



9TH EUROGOOS CONFERENCE

MAY 4TH – SESSION 3 – REGIONAL OBSERVATORIES

ILICO The French Research Infrastructure for Coastal Ocean and Nearshore Observations



Overarching scientific questions

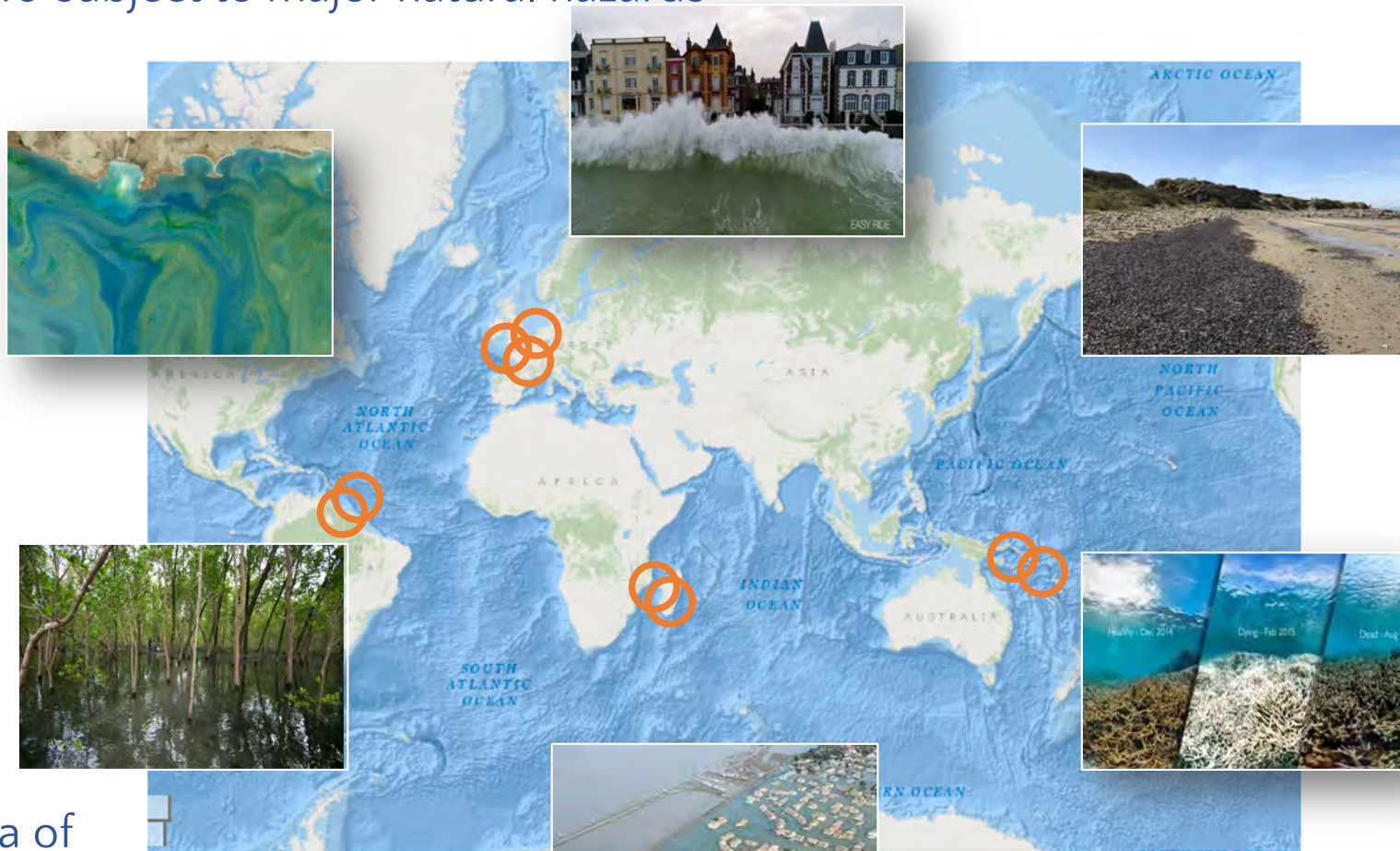


- Assessing and predicting changes of coastal marine systems under the combined influence of global and local drivers
- Assessing the impact of extreme events on changes of coastal marine systems
- Unravelling the impacts of natural and anthropogenic drivers of climate change

Distributed national concerns

20000 km of coastline, 96% overseas
975 coastal townships, 90 overseas
8 out of 10 subject to major natural hazards

