

# Over the Horizon

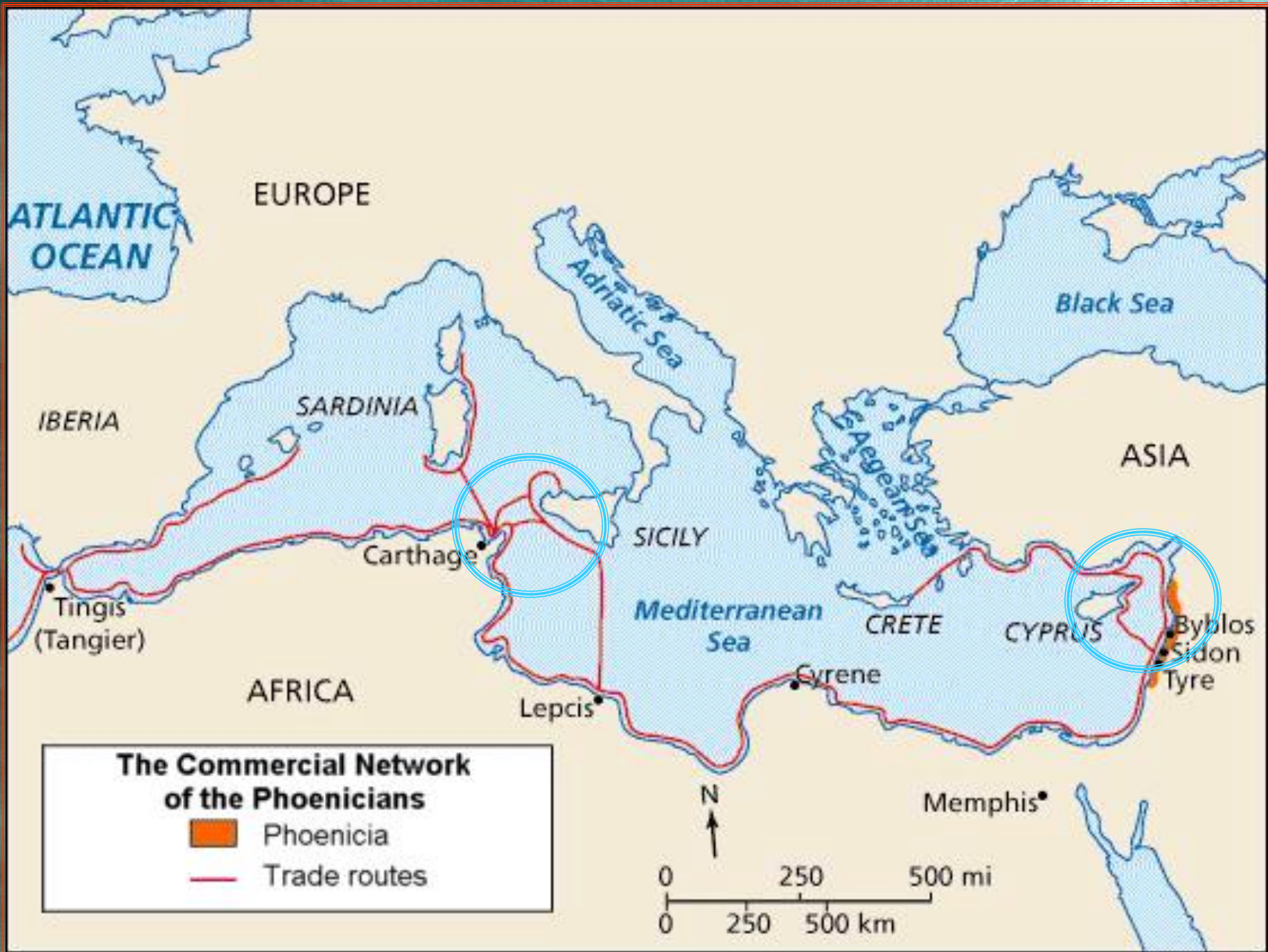
## Navigating Sacred Mediterranean Landscapes

