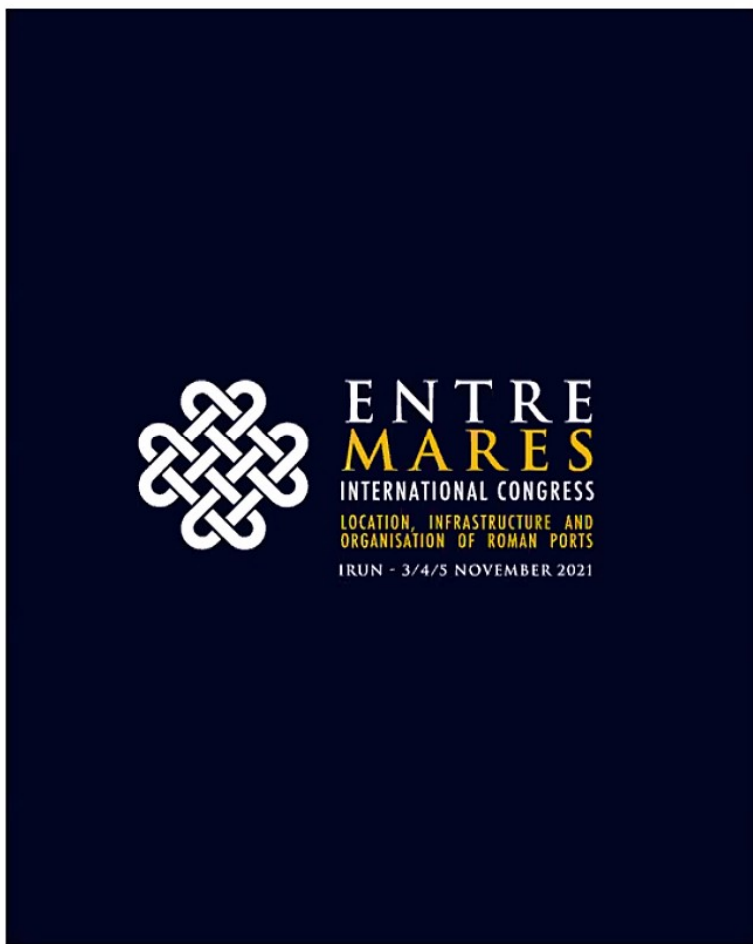




Il porto di Nora tra vecchi dati e nuove ricerche

Jacopo Bonetto, Filippo Carraro, Maria Chiara Metelli, Università degli Studi di Padova
 Ignazio Sanna, Soprintendenza Archeologia, Belle Arti e Paesaggio per la città metropolitana di Cagliari e le province di Oristano e sud Sardegna





UNIVERSITÀ
DEGLI STUDI
DI PADOVA



J. Bonetto*, F. Carraro*, M. C. Metelli*, I. Sanna**

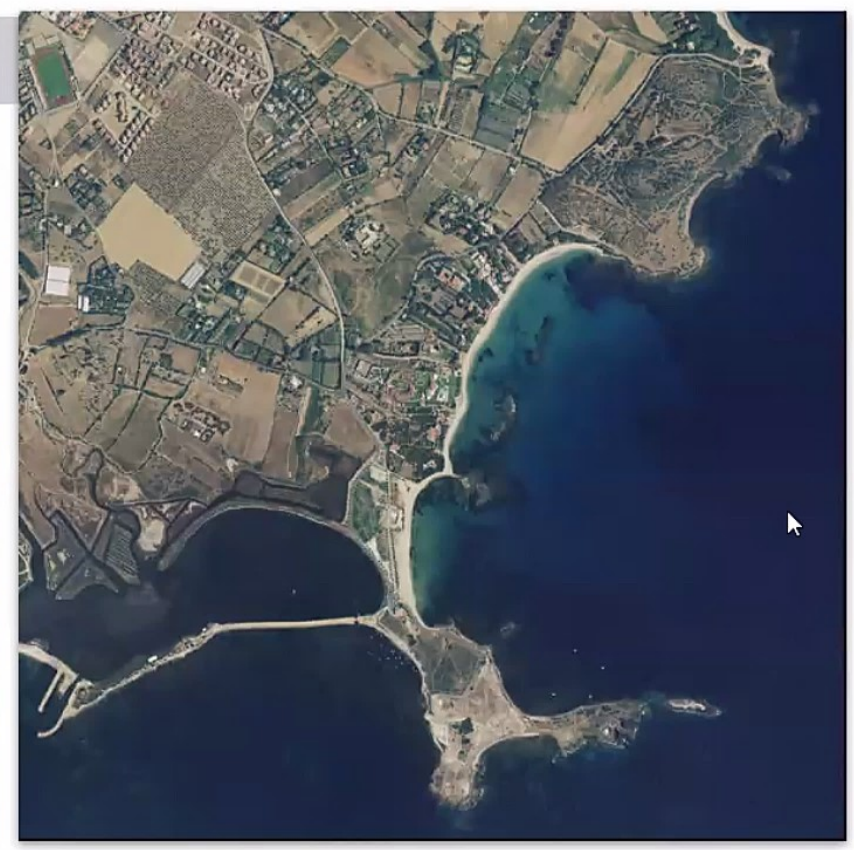
**Dipartimento dei Beni Culturali, Università di Padova*
***SABAP per la città metropolitana di Cagliari e le province di Oristano e Sud Sardegna*