Erosion: an issue for 1/4 of coastline



10000 ha of mangroves

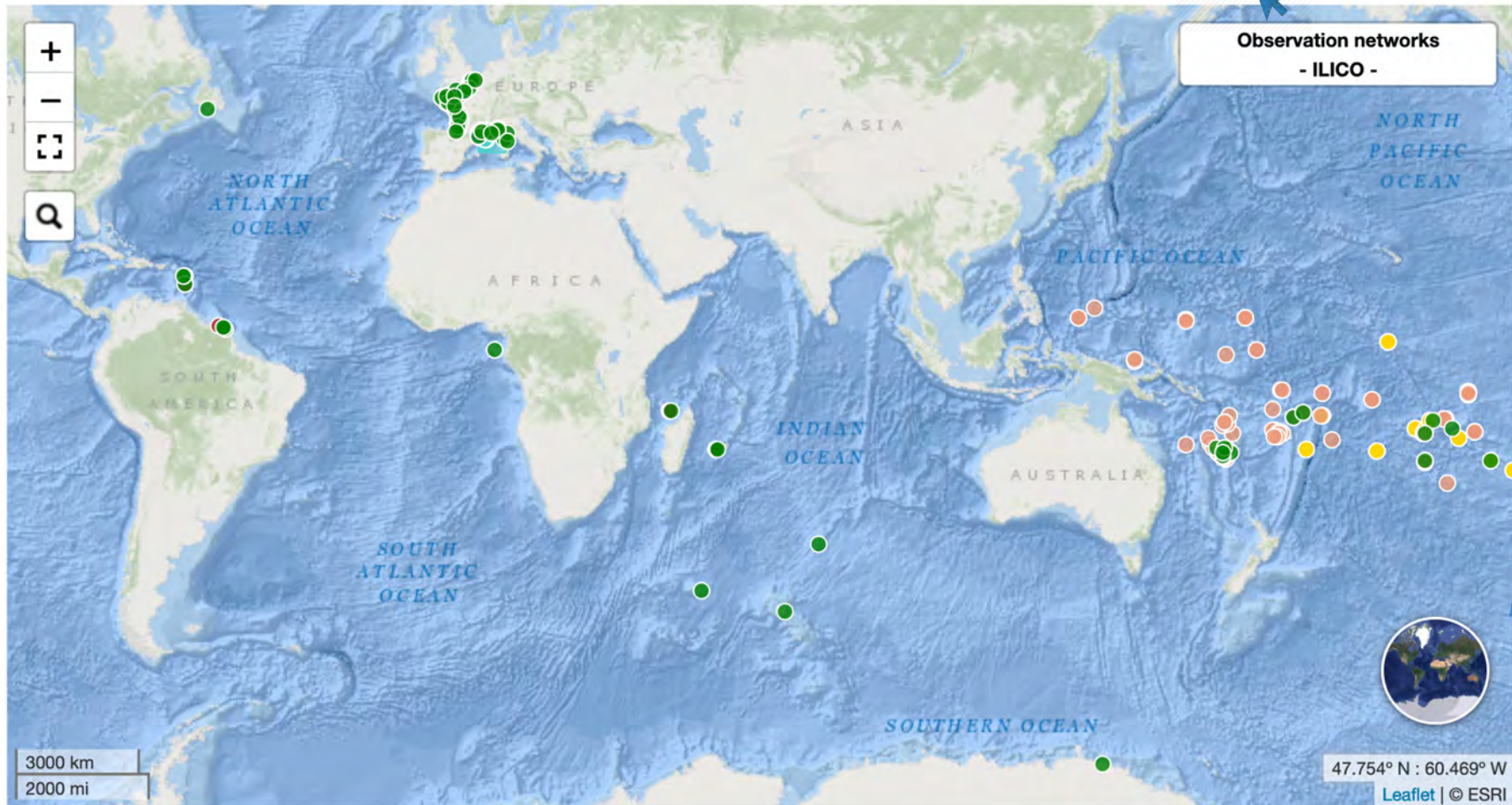
10% of the world's coral reefs

700 000 hectares threatened by submersion during extreme events

What response to these challenges?

Interactive map of ILICO field sites

[www:// www.ir-ilico.fr](http://www.ir-ilico.fr)



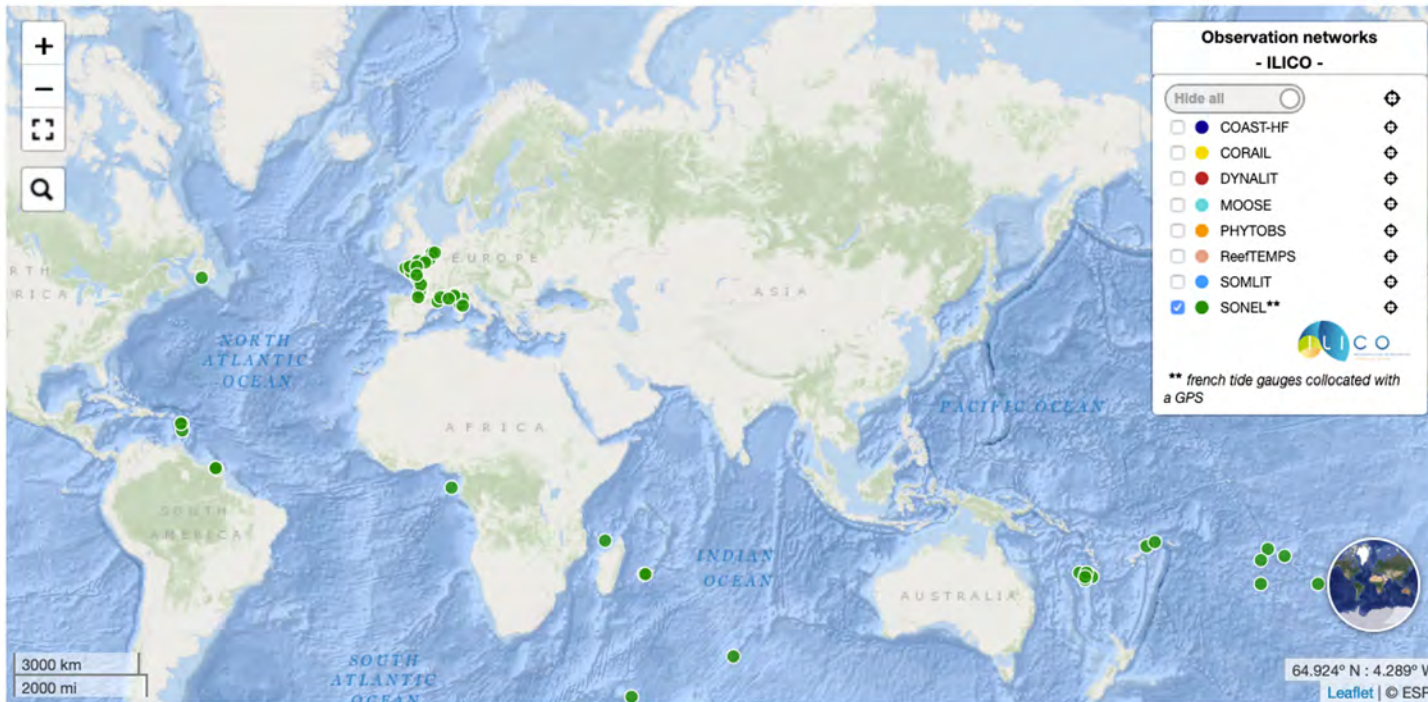
Locations of ILICO sites (colour of dot represents an observation network)



Assessing and predicting changes of coastal marine systems under the combined influence of global and local drivers



- Established in 2003
- 79 sites, part of the GLOSS
- Sea Level, Levelling Heights
- High frequency, real time data transfer
- Tidal gauges



