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----- REFERRED PAPERS -----

Campbell, R., Diaz F., Hu, Z.Y., Doglioli, A.M., **Petrenko, A.A.**, Dekeyser, I., *Nutrients and plankton spatial distributions induced by a coastal eddy in the Gulf of Lion. Insights from a numerical model.* *Progr. Oceanogr.*, submitted. [see preprint](#)

Nencioli, F., D'Ovidio, F., Doglioli, A.M., **Petrenko, A.A.** (2011), *Surface coastal circulation patterns by in-situ detection of Lagrangian Coherent Structures.* *Geophys. Res. Lett.*, Vol.38, L17604, doi:10.1029/2011GL048815. [see preprint](#)

The MerMEX Group (2011), *Marine ecosystems' responses to climatic and anthropogenic forcings in the Mediterranean*, *FinO*, in press. [see preprint](#)

Hu, Z.H., **Petrenko, A.A.**, Doglioli, A.M., Dekeyser, I., *Numerical study of eddy generation in the western part of the Gulf of Lion.* *J. Geophys. Res.*, accepted. [see preprint](#)

Kersalé, M., Doglioli, A.M., **Petrenko, A.A.** (2011), *Sensitivity study of the generation of mesoscale eddies in a numerical model of Hawaii islands.* *Ocean Sci.*, 7, 277-291, doi : 10.5194/os-7-277-2011 . [see Open Access paper](#) or [see preprint](#)

Hu, Z.H., **Petrenko, A.A.**, Doglioli, A.M., Dekeyser, I. (2011), *Study of a mesoscale anticyclonic eddy in the western part of the Gulf of Lion.* *J. Mar. Syst.*, Vol.88/1, pp.3-11, doi: 10.1016/j.jmarsys.2011.02.008. [see preprint](#)

Hu, Z.H., Doglioli, A.M., **Petrenko, A.A.**, Marsalix, P., Dekeyser, I. (2009), *Numerical simulations of eddies in the Gulf of Lion.* *Ocean Model.*, Vol. 28/4, pp. 203-208, doi: 10.1016/j.ocemod.2009.02.004 . [see preprint](#)

Ouillon, S., Douillet P., **Petrenko A.**, Neveux J., Dupouy C., Froidefond J.-M., Munoz-Caravaca A. (2008), *Optical Algorithms at satellite wavelengths for Total Suspended Matter in tropical coastal waters.* *Sensors*, 8, 4165-4185, doi:10.3390/s8074165 , [see paper](#)

Petrenko A., C. Dufau and C. Estournel (2008), *Barotropic eastward currents in the western Gulf of Lion, north-western Mediterranean Sea, during stratified conditions.* *J. Marine Syst.*, doi:10.1016/j.jmarsys.2008.03.004 , [see paper](#)

Gatti, J., **Petrenko, A.**, Leredde, Y., Devenon, J.-L. & Ulses, C.(2006), *The Rhone river dilution zone present in the northeastern shelf of the Gulf of Lion in December 2003.* *Continental Shelf Res.*, 26 (15), 1794-1805, doi:10.1016/j.csr.2006.05.012 , [see paper](#)

Petrenko A., Y. Leredde, and P. Marsalix (2005), *Circulation in a stratified and wind-forced Gulf of Lions, NW Mediterranean Sea: in-situ and modeling data.* *Continental Shelf Res.*, 25, 5-27, doi:10.1016/j.csr.2004.09.004, [see paper](#)

Ouillon, S. and **Petrenko, A.** (2005), *Above-water measurements of reflectance and chlorophyll-a algorithms in the Gulf of Lions, NW Mediterranean Sea.* *Optics Express*, 13 (7), 2531-2548, doi:10.1364/OPEX.13.002531, [see paper](#)

Dufau-Julliand, C., Marsalix, P., **Petrenko A.**, Dekeyser, I. (2004), *Three-dimensional modeling of the Gulf of Lion's hydrodynamics (northwest Mediterranean) during January 1999 (MOOGLI3 Experiment) and late winter 1999: Western Mediterranean Intermediate Water's (WIW's) formation and its cascading over the shelfbreak.* *J. Geophys. Res.*, 109 (C11), C11002, doi:10.1029/2003JC002019. [see paper](#)

Terminé

Parcours

ENSTA
Environnement Marin

> 40 campagnes en mer
(de nombreuses « côtières »)
RedTide, CMO, MOOGLI, SARHYGOL,
BISSECOTE, LATEX -07, -08, -09 et -10,
Gascogne22, BioSWOTMed23, ...

+ formation embarquée avec étudiants
Campagnes PHYBIO depuis 2001

Etats-Unis
Scripps SIO, La Jolla (Master)
NOAA, Washington, DC (SeaGrant Fellow)
USC, Los Angeles (PhD)
OSU, Oregon (Post-doc)
DOE, Olympia – Seattle, Washington (PO)

+ Projets OUTPACE,
Coconet, OSCAHR,
GoLSWOT, PEACETIME,
FUMSECK, BIOSWOT, HOPE-VV ...