Il porto di Nora tra vecchi dati e nuove ricerche

The harbour of Nora: past and recent studies



The archaeological site of Nora (8th cent. B.C. - 5th cent. A.D.)



Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



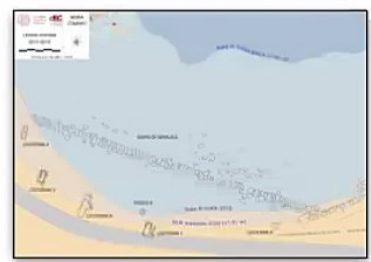
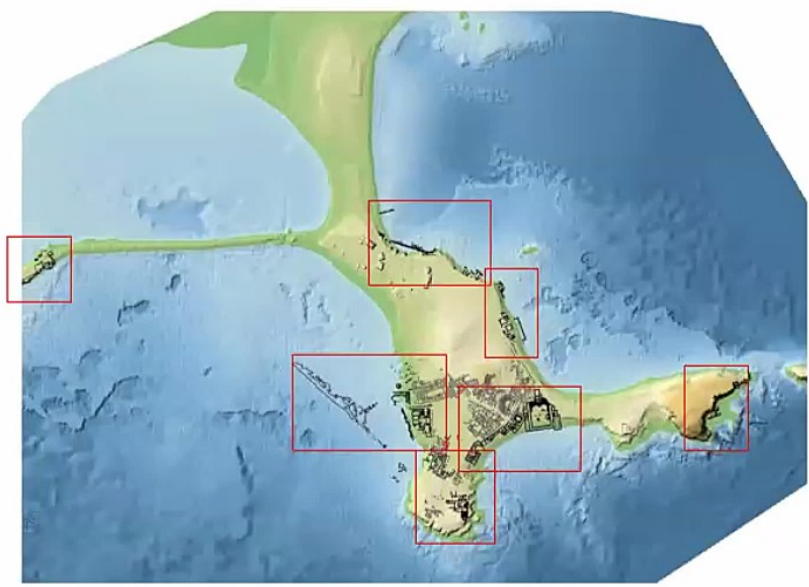
The project "Nora e il mare": goals

1. **Survey** and analysis of the coastal and underwater archaeological remains
2. **Reconstruction** of the physical and functional relationship between the ancient city and the sea
3. **Assessment** of the cultural and environmental impact of sea level rise and coastal erosion



1. The topographic survey

Topographic survey of offshore and onshore archaeological structures in order to record and map the heritage (which is mostly at risk).



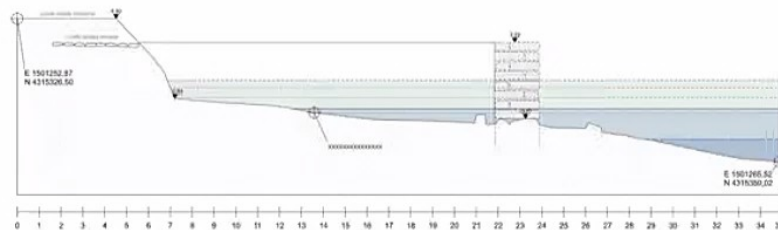
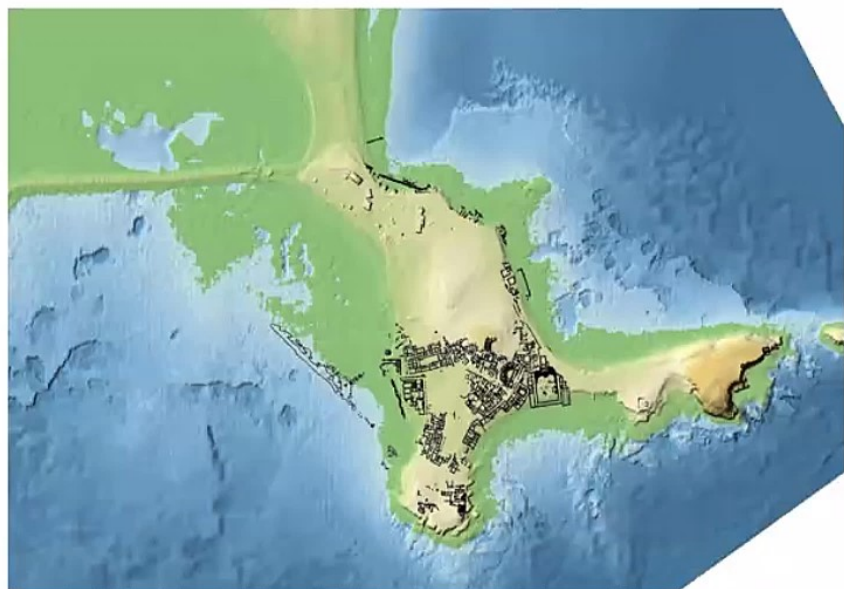
Filippo Carraro

Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



2. The ancient scenario

Archaeological and geomorphological surveys for the reconstruction of the ancient landscape and the urban planning and extension.

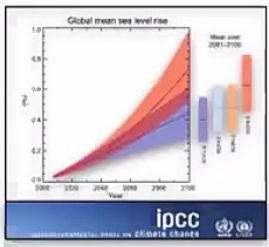


Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*

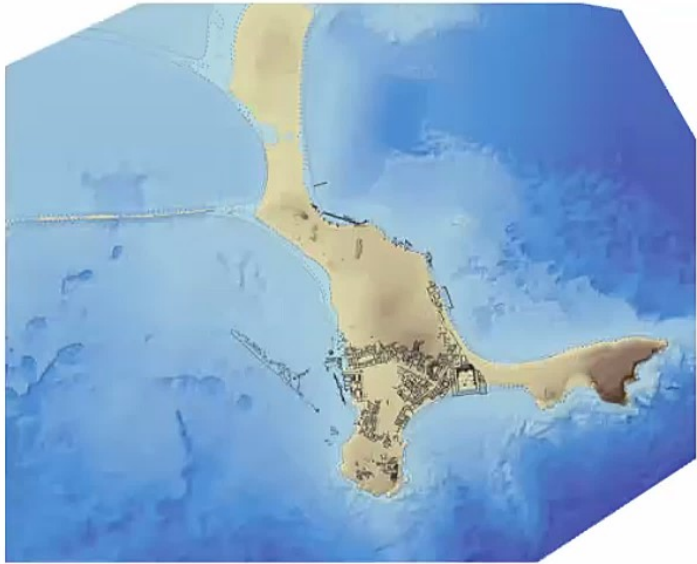


3. Forthcoming Sea-Level-Rise impacts

Estimates of future possible scenarios for the shore of Nora developed by applying global projections provided by IPCC.



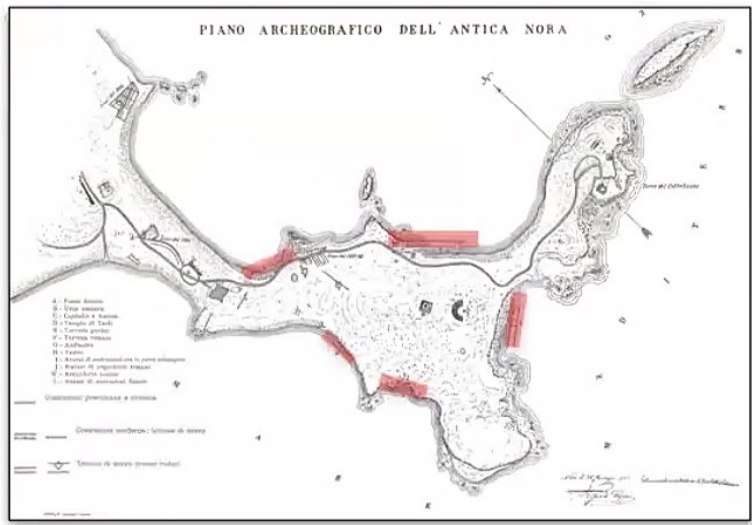
- RCP 2.6: 0.28 - 0.61 m
- RCP 4.5: 0.36 - 0.71 m
- RCP 6.0: 0.38 - 0.73 m
- RCP 8.5: 0.52 - 0.98 m