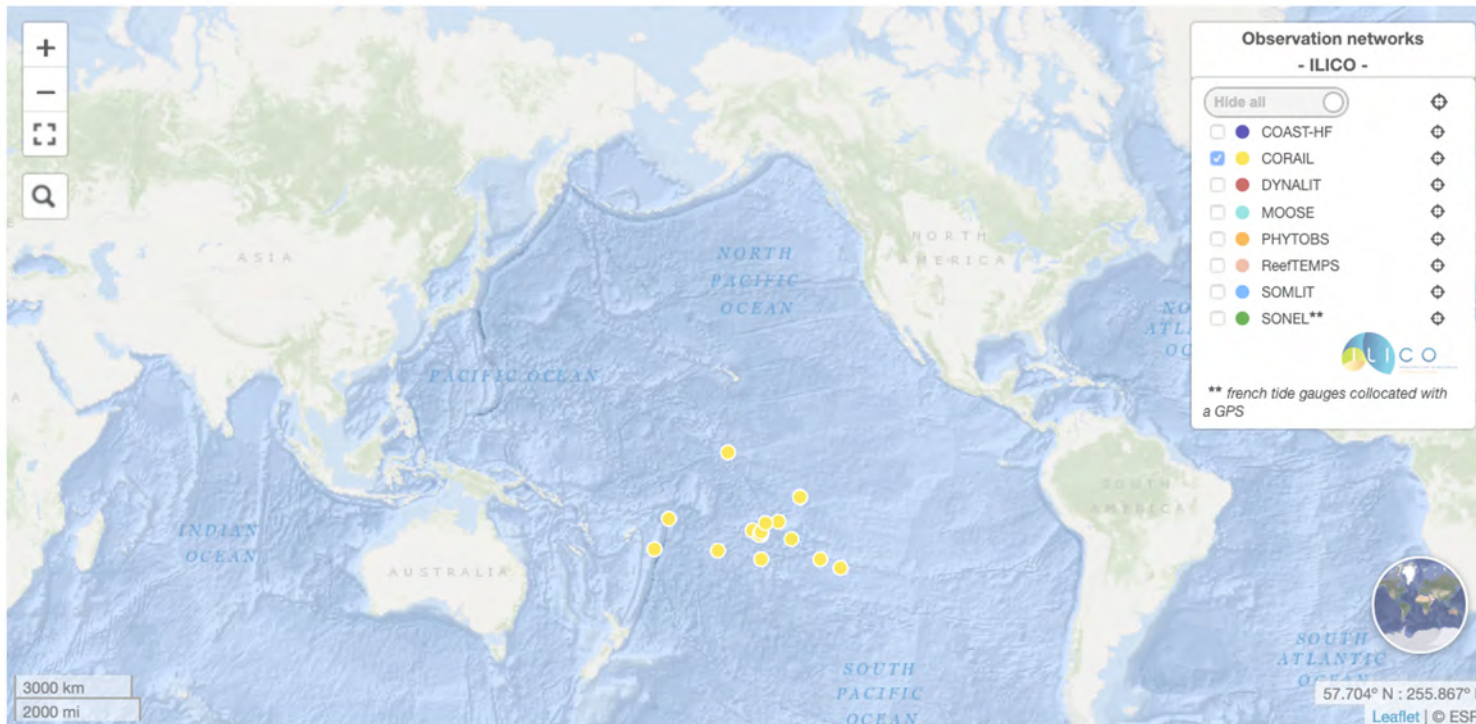
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Sea level trends, including rare events



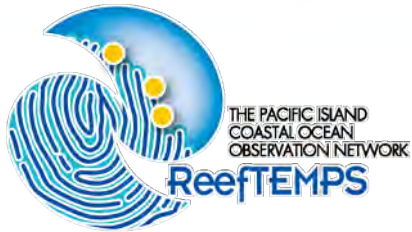


- Established in 1985
- 15 sites in French Polynesia
- Coral reef health, Physico-chemical parameters
- Low & High Frequency
- Photogrammetry, Probes & sensors

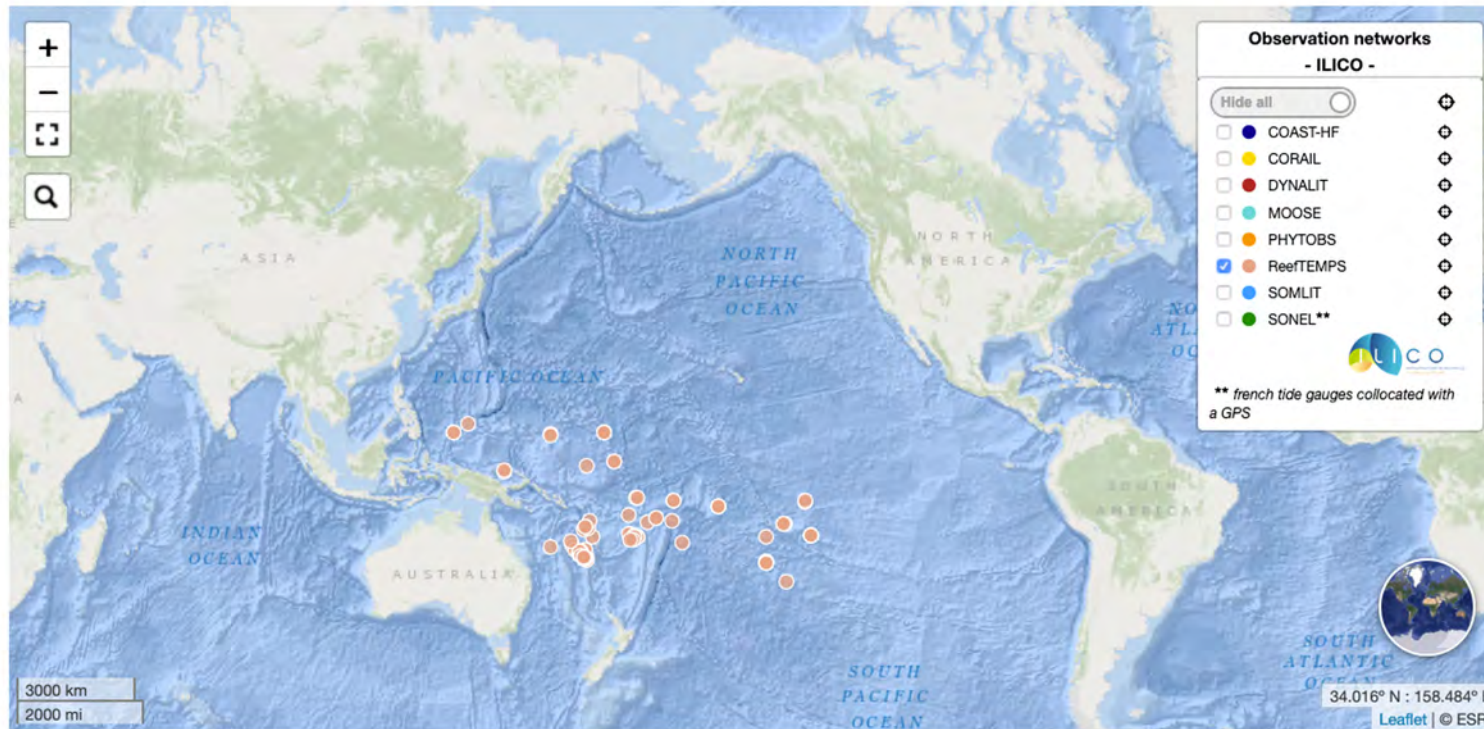


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Coral reef evolution (French Polynesia / South Pacific Islands)