Marseille (Enseignant-Chercheur)
AMU – Aix Marseille Université
MIO - Mediterranean Institute of Oceanography

Master des Sciences
de la Mer; Co-Responsable
Océanographie Physique
et Biogéochimique (OPB)

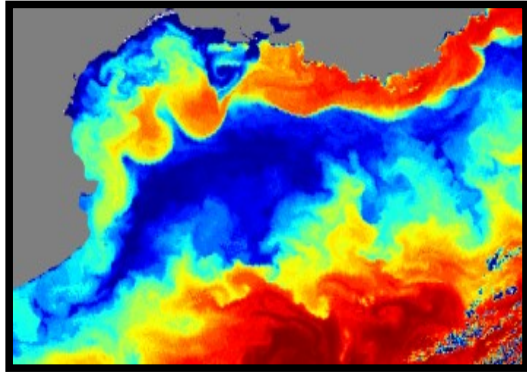
Thèses anciens étudiant(e)s OPB

- Maxime Arnaud (1^{er} oct 2023...)
- Caroline Comby (2020-23, 1 papier et 1 autre en review)
- Alain Fuménia 2017- 20 (post-doc CNES optique satellitale)
- Louise Rousselet 2015- 18 (fin thèse: 4 papiers dont 2 en premier auteur : JGR et Biogeosc.; post-doc Scripps, US)
- Marion Kersalé 2011-14 (Chercheur à Miami; NOAA, US)
- Ziyuan Hu 2008-2011 (Chercheur au « CNRS chinois »)
- Julie Gatti 2002-2006 (IR à Ifremer).

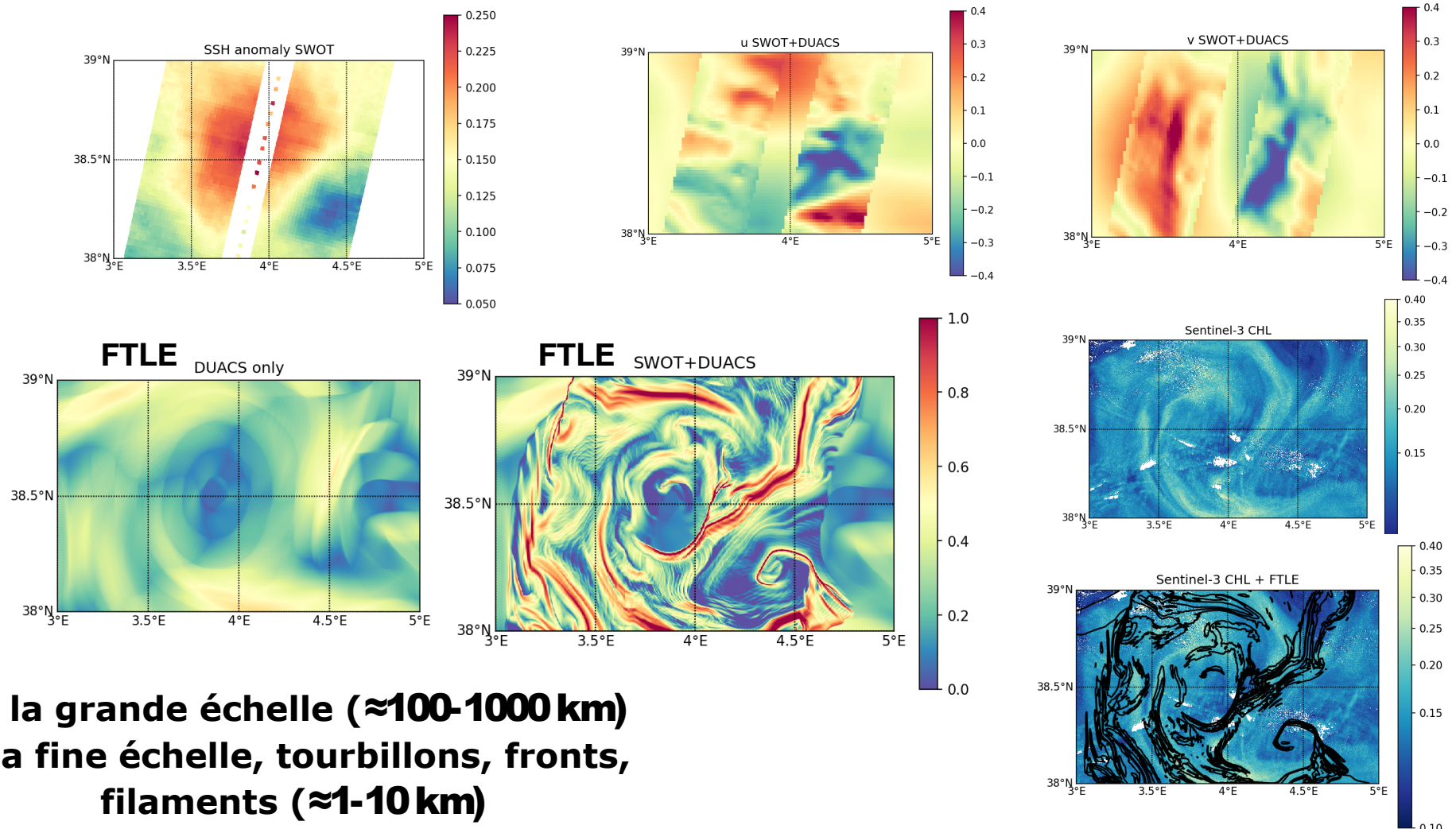
+ Thésards (autres origines):

- Hirohiti Raapoto 2014-18 (post-doc en Polynésie)
- Andrea Costa 2013-17 (post-doc Corée; IR Décathlon)

+ M2 2017 : Simon Barbot (thèse LEGOS IRD)

