



# **Coastal observatories: their role in supporting research and innovation in Europe**

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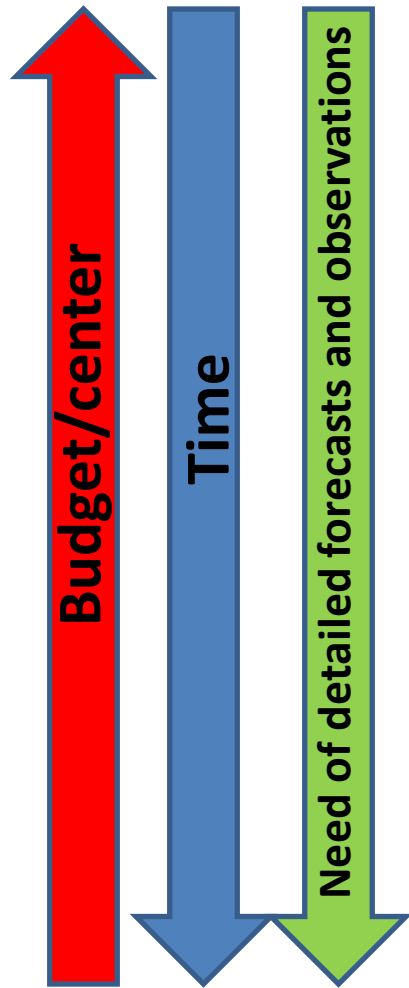
<http://www.usc.es/gfni>

<http://meteo.usc.es>

# Top-bottom approach

- As it already happens in meteorology....
- Single (national/regional) organizations observe and model the ocean. They provide ready-to-use information for end-users but usually not very useful at coastal level for local end-users.

# Bottom-up approach



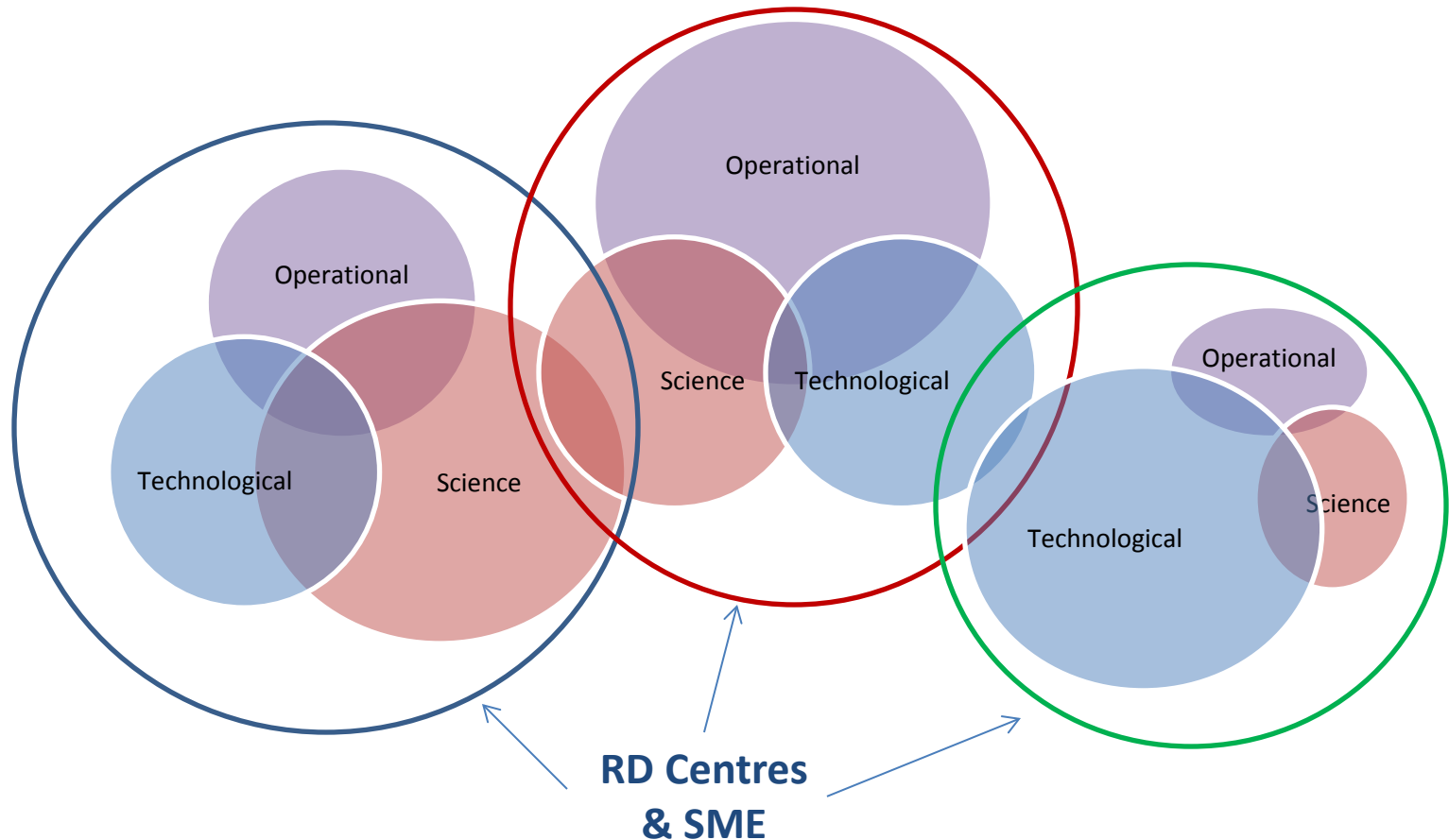
Single organizations measure and model at local level. Very expensive and difficulties to exchange data and to provide end-users applications.

