GEOTRACES campaign in the Mediterranean Sea should rely on Mediterranean Sea specificities to make it of broad interest for the international GEOTRACES community. Make it the ideal place to study given processes because they are there particularly relevant/important.

Mediterranean Sea has several specificities/asset:

- important physical features: short residence time; cascading; dense water formation etc. and peculiarity such as existence of EMT…etc.

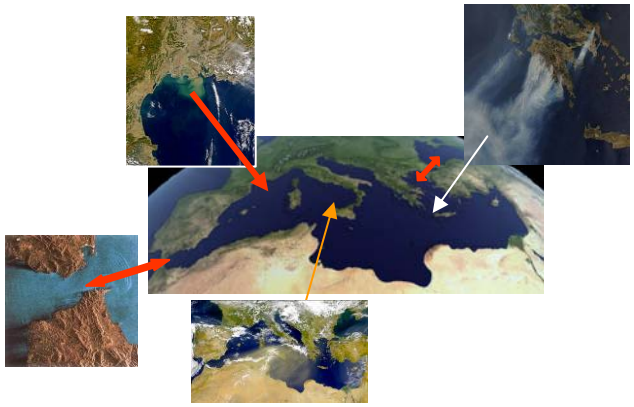
- presence of close margins and strong exchanges zones

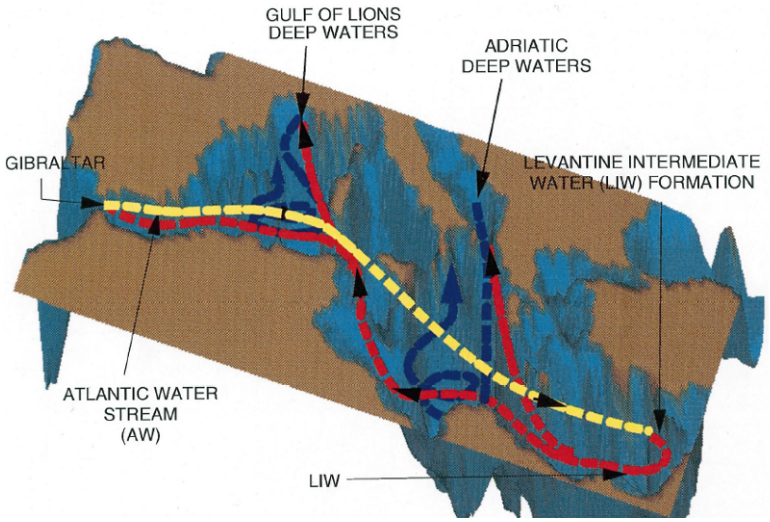
- strong atmospheric inputs: both anthropogenic (continuous source) and natural (lithogenic: sporadic

- Because of its size, possibility for models to perform high resolution simulation, that are quasi-impossible at global scale à as an example, high resolution model allow to better understand dense water formation

- **Strong links between 3 main domains: OCEAN/ ATMOSPHERE/CONTINENT**

→ Proximity and importance of inputs and exchanges





Scientific questions:

Question 1: **how does the lithogenic material originating from different sources (ocean margin, aerosols) impact on the distribution of dissolved elements (micronutrient, isotopic tracers) and the biogenic fluxes ?**

Question 2: **what is the recent evolution of TEIs due to human activity?**

Question 3: **Can we use TEIs to trace the deep circulation (in particular in the eastern basin) and reconstruct its variability trough TEIs recording in marine archives (deep sea corals)?**

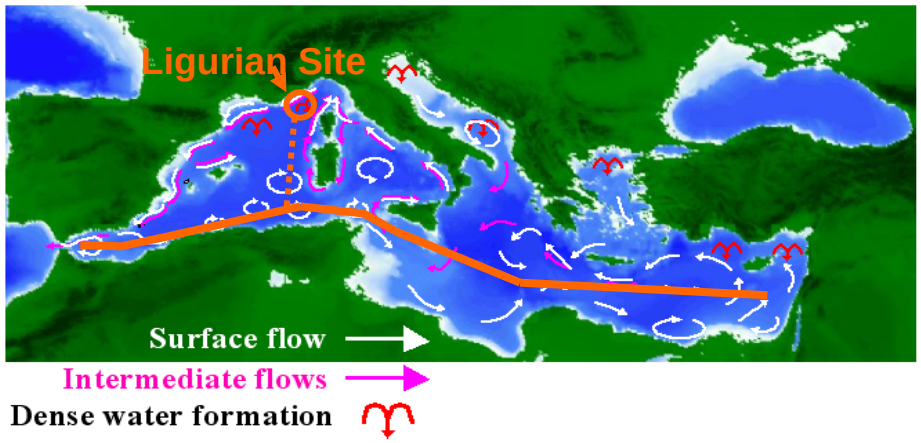
Approaches:

Strong link with the whole community of physicists. A joint campaign with SOLAS and MERMEX (aerosols, biogases, processes studies: need for a minimum bio parameters - nutrients, Pigments, Cytometry, zooplankton PVM, Biodiversity (molecular biology), O_2/pCO_2/C_T/A_T, DOM/POM, Bacteria)

Strategy will conciliate **monitoring** along a transect W to E and **study processes** aspects.

The processes studies could take place in an area well documented/instrumented: this site could be the open-sea site of the Ligurian Sea (ex-DYFAMED) that is part of the MOOSE (Mediterranean Ocean Observation multi-Sites on Environment) project; in addition the data acquired at that site as part of the time-series will be necessary to interpret the TEIs measurements acquired along a transect on a short time scale; this is an additional argument to perform processes studies in that area but alternative propositions are possible such as the possibility to decide during the transect the best spot to do the processes studies. It has to be noted that the NW site (ex-DYFAMED) will be also a focus during the MERMEX/HYMEX SOPs that are planned to ideally take place in 2011-2012.

GEOTRACES campaign could take after 2014. We have not discussed about the ideal time of the year to do it.



Large scale circulation (after Pinardi, 1997)