

# DeWEX-MerMex 2013 = DEep Water formation EXperiment

Field cruise of the operational plan of the I-DeWEX project (WP2) submitted to the french ANR call 2012

Scientific leaders :

Dr Pascal Conan ([conan@obs-banyuls.fr](mailto:conan@obs-banyuls.fr))

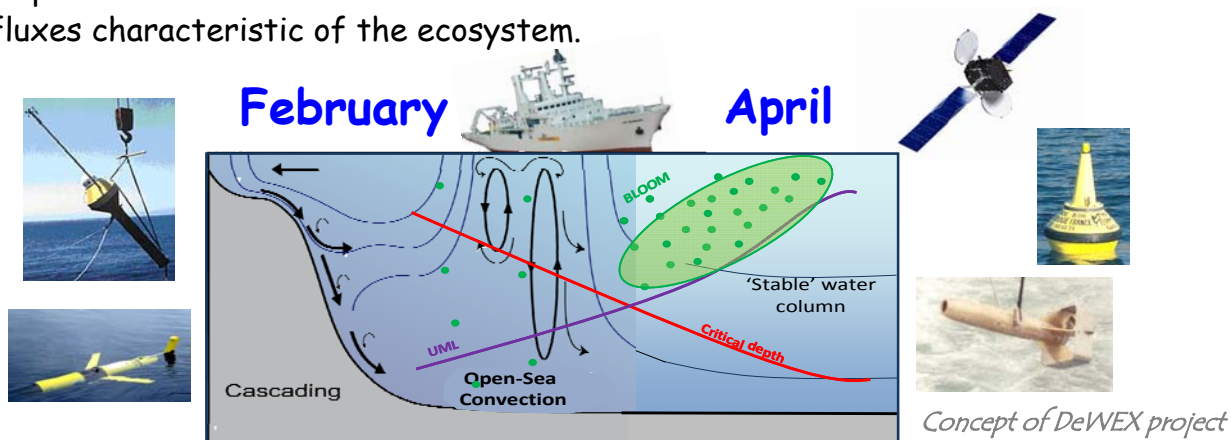
Dr Xavier Durrieu de Madron ([demadron@univ-perp.fr](mailto:demadron@univ-perp.fr))

Other contacts (WP1 MerMex)

Dr Claude Estournel ([claud.e.stournel@aero.obs-mip.fr](mailto:claud.e.stournel@aero.obs-mip.fr))

Dr Fabrizio D'Ortenzio ([dortenzio@obs-vlfr.fr](mailto:dortenzio@obs-vlfr.fr))

DeWEX-MerMeX is a key component of the intense observation activities planned in the North Western Mediterranean Sea during 2012-2013 (coordination with MOOSE, NAOS EquipEx and HyMex). Coupled physical-biogeochemical modelling is an important component (multi-scale initialization, validation and analysis of the best forcing prediction). The model will be parameterised with an innovative dataset that aims to describe the elemental stocks and fluxes characteristic of the ecosystem.

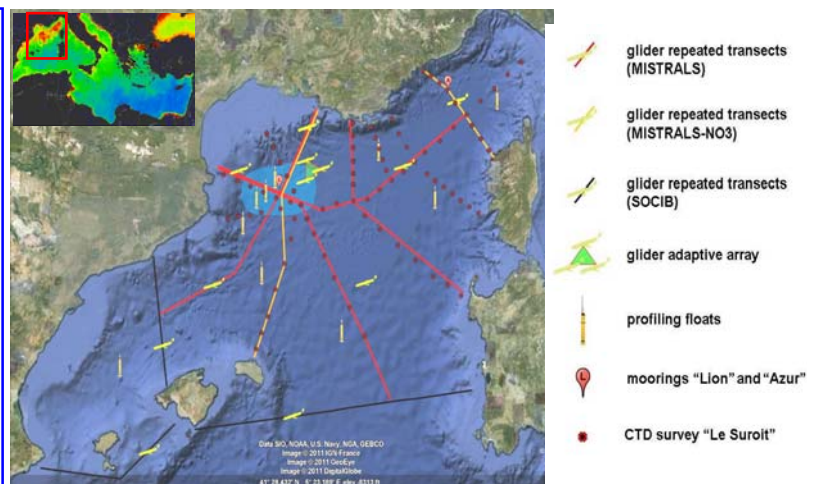


## Program context

The project comes at a critical moment in the context of the MISTRALS program. Several National and European projects (i.e. RemOCEAN ERC, NAOS EquipEx, FP7-GROOM, FP7-PERSEUS, the proposed FP7-FIXO3), combined with the long-term monitoring activity of MOOSE and additional surveys (i.e. MerMex-WP2-SPECIMED), provide a very solid and favorable context.

