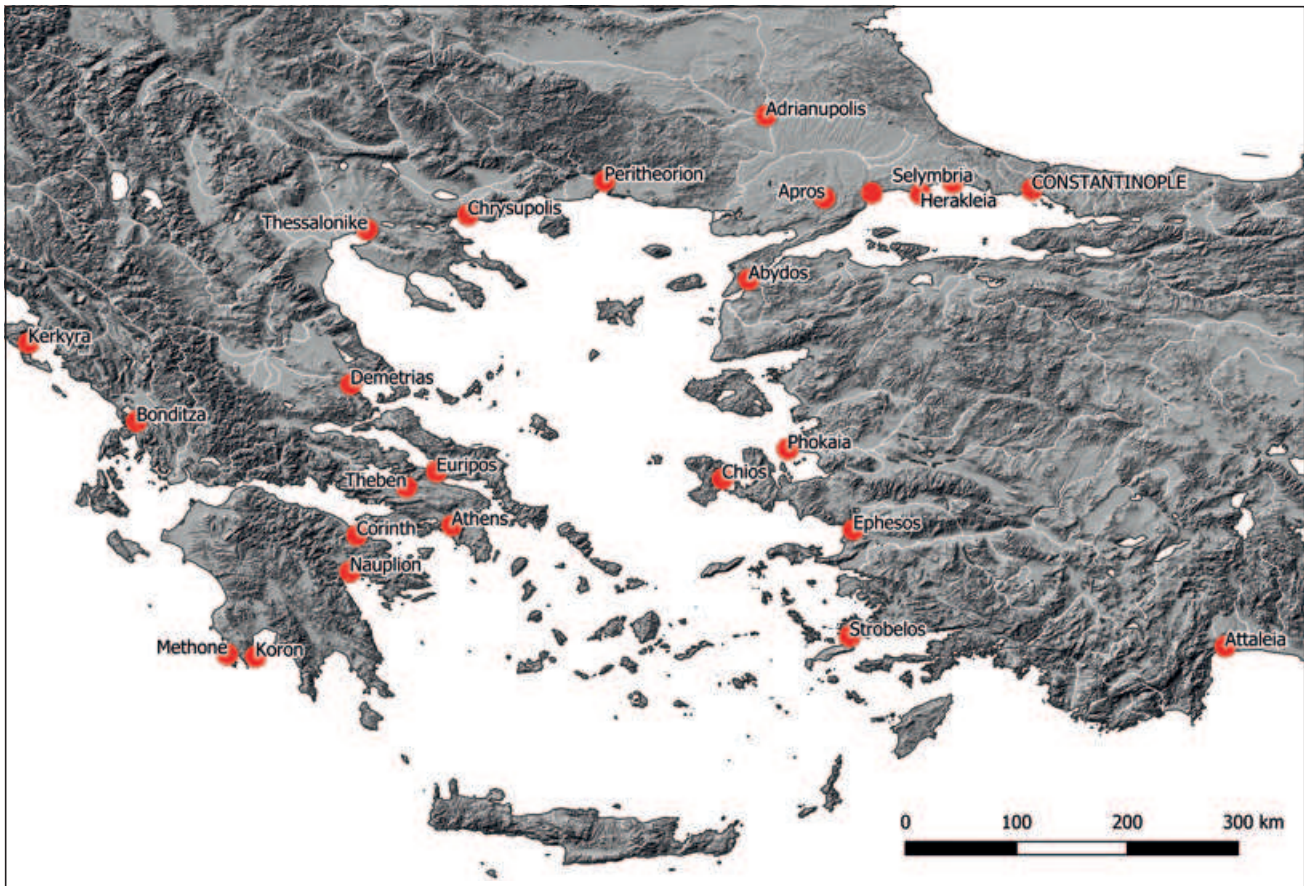


Fig. 7 Cities in the Aegean accessible for Venetian merchants according to the imperial privilege charter of 1082. – (J. Preiser-Kapeller, 2020).

charter of 1082 privileged access not only to the markets of Constantinople, but to several important port cities at the Sea of Marmara and the Aegean (fig. 7). Over the following decades, they demanded the renewal and expansion of these privileges, even by force of arms as in 1124/1125 and 1171/1172, when they plundered several islands (such as Chios and Lesbos) and seaside towns of the Aegean. Another list of localities in a privilege charter of 1198 shows how their influence has extended not only to more ports, but also urban markets in the hinterland (fig. 8). In addition, merchants from Pisa and Genoa increased their activities in the Byzantine maritime space<sup>41</sup>.

