

Curriculum Vitae : Joël Jean-Marie Sudre

Current Position : Research Engineer , IR2, CNRS

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Education :

- 1994 **D.E.U.G. des Sciences des Structures et de la Matière - Université d'Avignon et des pays de Vaucluse**
- 1996 **Licence de Sciences Physique** - Université de Provence (Aix-Marseille I),
1997 Military Service B.A.125 ISTRES
1998 **Maîtrise de Sciences de l'Environnement (option : Physique)** - Université de la Méditerranée (Aix-Marseille II)
- 1999 **D.E.A. de Sciences de l'Environnement Marin (option : O.P.C.L)** - Université de la Méditerranée (Aix-Marseille II)
- 2007 Chief Hyperbaric Operation, Chief Diver Scientist of CNRS and Professional Diver I-B.
2013 Ph. D. Thesis, mention: Ocean, Atmosphere and Continental surfaces at UT3, "Submesoscale circulation and top marine predators behaviour: contribution of multi-scale and multi-sensors analysis".

Professional experience :

- 1997-1998 Participation (2 x 15 days) for the ELISA (Eddies and Leddies Interdisciplinary Study off Algeria) cruises organised as part of the MAST 3-MATER European program. Oceanographic experience (CTD, XBT, mooring lines ...) and real-time cruise preparation using remote sensing NOAA/AVHRR.
- 1998 5 months work experience, co-supervised by Dr I. HERLIN and H. YAHIA of the I.N.R.I.A. AIR project, Rocquencourt ; and by Dr I. TAUPIER-LETAGE and C. MILLOT of the L.O.B, Toulon.
- 1999 8 months work experience, co-supervised by Dr I. HERLIN and H. YAHIA of the I.N.R.I.A. AIR project, Rocquencourt ; and by Dr I. TAUPIER-LETAGE and C. MILLOT of the L.O.B, Toulon.
- 2000 4 months contract at the L.O.B. Toulon (Dr C. MILLOT) for the S.H.O.M. (contract n° 99.87.046.00.470.29.25)
- 2000 -2001 15 month contract as an Ingénieur d'Etudes at L.E.G.O.S. to process Topex/Poseidon altimetric data and SeaWiFS ocean colour data.
- 2001-2015 Permanent position for the CNRS as Ingénieur d'Etudes at L.E.G.O.S. for scientific computing engineering and data bases associated.
- 2006 Participation for the DRAKE (ANTXXIII-3) cruise organised as part of CLIVAR international program. (Nutrients Measurements).

- 2007 Participation for the FLUSEC-1 cruise organised as part of the SPICE program. (CTD, XBT, Oxygen Measurements).
- 2008 Participation for the DRAKE (ANTXXIV-3) cruise organised as part of CLIVAR international program.(CTD, Thermosalinograph).
- 2009 Participation for the DRAKE (ANTXXV-4) cruise organised as part of CLIVAR international program.(CTD, Real Time Analysis).
- 2014 Participation for the AMOP cruise.(CTD, Real Time Analysis, satellites data analysis).
- 2016→ Permanent position for the CNRS as Research Engineer at L.E.G.O.S. for scientific computing engineering and data bases associated.

Teaching activities:

- 2004→ BS de l'école de Marins Météorologiste-Océanographe :Physical Oceanography/ Dynamic Oceanography .
- 2007-2013 Technicien Supérieur d'Exploitation 2ème Année de l'Ecole Nationale de la Météorologie : Oceanography
- 2009-2013 BAT de l'école de Marins Météorologiste-Océanographe : Physical Oceanography
- 2014→ Technicien des Métiers de la Météorologie : Descriptive and physical Oceanography

Publications :

Neufeld, Z., P. Haynes, V. Garçon, **J. Sudre**, 2002, Ocean fertilization experiments may initiate a large scale phytoplankton bloom, *Geophysical Research Letters*, Vol. 29 (11), doi:10.1029/2001GL013677

Llido J., Machu E., **Sudre J.**, Dadou I. and Garçon V., 2004, Variability of the biological front south of Africa from SeaWiFS and a coupled physical-biological model, *Journal of Marine Research*, Vol. 62, 595-609

Pottier C., Céron JP., **Sudre J.**, Dadou I., Belamari S., Garçon V., 2004, Dominant propagating signals in sea level anomalies in the Southern Ocean, *Geophysical Research Letters*, Vol.31, doi:10.1029/2004GL019565

Birol F., Morrow R., Griffin D., **Sudre J.**, 2004, Divergent pathways of cyclonic and anti-cyclonic ocean eddies, *Geophysical Research Letters*, Vol. 31, doi:10.1029/2004GL020974