### The central objectives

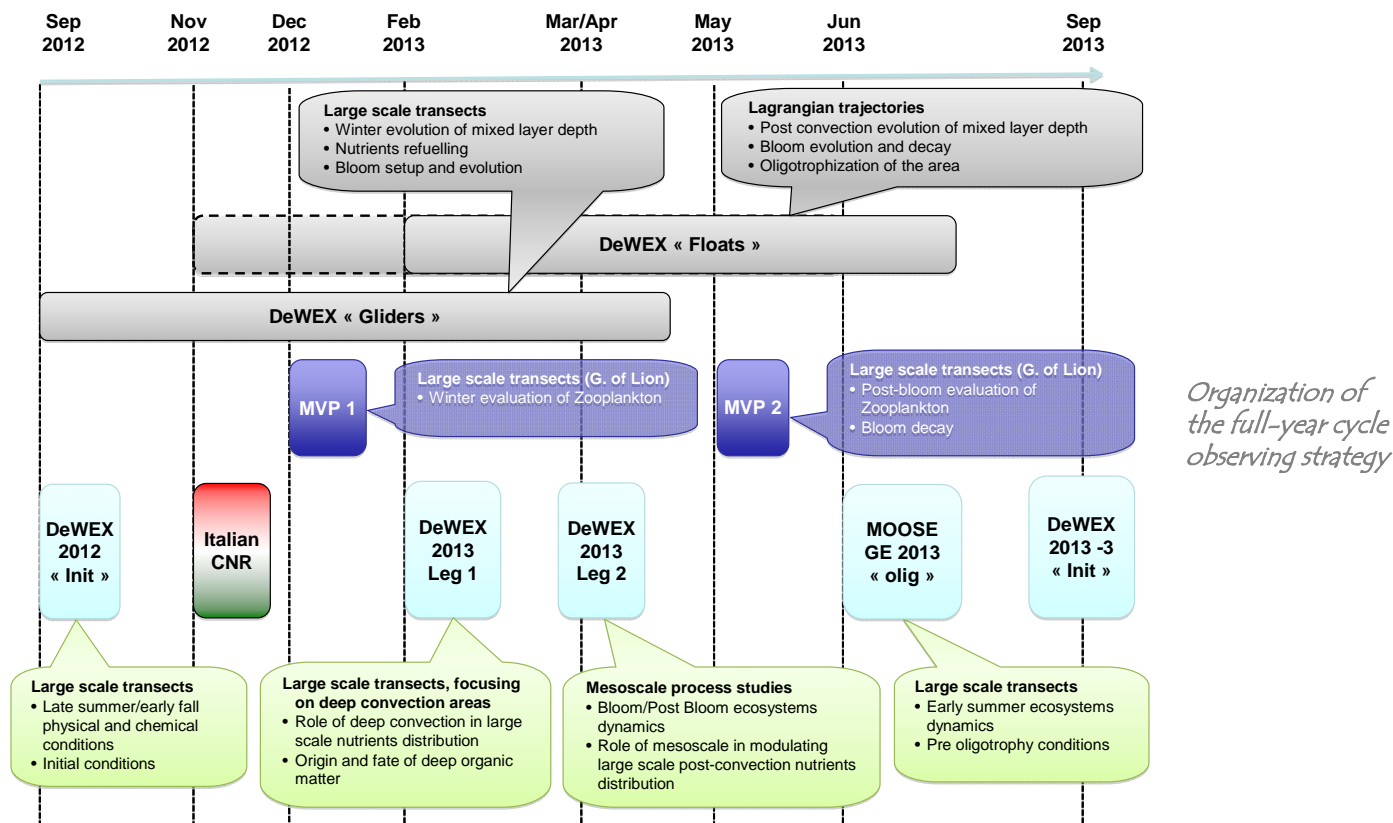
- To constrain the role of dense water formation on matter budgets and the consequences for elemental stoichiometry of various water masses
- To understand how the (sub)meso-scale hydrodynamic structures shape the organization of the pelagic ecosystems



Sampling strategy of DeWEX project

## The general strategy

The DeWEX-2013 cruise will be carried out over two separate legs on board the R/V Le Suroît. The first leg (22 days) in February-March 2013 will conduct extensive mapping of the dense water formation area (~80 full-depth CTD casts with maximum resolution in deep layers to estimate the age and fate of dense water masses and coastal-offshore exchanges). The second Leg (23 days), in April 2013, will explore the relationships between physical structures and biological communities during the spring bloom. A continuous sampling system of ultra clean surface water, the deployment of gliders and a Profiler Moving Vessel (PVM™) will aim to increase the spatial and temporal resolution of discrete sampling



## The global overview

- ❖ Full team = 62 scientists, engineers and students involved (38 involved in Sea operations)
- ❖ French labs involved = LOMIC, CEFREM, LEGOS, MIO, LOV, LOG, LOCEAN, LA, DT-INSU, CNRM-GAME, IMAGE, LSCE-IPSL, CEREGE
- ❖ Foreign labs involved = CNR / ISMAR La Spezia (IT), IMEDEA / Balearic Islands (ES)

## Expected results

- Quantification of dense water formation during a well defined year in the WMed Sea
- Identification of the key processes influencing the possible shifts in hydrological regime and ecosystem functioning
- An increased understanding of the dispersion and elemental stoichiometry of newly formed waters
- Understanding the organization/ structure of the pelagic ecosystems at (sub)mesoscale, with specific focus on the development of the spring bloom