- Established in 2010
- 100 platforms in 14 countries (Pacific region)
- Temperatures (6 – 60m depth), pressure, salinity..
- High Frequency
- Probes & sensors



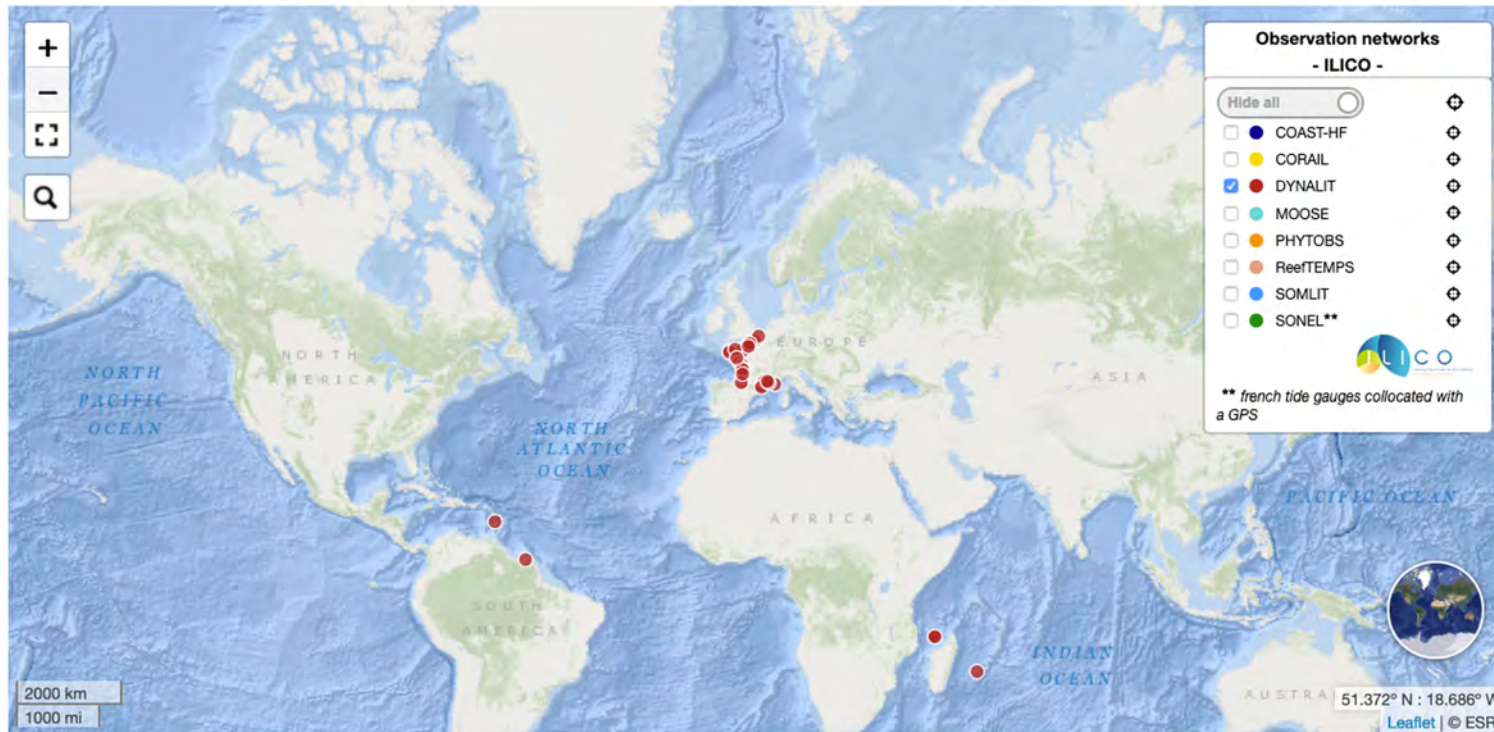
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Climatic parameters of the tropical ocean (South, West and South-West Pacific)





- Established in 2014
- 31 study sites
- Coastal bathymetry, topography, shoreline position
- Low Frequency
- Terrestrial laser scanning, drone, sonar, satellite...



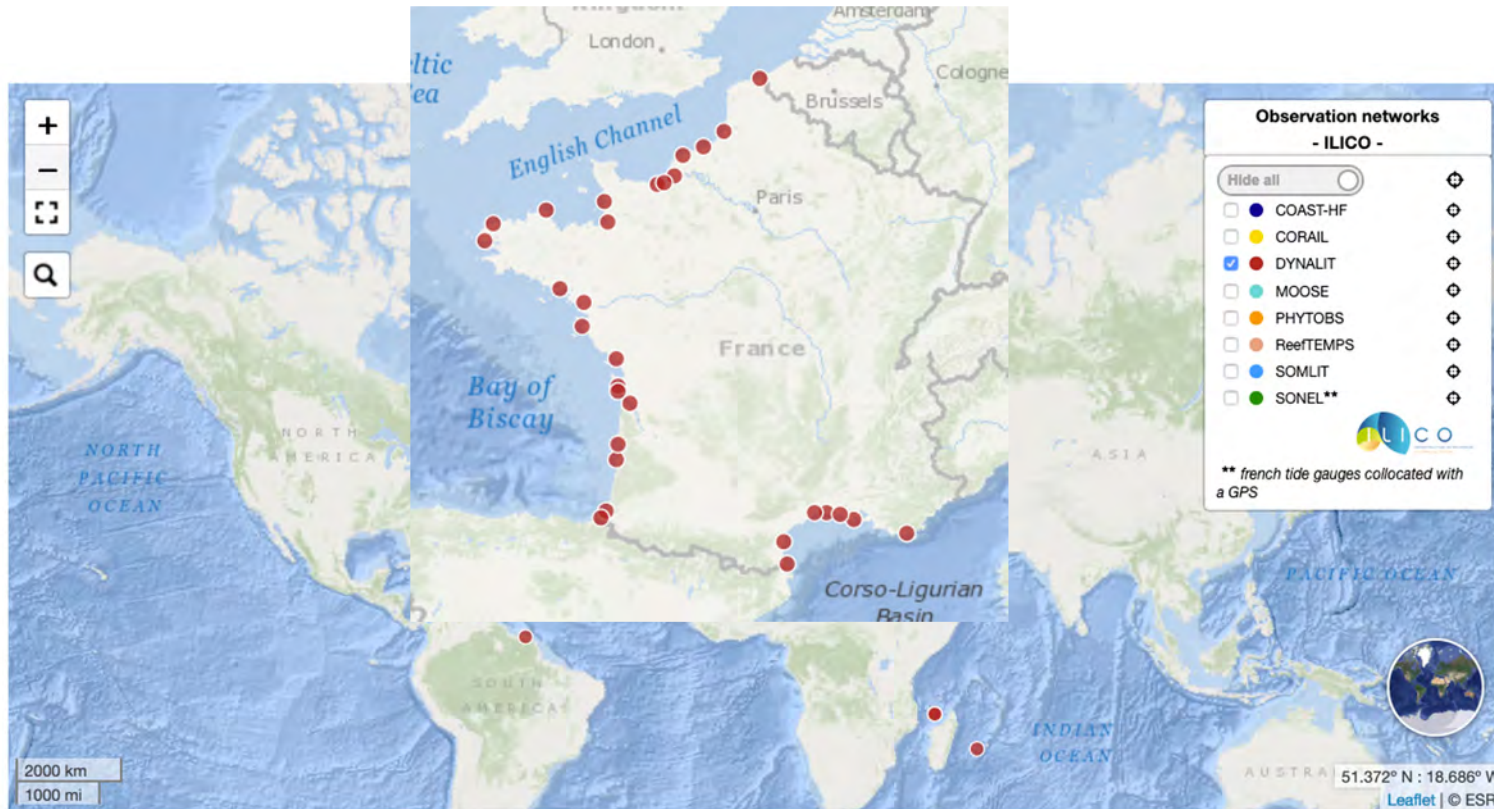
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Monitoring coastal morphodynamics (metropolitan & overseas)





