

Australia 2011-2012 report



GEOTRACES meetings and presentations:

- Ocean Sciences 2012 (Salt Lake City, Feb 2012)
- Australian – New Zealand Marine Sciences conference (Hobart, July 2012)
- GEOTRACES Data Quality Workshop (Geel, Belgium) - participation of Tomas Remenyi funded by the Australian Academy of Science under EU COST Action 0801

Cruises:

- Australian team in French-led KEOPS-2 cruise near Kerguelen Islands (Oct/Nov 2011); GEOTRACES approved process study
- SIPEX-2 Antarctica sea-ice cruise currently underway; GEOTRACES process study
- Shiptime proposal for GI05 postponed until 2015-16 season due to other cruise commitments by Australian and French GEOTRACES scientists. Need international collaboration to cover full GEOTRACES suite of parameters!

Outputs:

- 14 journal articles reporting GEOTRACES activities published 2011-2012

Funding:

- GEOTRACES funding in Australia remains tight (new Australian Research Council proposals to be submitted in next quarter)

Australia 2011-2012 report



New results:

- Preliminary results and continuing analyses from GP13 leg 1 and KEOPS-2 cruises
- Data from Australian cruises GIPY2 (au0703), GIPY3 (au0701), GIPY6 (au0806; see figure) and GPpr02 (SS10_v01 PINTS) submitted to GDAC for the Intermediate Data Product
- Participation and sample analyses of GEOTRACES intercalibration exercises for dissolved (Bruland), particulate (Sherrell) and aerosols (Landing) trace elements

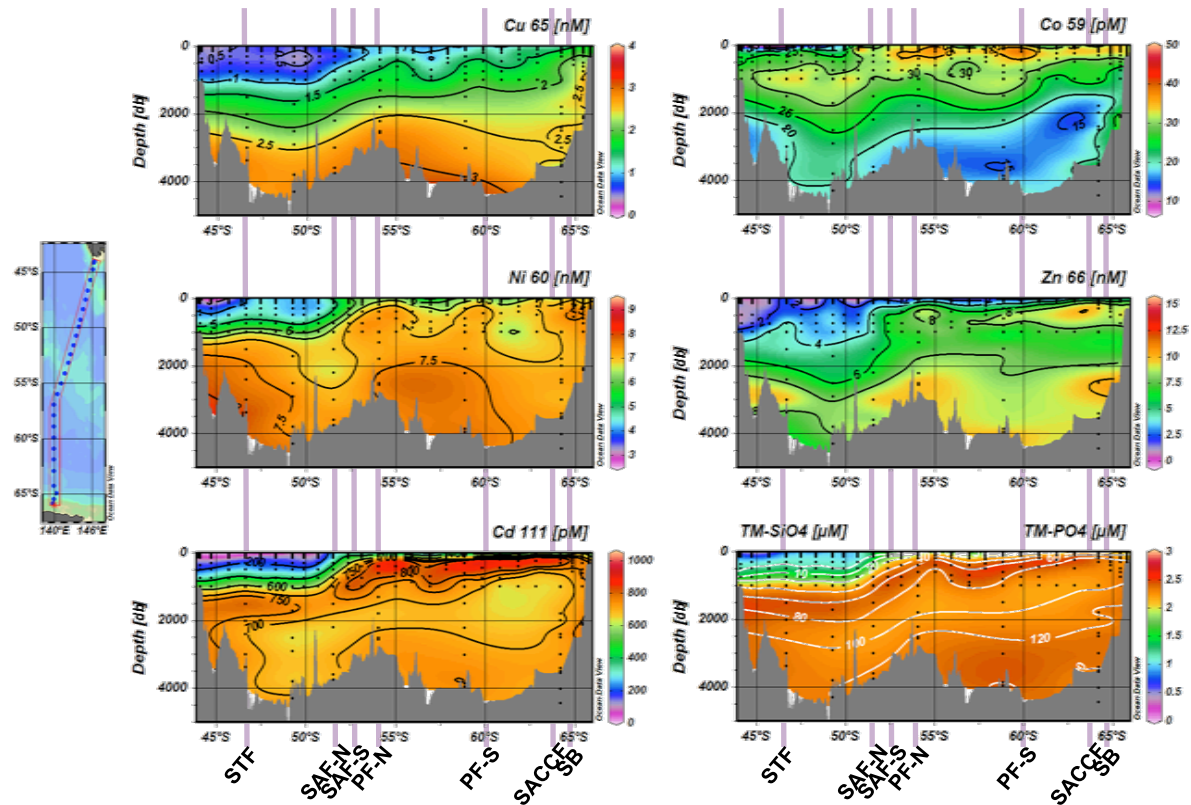
Other GEOTRACES activities:

- Short-term Scientific Mission for Dr Fanny Chever from University of Brest (France) to ACE CRC (University of Tasmania, Australia) under EU-Cost Action ES0801

