TWP1. THE OBSERVATION SYSTEMS AND DATABASES

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Observation

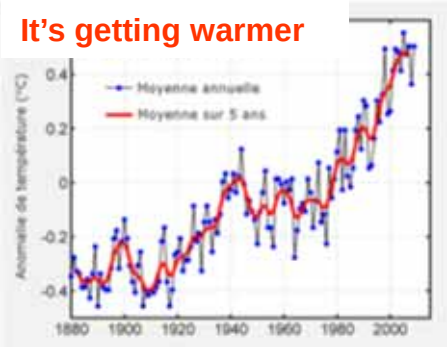
Long-term project (over 10 years) in the context of the climate change and anthropogenic pressure in order to be able to detect and identify environmental trends and anomalies of the global ecosystem and evolution of human society.

- Regular acquisition of measurements over a long period of time
- Ongoing validation measurements
- Free access of data

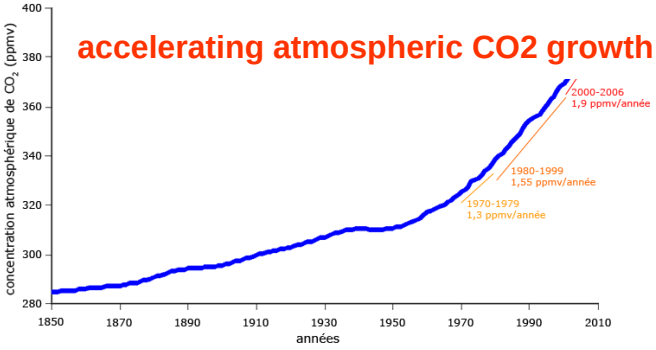
Many partner laboratories have built integrate observing systems based on some environmental and socio-economic indicators

Many systems have a national label

It's getting warmer

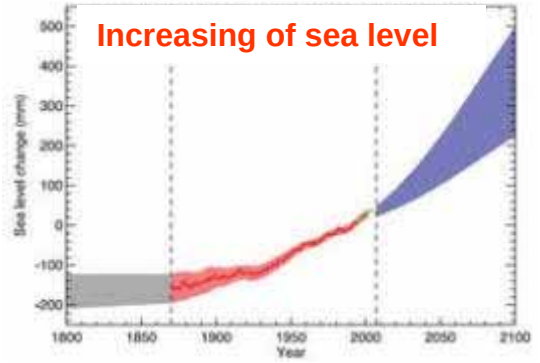


accelerating atmospheric CO2 growth



Sources : NOAA 2007; Canadell et al. 2007, PNAS

Increasing of sea level



An astrononical observatory with a platform dedicated to the observation of the phenology and physiology of the white oak