Several organizations of very different kind, join and decide to observe and to model the ocean at local level sharing the cost. They provide specific products for end-users. Difficult to export some of the products to other regions. In many occasions data/model are not OGC compliant.

From isolated coastal observatories to networks of them. Data exchange (observations and models OGC compliant). This information can be used anywhere in the network by stakeholders and scientists to develop similar post-processed products for a larger region.

**The ratio benefit/cost increases with time**

**An example of a win-win network:** Three observatories with different interests or needs that focus on different areas. However, a collaboration between them improves the less developed areas. The inputs from SME and Research Centers help to improve the overall result.



# Networks of Coastal Observatories

## ODYSSEA: OPERATING A NETWORK OF INTEGRATED OBSERVATORY SYSTEMS IN THE MEDITERRANEAN SEA

**Prof. Georgios SYLAIOS**

ODYSSEA Coordinator

Democritus University of Thrace (Greece)

- 30 partners from 14 countries (6 non-EU)
- 8.398 Meuros budget
- 2017-2021



**ODYSSEA**



ODYSSEA

## Nine Regional ODYSSEA Observatories

They will be established to fill-in existing data gaps and increase the temporal and spatial resolution of observational and marine forecasting data in the Mediterranean Sea.

In each Observatory moored and mobile monitoring and high resolution operational modelling will take place.

A common data platform will be established.

Ready-for-use information products.

Training and capacity building in N. African countries.



*ODYSSEA Observatories*

# Networks of Coastal Observatories

## MyCOAST: Coordinated Atlantic Coastal Operational Oceanographic Observatory

**Julien Mader (AZTI) Coordinator**

- 22 partners from 5 countries
- 3 Meuros budget
- 2017-2020

Improvement of coastal observing systems  
Downscaling from regional to coastal services  
Complying with data interoperability standards  
Coastal risk tools. Applications for end users

# Why coastal observatories or a network of them should care of RD?

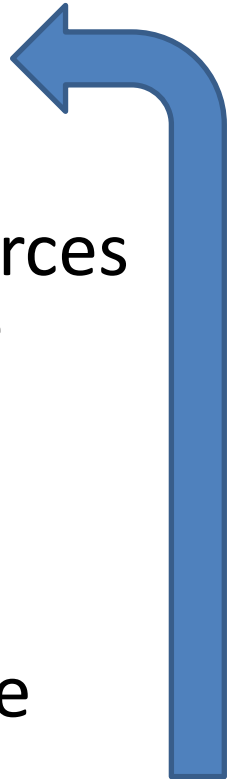
Observatories need state of the art models and observations.