Llido J., Garçon V., Lutjeharms J.R.E. and **Sudre J.**, 2005, Event-scale blooms drive enhanced primary productivity at the Subtropical Convergence, *Geophysical Research Letters*, Vol. 32, doi:10.1029/2005GL022880

Girard, C., **Sudre J.**, Benhamou S., Roos D., Luschi P., 2006, Homing in green turtles *Chelonia mydas*: oceanic currents act as a constraint rather than an information source? *Marine Ecology Progress Series*, Vol. 322, 281-289

Pottier, C., V. Garçon, G. Larnicol, **J. Sudre**, P. Schaeffer, P.-Y. Le Traon, 2006, Merging SeaWiFS and MODIS/Aqua Ocean Color Data in North and Equatorial Atlantic Using Weighted Averaging and Objective Analysis, *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 44, (11), Part 2, 3436-3451, doi:10.1109/TGRS.2006.878441

Luschi, P., Benhamou S., Girard, C., Ciccione S., Ross D., **Sudre J.**, Benvenuti S., 2007, Marine Turtles use geomagnetic cues during open-sea homing, *Current Biology*, Vol. 17, 126-133

Lacombe M., Garçon V., Comtat M., Oriol L., **Sudre J.**, Thouron D., Le Bris N., Provost C. , 2007, Silicate determination in sea water : toward a reagentless electrochemical method, *Marine Chemistry*, Vol. 106, 489-497, doi:10.1016/j.marchem.2007.05.002

Sudre J., Morrow R., 2008, Global surface currents: A high-resolution product for investigating ocean dynamics, *Ocean Dynamics*, Vol. 58 (2), 101-118, doi:10.1007/s10236-008-0134-9

Rossi V., Lopez C., **Sudre J.**, Hernandez-Garcia E., Garçon V., 2008, Comparative study of mixing and biological activity of the Benguela and Canary upwelling systems, *Geophysical Research Letters*, Vol. 35, L11602, doi:10.1029/2008GL033610

Rossi V., Lopez C., Hernandez-Garcia E., **Sudre J.**, Garçon V. and Morel Y., 2008, Surface mixing and biological activity in the four Eastern Boundary Upwelling Systems, *Nonlinear Processes in Geophysics*, Vol. 16 , 557-568

Tew Kai E., Rossi V., **Sudre J.**, Weimerskirch H., Lopez C., Hernandez-Garcia E., Marsac F. and Garçon V., 2009, Top marine predators track Lagrangian coherent structures, *Proceedings of the National Academy of Sciences*, Vol. 106 (20), 8245-8250, doi:10.1073/pnas.0811034106

Yahia H., **J. Sudre**, C. Pottier and V. Garçon, 2010, Motion analysis in oceanographic satellite images using multiscale methods and the energy cascade, *Pattern Recognition*, Vol. 43 (10), 3591-3604, doi:10.1016/j.patcog.2010.04.011

Maes C., **J. Sudre** and V. Garçon, 2010, Detection of the Eastern Edge of the Equatorial Pacific Warm Pool Using Satellite-Based Ocean Color Observations, *Scientific Online Letters on the Atmosphere*, Vol. 6, 129-132, doi:10.2151/sola.2010-033

Sudre J., Garçon V., Provost C., Sennechael N., Huhn O. and Lacombe M., 2011, Short-term variations of deep water masses in Drake Passage revealed by a multiparametric analysis of the ANT-XXIII/3 bottle data, *Deep Sea Research Part II: Topical Studies in Oceanography*, Elsevier, 2011, 58 (25-26), pp.2592-2612, doi:10.1016/j.dsr2.2011.01.005.

C. Provost , A. Renault , N. Barré ,N. Sennéchael , V. Garçon , **J. Sudre** and O. Huhn, 2011, Two repeat crossings of Drake Passage in austral summer 2006: Short-term variations and evidence for considerable ventilation of intermediate and deep waters, *Deep Sea Research Part II*, 58, 25 – 26, 2555-2572.

S. K. Maji, H. Yahia, O. Pont T. Fusco, V. Michau and **J. Sudre**, 2011. A multiscale approach to phase reconstruction for Adaptive Optics IEEE 2011 10th International Workshop on Electronics, Control, Measurement and Signals (ECMS 2011), June 1-3, 2011, Liberec, Czech Republic.