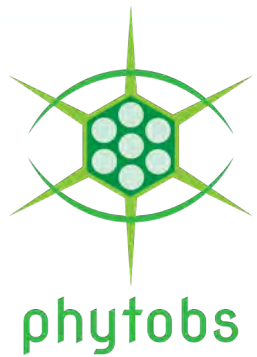
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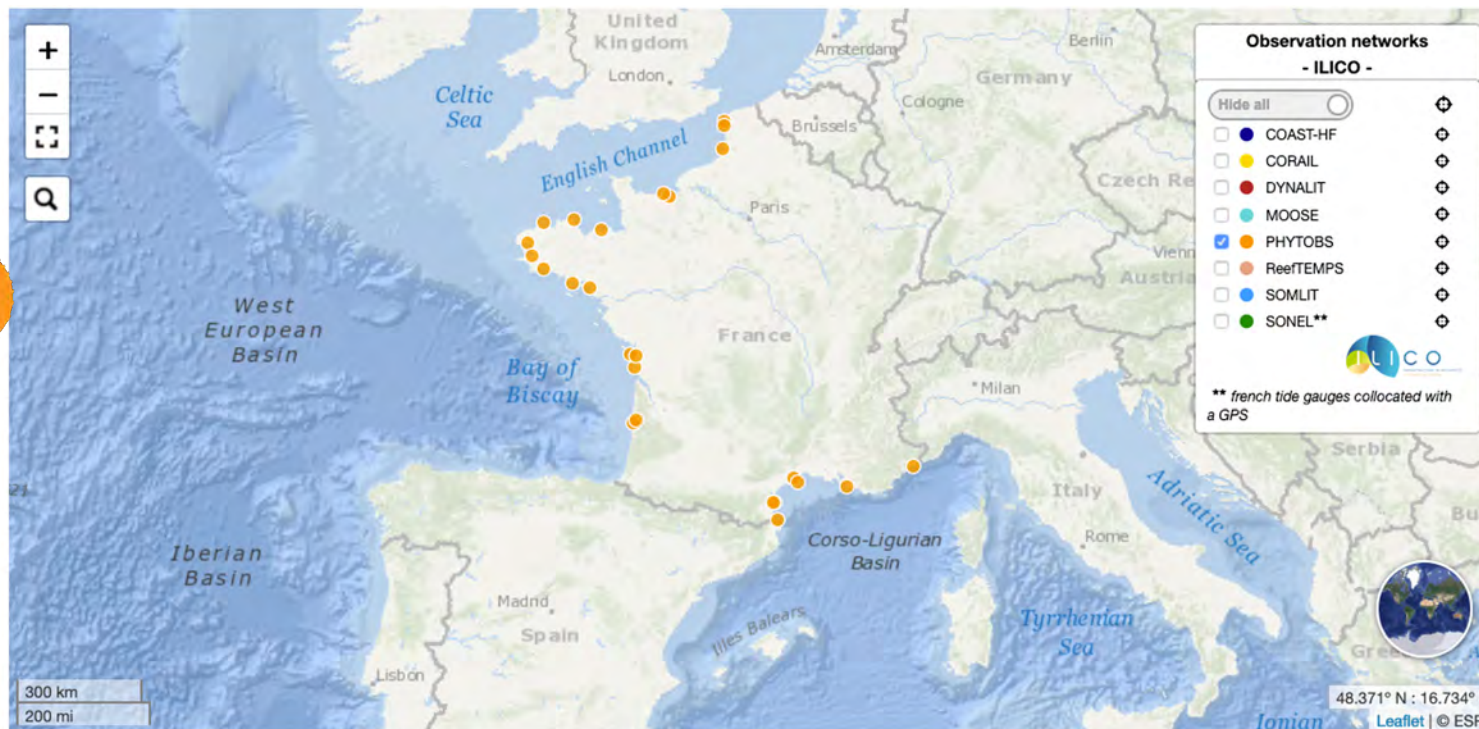
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Monitoring coastal morphodynamics (metropolitan & overseas)





- Established in 2016
- 25 sites
- Micro-phytoplankton diversity
- Low Frequency
- Nearshore sampling / instrumented moorings



