

*GEOTRACES SSC meeting, Goa, India, 29-31 October 2012*

## **French GEOTRACES report**

Sarthou G.<sup>1</sup>, Jeandel C.<sup>2</sup>, Masferrer E.<sup>2</sup>

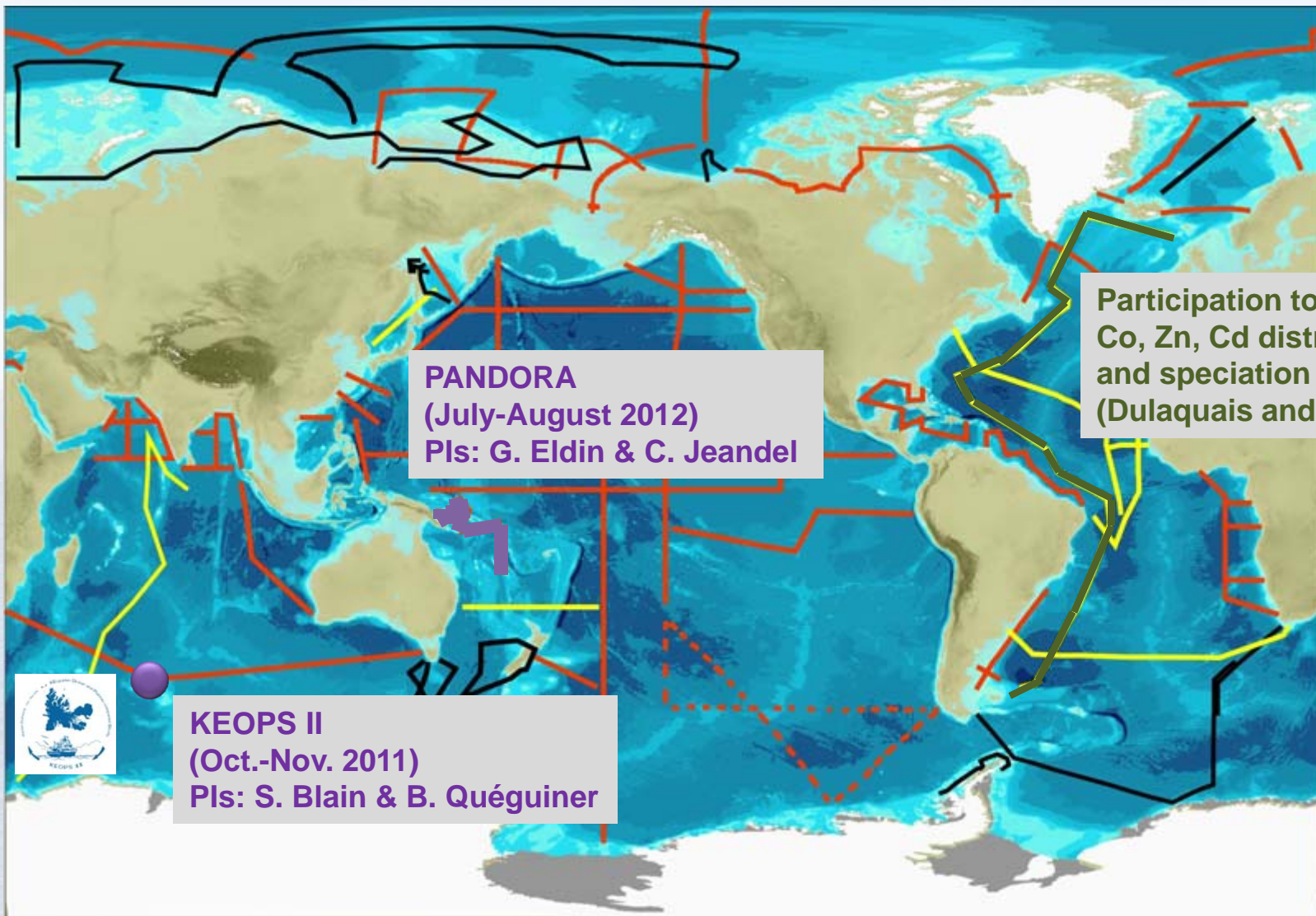