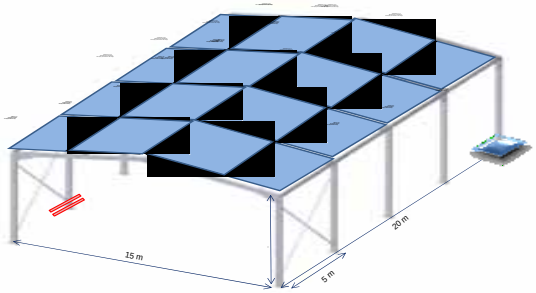
OHP3 Oak Observatory at OHP

A privileged site

The white oak grove

An innovant experimental device

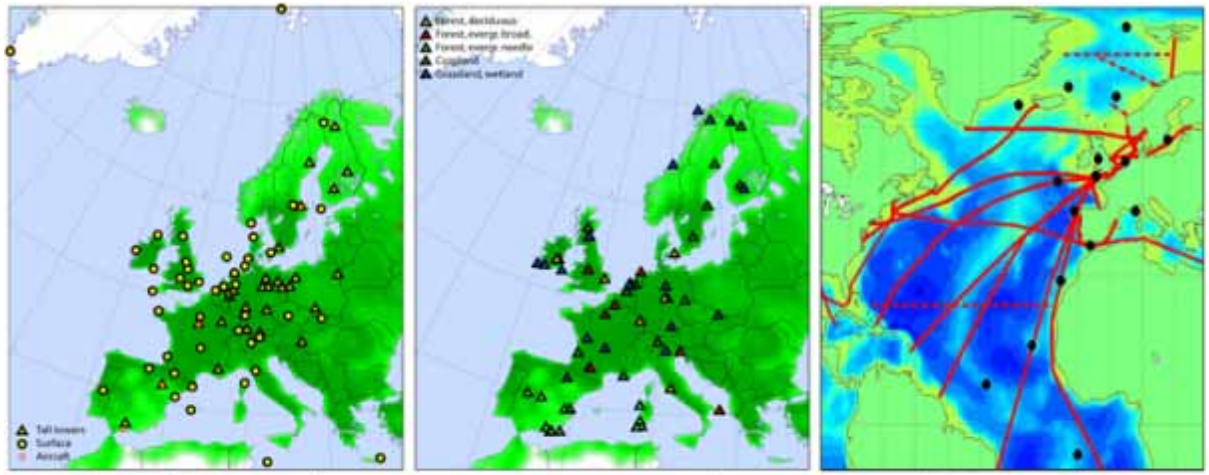
experimental rain exclusion



Interdisciplinary collaboration

ICOS integrated carbon observation system

A new research infrastructure to decipher the greenhouse gas balance of Europe and adjacent regions



Atmospheric network | Ecosystem network | Marine network

Climed Observatory

Biodiversity and ecosystem functioning in the Mediterranean

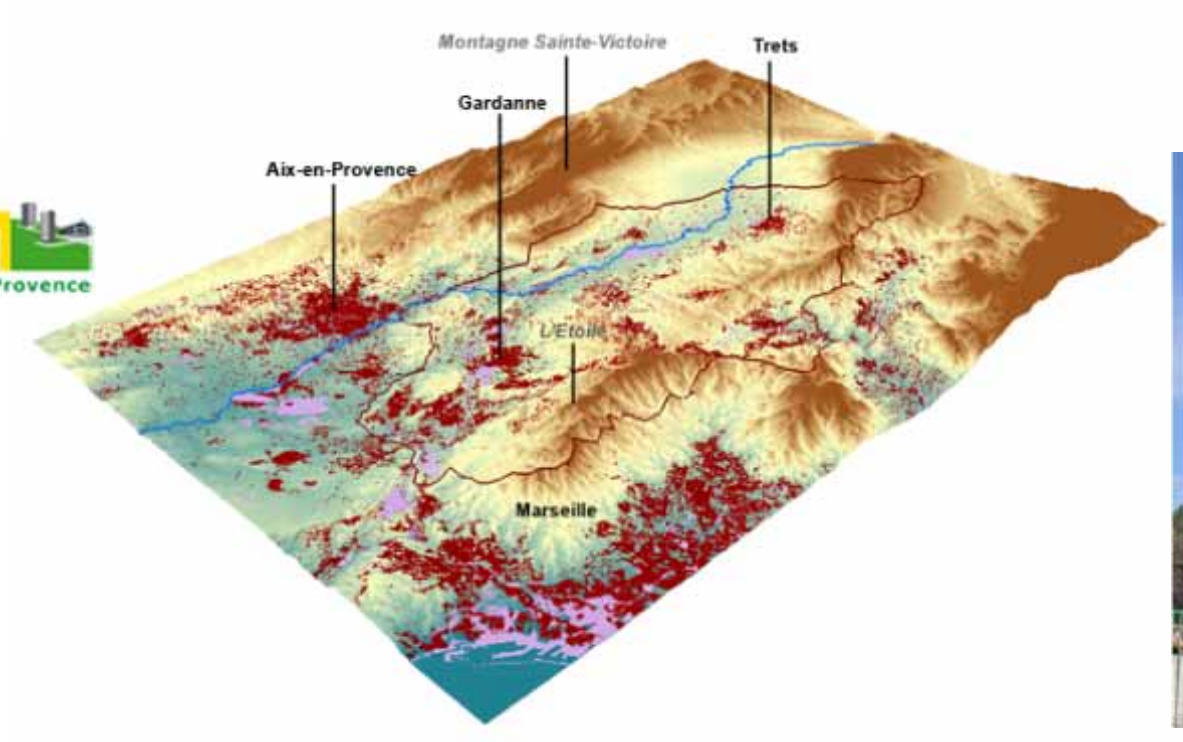
To link predicted climate change scenarios to biodiversity loss, and to quantify the direct and indirect effects on carbon and nutrient cycling in the garrigue ecosystem.