Against this background, new trans-shipment points with their own port facilities such as Halmyros or Pteleos emerged<sup>42</sup>. In the context of seafaring and port architecture, the change in the economic and trading system manifests itself through the shift of port activities from monumental central ports to small, individual, and independent infra-

structures, so-called *skalai* (lat. *Scalae*)<sup>43</sup>. Usually, these *scalae* functioned as open roadsteads with only a few elements such as piers, which, like in the Theodosius port of Constantinople or in iconographic representations, were wooden constructions<sup>44</sup>. However, especially under Venetian or Genoese influence from 11<sup>th</sup>-12<sup>th</sup> centuries onwards, larger trans-shipment points were also equipped with »permanent« pier and mole constructions, as can be seen in Pteleos, Skiathos and above all at the ports of the island of Euboia such as Nimporio, Boufalo (fig. 9) and Kastri. Although these permanent harbour structures had the same construction technology as in previous centuries, the composition of hydraulic concrete had become much coarser and unsound from the end of the 13<sup>th</sup> century onwards<sup>45</sup>. By that time, the conquest of Constantinople and the Greek provinces by the Crusaders and Venetians in 1204 had changed not only the political map of the region, but also permanently modified the parameters of seafaring and maritime trade<sup>46</sup>. However, these develop-

41 Lilie, Handel und Politik. – Koder, Aigaion Pelagos 82. – Preiser-Kapeller, A Collapse of the Eastern Mediterranean. – Jacoby, Byzantine maritime trade.

42 Ginalis, Byzantine Ports 196.

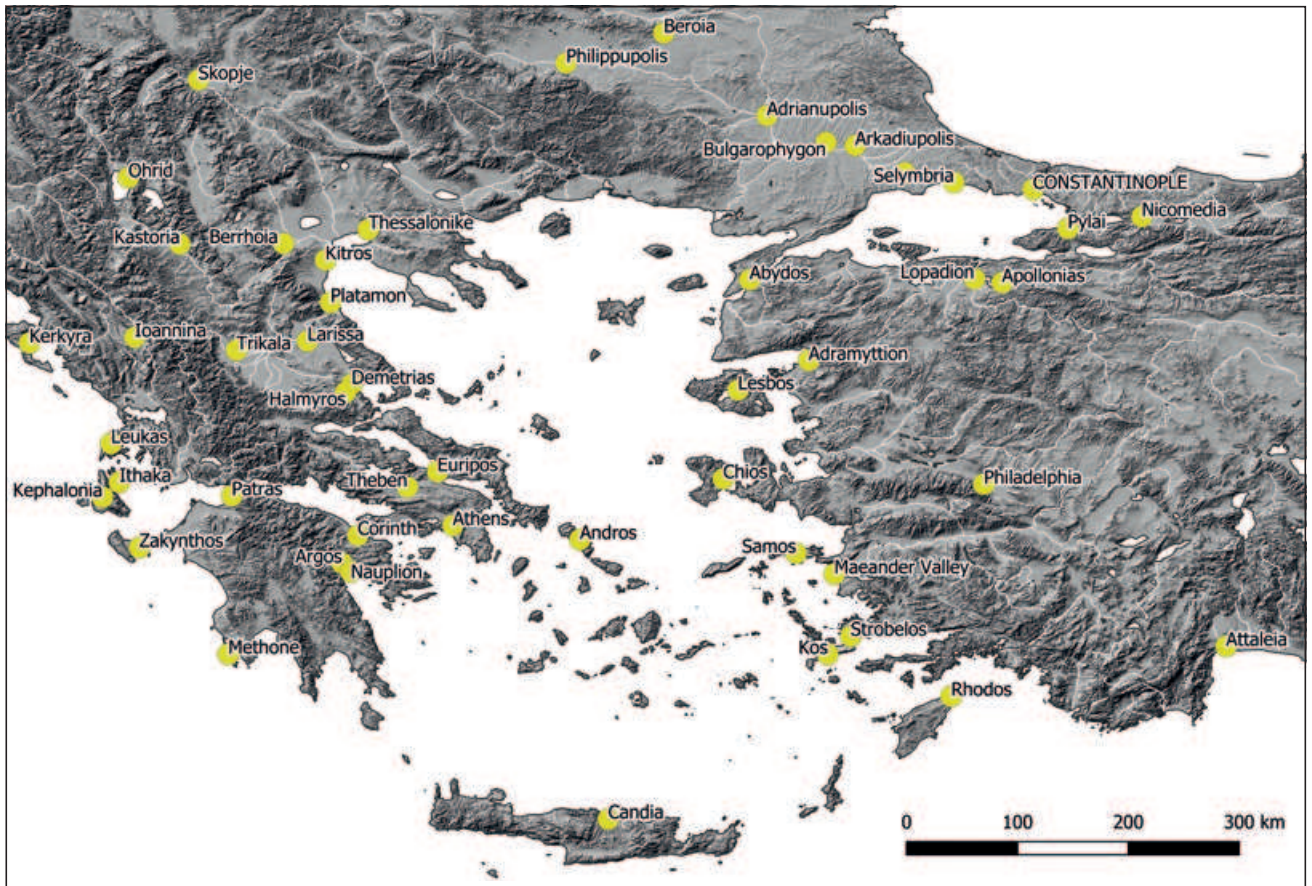
43 Ginalis, Byzantine Ports 240. – On the *scalae* of Constantinople see Kislinger, Neorion und Prosporon 96.