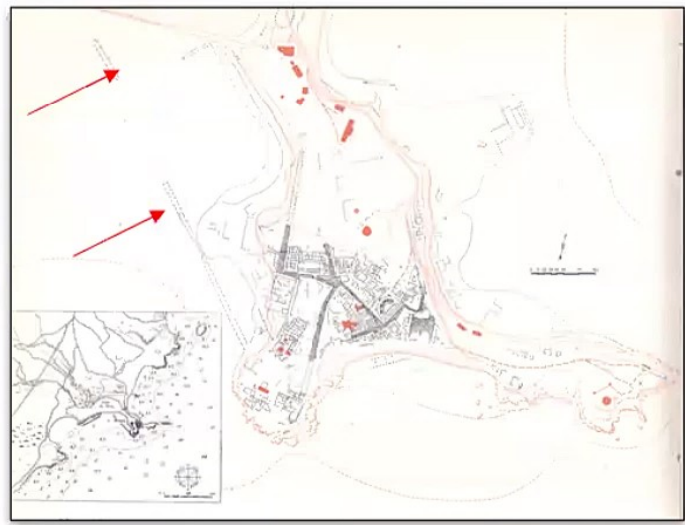
Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



The first studies on the portuality



Patroni 1904



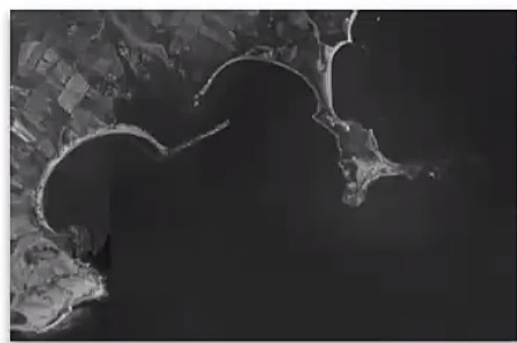
Schmiedt 1965

Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*

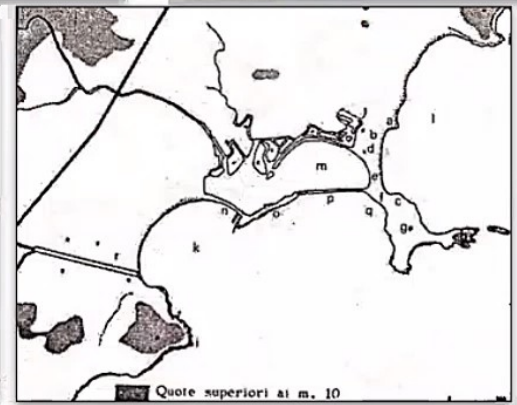


Filippo Carraro

The first studies on the portuality



Mcnamara-Wilkes 1967



Bartoloni 1979

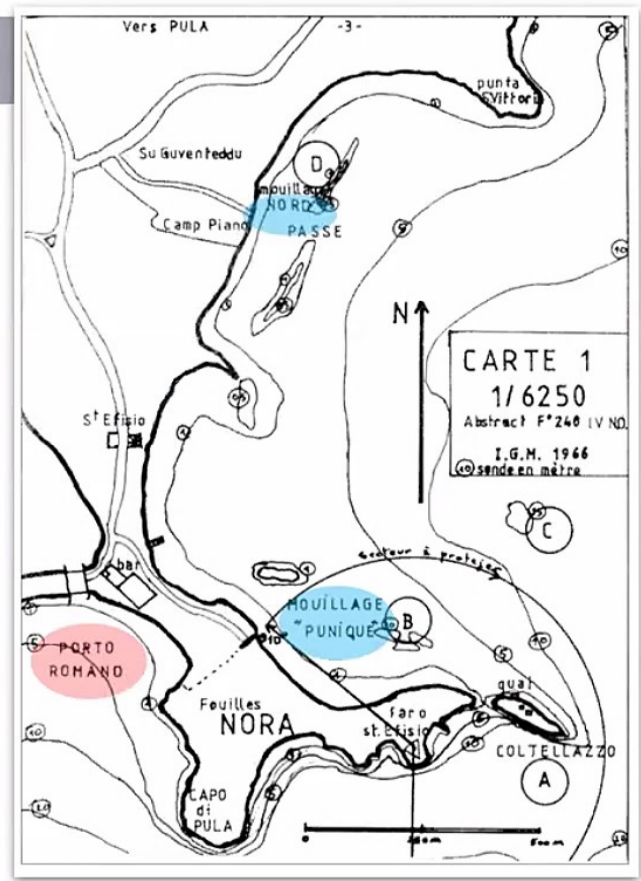
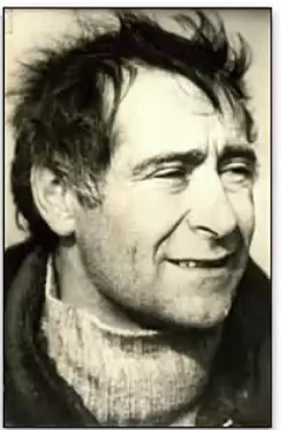


Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



Filippo Carraro

The research of M. Cassien (1978-1984)



Cassien 1980



Bonetto 2014

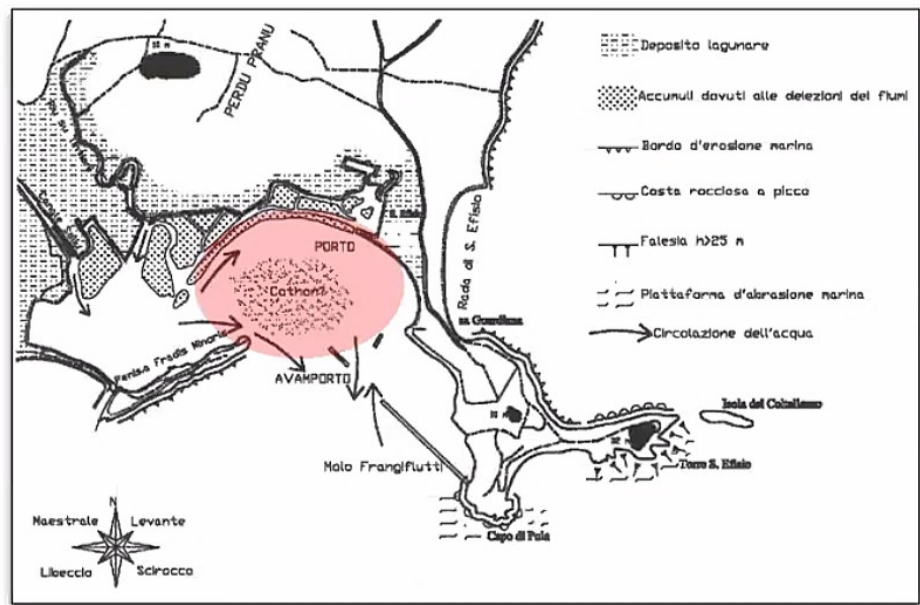


Filippo Carraro

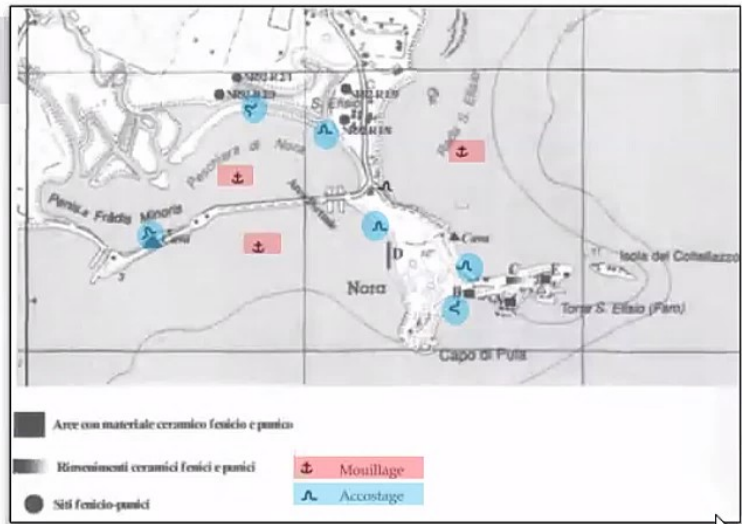
Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