The model system is the Mediterranean garrigue ecosystem

Chaîne de l'Etoile, Marseille

Human Environment Observatory

OHM - Bassin minier de Provence



Environmental and human impacts following the reconversion of the mining basin after its closure.

Observation and research are primarily dealing with soil use in urban fringes, atmospheric pollution, slag-heap biodiversity and risk as perceived by the population.

Human Environment Observatory

OHM-Vallée du Rhône

The hydrological characteristics of rivers and catchments become drastically modified in response to human activity and urbanisation.

Impacts of floods

Dam and Power plants

Protection against erosion

New management of the river

These changes may have important implications downstream where they may affect flooding, instream ecological habitat, water quality and fertilization of coastal zones.

From land to the sea: The Rhône river

Quantification of solid and liquid fluxes towards the marine environment

Alteration of the hydrological cycle in the Mediterranean area could impact on the frequency and magnitude of extreme events such as floods and subsequently on the amount of solid and liquid fluxes reaching the marine environment.

From land to the sea: The Rhône river

A sampling station (SORA) is located at Arles, 45 km upstream the River mouth.

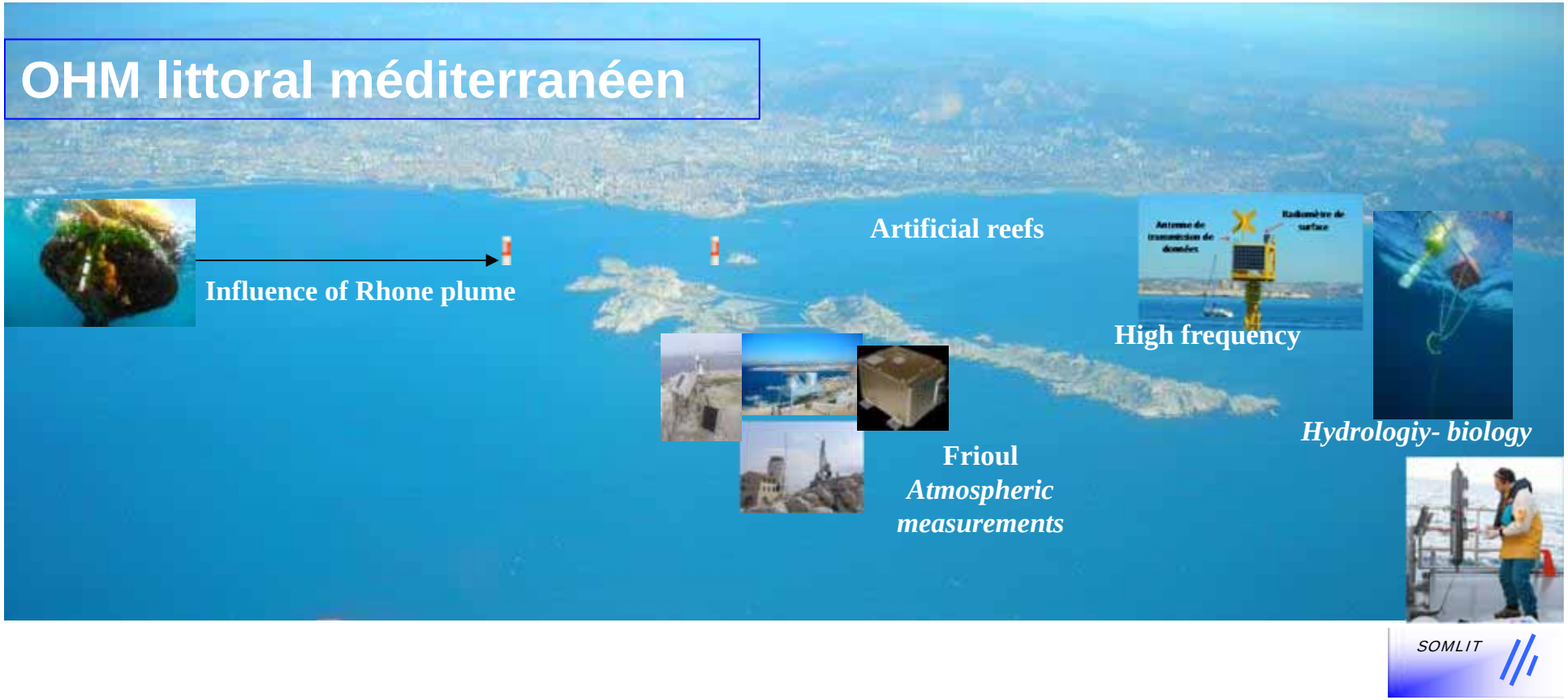
Close to the mouth: A ferry is equipped with an Acoustic doppler current and turbidity.