44 Cod. Taphou 14, f. 265<sup>r</sup>. – Erçan, Yenikapi 116 fig. III. 8; 162 fig. III. 42. – Ginalis, Byzantine Ports 245.

45 Ginalis, Emperor or Bishop 259.

46 Koder, Aigaion Pelagos 83-85. – Preiser-Kapeller, Liquid Frontiers.





**Fig. 8** Cities in the Aegean accessible for Venetian merchants according to the imperial privilege charter of 1198. – (J. Preiser-Kapeller, 2020).

**Fig. 9** View of the bay of Boufalo on the island of Euboia. – (Photo by courtesy of EviaGreece).



ments belong to the following period up to the expansion of the Ottoman Empire in the 15<sup>th</sup> century and are beyond the temporal limits of the present volume.

In general, we have to reckon with a **high resilience of maritime connectivity between the myriad of harbours, anchor-**

**ages and landing sites at the islands and coasts of the Aegean** at the local level during the Byzantine centuries, even when regional or trans-regional maritime trade suffered from political or economic crisis. For this everyday exchange of goods on small boats over short distances, no elaborate harbour architecture was needed. However, even the use of larger vessels



**Fig. 10** View of the harbour of Candia (Iraklion) on Crete in 1919. – (From Baud-Bovy/Boissonnas, *Cyclades* no. 130.

in trade over longer distances did not necessarily require a fully equipped port. On the contrast, Ruthy Gertwagen in her analysis of the history of the port of Candia on Crete (fig. 10) in the 13<sup>th</sup>-15<sup>th</sup> century illustrated how traders despite the controlling efforts of the Venetian Colonial regime avoided the usage of the developed harbour of Candia (and accompanying taxes) and unloaded their cargo in nearby natural bays, accepting the higher risks for the safety of their ships<sup>47</sup>. On the other hand, we observe a remarkable amount of investment in more complex and durable harbour structures not only from the side of the Byzantine state, but also ecclesiastical and private actors; such decisions may have been determined by topography and navigational requirements. But as Pascal Arnaud has demonstrated in his contribution to another volume edited within the framework of our project for the Roman imperial period, the self-representation of the

initiators of such building projects was often more essential than their practical impact<sup>48</sup>. Therefore, beyond all technical details, we shall explore more and more the social embedding of the seashores of Byzantium and their dynamics.

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<sup>47</sup> Gertwagen, *Ports*. – Preiser-Kapeller, *Mapping maritime networks*. – Preiser-Kapeller, *Harbours and Maritime Networks*.

<sup>48</sup> Arnaud, *Interplay*.