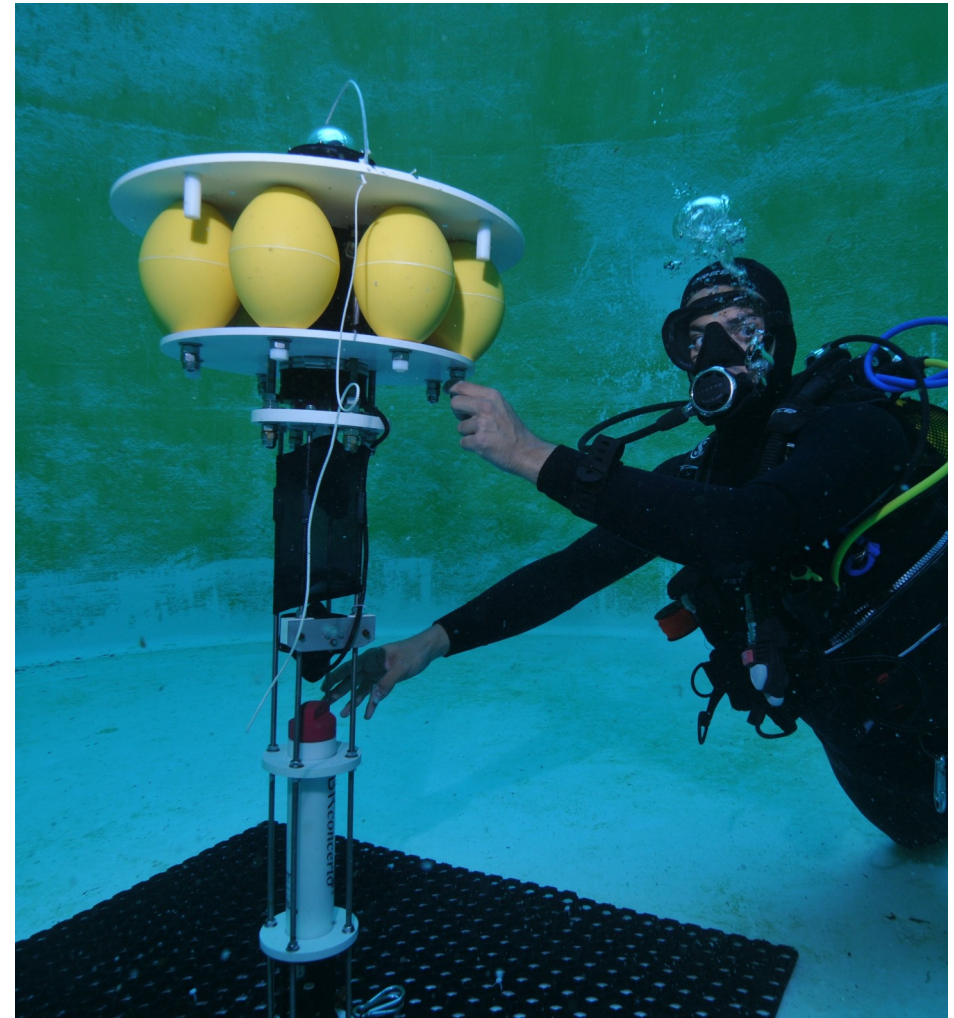


Processus physiques et impacts sur la biogéochimie



FUMSECK* -vv vertical velocities = w

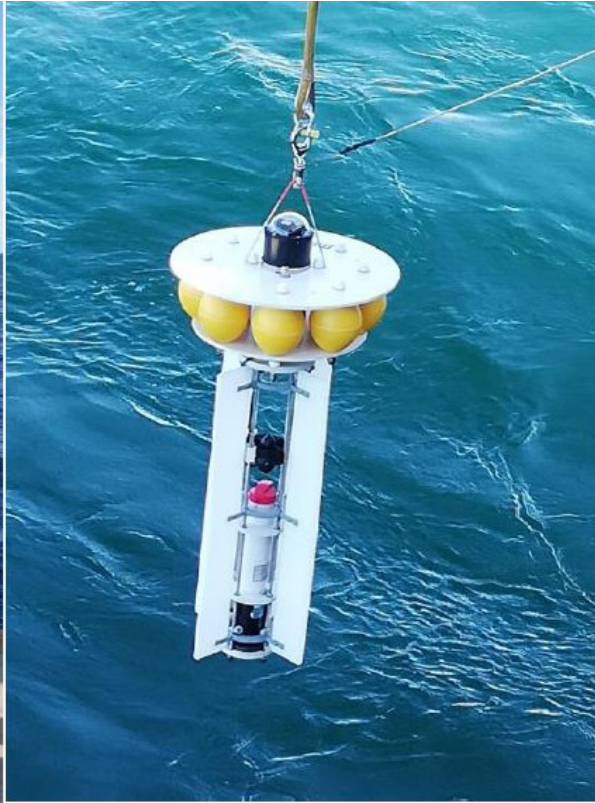
(PIs S. Barrillon et A. Petrenko; 2021- 2023)



*** FUMSECK (Facilities for Updating the Mediterranean Submesoscale – Ecosystem Coupling Knowledge (cruise May 2019 on Téthys II)**

[Comby et al., 2022 ; Barrillon et al., 2023]

FUMSECK* -vv vertical velocities = w (PIs S. Barrillon et A. Petrenko; 2021- 2023)



*** FUMSECK (Facilities for Updating the Mediterranean Submesoscale – Ecosystem Coupling Knowledge (cruise May 2019 on Téthys II)**

[Comby et al., 2022 ; Barrillon et al., 2023]