Otherwise the end-users will look for other sources of information. So, the budget to support the observatories will be reduced.



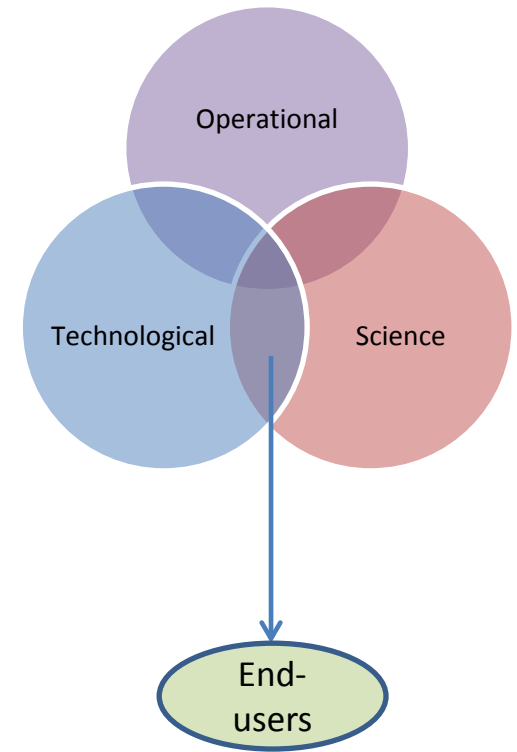
RD centers and stakeholders must be part of the observatories.





