



The Roman fish tanks of the Mediterranean :
constraints and interpretations for the definition of sea level changes during the last 2000 years

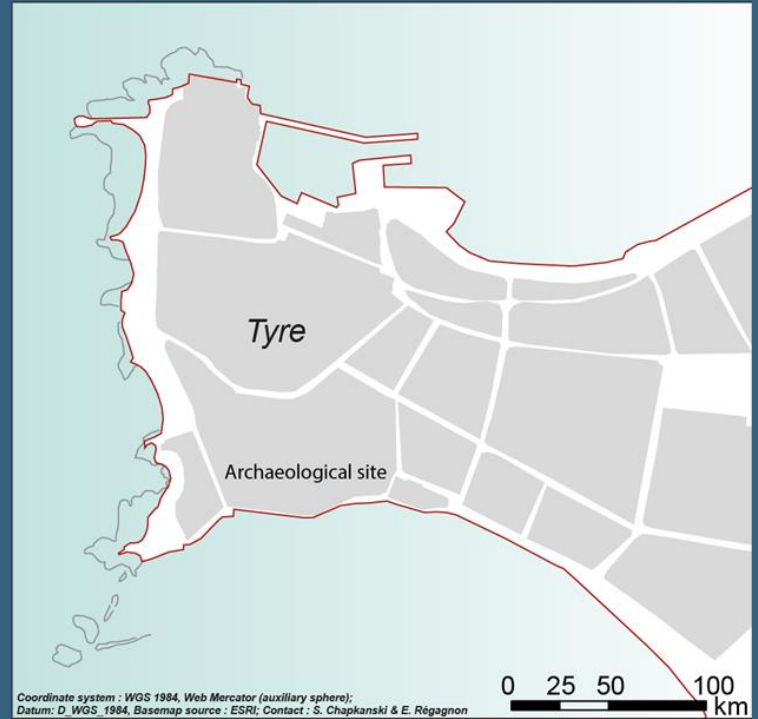
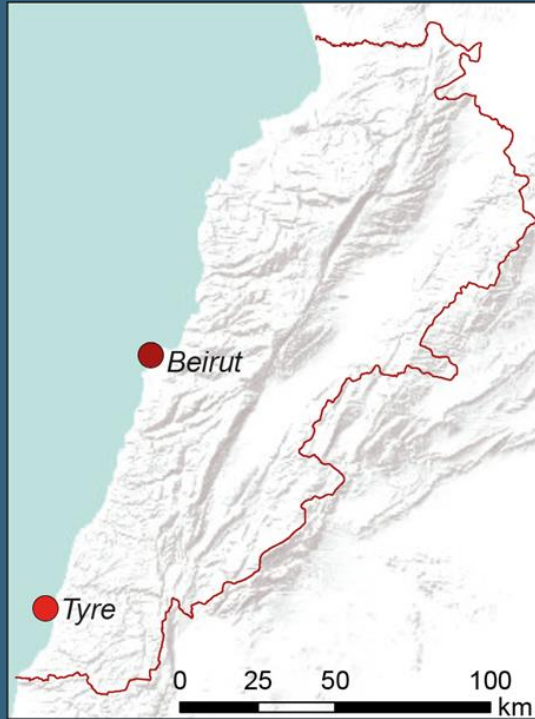
The Organising-Scientific Committee : Marco Anzidei, Flavio Enei, Eleni Kolaiti, Kurt Lambeck, Nikos Mourtzas, Michelle Stefanile

20th September 2022 • Oral Presentation

FISH TANKS AND PAST RELATIVE SEA-LEVEL VARIATIONS IN TYRE, LEBANON

By Jean-Philippe Goiran,
Stoil Chapkanski, Emmanuelle Régagnon, Gilles Brocard and Arthur de Graauw