Jeff Howry – Semitic Museum, Harvard

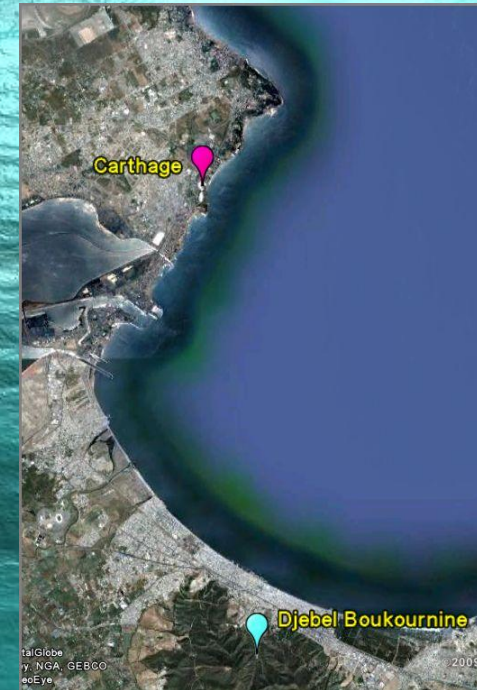
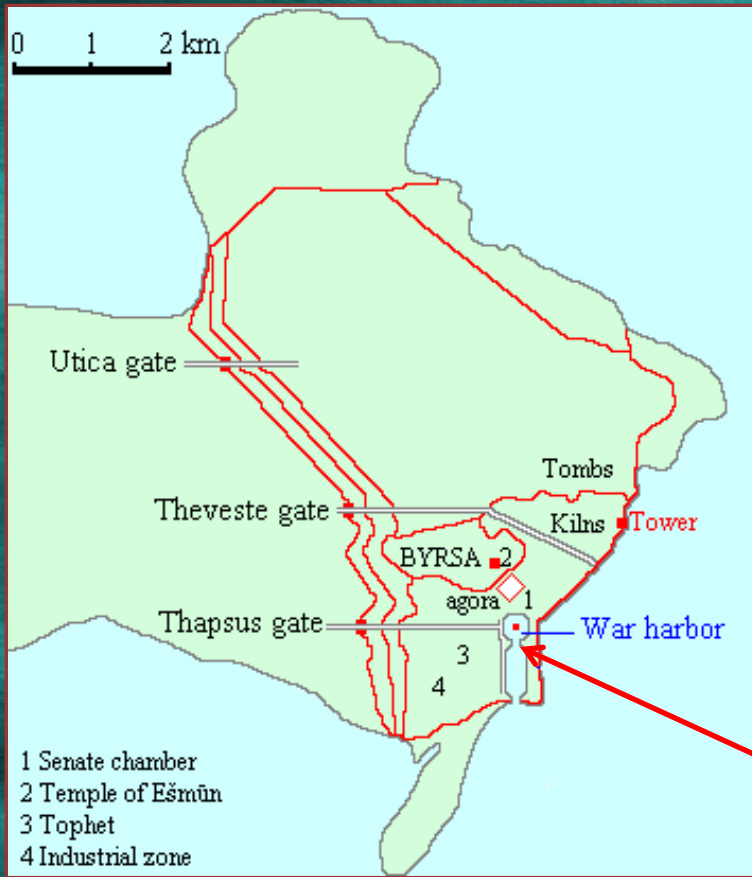


**Question:** How can the concepts and techniques of GIS be applied to understanding how mariners navigated the Mediterranean 3,000 – 4,000 years ago?

**Historic Context** – the Greek, Roman & Egyptian civilizations flourished as the result of extensive commerce involving the exchange of resources located throughout the Mediterranean. The commerce was possible through maritime trade among the hundreds of communities located along the coast and their trade with the hinterlands.



# Carthage – a nexus of north African trade in the 1st Millennium BCE





**Phoenician trading vessel (replica)**

**Approaching  
Carthage from  
the North**



**Jebel  
Boukornine**



**Baal – Lord of High Places, Lord of Storm & worshiped by mariners**

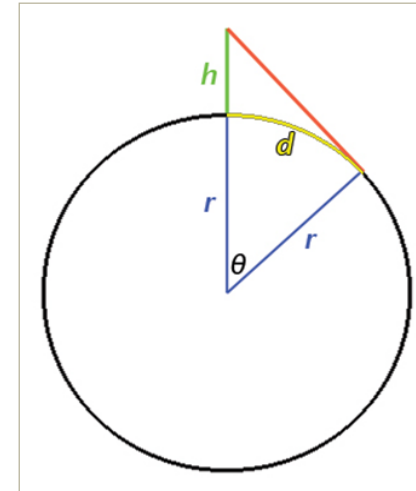


**Baal Temple - reconstructed**

# View Over the Horizon

| Meters Altitude | Kilometers To Horizon |
|-----------------|-----------------------|
| 1               | 3.572                 |
| 2               | 5.051                 |
| 3               | 6.186                 |
| 4               | 7.143                 |
| 5               | 7.986                 |
| 6               | 8.749                 |
| 7               | 9.450                 |
| 8               | 10.102                |
| 9               | 10.715                |
| 10              | 11.294                |

Diagram



$r$  [radius of the Earth](#)  
 $h$  height/altitude of observer  
 $d$  distance along the Earth to visible horizon