<sup>1</sup>LEMAR-UMR 6539,  
Plouzané, France



<sup>2</sup>LEGOS-UMR 5566,  
Toulouse, France

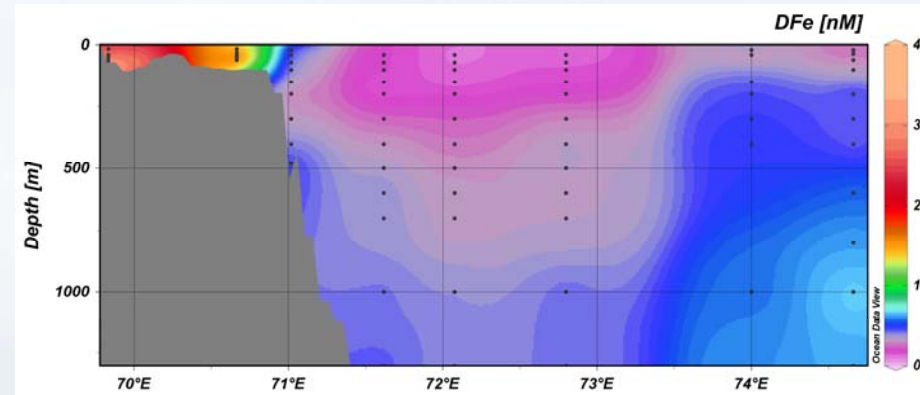
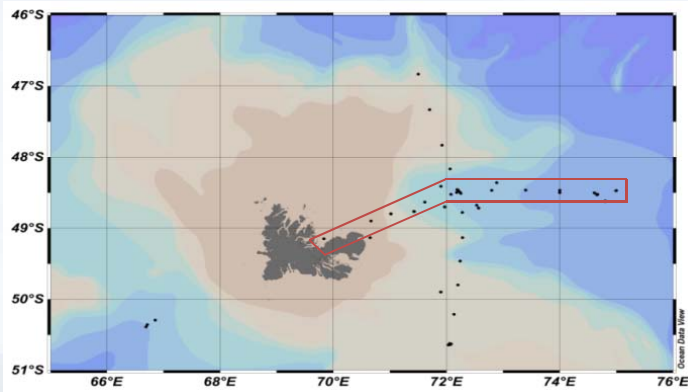
## Two cruises led by the French community