The latest studies on the portuality



Finocchi 1999



Carayon 2008

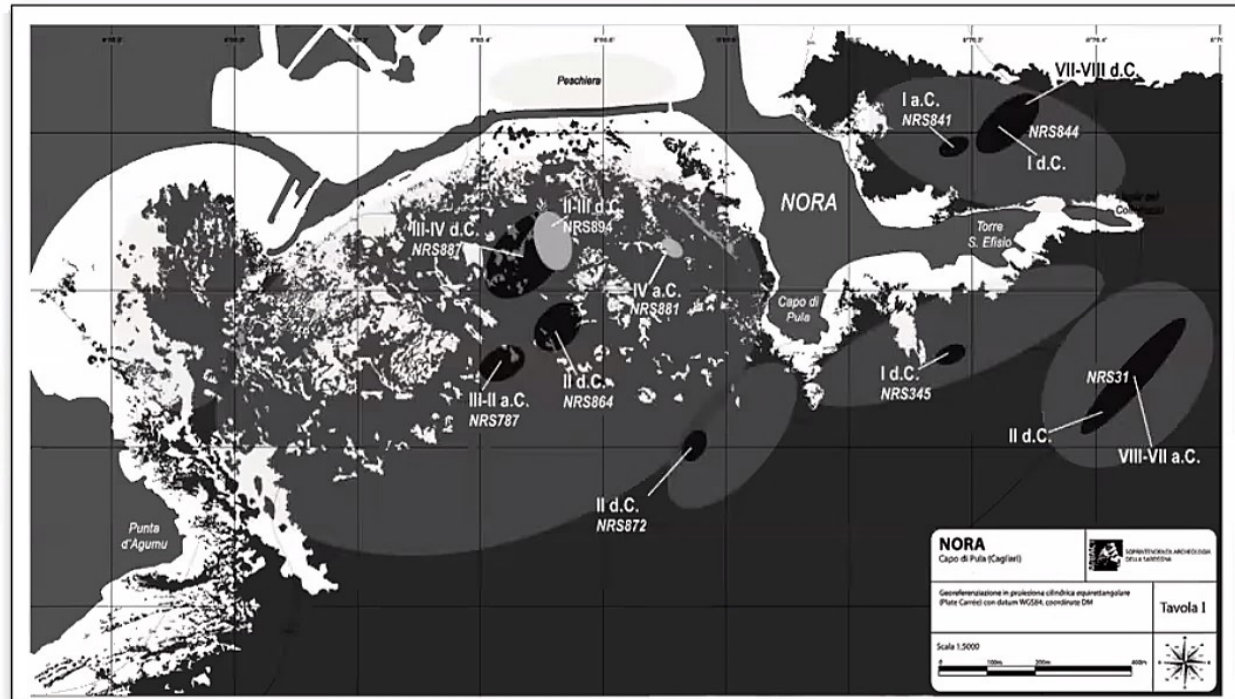


Filippo Carraro

Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



The underwater survey of the Superintendence of Cagliari