## References

- Arnaud, Interplay: P. Arnaud, The Interplay between Practitioners and Decision-Makers for the Selection, Organisation, Utilisation and Maintenance of Ports in the Roman Empire. In: J. Preiser-Kapeller / F. Daim (eds), Harbours and Maritime Networks as Complex Adaptive Systems. RGZM – Tagungen 23 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 2 (Mainz 2015) 61-81.
- Bass et al., Serçe Limani: G. F. Bass / Sh. Matthews / J. R. Steffy / F. H. van Doorninck, Jr. Serçe Limani. An Eleventh-Century Shipwreck. 1: The Ship and Its Anchorage, Crew, and Passengers (College Station 2004).
- Baud-Bovy/Boissonnas, Cyclades: D. Baud-Bovy / F. Boissonnas, Des Cyclades en Crète au gré du vent; avec une préface par G. Fougères; notices archéologiques par G. Nicole (Genève 1919).
- Belke, Bithynien und Hellespont: K. Belke, Bithynien und Hellespont. TIB 13 (Wien 2020).
- Book of Curiosities: An Eleventh-Century Egyptian Guide to the Universe: The Book of Curiosities. Ed. Y. Rapoport / E. Savage-Smith. Islamic Philosophy, Theology and Science. Text and Studies 87 (Leiden, Boston 2014).
- Brandon et al., Building for Eternity: C. J. Brandon / R. L. Hohlfelder / M. D. Jackson / J. P. Oleson, Building for Eternity. The History and Technology of Roman Concrete Engineering in the Sea (Oxford 2014).
- Daim, Häfen: F. Daim (ed.), Die byzantinischen Häfen Konstantinopels. BOO 4 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 3 (Mainz 2016).
- Delile et al., Demise of a harbour: H. Delile et al., Demise of a harbour: A geochemical chronicle from Ephesus. Journal of Archaeological Science 53, 2015, 202-213.
- Erçan, Yenikapı: A. Erçan, Yenikapı, A late antique and Byzantine harbour in Constantinople: A historical, archaeological and architectural study of the newly discovered remains [unpubl. M.A. thesis Koç Univ. 2010].
- Gertwagen, Ports: R. Gertwagen, The Concept of Ports in the Medieval Eastern Mediterranean: Construction and Maintenance on Crete to the End of the Fifteenth Century. International Journal of Maritime History 12/1, 2000, 177-241.
- Ginalis, Anthedon: A. Ginalis, Reassessing the Harbour of Anthedon. In: J. Preiser-Kapeller / T. G. Kolias / F. Daim (eds), Seasides of Byzantium. Harbours and anchorages of a Mediterranean Empire. BOO 21 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 9 (Mainz 2021) 79-110.
- Byzantine Ports: A. Ginalis, Byzantine Ports. Central Greece as a link between the Mediterranean and the Black Sea [unpubl. Diss. Univ. Oxford 2014].
- Emperor or Bishop: A. Ginalis, 2018. Emperor or Bishop – Skiathos and the Byzantine harbour architecture of the 6<sup>th</sup> century AD. In: C. von Carnap-Bornheim / F. Daim / P. Ettl / U. Warnke (eds), Harbours as Objects of Interdisciplinary Research – Archaeology + History + Geosciences. RGZM – Tagungen 34 = Interdisziplinäre Forschungen zu Häfen von der Römischen Kaiserzeit bis zum Mittelalter 5 (Mainz 2018) 249-264.
- Heher/Preiser-Kapeller/Simeonov, Staatliche und maritime Strukturen: D. Heher / J. Preiser-Kapeller / G. Simeonov, Staatliche und maritime Strukturen an den byzantinischen Balkanküsten. In: Th. Schmidts / M. M. Vučić (eds), Häfen im 1. Millennium AD. Bauliche Konzepte, herrschaftliche und religiöse Einflüsse. RGZM – Tagungen 22 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 1 (Mainz 2015) 93-118.
- Vom Lokalen zum Globalen: D. Heher / J. Preiser-Kapeller / G. Simeonov, Vom Lokalen zum Globalen. Maritime Netzwerke des Austauschs, der Versorgung und Mobilität an den byzantinischen Balkanküsten und in der frühmittelalterlichen Welt. In: S. Kalmring / L. Werther (eds), Häfen im 1. Millennium A.D.: Standortbedingungen, Entwicklungsmodelle und ökonomischen Vernetzung. RGZM – Tagungen 31 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 4 (Mainz 2017) 191-222.
- Izdebski/Koloch/Słoczyński, Exploring Byzantine and Ottoman economic history: A. Izdebski / G. Koloch / T. Słoczyński, Exploring Byzantine and Ottoman economic history with the use of palynological data: a quantitative approach. JÖB 65, 2015, 67-110.
- Jacoby, Byzantine maritime trade: D. Jacoby, Byzantine maritime trade, 1025-1118. TM 21/2, 2017, 627-648.
- Karagiorgou, Thessaly: O. Karagiorgou, Urbanism and Economy in Late Antique Thessaly (3<sup>rd</sup>-7<sup>th</sup> cent. AD): The Archaeological Evidence [unpubl. Diss. Univ. Oxford 2001].
- Kislinger, Neorion und Prosporon: E. Kislinger, Neorion und Prosporon – die alten Häfen am Goldenen Horn. In: F. Daim (ed.), Die byzantinischen Häfen Konstantinopels. BOO 4 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 3 (Mainz 2016) 89-98.
- Regionalgeschichte als Quellenproblem: E. Kislinger, Regionalgeschichte als Quellenproblem. Die Chronik von Monembasia und das sizilianische Demenna. Eine historisch-topographische Studie (Wien 2001).
- Ruhm: E. Kislinger, Der Ruhm der Rhomania? Zur byzantinischen Flotte 1028-1081. In: A. D. Beihammer / B. Krönung / C. Ludwig (eds), Prosopon Rhomaikon: ergänzende Studien zur Prosopographie der mittelbyzantinischen Zeit. Millennium-Studien 68 (Berlin 2017) 43-52.
- Verkehrsrouten zur See: E. Kislinger, Verkehrsrouten zur See im byzantinischen Raum. In: E. Kislinger / J. Koder / A. Külzer (eds), Handelsgüter und Verkehrswege. Aspekte der Warenversorgung im östlichen Mittelmeerraum (4. bis 5. Jahrhundert) (Wien 2010) 149-174.
- Knoblauch, Ägina: P. Knoblauch, Die Hafenanlagen der Stadt Ägina. ADelt 27A, 1973, 50-85.
- Koder, Aigaion Pelagos: J. Koder, Aigaion Pelagos (Die nördliche Ägäis). TIB 10 (Wien 1998).
- Kralj et al., A Byzantine Shipwreck: V. Z. Kralj / C. Beltrame / I. Miholjek / M. Ferri, A Byzantine Shipwreck from Cape Stoba, Mljet, Croatia: an interim report. The International Journal of Nautical Archaeology 45.1, 2016, 42-58.
- Krautheimer, Architecture: R. Krautheimer, Early Christian and Byzantine Architecture (London 1989).
- Leivadioti, Thessaloniki: M. Leivadioti, Το λιμάνι της Θεσσαλονίκης από την ίδρυση της πόλης μέχρι την κατάληψή της από τους Τούρκους (1430) [unpubl. M.A. thesis Aristotle Univ. 2009].
- Lemerle, Miracles: P. Lemerle (ed.), Les plus anciens recueils des Miracles de Saint Démétrius II (Paris 1981).