# The KEOPS 2 process study (Oct.-Nov. 2011)

## Pre-bloom conditions, sources and transport of Fe, and impact on biological activity



Quéroué et al., unpubl. Data  
Collaboration A. Bowie et al. UTAS

Fe fertilisation above the Plateau

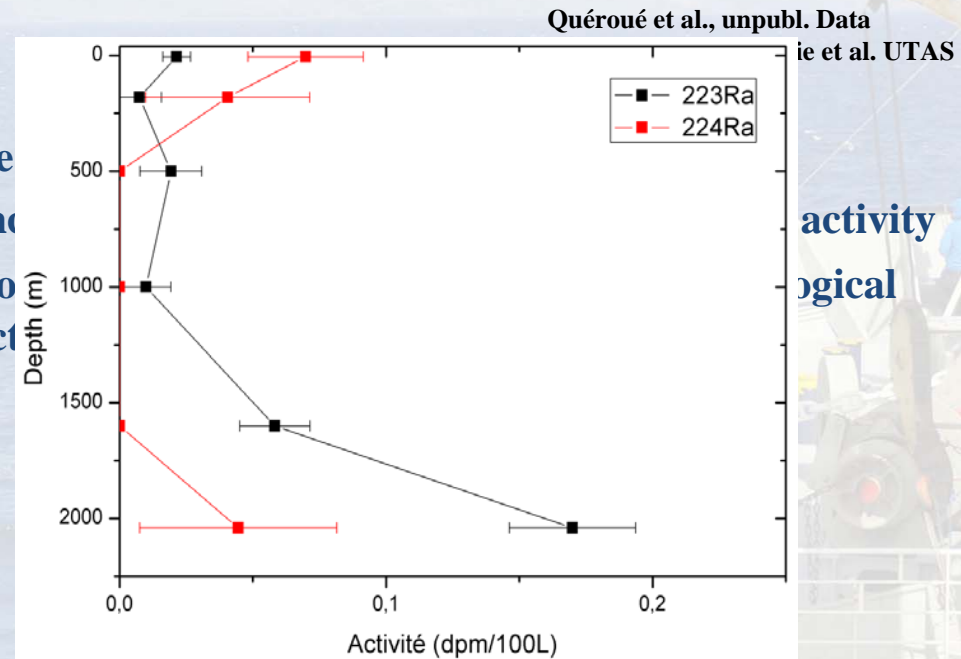
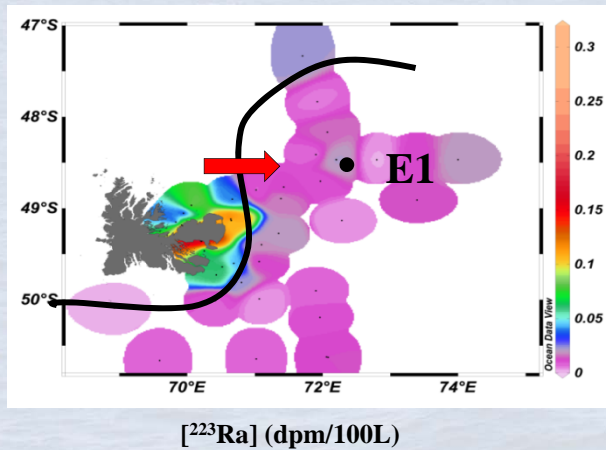
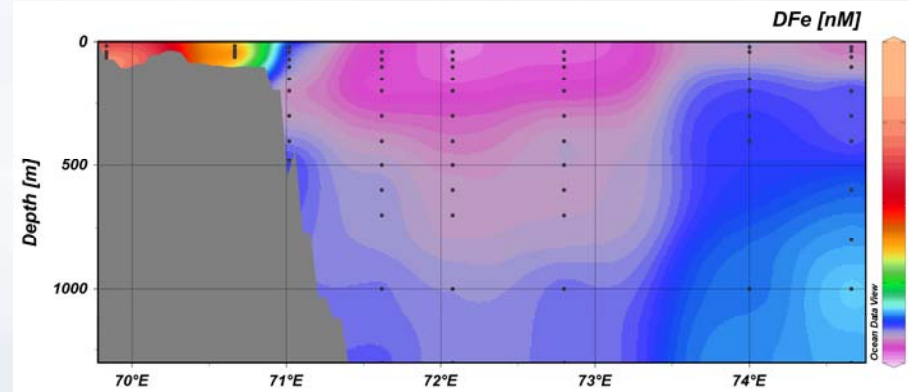
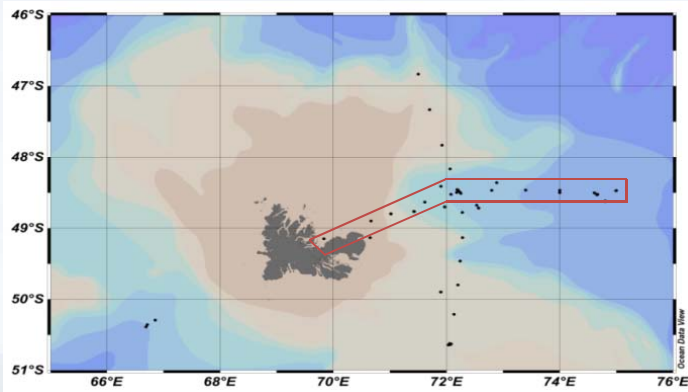
Increase in [dFe] in the PFZ – high biological activity