At sea close to the mouth: marker buoy equipped with oceanographic sensors

Impact on the sea

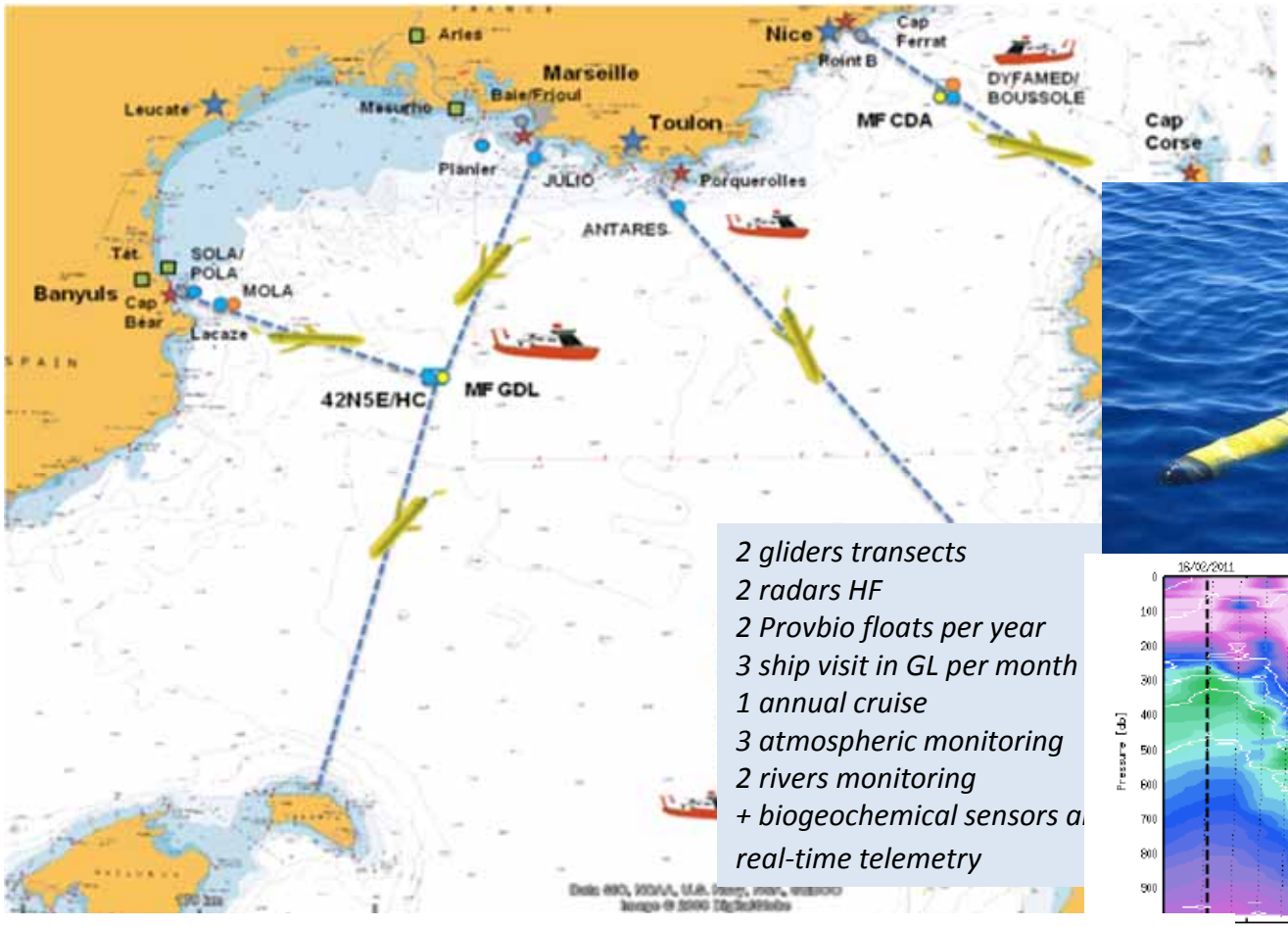
Marine Observation Systems

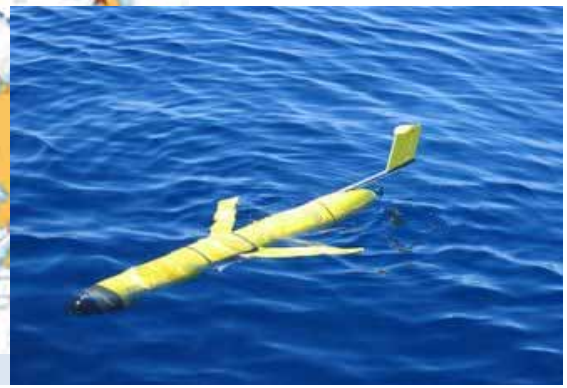
The bay off Marseille



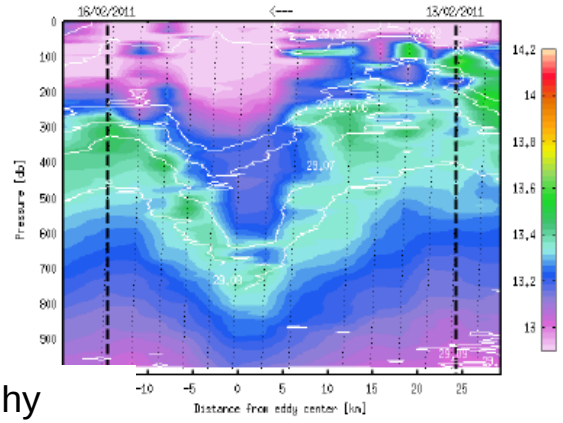
An « ideal » site to follow the anthropogenic impact at land/sea and atmosphere/sea interfaces

Marine Observation Systems





2 gliders transects
2 radars HF
2 Provbio floats per year
3 ship visit in GL per month
1 annual cruise
3 atmospheric monitoring
2 rivers monitoring
+ biogeochemical sensors a
real-time telemetry