- Leontsini, The Byzantine and Arab navies: M. Leontsini, The Byzantine and Arab navies in the southern Aegean and Crete: Shipping, mobility and transport (7<sup>th</sup>-9<sup>th</sup> c.). *Graeco-Arabica* 12, 2017, 171-233.
- Lilie, Handel und Politik: R.-J. Lilie, Handel und Politik zwischen dem byzantinischen Reich und den italienischen Kommunen Venedig, Pisa und Genua in der Epoche der Komnenen und der Angeloi (1081-1204) (Amsterdam 1984).
- McCormick, Origins of the European Economy: M. McCormick, Origins of the European Economy. *Communications and Commerce AD 300-900* (Cambridge 2002).
- Mourtzas/Kissas/Kolaiti, Lechaion: N. D. Mourtzas / C. Kissas / E. Kolaiti, Archaeological and geomorphological indicators of the historical sea level changes and the related palaeogeographical reconstruction of the ancient foreharbour of Lechaion, East Corinth Gulf (Greece). *Quaternary International* 332, 2014, 151-171.
- Ntina, Thessalia: A. Ntina, Παλαιοχριστιανικοί οικισμοί Θεσσαλίας. In: L. P. Gklegkle (ed.), *Proceedings of the 1<sup>st</sup> International Congress on the History and Culture of Thessaly* (Larisa, 9<sup>th</sup>-11<sup>th</sup> November 2006) II (Thessaloniki 2008) 410-430.
- Olson, Environment and Society in Byzantium: A. Olson, Environment and Society in Byzantium, 650-1150. *Between the Oak and the Olive* (Cham 2020).
- Panajiotidis/Papadopoulou, Human-landscape interactions in Halkidiki: S. Panajiotidis / M. L. Papadopoulou, Human-landscape interactions in Halkidiki (NC Greece) over the last 3.5 millennia, revealed through palynological, and archaeological-historical archives. *Journal of Archaeological Science: Reports* 7, 2016, 138-145.
- Papaioannou, A Reconstruction of Maritime Trade Patterns: Th. Papaioannou, A Reconstruction of Maritime Trade Patterns originating from Western Asia Minor during Late Antiquity, on the Basis of Ceramic Evidence. In: D. Robinson / A. Wilson (eds), *Maritime Archaeology and Ancient Trade in the Mediterranean* (Oxford 2011) 197-210.
- Paris, Lechaion: J. J. Paris, Contributions à l'étude des ports antiques du monde grec. *Notes sur Léchaion. Bulletin de Correspondance Hellénique* 39, 1915, 5-16.
- Parker, Ancient Shipwrecks: A. J. Parker, *Ancient Shipwrecks of the Mediterranean and the Roman Provinces* (Oxford 1992).
- Poulou-Papadimitriou, Aegean: N. Poulou-Papadimitriou, The Aegean during the »transitional« period of Byzantium: the archaeological evidence. In: J. G. Crow / D. Hill (eds), *Naxos and the Byzantine Aegean: Insular Responses to Regional Change* (Athens 2018) 29-50.
- Preiser-Kapeller, A Collapse of the Eastern Mediterranean: J. Preiser-Kapeller, A Collapse of the Eastern Mediterranean? New results and theories on the interplay between climate and societies in Byzantium and the Near East, ca. 1000-1200 AD. *JÖB* 65, 2015, 195-242.
- Der Lange Sommer und die Kleine Eiszeit: J. Preiser-Kapeller, *Der Lange Sommer und die Kleine Eiszeit. Klima, Pandemien und der Wandel der Alten Welt von 500 bis 1500 n. Chr.* (Wien 2021).
- Harbours and Maritime Networks: J. Preiser-Kapeller, Harbours and Maritime Networks as Complex Adaptive Systems – a Thematic Introduction. In: J. Preiser-Kapeller / F. Daim (eds), *Harbours and Maritime Networks as Complex Adaptive Systems. RGZM – Tagungen 23 = Interdisziplinäre Forschungen zu den Häfen von der Römischen Kaiserzeit bis zum Mittelalter in Europa 2* (Mainz 2015) 1-24.