Low [dFe] in a mesoscale structure – low biological activity



# The KEOPS 2 process study (Oct.-Nov. 2011)

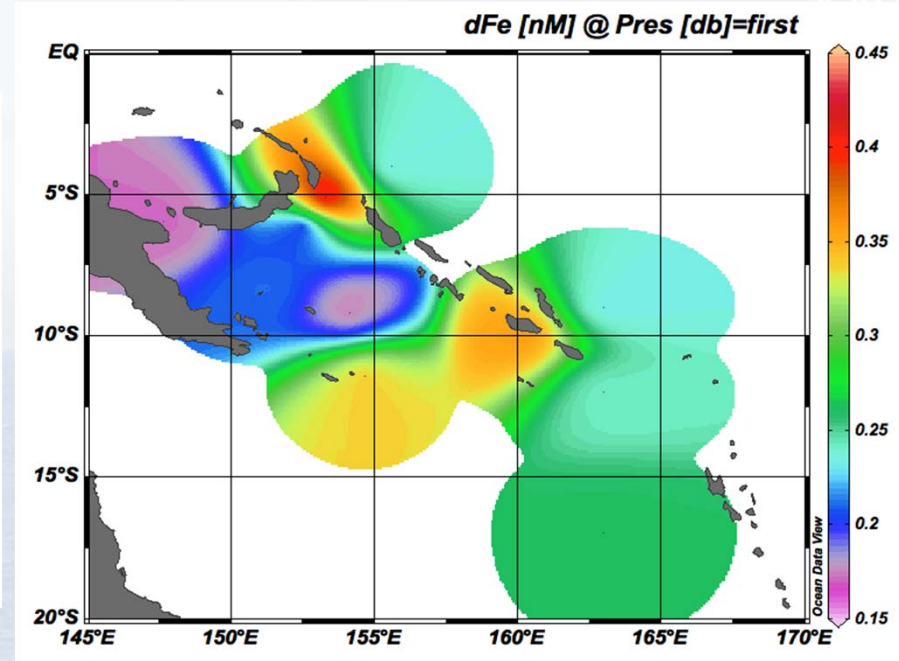
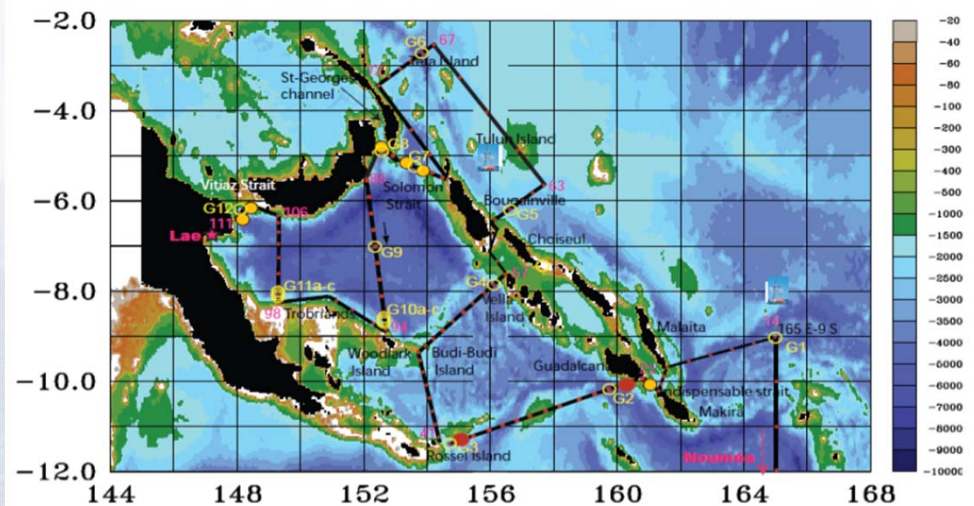
## Pre-bloom conditions, sources and transport of Fe, and impact on biological activity



Courtesy of V. Sanial et al. (unpubl., 2012)

# The PANDORA GP12 section (Jul.-Aug. 2012)

Better understanding of the inflow, outflow and circulation within the Solomon Sea, as well as geochemical sources and water mass transformations along its pathway to the Equator