PLAN DE TYR

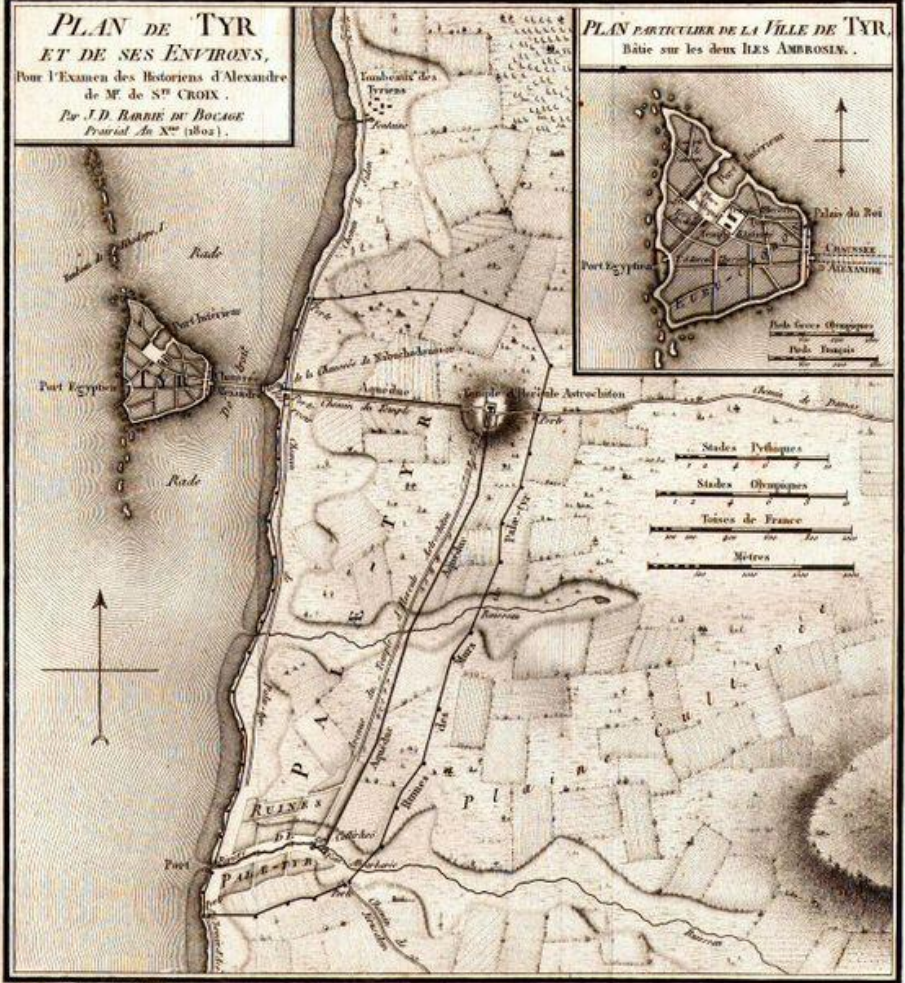
ET DE SES ENVIRONS,

Pour l'Examen des Historiens d'Alexandre
de M. de S^r CROIX.

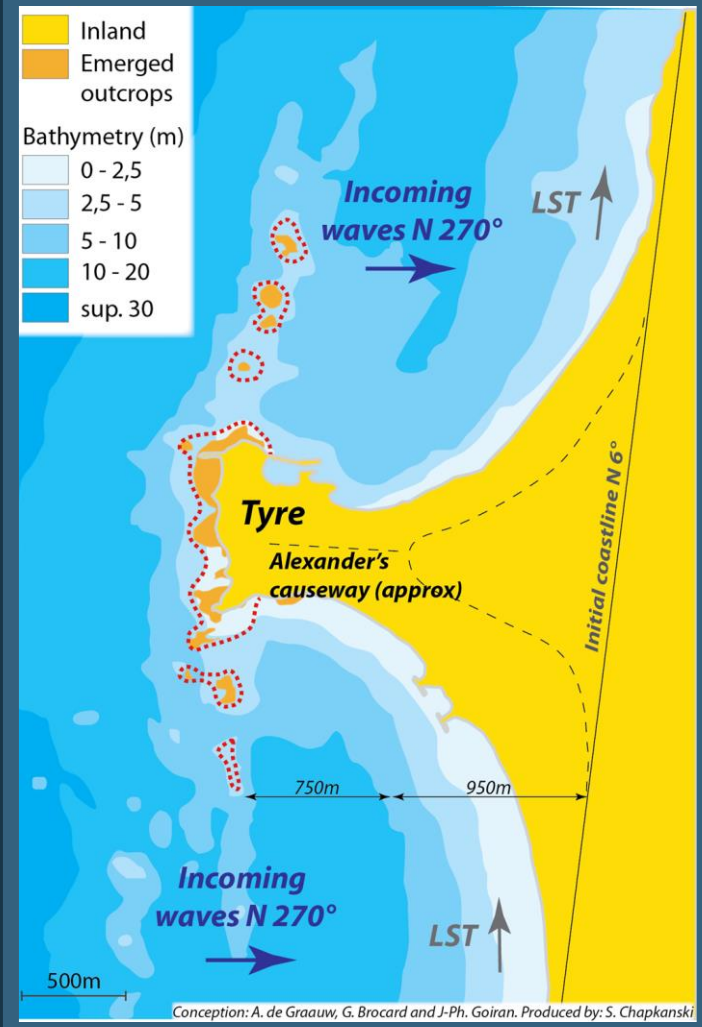
Par J. D. BORDIE DU BOUAGE
Primitif An X^o (1802).

PLAN PARTICULIER DE LA VILLE DE TYR,

Bâtie sur les deux ÎLES AMBROSIOY.



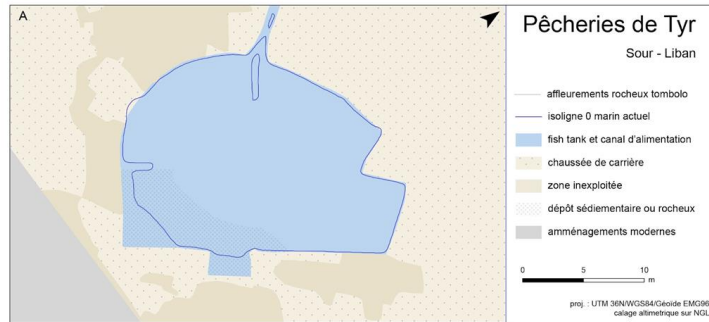
Revue par F. S. Bordie, Paris de 1802, page 37 et