- Liquid Frontiers: J. Preiser-Kapeller, Liquid Frontiers. A relational analysis of maritime Asia Minor as religious contact zone in the 13<sup>th</sup>-15<sup>th</sup> century. In: A. Peacock et al. (ed.), *Islam and Christianity in Medieval Anatolia* (Aldershot 2015) 117-146.
- Mapping maritime networks: J. Preiser-Kapeller, Mapping maritime networks of Byzantium. Aims and prospects of the project »Ports and landing places at the Balkan coasts of the Byzantine Empire«. In: F. Karagianni (ed.), *Proceedings of the conference »Olkas. From Aegean to the Black Sea. Medieval Ports in the Maritime Routes of the East«* (Thessalonike 2013) 467-492.
- Preiser-Kapeller/Werther, Connecting Harbours: J. Preiser-Kapeller / L. Werther, Connecting Harbours. A comparison of traffic networks across ancient and medieval Europe. In: C. von Carnap-Bornheim / F. Daim / P. Ettel / U. Warnke (eds), *Harbours as objects of interdisciplinary research – Archaeology + History + Geosciences. RGZM – Tagungen 34 = Interdisziplinäre Forschungen zu Häfen von der Römischen Kaiserzeit bis zum Mittelalter 5* (Mainz 2018) 7-31.
- Procopius Caesariensis, De aedificiis: Procopii Caesariensis Opera omnia, IV. De aedificiis libri IV. Ed. J. Haury / G. Wirth (Lipsiae 1964).
- Raban, Caesarea Maritima: A. Raban, The Harbours of Caesarea Maritima. Results of the Caesarea Ancient Harbour Excavation Project, 1980-1985 I. *BAR International Series* 491 (Oxford 1989).
- Raban et al., Sebastos: A. Raban / M. Artzy / B. Goodman / Z. Gal, The Harbour of Sebastos (Caesarea Maritima) in its Roman Mediterranean Context. *BAR International Series* 1930 (Oxford 2009).
- Rapoport/Savage-Smith, Lost Maps of the Caliphs: Y. Rapoport / E. Savage-Smith, *Lost Maps of the Caliphs. Drawing the World in Eleventh-Century Cairo* (Chicago 2018).
- Rothaus, Lechaion: R. Rothaus, Lechaion, western port of Corinth. *Oxford Journal of Archaeology* 14, 1995, 293-306.
- Schäfer, Larymna: J. Schäfer, Beobachtungen zu den seeseitigen Mauern von Larymna in der Lokris. *Archäologischer Anzeiger* 82/4, 1967, 527-545.
- Schläger/Blackman/Schäfer, Anthedon: H. Schläger / D. J. Blackman / J. Schäfer, Der Hafen von Anthedon mit Beiträgen zur Topographie und Geschichte der Stadt. *Archäologischer Anzeiger* 83/1, 1968, 21-102 [+ Addenda & Corrigenda 84/2: 229-231].
- Shumilovskikh et al., The harbour of Elaia: L. S. Shumilovskikh, The harbour of Elaia: A palynological archive for human environmental interactions during the last 7500 years. *Quaternary Science Reviews* 149, 2016, 167-187.
- Steskal, Ephesos: M. Steskal, Ephesos and its Harbors: A city in Search of its Place. In: S. Ladstätter / F. Pirson / Th. Schmidts (eds), *Harbors and Harbor Cities in the Eastern Mediterranean. BYZAS* 19, 1 (Istanbul 2011) 325-338.
- Triantafillidis/Koutsoumba, Aegina: I. Triantafillidis / D. Koutsoumba, The harbour landscape of Aegina (Greece). In: J. Gawronski / A. van Holk / J. Schokkenbroek (eds), *Ships and Maritime Landscapes. Proceedings of the Thirtieth International Symposium on Boat and Ship Archaeology* (Eelde 2017) 165-170.
- Veikou, Byzantine Histories: M. Veikou, Byzantine Histories, Settlement Stories: Kastrá, »Isles of Refuge«, and »Unspecified Settlements« as In-between or Third-Spaces. In: T. Kiousopoulou (ed.), *Οι βυζαντινές πόλεις (8<sup>ος</sup>-15<sup>ος</sup> αιώνας): Προοπτικές της έρευνας και νέες ερμηνευτικές προσεγγίσεις* (Rethymno 2014) 159-206.