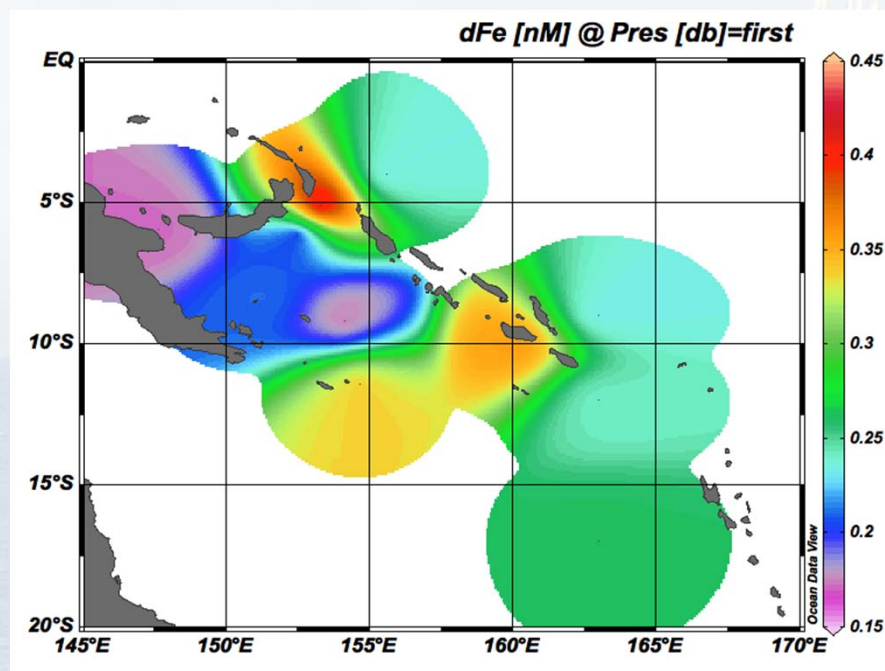
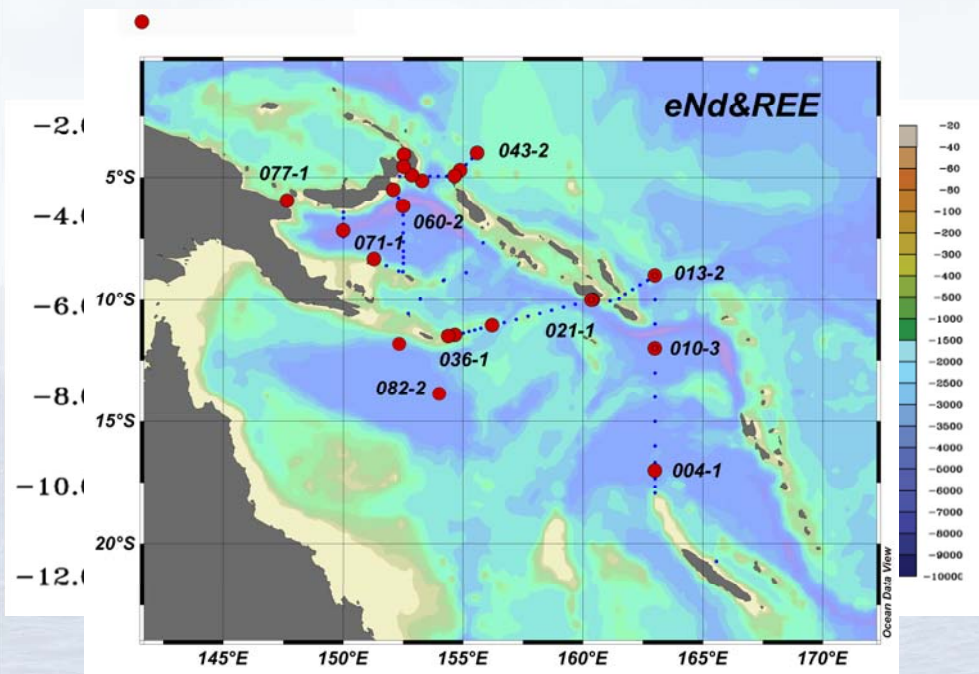