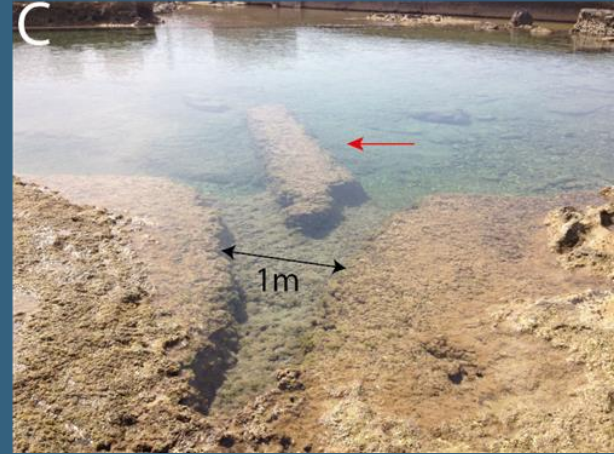


Chamouni Reda..@ancient city..Tyr (Liban), 1950--1955

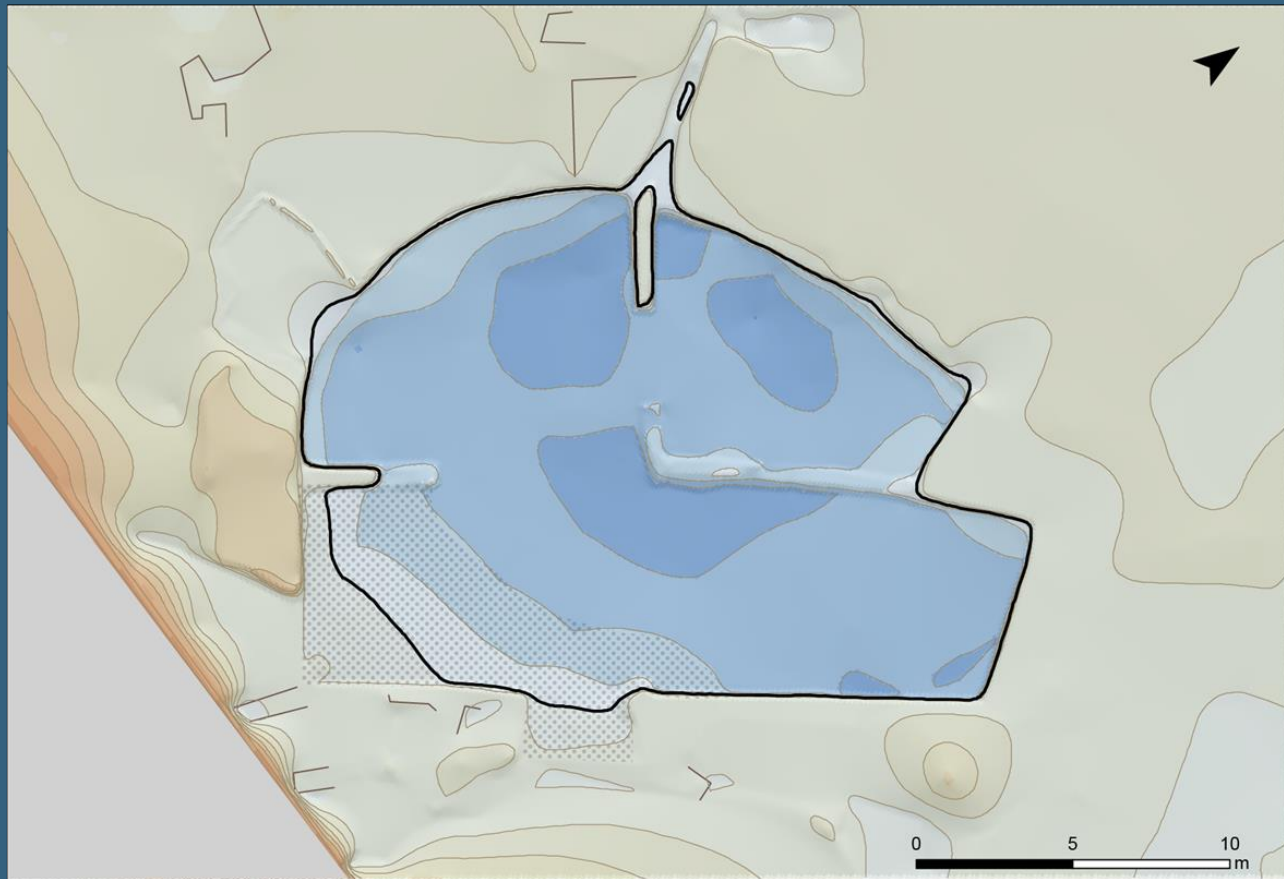




Northern fish tank : the cross fish tank



Northern fish tank : the cross fish tank