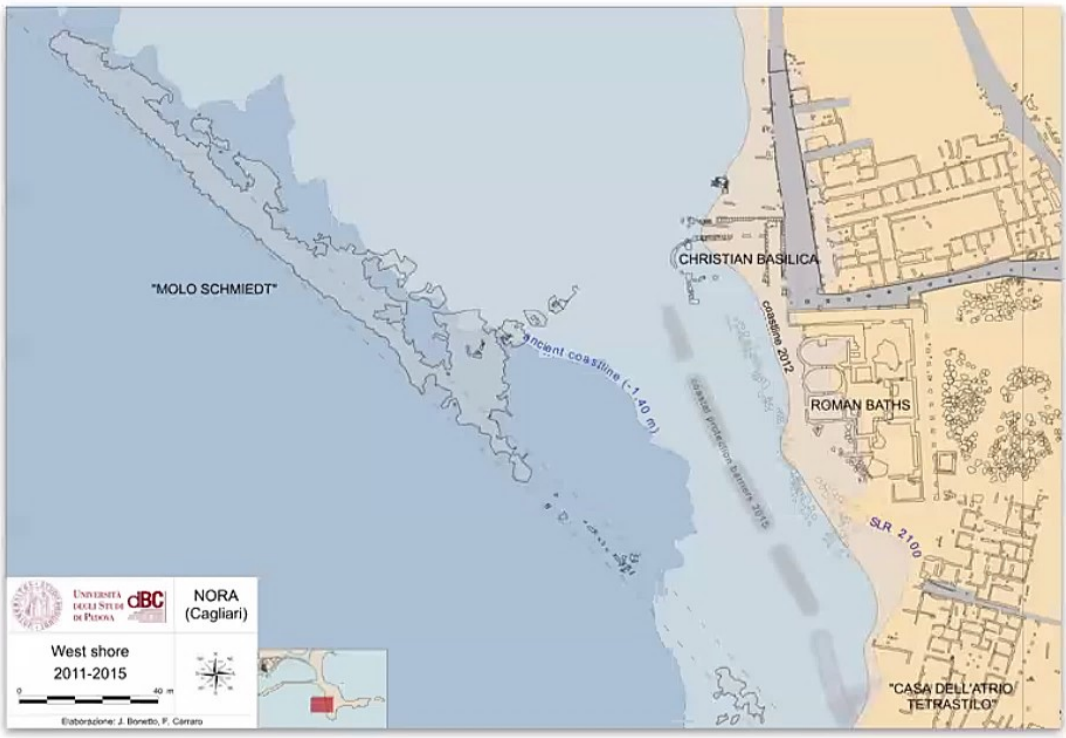
Bonetto et alii 2017

Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



Filippo Carraro

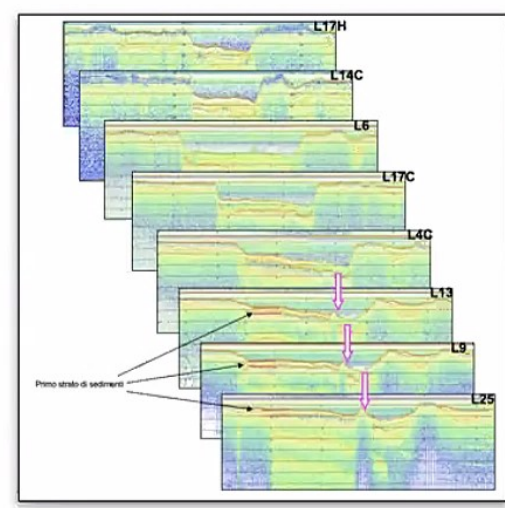
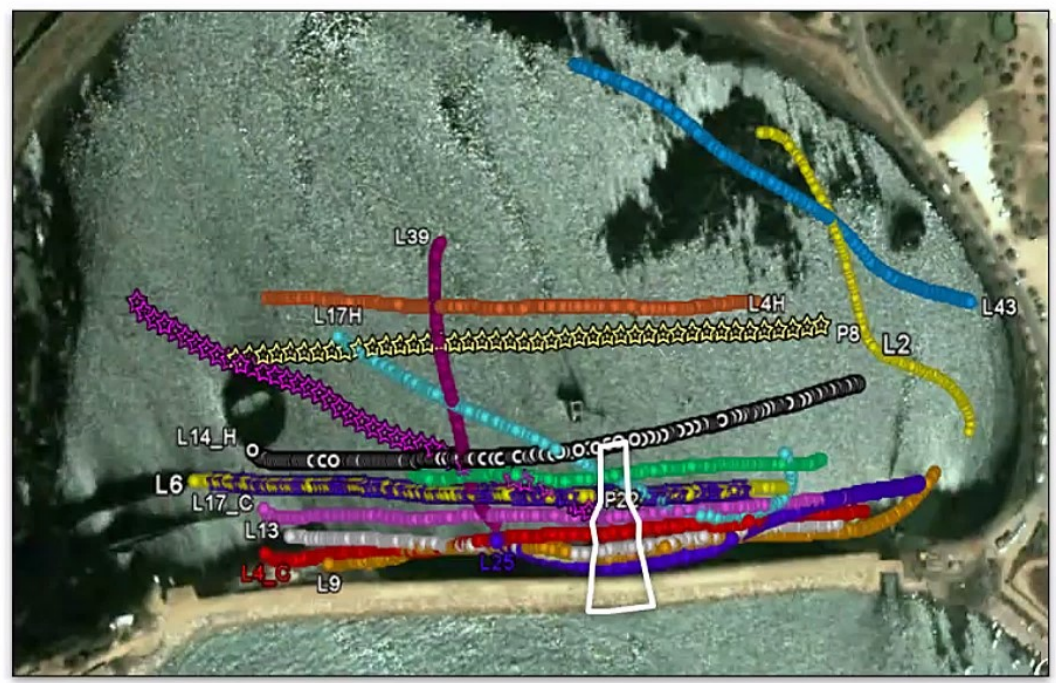
The Schmiedt breakwater



Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*



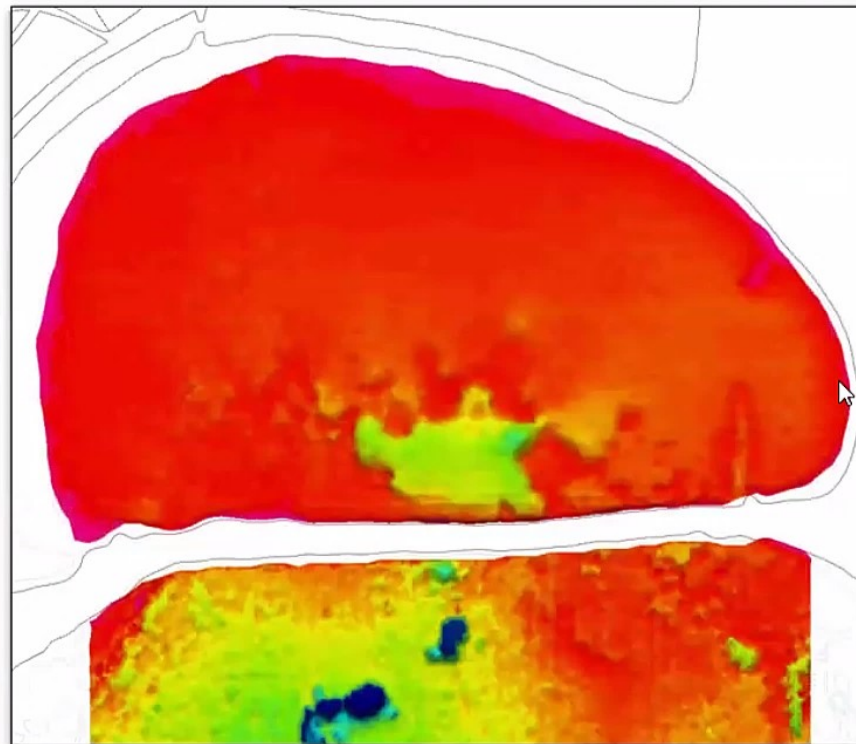
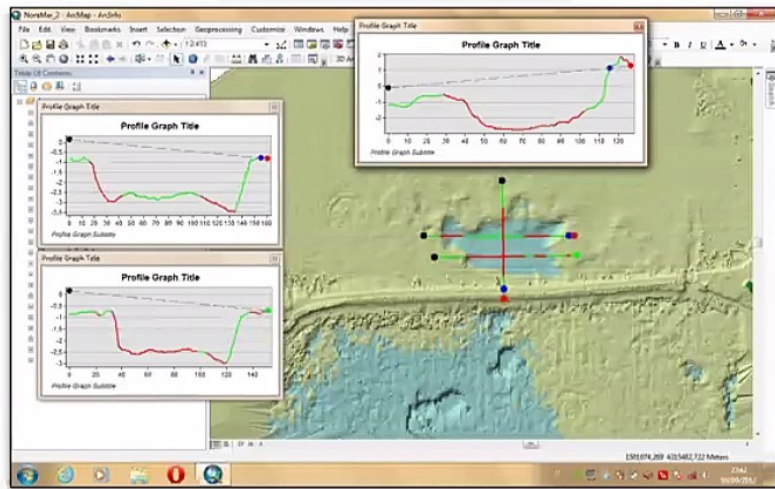
The research of University of Milano-Bicocca in the lagoon



Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*

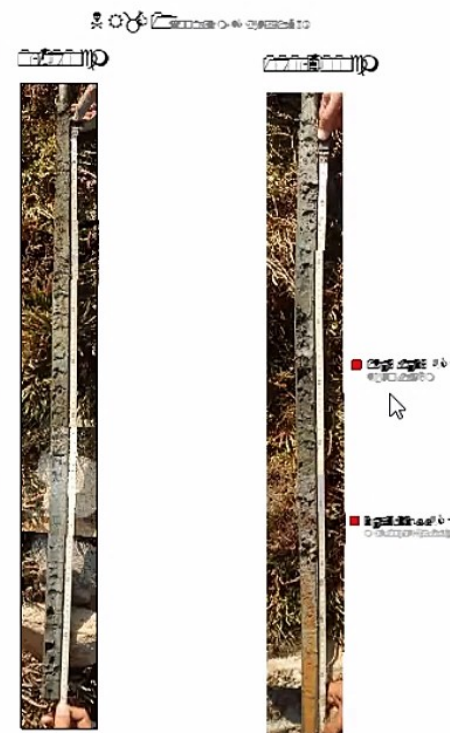


The anomaly of the lagoon



Bonetto, Carraro, Metelli, Sanna, *Il porto di Nora tra vecchi dati e nuove ricerche*

The project "Nora e il mare" and the geomorphological survey



To conclude, and still in progress!

- Many underwater records (shipwrecks?) suggest the relevance of the harbour of Nora since the Archaic period
- Wide underwater spread of shiploads in the western bay, together with a long breakwater (the Schmiedt breakwater): clues of the western side as the commercial basin of the city?
- A possible lagoon already set in the Iron Age: the hypothesis of a *cothon* results to be unlikely. A natural mooring seems to be a more likely reconstruction, also considering:
 - the possible presence of two productive sites operating during the 4th century B.C. behind the lagoon (Botto, Melis, Rendeli 1999)
 - the proximity of the wide quarry area of Is Fradis Minoris, probably active since the 6th - 5th century B.C.



Further research (core samplings) must be undertaken in the lagoon area and along the western coast



Filippo Carraro