Qu erou  et al., unpubl. Data  
Collaboration A. Bowie et al. UTAS

**Main Fe source: North-East, Salomon Strait**  
**Low [dFe], North-West, Vitiaz Strait**

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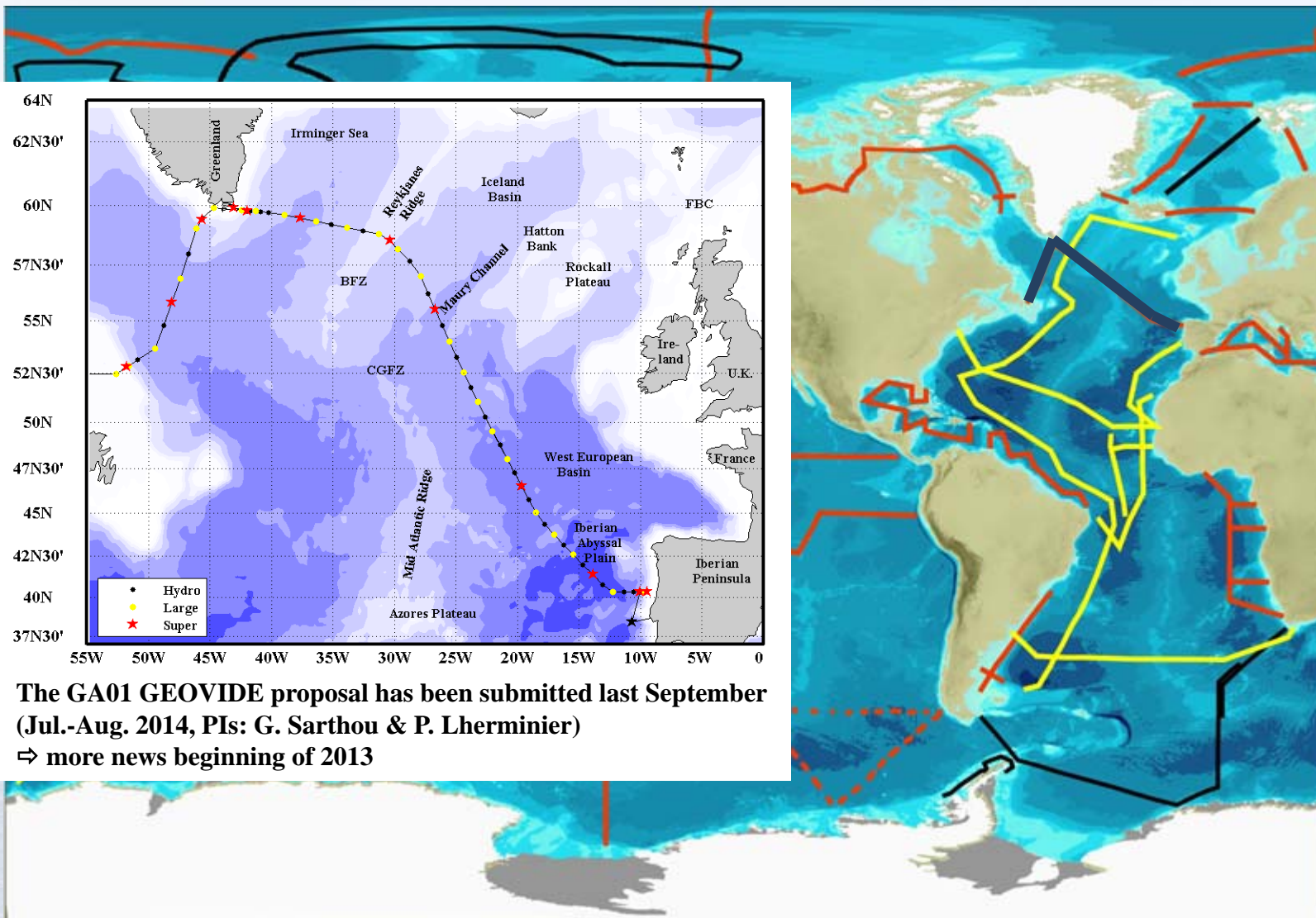


Qu erou  et al., unpubl. Data  
Collaboration A. Bowie et al. UTAS

Nd, REEs, Ra and Fe isotopes will help to better constrain the Fe sources

**Main Fe source: North-East, Salomon Strait**  
**Low [dFe], North-West, Vitiav Strait**

# GA01 GEOVIDE proposal



# Meetings/Training schools

**Ocean and climate change**, May 2011 and 2012, Paris, organized by E. Bard

**Radiocarbon 2012**, July 2012, UNESCO, Paris, July 2012, co-organized by C. Hatté, M. Massault, C. Moreau, C. Oberlin, N. Tisnérat-Laborde, H. Treidel, and A. Zazzo

**Land-Ocean Connectivity - from Hydrological to Ecological Understanding of Groundwater Effects in the Coastal Zone**, A Europole Mer Gordon-like Conference, September 2012, AberWrac'h, co-organized by T. Stigletz.

**COST-GEOTRACES Training School “Are your GEOTRACES Data reliable?”**, Bruxelles, 30 May- 1 June 2012, co-organized by D. Cardinal