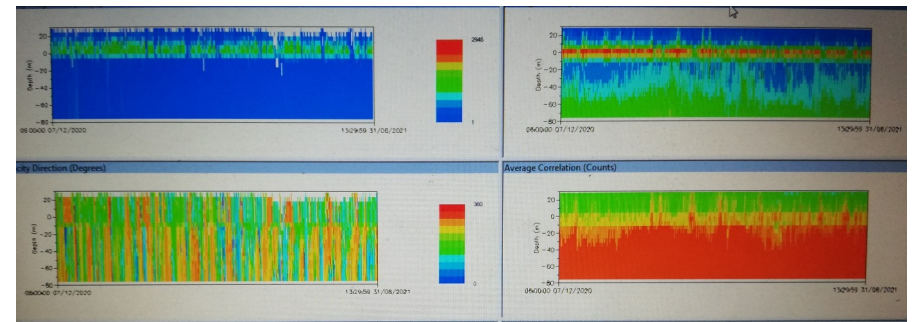
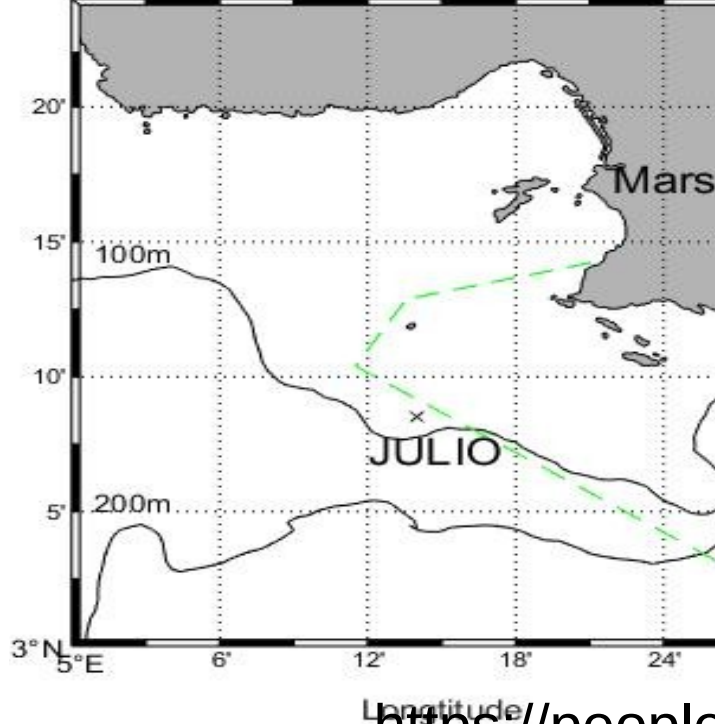
HOPE* -vv vertical velocities = w (A.Petrenko; 2023-2027) Smart buoy and cruises near Noumea



* HOPE = HOW Physical processes affect ocean CO₂ capture:
focus on Vertical Velocities

CO₂ capture by Trichodesmium

JULIO = JUDiciously Located for Intrusion Observation (PIs A.Petrenko et JL Fuda; 2020)

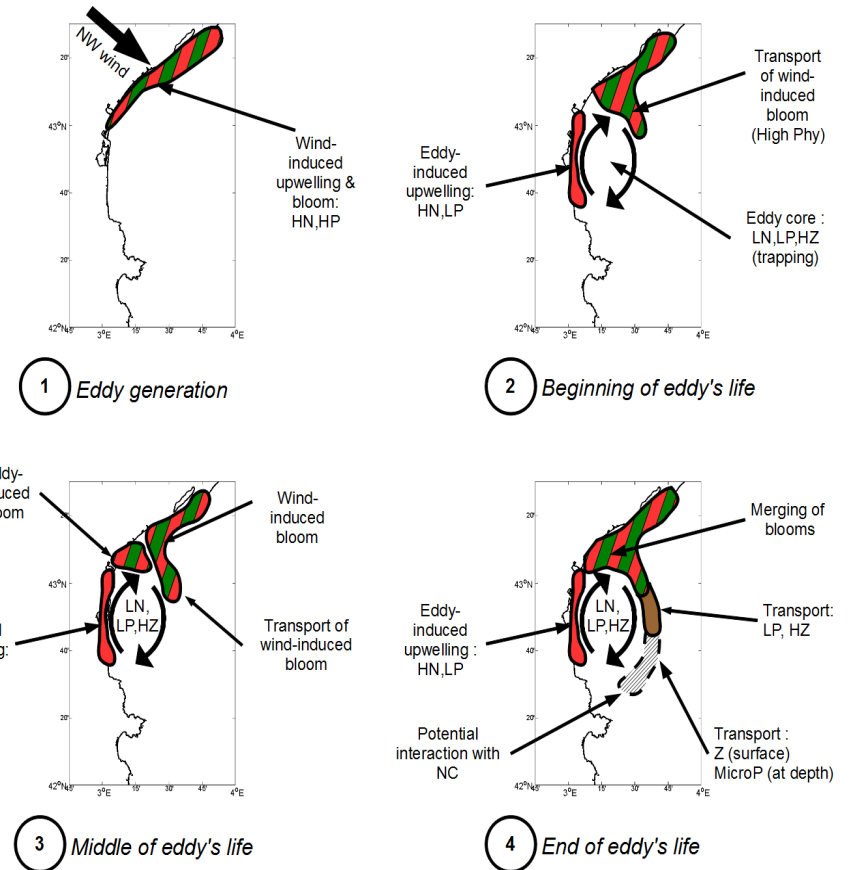
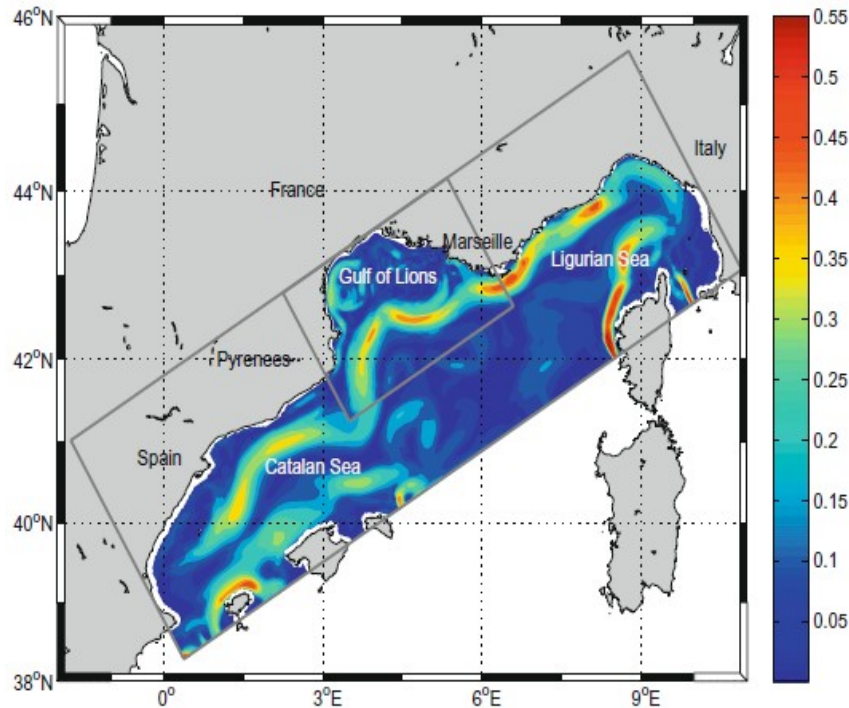