Northern Fish tank



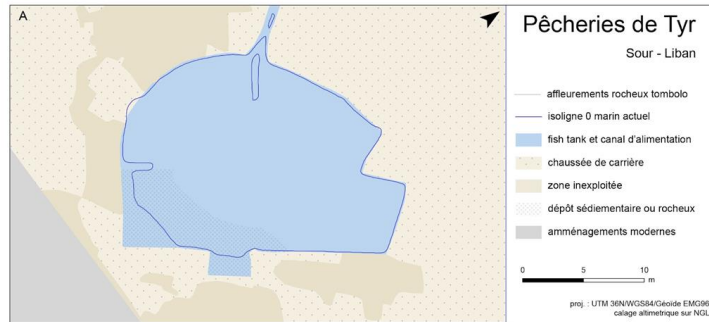
0

isolines : 20 cm

- cutting traces
- sedimentary deposits

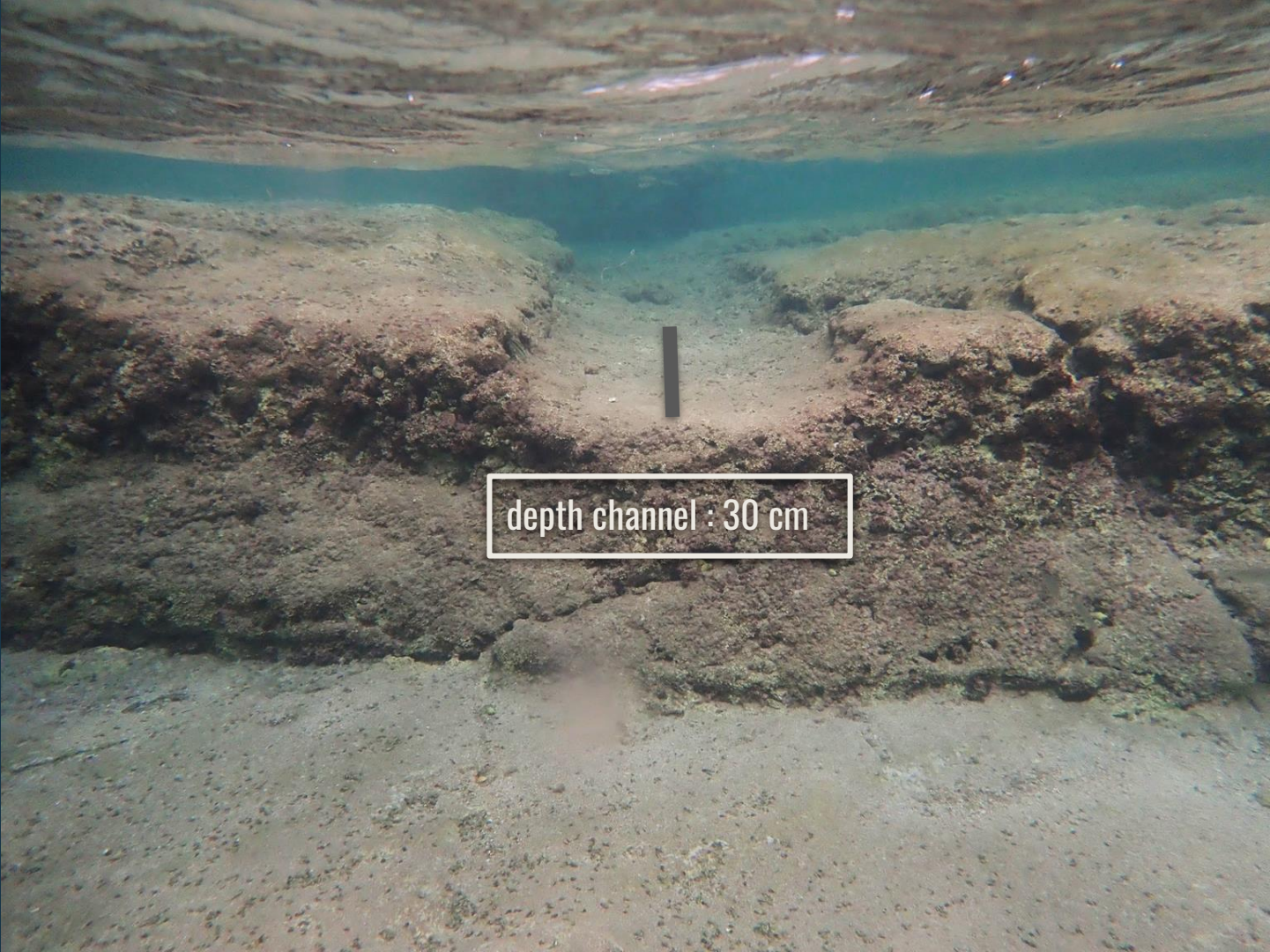
Coordinate system : UTM 36N/WGS84
 Géoïde EMG96.
 Altimetrical correction on NGL