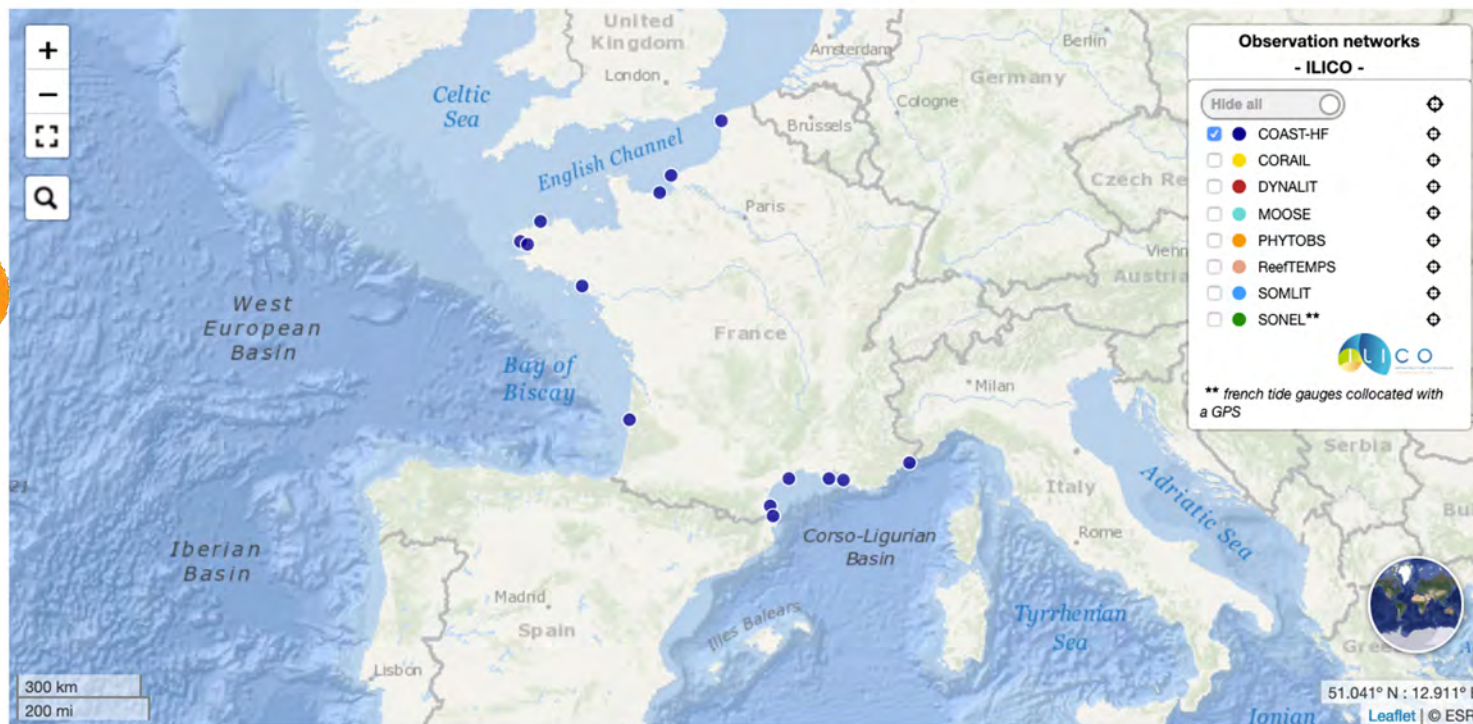
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Micro-phytoplankton evolution





- Established in 2016
- 14 stations (fixed platforms)
- Physico-chemical parameters, hydrology
- High Frequency, continuous
- Instrumented moorings

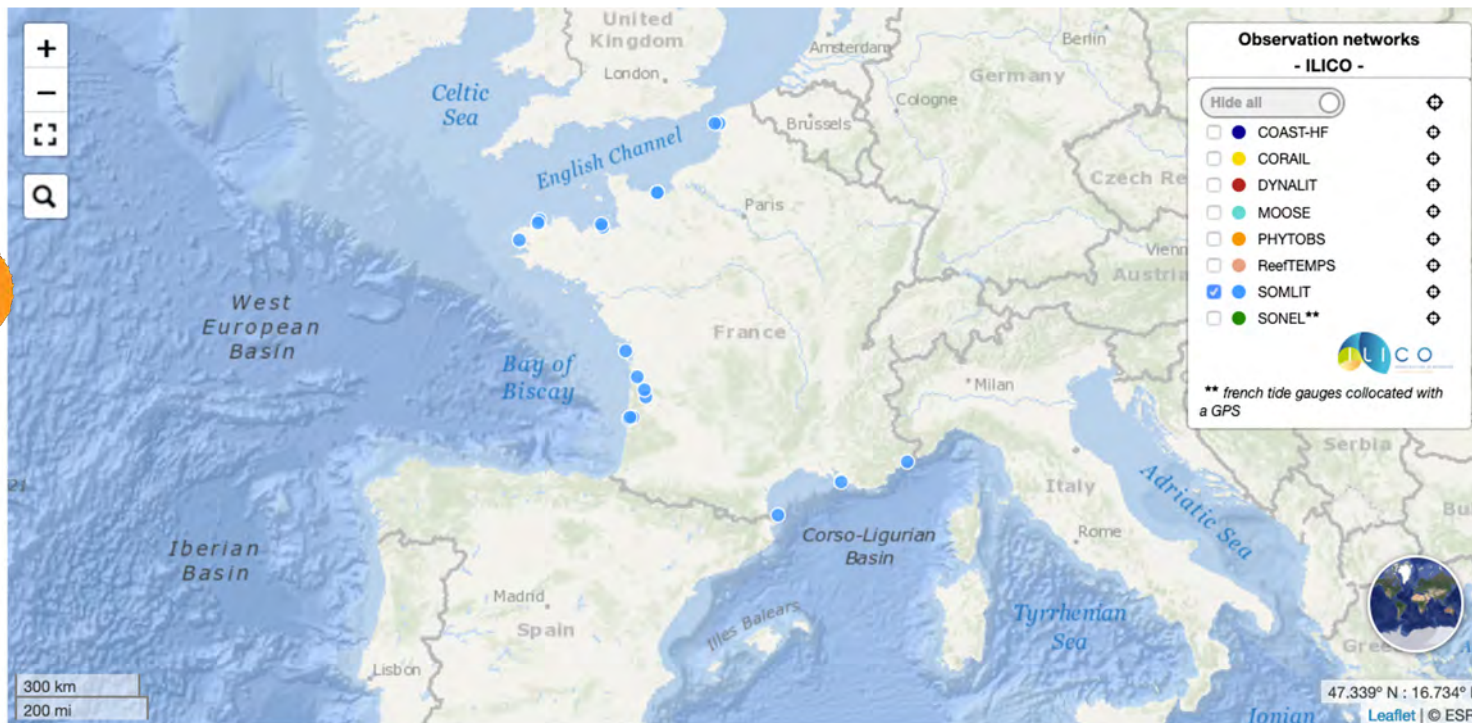


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Physical & biogeochemical dynamics of the coastal ocean



- Established in 1996
- 19 sampling stations, 11 ecosystems
- Bio-physico-chemical parameters, hydrology
- Low Frequency
- Nearshore sampling by vessel