**Observation à long terme
Variabilité du CN avec le changement climatique ?**

[articles:

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LATEX (PIs A.Petrenko et F. Diaz) LAgrangian Transport EXperiment



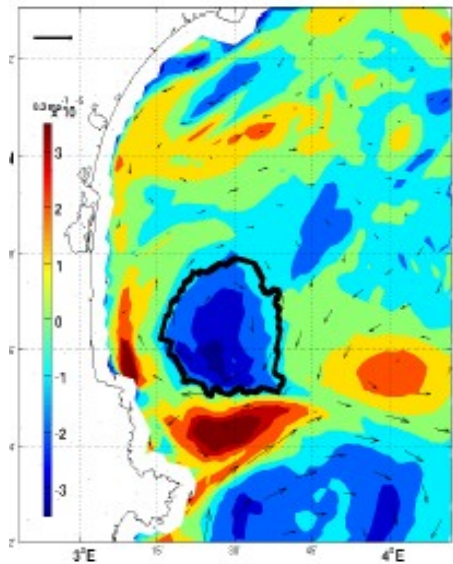
**Physical and Coupled physics-biogeochestry modeling
+ 3 cruises 2008, 2009 and a big cruise (2RVs) in 2010**

LATEX (PIs A. Petrenko et F. Diaz)

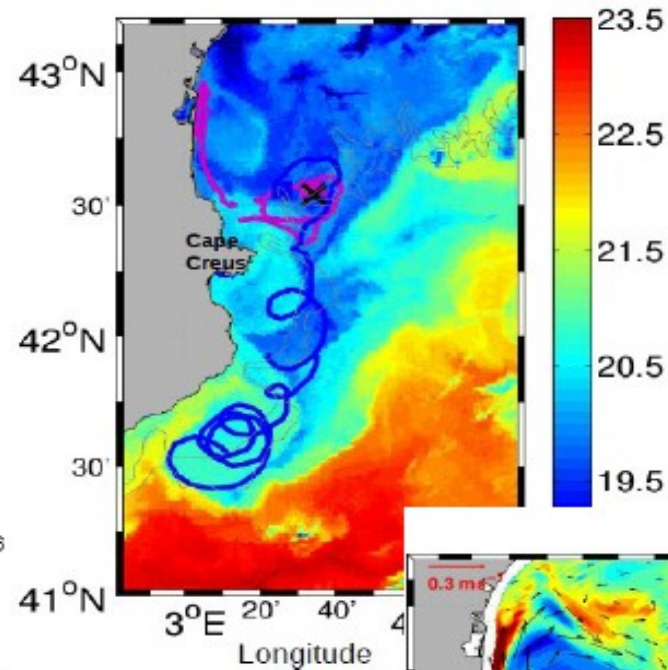
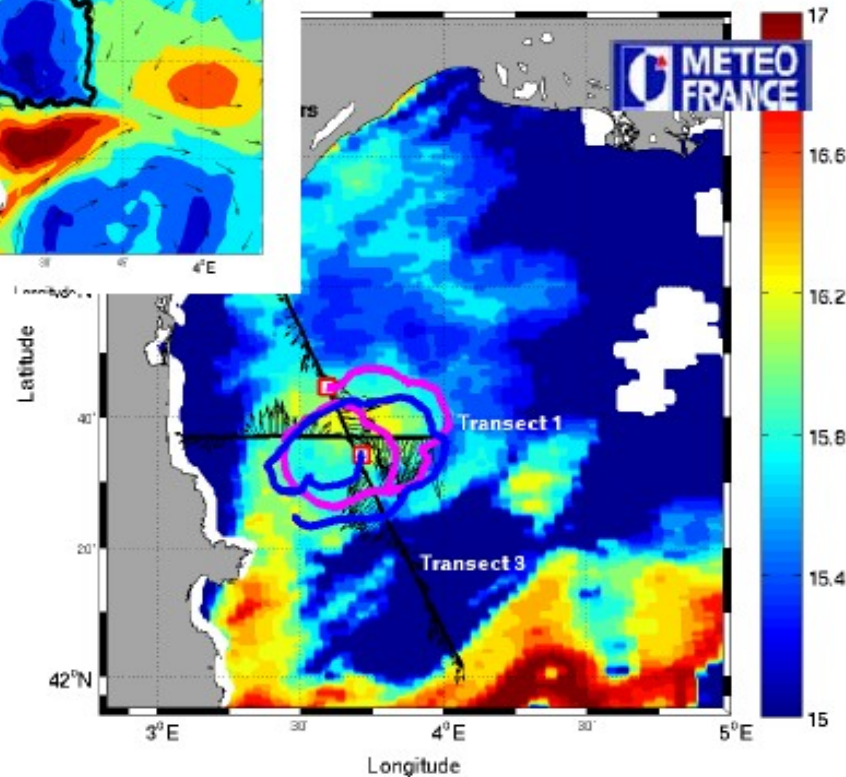
Lagrangian Transport EXperiment