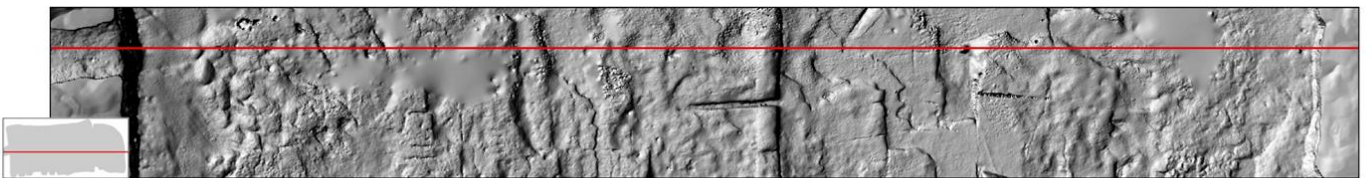
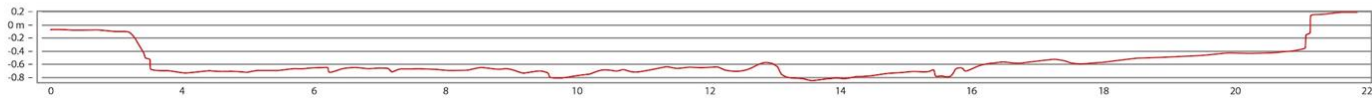
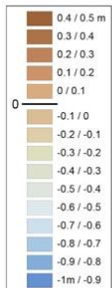
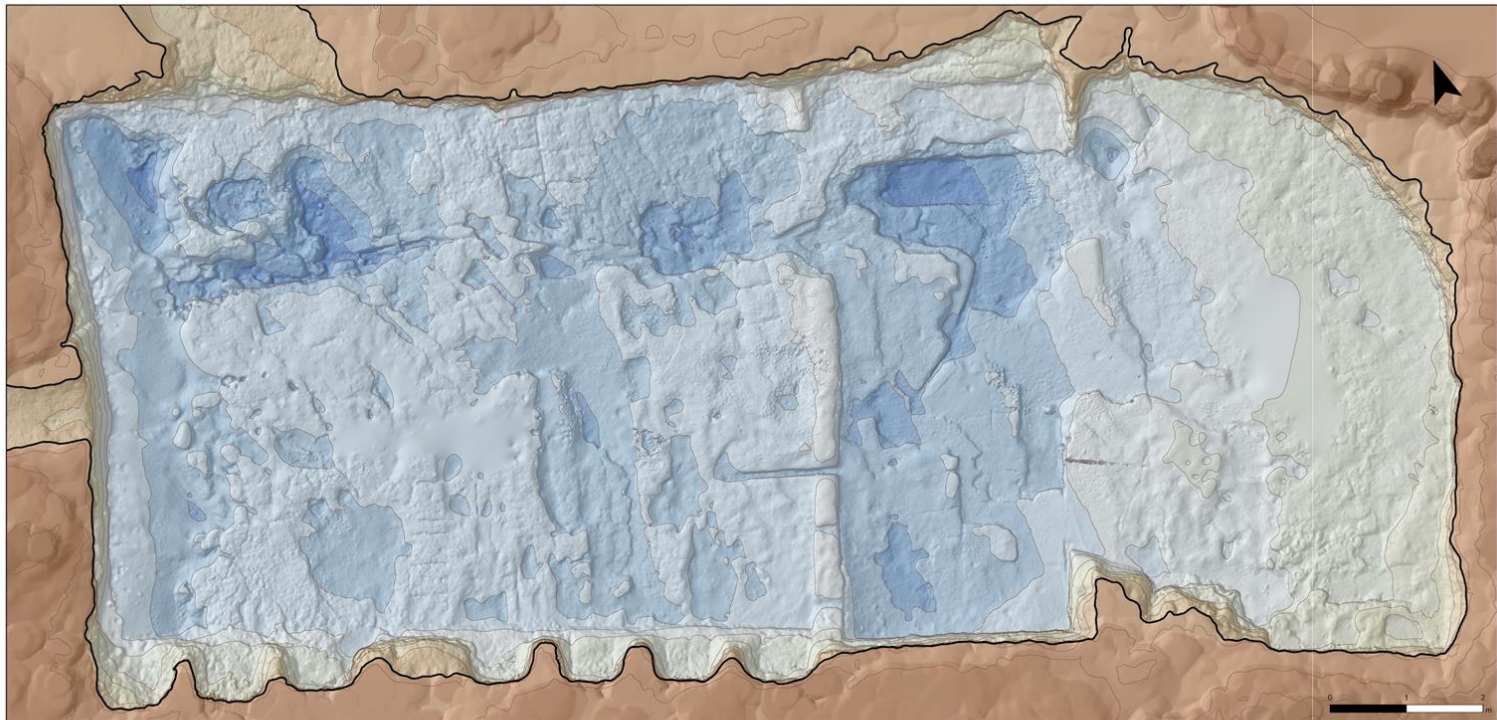