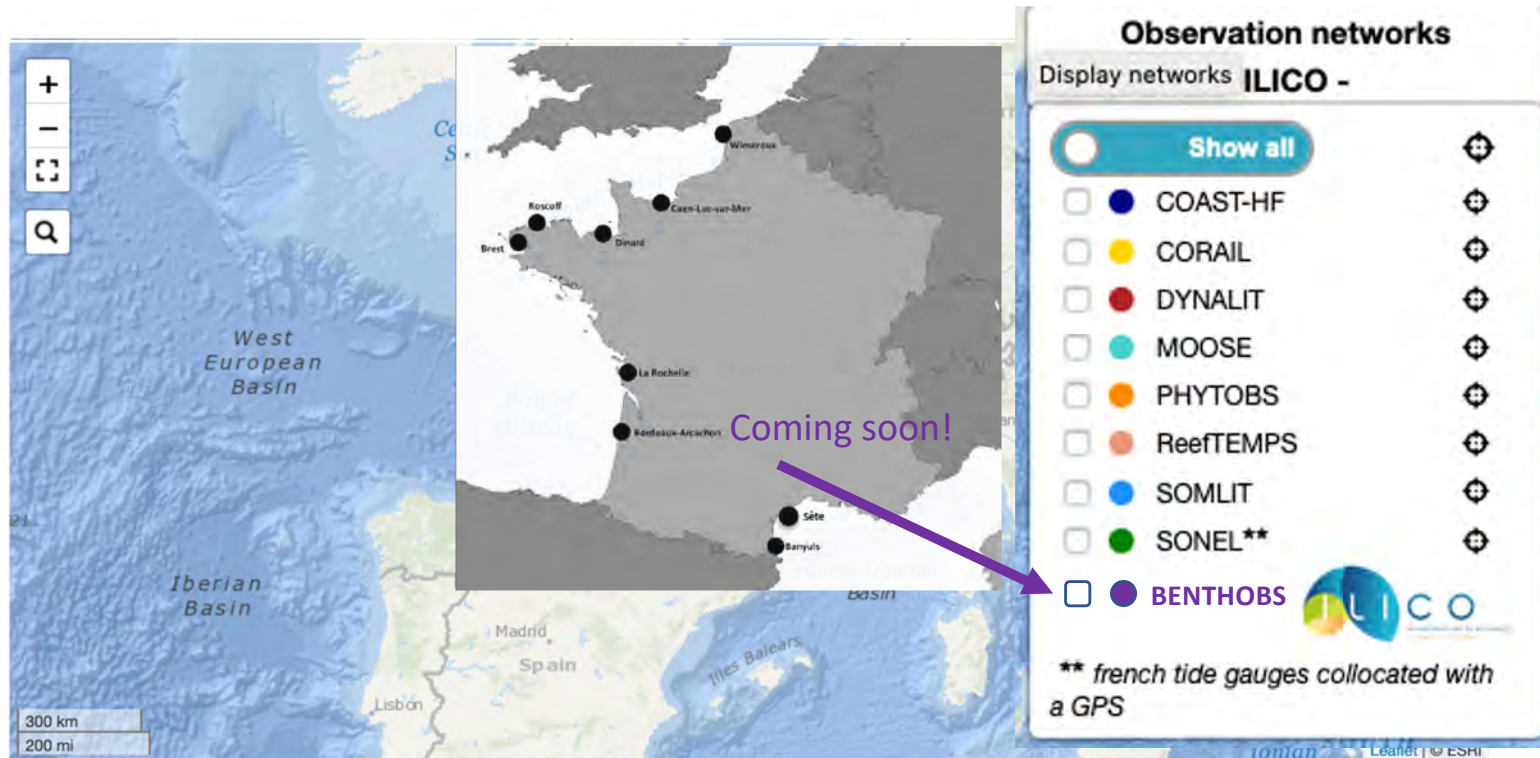
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Long-term trends in coastal system functioning and sensitivity to climate change





- Preparing accreditation
- 18 sites (metropolitan France, channel islands...)
- Macroinvertebrate fauna biodiversity, sediment size, particulate organic matter
- Low Frequency (biannual sampling)
- Coastal vessels – sediment grab



Locations of ILICO sites (colour of dot represents an observation network)

Benthic macroinvertebrate evolution

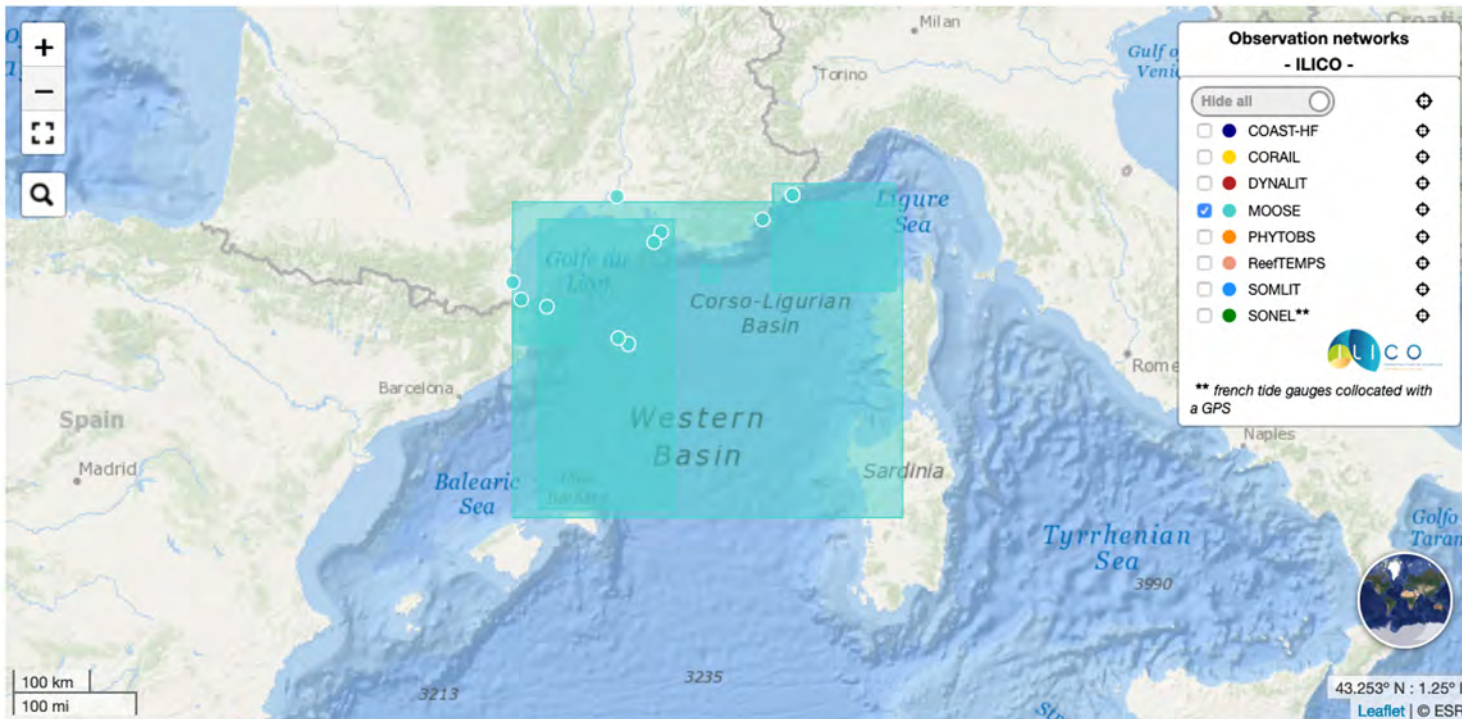




- Established in 2010
- 16 sites in the NW Mediterranean
- Bio-physico-chemical, surface currents...
- High & Low Frequency, real time data transfer
- Off-shore / coastal ships, moorings, gliders, HF radar