Benhamou S, **Sudre J**, Bourjea J, Ciccione S, De Santis A, et al. (2011) The Role of Geomagnetic Cues in Green Turtle Open Sea Navigation. *PLoS ONE* 6(10): e26672. doi:10.1371/journal.pone.0026672

J. Sudre, C. Maes, and V. Garçon: 2013, On the global estimates of geostrophic and Ekman surface currents, *Limnology and Oceanography : Fluid and Environment*, 2013, 3, pp.1-20. doi:10.1215/21573689-2071927

C. Maes, B. Dewitte, **J. Sudre**, V. Garçon, D. Varillon, 2013, Small-scale features of temperature and salinity surface fields in the Coral Sea, *Journal of Geophysical Research-Oceans*, 2013, 118 (10), pp.5426-5438., doi:10.1002/jgrc.20344

E. Gutknecht, I. Dadou, B. Le Vu, G. Cambon, **J. Sudre**, V. Garçon, E. Machu, T. Rixen, A. Kock, A. Flohr, A. Paulmier, G. Lavik, 2013, Coupled physical/biogeochemical modeling including O₂-dependent processes in the Eastern Boundary Upwelling Systems: application in the Benguela, *Biogeosciences*, European Geosciences Union (EGU), 2013, 10, pp.3559-3591. doi:10.5194/bg-10-3559-2013.

E. Gutknecht, I. Dadou, P. Marchesiello, G. Cambon, B. Le Vu, **J. Sudre**, V. Garçon, E. Machu, T. Rixen, A. Kock, A. Flohr, A. Paulmier, G. Lavik, 2013, Nitrogen transfers off Walvis Bay: a 3-D coupled physical/biogeochemical modeling approach in the Namibian upwelling system, *Biogeosciences*, European Geosciences Union (EGU), 2013, 10, pp.4117-4135, doi:10.5194/bg-10-4117-2013.

V. Rossi, A. Schaeffer, J. Wood, G. Galibert, B. Morris, **J. Sudre**, M. Roughan, A. M. Waite, 2014, Seasonality Of Sporadic Physical Processes Driving Temperature And Nutrient High-Frequency Variability In The Coastal Ocean Off Southeast Australia, *Journal of Geophysical Research-Oceans*, 2014, 119 (1), pp.445-460, doi:10.1002/2013jc009284.

M. Dalleau, S. Benhamou, **J. Sudre**, S. Ciccione, J. Bourjea, 2014, The spatial ecology of juvenile loggerhead turtles (*Caretta caretta*) in the Indian Ocean sheds light on the "lost years" mystery, *Marine Biology*, Springer Verlag (Germany), 2014, 161 (6), pp.1-15, doi:10.1007/s00227-014-2465-z.

J. Sudre et al., Ocean turbulent dynamics at super resolution from optimal multi-resolution analysis and multiplicative cascade. En révision, soumis à IEEE transaction on geoscience and remote sensing, 2015, 53(11), pp. 12, doi :10.1109/TGRS.2015.2436431.

I. Hernández-Carrasco, **J. Sudre** et al., Reconstruction of super-resolution fields of ocean pCO₂ and air-sea fluxes of CO₂ from satellite imagery in the Southeastern Atlantic, *Biogeoscience*, 2015, 12, pp. 5229-5245, doi:10.5194/bg-12-5229-2015.

Reports:

Weller, G., P.Y. Le Traon, V. Garçon, **J. Sudre**, C. Millot, D. Antoine, 2000, Etude sur l'application de la couleur de l'eau à l'observation et la modélisation de la circulation océanique à mésoéchelle. Rapport final du contrat S.H.O.M. (n° 99.87.046.00.470.29.25), 73 pp.

Maes, C., G. Eldin, A. Melet, J. Lefèvre, **J. Sudre**, D. Varillon, A. Ganachaud and L. Gourdeau, 2009, Oceanographic mission report for the FLUSEC-01 onboard N. O. Alis during 12-30 August 2007 in Coral sea, South-East Pacific Ocean, IRD Center of Nouméa, New Caledonia, no 24, 98 pp.

J. Sudre, 2013, Ph. D. Thesis : « Circulation submésoséchelle et comportements des prédateurs marins supérieurs : Apport de l'analyse multiéchelle et multi-capteurs », 413pp.

Outreach:

Sudre, J., and V. Garçon, 2002. Le risque d'invasion de l'efflorescence. Pour la Science, Vol. 301, p. 32

Maes, C., A. Vega, and **J. Sudre**, 2006, Hydroclimatic conditions in the southwest Pacific Ocean, In Compendium of marine species from New Caledonia, edited by C. Payri and B. Richer de Forges, documents scientifiques et techniques, Vol. II7, centre de Nouméa, 49-59 pp.