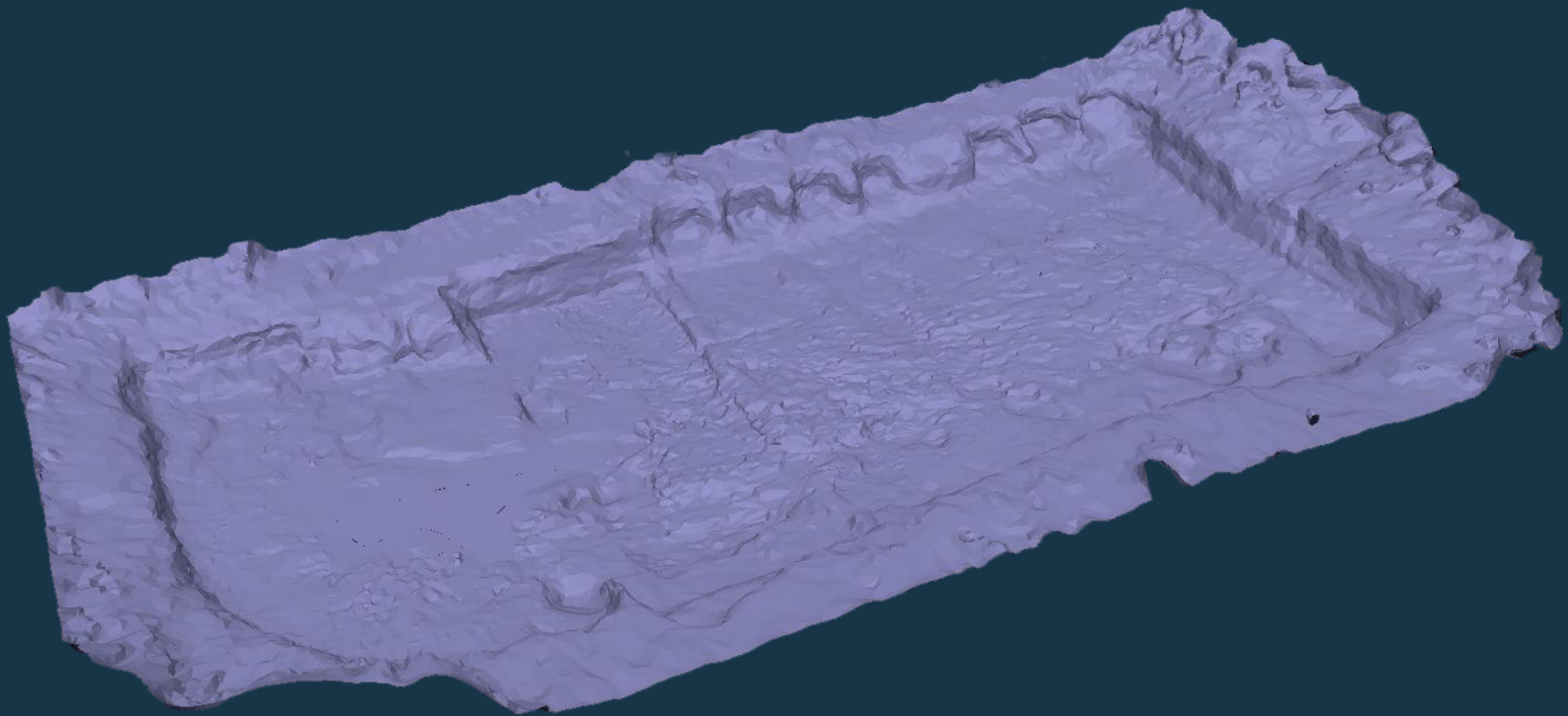
depth channel : 30 cm

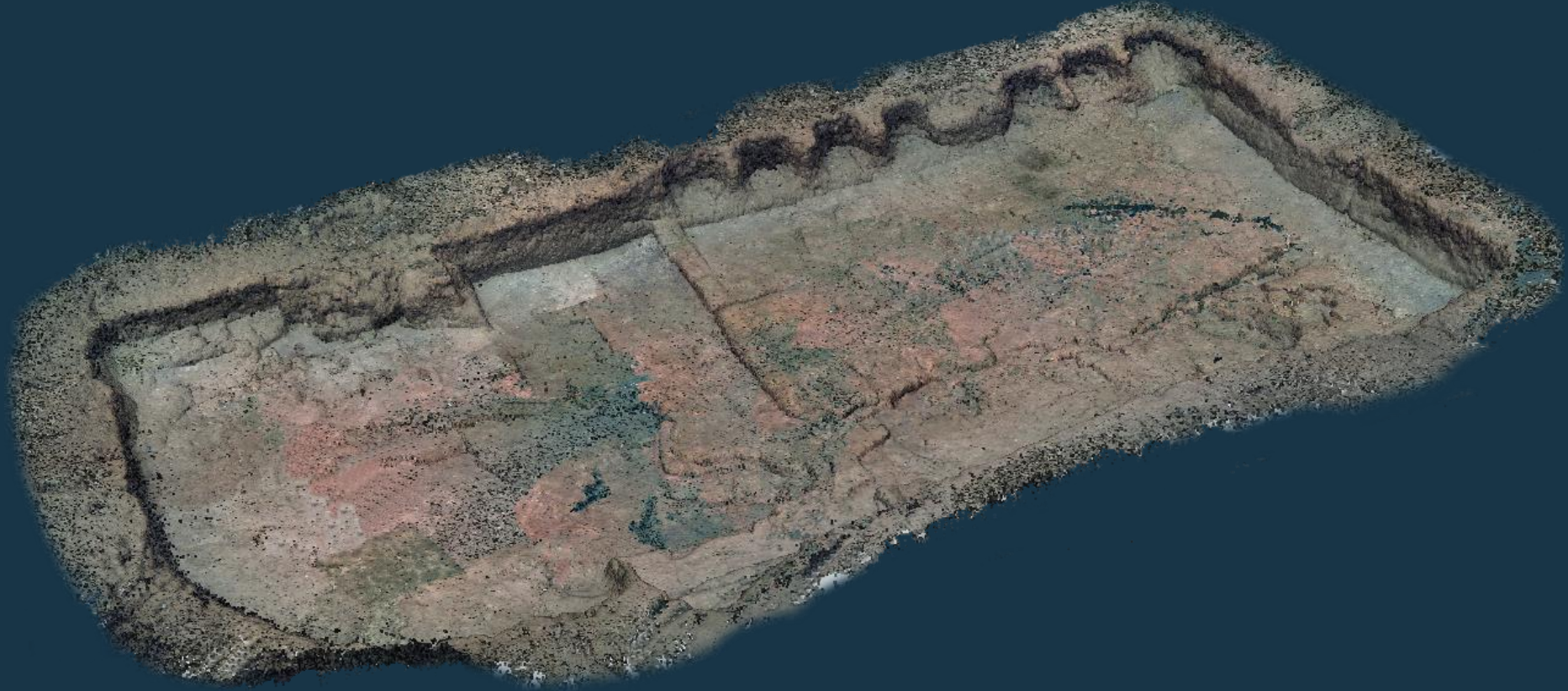


isoligne 10 cm

Pêcheries de Tyr - zone sud

proj. | UTM 36N/WGS84/Geoidé EMG96
calage altimétrique sur NGF







+0.6
(high tide)



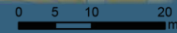
+0.4



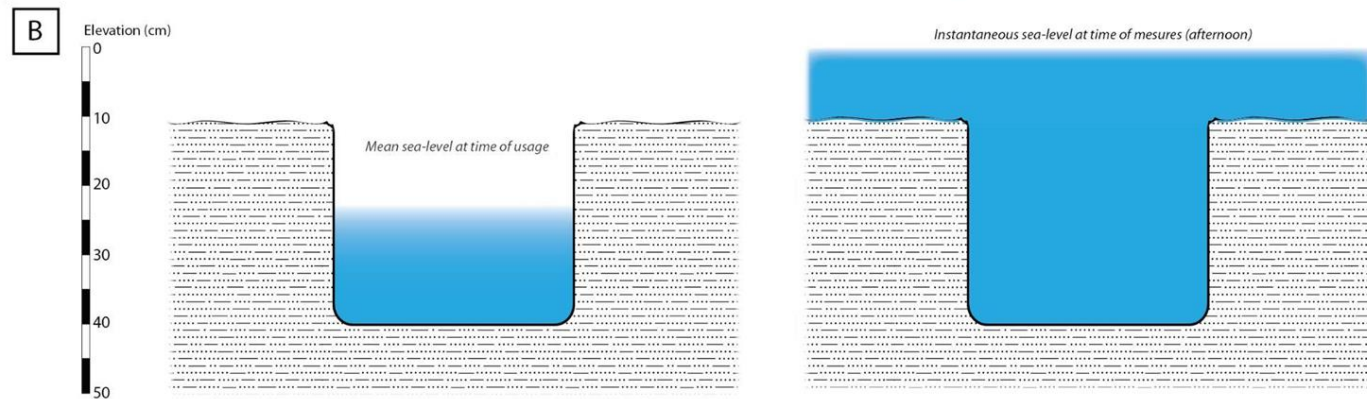