Interactive map of ILICO field sites



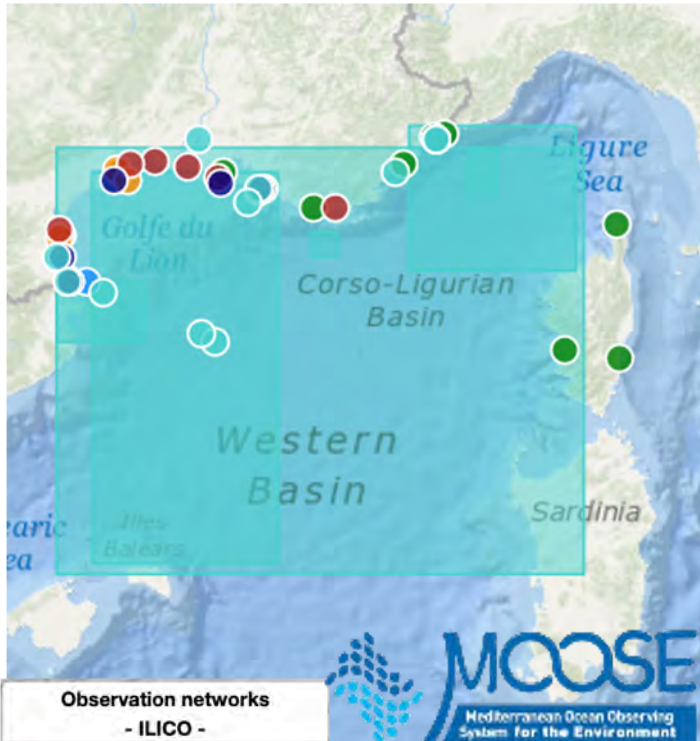
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Mediterranean Ocean Observing system for the environment



Furthering integration

North West Mediterranean



Observation networks - ILICO -

Hide all

- COAST-HF
- CORAIL
- DYNALIT
- MOOSE
- PHYTOBS
- ReefTEMPS
- SOMLIT
- SONEL**

ILICO

** french tide gauges collocated with a GPS



Pilot site - Hermitage, Ile de la Réunion



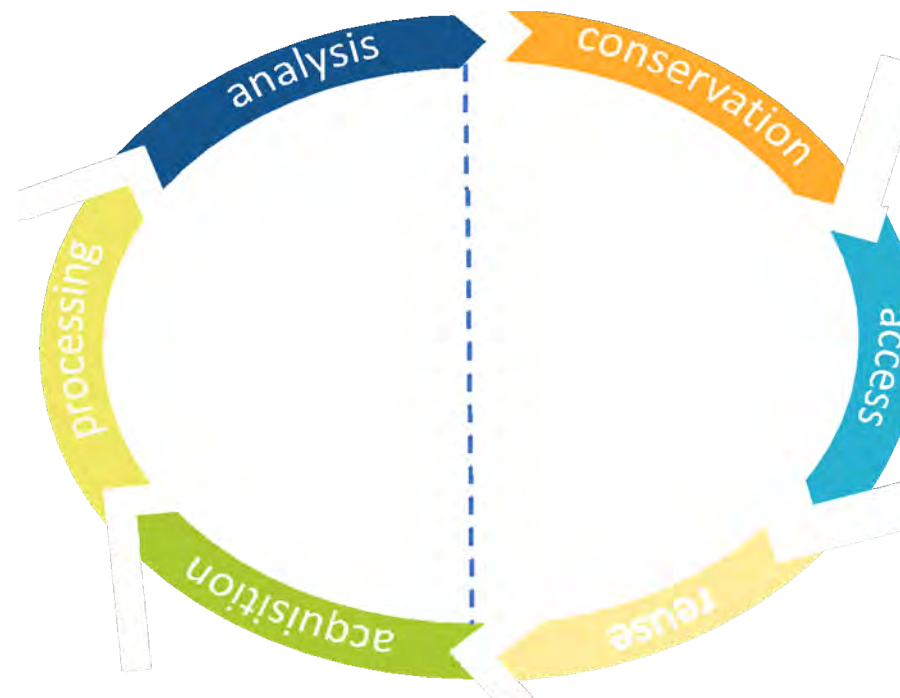
The missions of the ILICO Research Infrastructure

- *Ensure observations to meet research, stakeholder and societal needs*
- *Optimise observation networks*
- *Develop skills and expertise*
- Ensure observation data are transferred and exploitable
- Foster interactions between the scientific communities involved *in situ* observation, modelling, experimental approaches & remote sensing, big data management, statistical analysis
- Rally the observation community within the European context

Ensure observation data are exploitable

ILICO shares responsibility for the coastal domain data cycle with the French Research Infrastructure Data Terra in order to:

- o Produce FAIR data
- o Develop products and services for the community
- o Size the future data management systems needs



Wider open-
data Portals &
Databases:

- GLOSS
- CORIOLIS
- EMODNET
Biology
- GBIF...

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Organisation / governance

Strategy level:

Steering Committee
(institutional representatives)

Scientific Advisory Board
(external)

Management Coordination team

Executive/operational level:

Executive Committee



1. Internal cross-network dynamics
2. Overseas challenges
3. European and international relations
4. Links with society
5. Data Sciences
6. Optimization of observation practices
7. Integrated approaches
8. Technological Innovations
9. Dissemination and communication
10. Education and training

Discussions
 Decisions
 Recommendations



Network of 50+ research laboratories

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Rally the observation community within the European context

ILICO actively supports the ESFRI-candidate



*Joint European
Research
Infrastructure for
Coastal
Observatories*

ILICO's contribution to JERICO-RI :

Sharing best practices with other National Research Infrastructures on:

- Integrating a diversity of players
- Addressing common Key Scientific Challenges
- Allocating long-term resources to observation

Discussion:

Is France's unique model of combining both land and nearshore in its study of the coastal domain transferable - and to what extent?

How do we:

- Involve more networks? - so far only 2:
- Integrate the overseas / ultramarine territories?



<https://www.jerico-ri.eu/>