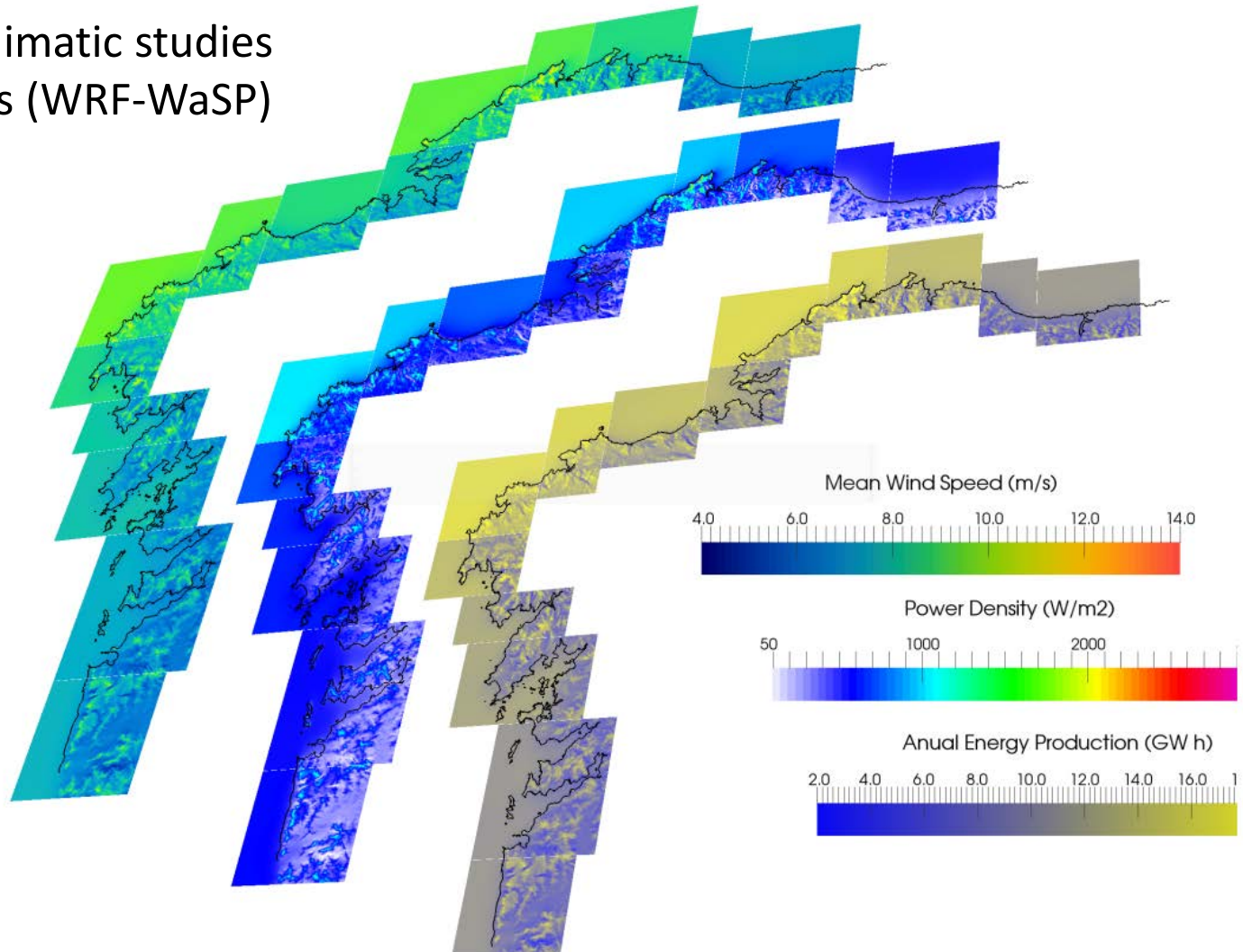
# Some key R&D Actions Needed

- Development of new ocean technologies. New platforms of observation in deep ocean providing real-time data. New technologies. Measuring real-time biological parameters for long periods of time.
- Comply with OGC standards providing free access to data with similar standards along the region.
- Local operational oceanographical models; Nested to regional ones, data assimilation, coupled to biological models.
- Development of operational services for end-users.
- Benefit/cost economical impact of the observatories; to assess the economic value of early warning systems implemented in the coasts.