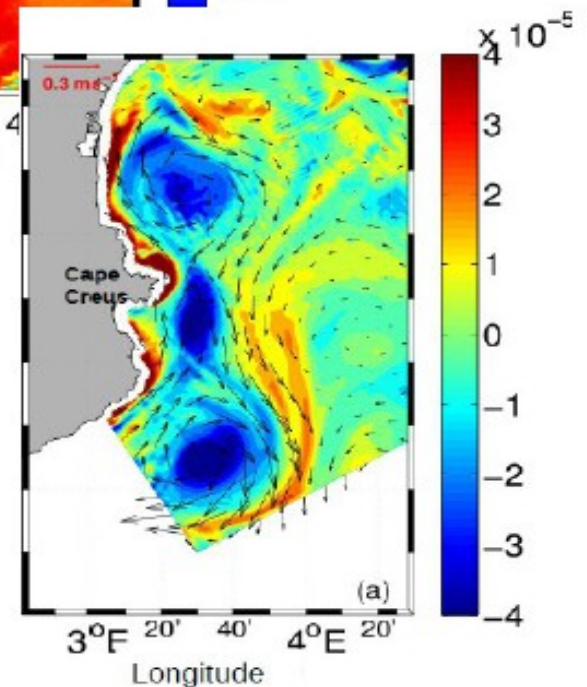
Latex08 & 09 cruises : anticyclonic eddies



**Latex08
eddy**



**Latex09
eddy
+transient
structure
+Catalan
eddy**



[Hu et al., JMS, 2011]

[Kersale et al., JGR, 2013]



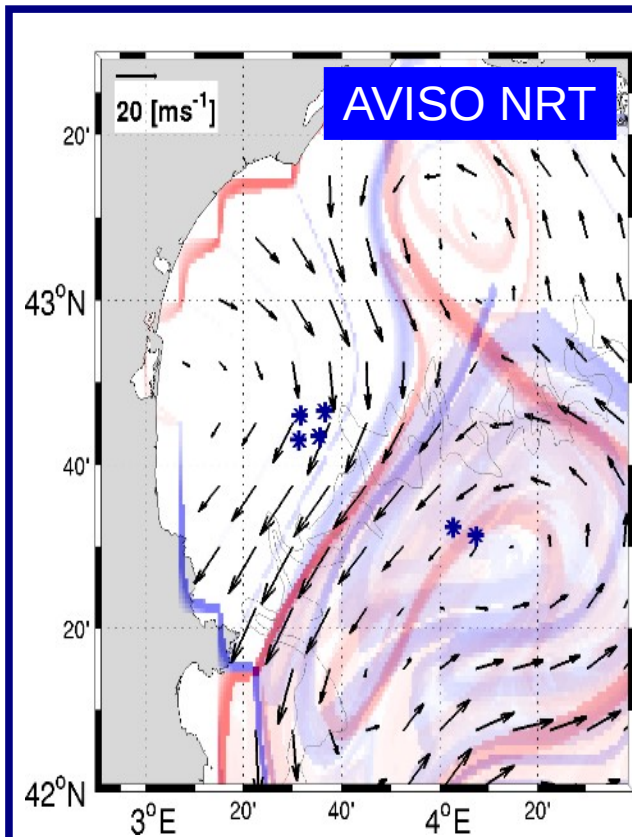
Latex10 cruise (1-24 septembre 2010)



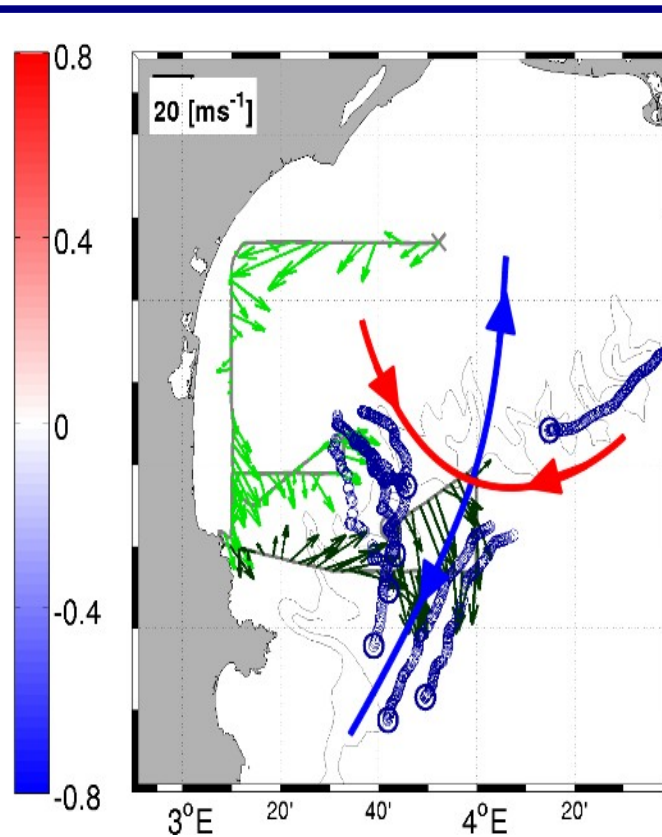
In-situ quasi real-time (with F. d'Ovidio) detection of Lagrangian Coherent Structures