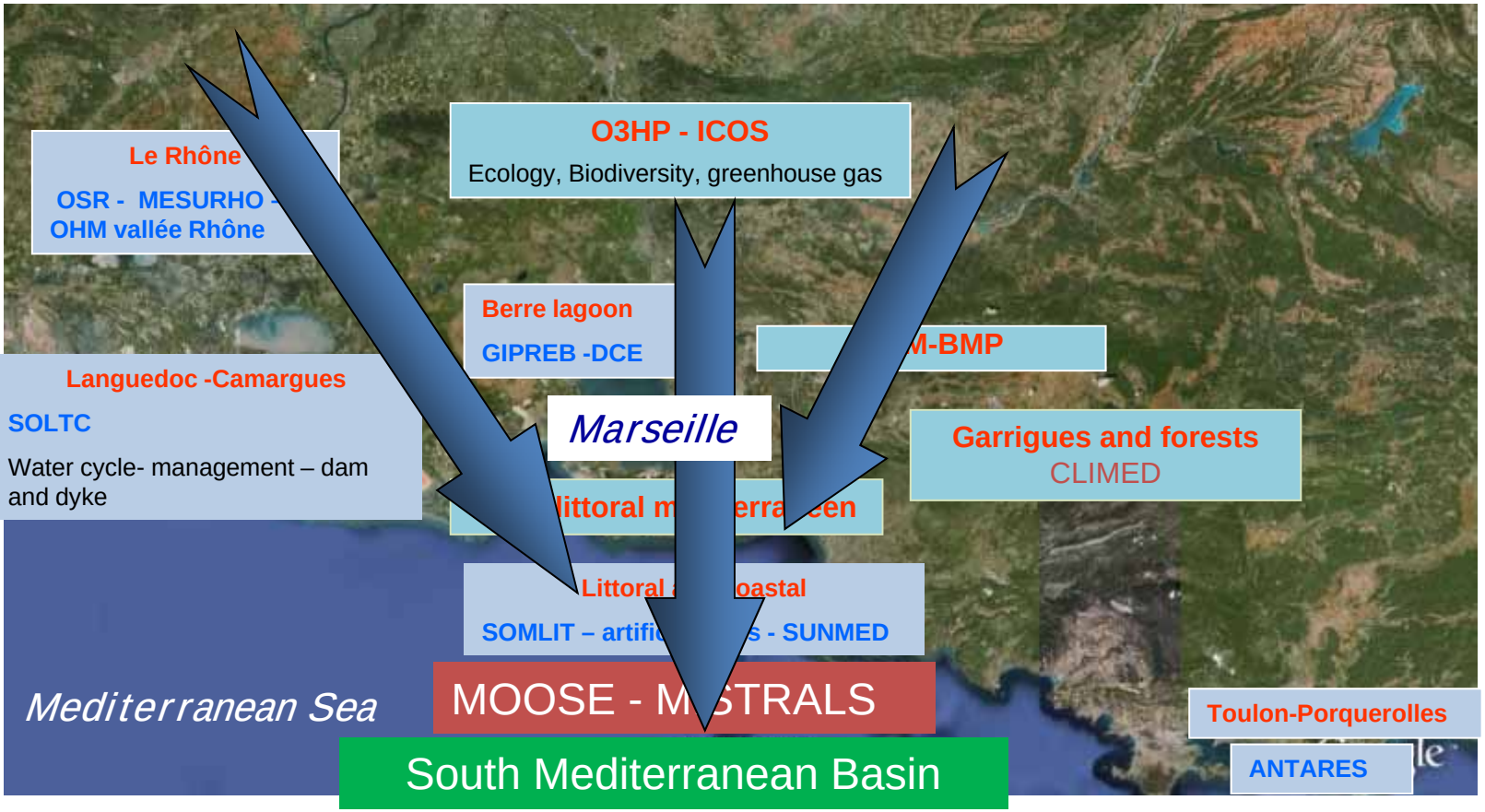


Support scientific programs (MISTRALS) and operational oceanography

Programs & Partners

Continuum: atmosphere/landscape/city/littoral/coastal sea/offshore

Gradient from natural to anthropic systems



The coordination between all these systems remains weak.

These run their own data flow procedures.

TWP1. THE OBSERVATION SYSTEMS AND DATABASES

This gap prevents from having a global view of the Mediterranean region in both space and parameters.
There is a lack of a integrated complete data sets

Main objectives for the LABEX OT-MED:

Increase the coherence and the sustainability of these observing systems
Link between environmental monitoring and societal evolution
Link with scientists and end-users

Create synergy between disciplinaries and act with the modelisation

Provide a huge data flow rate easily accessible by a Mediterranean portal