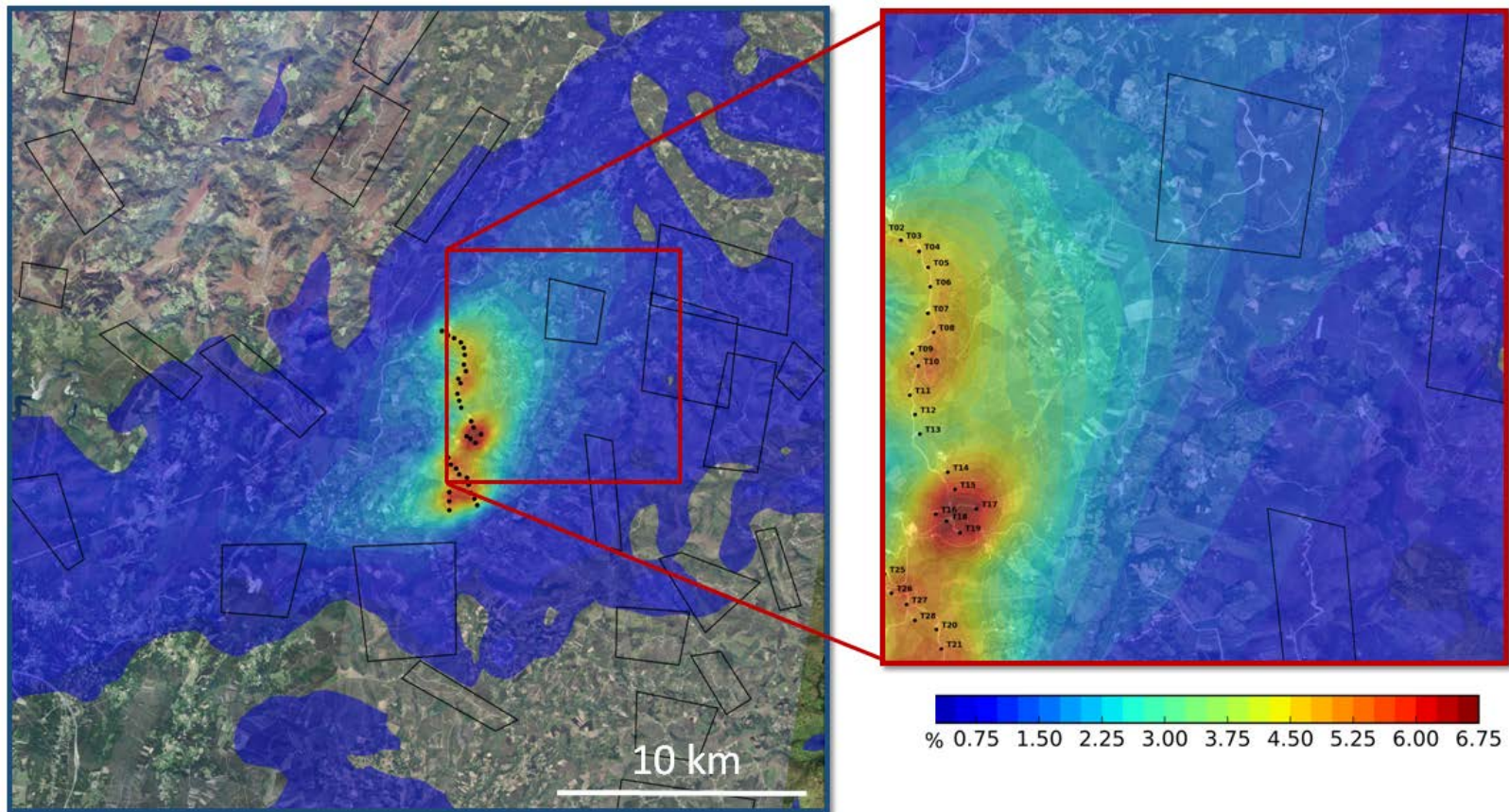
# USC contributions to coastal observatories

High resolution climatic studies  
Coastal wind atlas (WRF-WaSP)