Vitruvius Pollio, *De Architectura: Vitruvii De architectura libri decem*. Ed. F. Krohn (Leipzig 1912).

Wilson, *Developments in Mediterranean Shipping: A. Wilson, Developments in Mediterranean Shipping and Maritime Trade from the Hellenistic Period to AD 1000*. In: D. Robinson / A. Wilson (eds), *Mar-*

*itime Archaeology and Ancient Trade in the Mediterranean* (Oxford 2011) 33-59.

Wolfram, *Die Goten: H. Wolfram, Die Goten: Von den Anfängen bis zur Mitte des sechsten Jahrhunderts. Entwurf einer historischen Ethnographie* (München 2009).

## Summary / Zusammenfassung

### Introduction: Seasides of Byzantium and maritime dynamics in the Aegean Sea

The introduction explains the background to the conference in Athens in 2017, in the context of which the contributions in this volume were created. In addition, it offers an overview of the maritime history and the dynamics of port architecture, especially on the coasts of the Aegean Sea, between the 4<sup>th</sup> and 12<sup>th</sup> centuries. The interplay between local conditions and over-regional political and economic changes is explored.

### Einleitung: Küsten des byzantinischen Reichs und maritime Dynamik in der Ägäis

Die Einführung erläutert den Hintergrund der Konferenz in Athen im Jahr 2017, in deren Rahmen die Beiträge im vorliegenden Band entstanden. Darüber hinaus bietet sie einen Überblick zur maritimen Geschichte und der Dynamik der Hafenarchitektur insbesondere an den Küsten der Ägäis zwischen dem 4. und 12. Jahrhundert. Dabei wird das Wechselspiel zwischen lokalen Gegebenheiten und überregionalen politischen und ökonomischen Veränderungen erkundet.