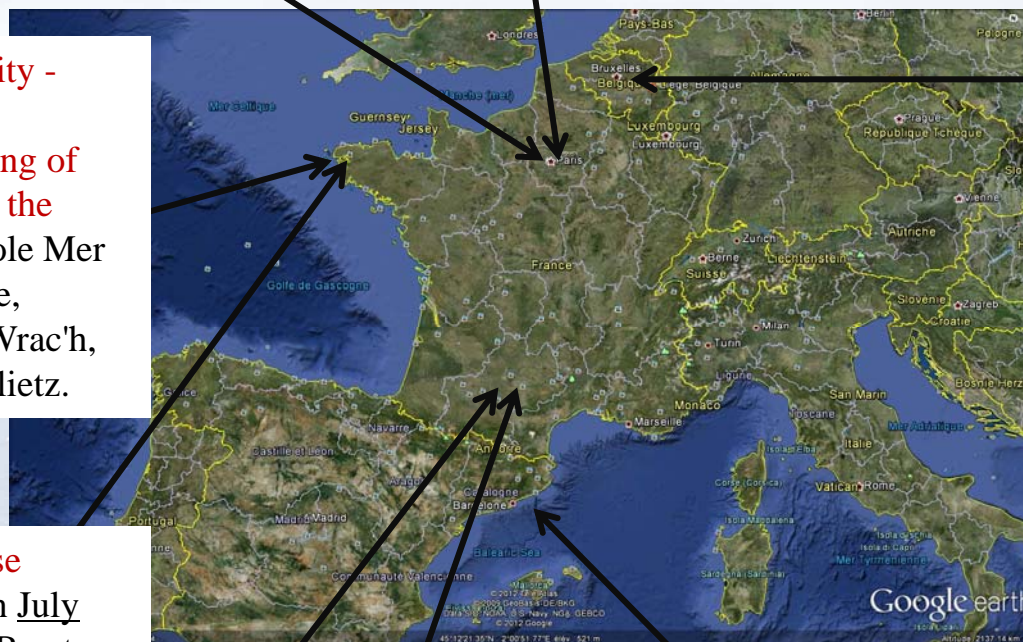
**8 meetings and one training school related to GEOTRACES activities were (co-) organized**

**GA01 GEOVIDE Cruise Proposal Preparation**, in July 2011 and March 2012, Brest, organized by G. Sarthou, C. Jeandel and F. Lacan

**2<sup>nd</sup> GEOTRACES Mediterranean Workshop**, October 2011, Toulouse, organized by GEOTRACES-France

**EUR-OCEANS Conference on Ocean Deoxygenation**, October 2011, Toulouse, France

**GEOTRACES Data-Model Synergy Workshop**, Barcelona, November 2011, member of the Planning Group C. Jeandel and coordination together with R. Sherrell of the Synthesis Document for this Workshop





# Participation to meetings/training school



# Publications

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**19 publications** in 2011-2012 (12 as first authors)

In 13 different journals (IF 2.0 – 4.6)



# Publications

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**19 publications** in 2011-2012 (12 as first authors)

In 13 different journals (IF 2.0 – 4.6)

Many thanks to the French *GEOTRACES* community!

Thanks for your attention!



# Publications

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- 1-Bown, J., Boye, M., Baker, A., Duveilbourg, E., Lacan, F., Le Moigne, F., Planchon, F., et al. (2011). The biogeochemical cycle of dissolved cobalt in the Atlantic and the Southern Ocean south off the coast of South Africa. *Marine Chemistry*, 126(1-4), 193-206. DOI: 10.1016/j.marchem.2011.03.008
- 2-Bown J., Boye, M., Nelson, D.M. (2012), New insights on the role of organic speciation in the biogeochemical cycle of dissolved cobalt in the southeastern Atlantic and the Southern Ocean. *Biogeosciences*, 9, 2719-2736, doi:10.5194/bg-9-2719-2012
- 3-Boye, M., Wake, B.D., Lopez Garcia, P., Bown, J., Baker, A.R., Achterberg, E.P. (2012), Distributions of dissolved trace metals (Cd, Cu, Mn, Pb, Ag) in the southeastern Atlantic and the Southern Ocean. *Biogeosciences*, 9, 3232-3246, doi:10.5194/bg-9-3231-2012
- 4-Boyle E.A., John S., Abouchami W., Adkins J.F., Echegoyen-Sanz Y., Flegal R., Fornace K., Gallon C., Galer S., Gault-Ringold M., Lacan F., Radic A., Rehkamper M., Rouxel O., Sohrin Y., Stirling C., Vance D., Xue Z., Zhao Y. 2012. GEOTRACES IC1 (BATS) contamination-prone trace element isotopes Cd, Fe, Pb, Zn, Cu, and Mo intercalibration. *Limnology and Oceanography Methods*, 10:653-665, DOI: 10.4319/lom.2012.10.653
- 5-Cheize, M., Sarthou, G., Croot, P.L., Bucciarelli, E., Baudoux, A.-C. and Baker, A.R., Iron organic speciation determination in rainwater using cathodic stripping voltammetry, in press. *Anal. Chim. Acta*, <http://dx.doi.org/10.1016/j.aca.2012.05.011>
- 6-Cossa, D., Heimbürger, L.-E., Lannuzel, D., Rintoul, S. R., Butler, E. C. V., Bowie, A. R., Averty, B., et al. (2011). Mercury in the Southern Ocean. *Geochimica et Cosmochimica Acta*, 75(14), 4037-4052. DOI: 10.1016/j.gca.2011.05.001
- 7-Dencausse, G., Arhan, M., & Speich, S. (2011). Is there a continuous Subtropical Front south of Africa? *Journal of Geophysical Research*, 116(C2). AMER GEOPHYSICAL UNION. DOI: 10.1029/2010JC006587
- 8-Faure, V., Arhan, M., Speich, S., & Gladyshev, S. (2011). Heat budget of the surface mixed layer south of Africa. *Ocean Dynamics*, 61(10), 1441-1458. DOI: 10.1007/s10236-011-0444-1
- 9-Fripiat, F., Cavagna, A.-J., Dehairs, F., Speich, S., André, L., & Cardinal, D. (2011). Silicon pool dynamics and biogenic silica export in the Southern Ocean inferred from Si-isotopes. *Ocean Science*, 7(5), 533-547. COPERNICUS GESELLSCHAFT MBH. DOI: 10.5194/os-7-533-2011