# USC contributions to coastal observatories

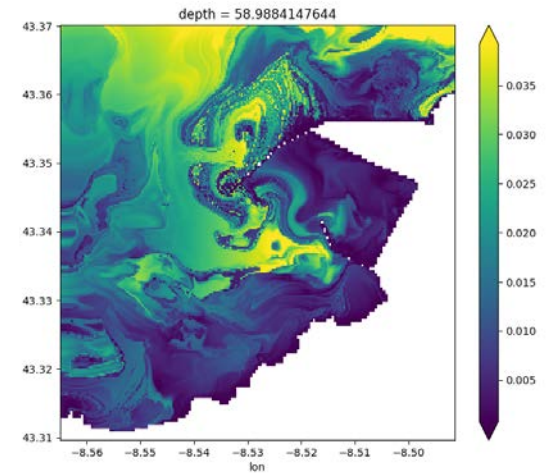
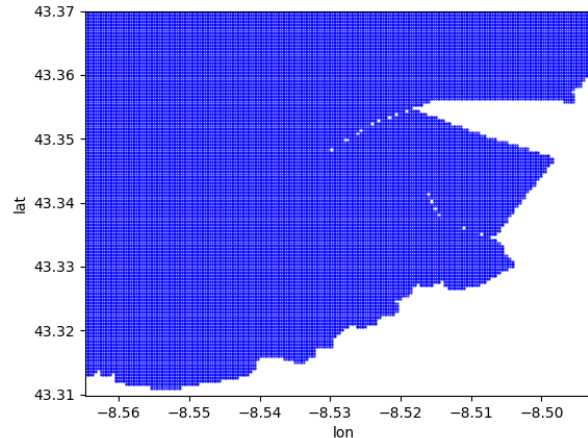
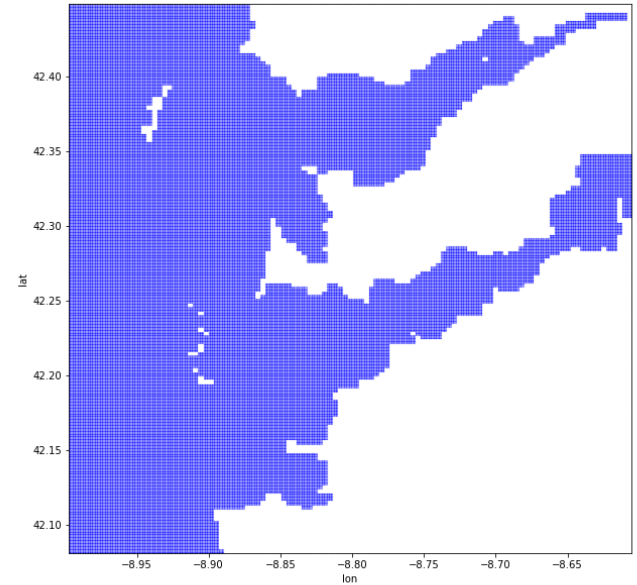
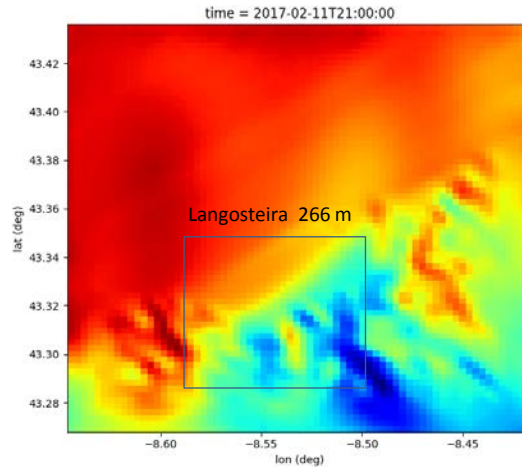
Mean annual Wake. Wind mills on and off-shore.





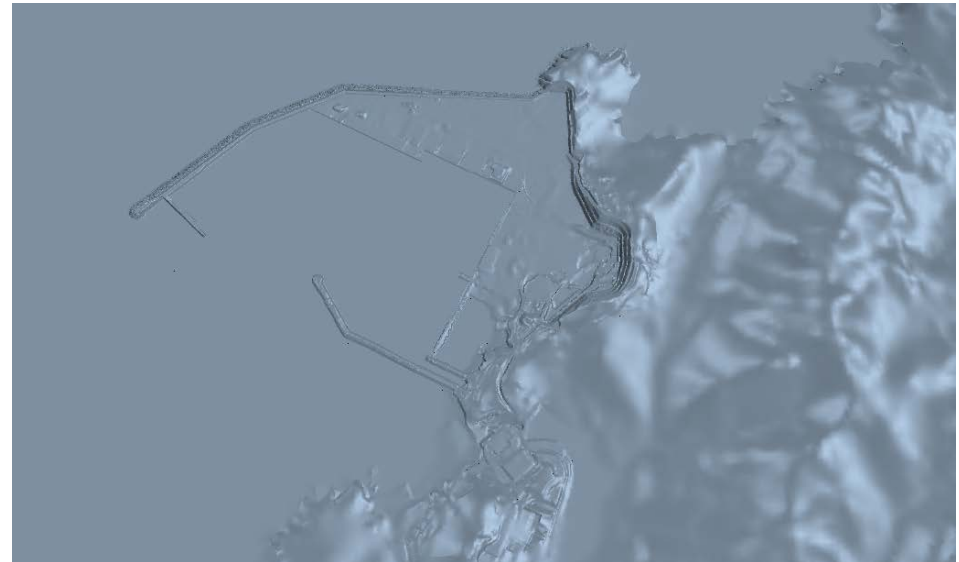
# USC contributions to coastal observatories

Coupled WRF –MOHID. Applications to harbors.



# USC contributions to coastal observatories

Coupled WRF – CFD and WRF-LES



# Thanks

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