- Informal Aus-NZ

GEOTRACES website:

www.austracemarine.net

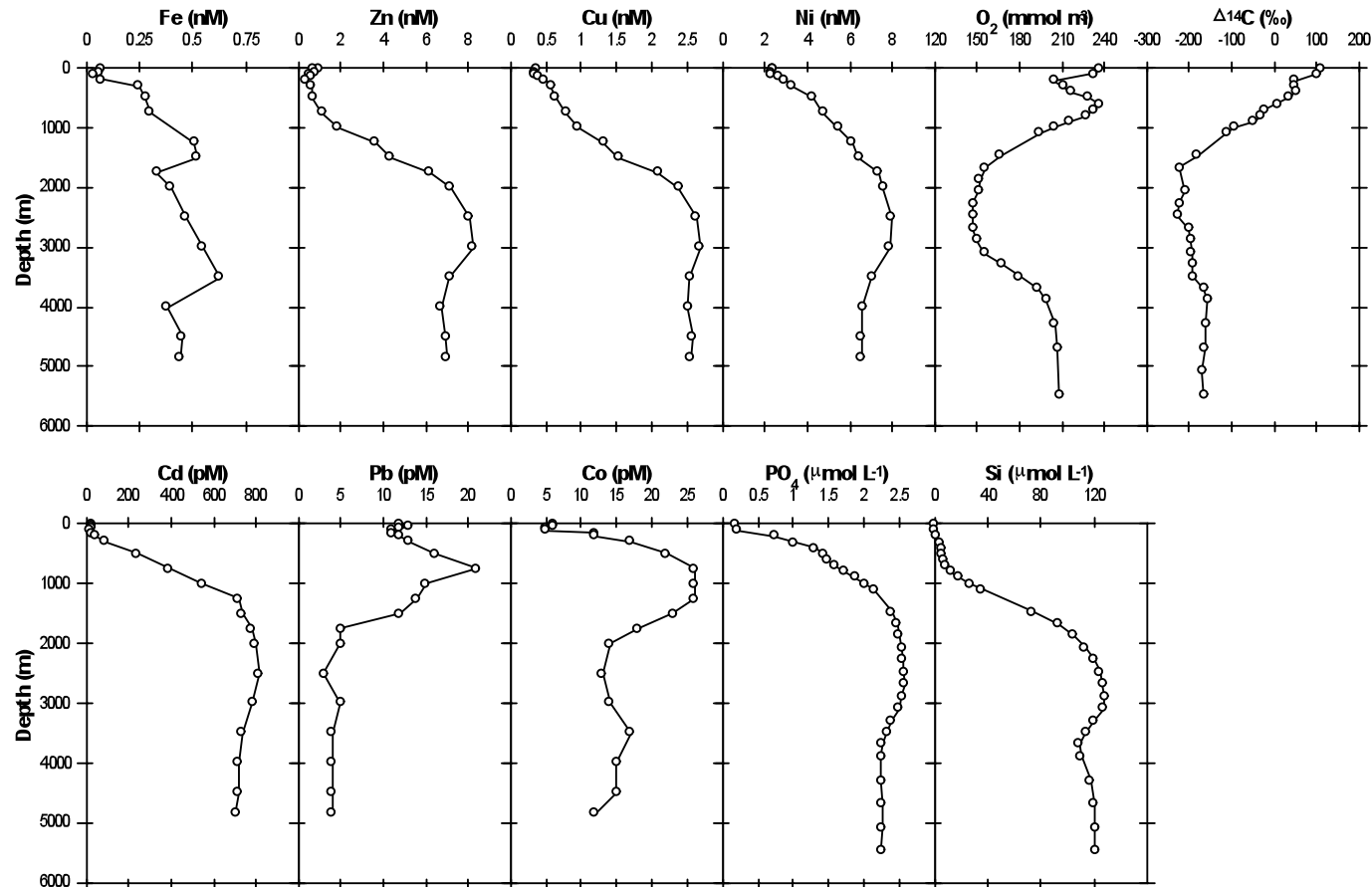


New Zealand report 2011/12



Activities

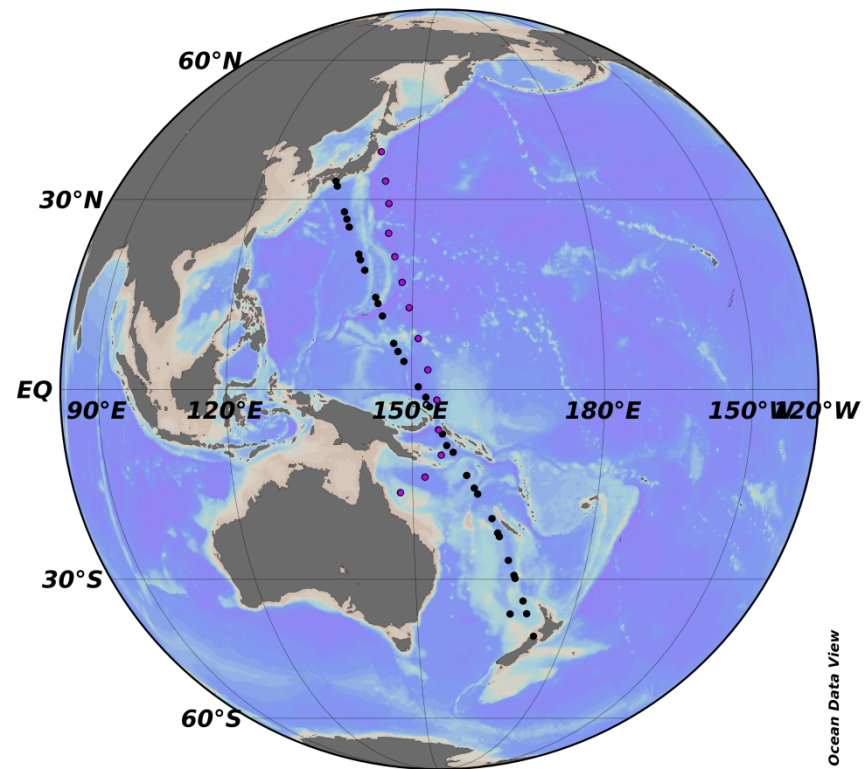
a) Sample and data analysis from GP13 leg 2 (New Zealand – SE of Tahiti)