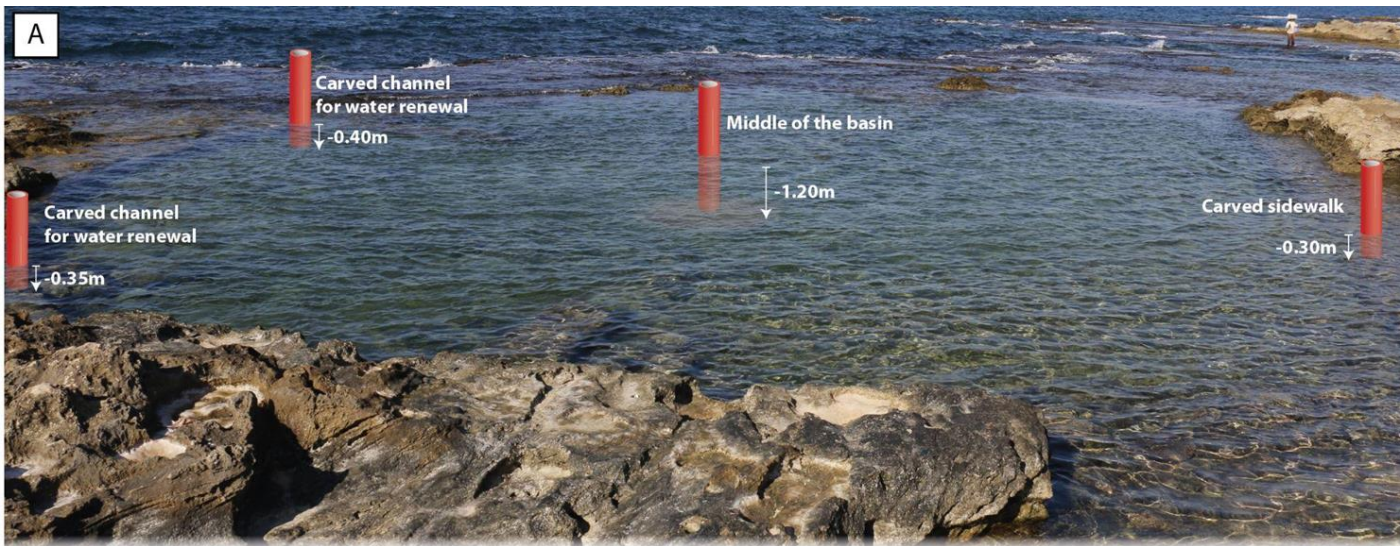
+0.2



BSL
(low tide)



Coordinate System: WGS 1984 UTM Zone 36N, Projection: Transverse Mercator



CONCLUSIONS

4 points to remember :

1. This is the first time that fish tanks have been discovered in Tyre, South Lebanon.

These fish tanks are dug in a sandstone ancient quarries.