# Publications

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- 10-González-Dávila, M., Santana-Casiano, J. M., Fine, R. A., Happell, J., Delille, B., & Speich, S. (2011). Carbonate system in the water masses of the Southeast Atlantic sector of the Southern Ocean during February and March 2008. *Biogeosciences*, 8(5), 1401-1413. COPERNICUS GESELLSCHAFT MBH. DOI: 10.5194/bg-8-1401-2011
- 11-Jeandel, C., Peucker-Ehrenbrink, B., Jones, M. T., Pearce, C. R., Oelkers, E. H., Godderis, Y., Lacan, F., et al. (2011). Ocean margins: The missing term in oceanic element budgets? *Eos, Transactions American Geophysical Union*, 92(26), 217. American Geophysical Union. DOI: 10.1029/2011EO260001
- 12-Jeandel, C., Venchiarutti, C., Bourquin, M., Pradoux, C., Lacan, F., van Beek, P. and Riotte, J. (2011), Single Column Sequential Extraction of Ra, Nd, Th, Pa and U from a Natural Sample. *Geostandards and Geoanalytical Research*, 35: doi: 10.1111/j.1751-908X.2010.00087.x. PDF
- 13-Lacan, F., Tachikawa, K., & Jeandel, C. (2012). Neodymium isotopic composition of the oceans: A compilation of seawater data. *Chemical Geology*, 300-301, 177-184. DOI: 10.1016/j.chemgeo.2012.01.019
- 14-Oelkers, E. H., Gislason, S. R., Eiriksdottir, E. S., Jones, M., Pearce, C. R., & Jeandel, C. (2011). The role of riverine particulate material on the global cycles of the elements. *Applied Geochemistry*, 26, S365-S369. DOI:10.1016/j.apgeochem.2011.03.062
- 15-Radic, A., Lacan, F., & Murray, J. W. (2011). Iron isotopes in the seawater of the equatorial Pacific Ocean: New constraints for the oceanic iron cycle. *Earth and Planetary Science Letters*, 306(1-2), 1-10. DOI: 10.1016/j.epsl.2011.03.015
- 16-Sarthou, G., E. Bucciarelli, F. Chever, S.P. Hansard, M. Gonzalez-Davila, J. M. Santana-Casiano, F. Planchon, S. Speich, 2011, Labile Fe(II) concentrations in the Atlantic sector of the Southern Ocean along a transect from the subtropical domain to the Weddell Sea Gyre, *Biogeosciences*, 8, 2461–2479, doi:10.5194/bg-8-2461-2011
- 17-van de Flierdt, T., Pahnke, K., Amakawa, H., Andersson, P., Basak, C., Coles, B., Colin, C., Crocket, K., Frank, M., Frank, N., Goldstein, S.L., Goswami, V., Haley, B.A., Hathorne, E.C., Hemming, S.R., Henderson, G.M., Jeandel, C., Jones, K., Kreissig, K., Lacan, F., Lambelet, M., Martin, E.E., Newkirk, D.R., Obata, H., Pena, L., Piotrowski, A.M., Pradoux, C., Scher, H.D., Schöberg, H., Singh, S.K., Stichel, T., Tazoe, H., Vance, D., Yang, J. 2012. GEOTRACES intercalibration of neodymium isotopes and rare earth elements in seawater and marine particulates - Part 1: international intercomparison, *Limnology and Oceanography Methods*. 10, 2012, 234–251. DOI 10.4319/lom.2012.10.234.