LYAP(UNOV) 1

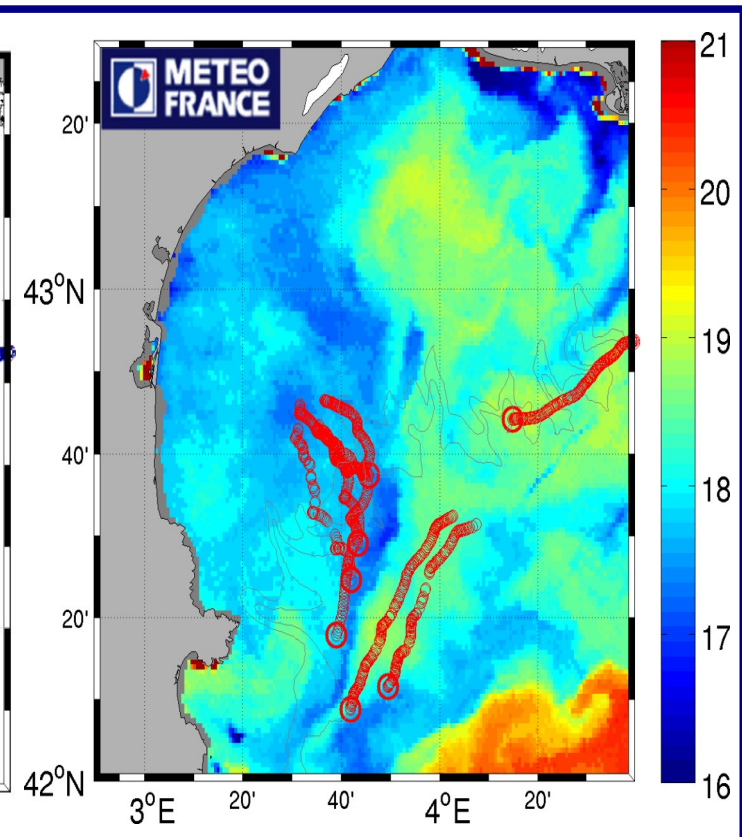
Altimetry LCS



In situ LCS



AVHRR SST

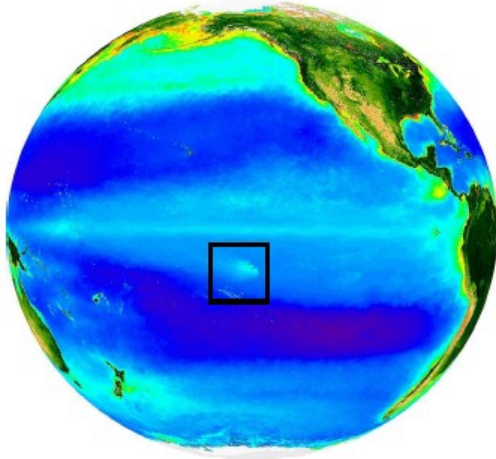


+ 2 other ones : LYAP 2 and LYAP 3

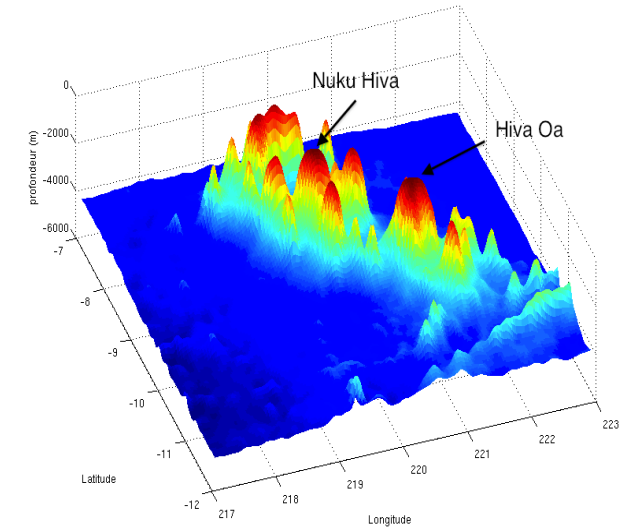
[Nencioli et al, GRL, 2011]