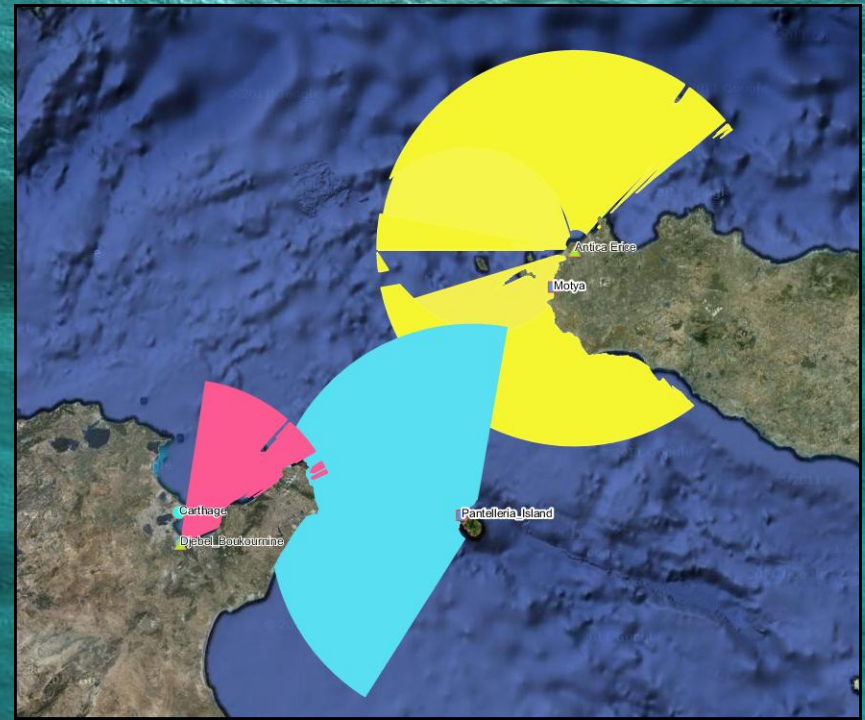
**Side of the Triangle = Distance from the top of the peak to the viewer**

## Selected ports in the central and eastern Mediterranean

<http://worldmap.harvard.edu/maps/MedCoastGIS/BYF>

Sailing from Motya to Carthage – Using  
Erice – Pantelaria – Djebel Boukourine  
peaks

<http://worldmap.harvard.edu/maps/MedCoastGIS/BYD>





Sailing from Aradus Island (a Phoenician port) off the coast of Lebanon, to the east coast of Cyprus – the port of Kition  
<http://worldmap.harvard.edu/maps/MedCoastGIS/BZn>

**Mount Stavrovouni** is the visual landmark over the horizon



The break in the viewshed is the result of a small ridge of mountains located between **Mount Stavrovouni** and the coast

## Kition – closeup of the port's original location

<http://worldmap.harvard.edu/maps/MedCoastGIS/BZo>



Clicking on Kition provides meta-data, including a URL to the publication of a study about sailing the Cypriot coast

<http://hdl.handle.net/1902.1/15837>

A screenshot of a GIS application interface. The main window shows an aerial satellite view of Kition, with a red box highlighting the location. A pop-up window titled "Identify Results" is open, displaying metadata for the location. The metadata includes the site name, type, coordinates, and a URL to a publication.

| Identify Results  |  | Feature Details    |   |
|---|--|--------------------|---|
| <a href="#">Reset</a>                                   |  | <b>Site_Name</b>   | Kition  |
| Name  |  | <b>Site_Type</b>   | 11  |
| <input type="checkbox"/> Phoenician Ports-Mountains-Sit |  | <b>Lat</b>         | 34.919981   |
| Kition  |  | <b>Long</b>        | 33.633131   |
|   |  | <b>Id</b>          | 8   |
|   |  | <b>Diverse_Lin</b> | <a href="http://hdl.handle.net/1902.1/15837">http://hdl.handle.net/1902.1/15837</a> |

## Connecting to the Mediterranean Coast GIS Dataverse

<http://dvn.iq.harvard.edu/dvn/dv/MedCoastGIS/faces/study/StudyPage.xhtml?globalId=hdl:1902.1/15837>

All IQSS Dataverses >

### Mediterranean Coast GIS Dataverse

[Search](#) [User Guides](#) [Report Issue](#)

#### NAVIGATING FROM SALAMIS TO KITION, CYPRUS

hdl:1902.1/15837  
Version: 3 – Released: Mon Nov 14 01:26:20 EST 2011

[Cataloging Information](#) [Documentation, Data and Analysis](#) [User Comments](#) [Versions](#)

**i** If you use these data, please add the following citation to your scholarly references. [Why cite?](#)

Jeff Howry, 2011-05-12, "Navigating from Salamis to Kition, Cyprus", <http://hdl.handle.net/1902.1/15837> Semitic Museum

"Navigating from Salamis to Kition, Cyprus",  
<http://hdl.handle.net/1902.1/15837>

## WorldMap & a Dataverse Integration

See the poster at  
[scholar.harvard.edu/jhowry](https://scholar.harvard.edu/jhowry)