2. It remains difficult to date these fish tanks. It can be assumed that they date from the Roman period, 1st century BC / 1st century AD, when the construction of these fish tanks was widespread all around the Mediterranean.

3. The question of “is it a fish tank or not” must be asked.

The two most important arguments are :

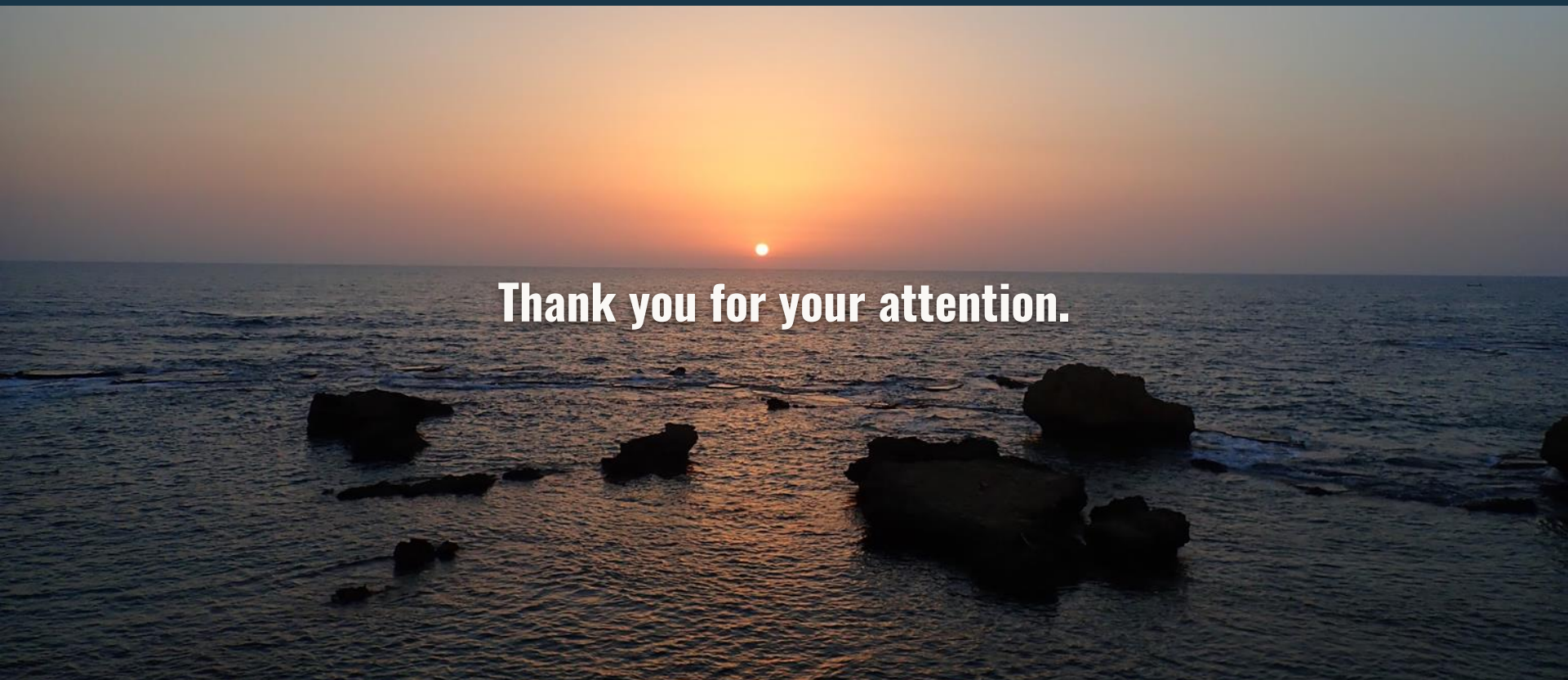
- the water supply channels
- and the presence of internal partitions, particularly in the North fishtank.

Some colleagues propose as hypothesis number 1 : quarry areas or swimming pools. The 3 hypotheses are not antinomic: At the beginning there is a deep digging and extraction of sandstone blocks like a quarry. After that it is a fish tank which can later be transformed into a pool.

4. In terms of relative sea level variations, we note that today's the fish tank and its water supply channel are full during the present low tide.

in other words, present low tide corresponds to the high tide of the roman time. And today's high tide floods these structures by about 50 cm.

So we can propose a relative sea level rise of 50 cm along the coastline of Tyre since Roman times.

A photograph of a sunset over the ocean. The sun is a bright orange circle on the horizon, casting a long, shimmering reflection across the water. The sky transitions from a pale orange near the horizon to a clear, light blue at the top. In the foreground, several dark, silhouetted rocks of various sizes are scattered across the shallow water, their forms softened by the gentle waves. The overall mood is serene and contemplative.

Thank you for your attention.

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