Island effect

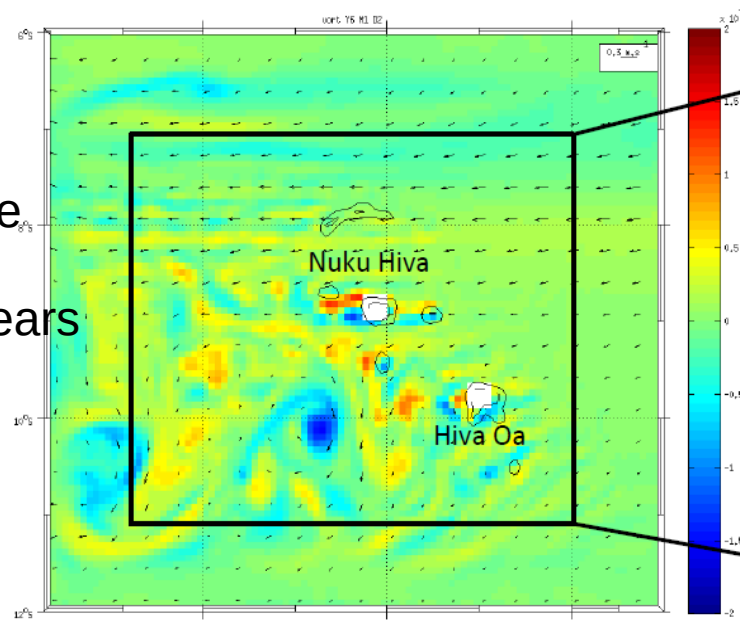


Objectives :
Dynamics of island wakes
Impacts on biogeochemistry
Wake eddies

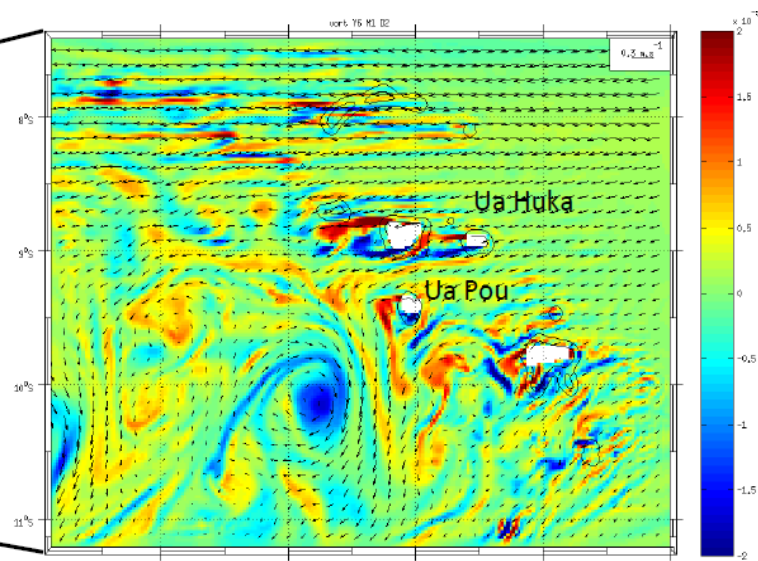


Scales :
Regional
to (sub) mesoscale
Climatological
with contrasting years

ROMS-AGRIF (users)



Champs de vorticité de la grille mère à 1/15°
(D02M01Y06)



Champs de vorticité de la grille fille à 1/45°
(D02M01Y06)

PhD thesis of Hirohiti Raapoto Sept 2018 Mention Très bien (+ félicitations orales du jury)
+ [Raapoto et al., JGR 2019; Raapoto et al., JGR 2018; + 1 revision]

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de Verneil A., Rousselet, L., Doglioli, A.M., **Petrenko, A.A.**, Moutin, T. (in review). *The Fate of a Southwest Pacific Bloom: Gauging the impact of submesoscale vs. mesoscale circulation on biological gradients in the subtropics*. Biogeosciences Discuss., doi:10.5194/bg-2017-84.

Costa, A., Doglioli, A.M., Marsaleix, P., **Petrenko A.A.** (submitted after revision). *Comparison of in situ microstructure measurements to different turbulence closure schemes in a 3-D numerical ocean circulation model*. Ocean Model. [see preprint](#)

Costa, A., **Petrenko, A.A.**, Guizien, K., Doglioli, A.M. (submitted after minor revision). *On the Calculation of Betweenness Centrality in Marine Connectivity Studies Using Transfer Probabilities*. PLoS ONE.

Cyr, F., Tedetti, M., Besson, F., Beguery, L., Doglioli, A.M., **Petrenko, A.**, Goutx, M. (2017). *A new glider-compatible optical sensor for dissolved organic matter measurements: test case from the NW Mediterranean Sea*. Front. Mar. Sci., 4:89, doi:10.3389/fmars.2017.00089.

Petrenko, A.A., Doglioli, A.M., Nencioli, F., Kersalé, M., Hu, Z., d'Ovidio, F. (2017). *A review of the LATEX project: mesoscale to submesoscale processes in a coastal environment*. Ocean Dynam., doi: 10.1007/s10236-017-1040-9. [see preprint](#). The final publication is available at Springer via <http://dx.doi.org/10.1007/s10236-017-1040-9>

Costa, A., **Petrenko, A.A.**, Guizien, K., Doglioli, A.M. (minor revision). *On the Calculation of Betweenness Centrality in Marine Connectivity Studies Using Transfer Probabilities*. PLoS ONE. [see preprint](#)

Rousselet, L., Doglioli, A.M., Maes, C., Blanke, B., **Petrenko, A.A.** (2016). *Impacts of mesoscale activity on the water masses and circulation in the Coral Sea*. J. Geophys. Res. Oceans, 121, 7277-7289, doi:10.1002/2016JC011861. [see preprint](#)

Nencioli, F., **Petrenko, A.A.**, Doglioli, A.M. (2016). *Diagnosing cross-shelf transport along an ocean front: an observational case study in the Gulf of Lion*. J. Geophys. Res. Oceans, 121, 7218-7243, doi:10.1002/2016JC011908. [see preprint](#)

Barrier, N., **Petrenko, A.A.**, Ourmières, Y. (2016). *Intrusions of the Northern Mediterranean Current on the eastern Gulf of Lion: insights from in-situ observations and high resolution numerical modelling*. Ocean Dynamics, 1-15. 10.1007/s10236-016-0921-7, [see preprint](#)

Kersalé, K., **Petrenko, A.A.**, Doglioli, A.M., Nencioli, F., Bouffard, J., Blain, S., Diaz, F., Labasque, T., Quéguiner, B., Dekeyser, I. (2016). *Diffusivity coefficients from the dynamics of a SF6 patch in a coastal environment*. J. Marine Syst., 2, 153, 42-54, doi:10.1016/j.jmarsys.2015.09.003 [see preprint](#), [article educational material in French](#)

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