TM profiles for GP13, stn 170W, 30.5S. Nutrient, O₂ and delta 14 C data from WOCE P06 voyage 170W, 30.5S (Courtesy: Michael Ellwood)

b) Ongoing Ship-of-opportunity aerosol sampling between Japan & New Zealand

A comparison with Alex Baker and Tim Jickells Atlantic Meridional Transect aerosol archive is underway. All samples were analysed in the same lab



c) Publications from FeCycle II GEOTRACES process study
on iron biogeochemistry during a spring diatom bloom

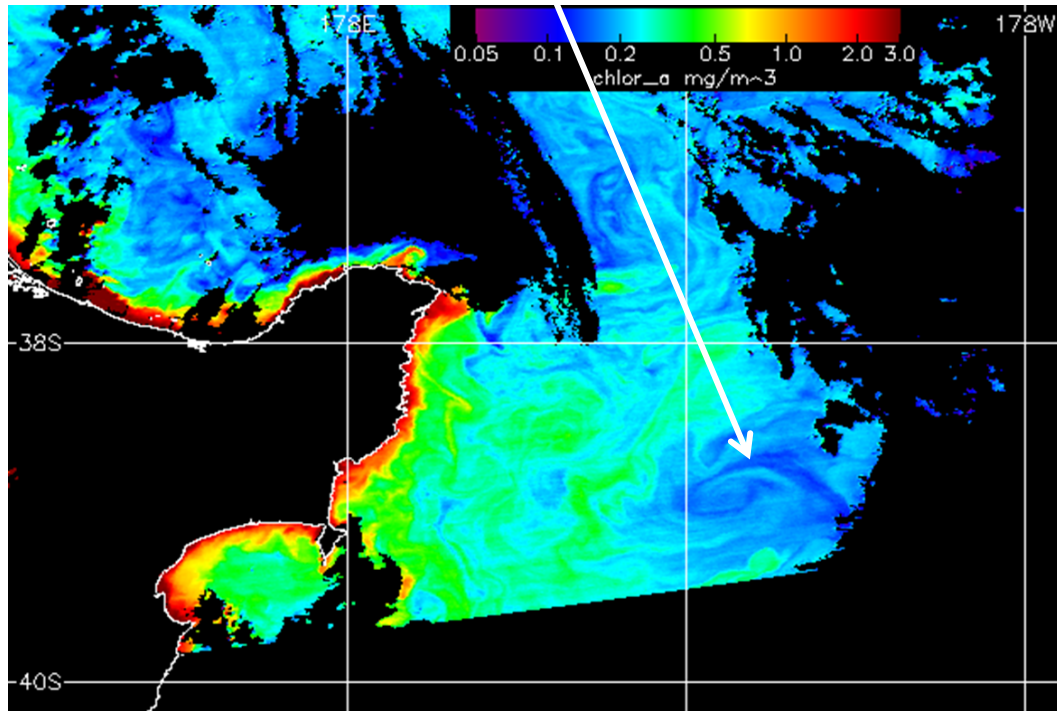
GEOPHYSICAL RESEARCH LETTERS, VOL. 39, L18601, doi:10.1029/2012GL053448, 2012

Microbial control of diatom bloom dynamics in the open ocean

Philip W. Boyd,^{1,2} Robert Strzepek,³ Steve Chiswell,² Hoe Chang,² Jennifer M. DeBruyn,⁴
Michael Ellwood,⁵ Sean Keenan,^{2,6} Andrew L. King,^{7,8} Elisabeth W. Maas,² Scott Nodder,²
Sylvia G. Sander,³ Philip Sutton,² Benjamin S. Twining,⁹ Steven W. Wilhelm,¹⁰
and David A. Hutchins⁷

A 12 day quasi-Lagrangian biogeochemical iron budget during a diatom
Spring bloom (DFe and PFe inventories, aerosol Fe, Fe uptake, PFe export
Fe recycling rates).

d) FeCycle III iron biogeochemistry and submesoscale physics voyage
September/October 2012 in a counterclockwise eddy



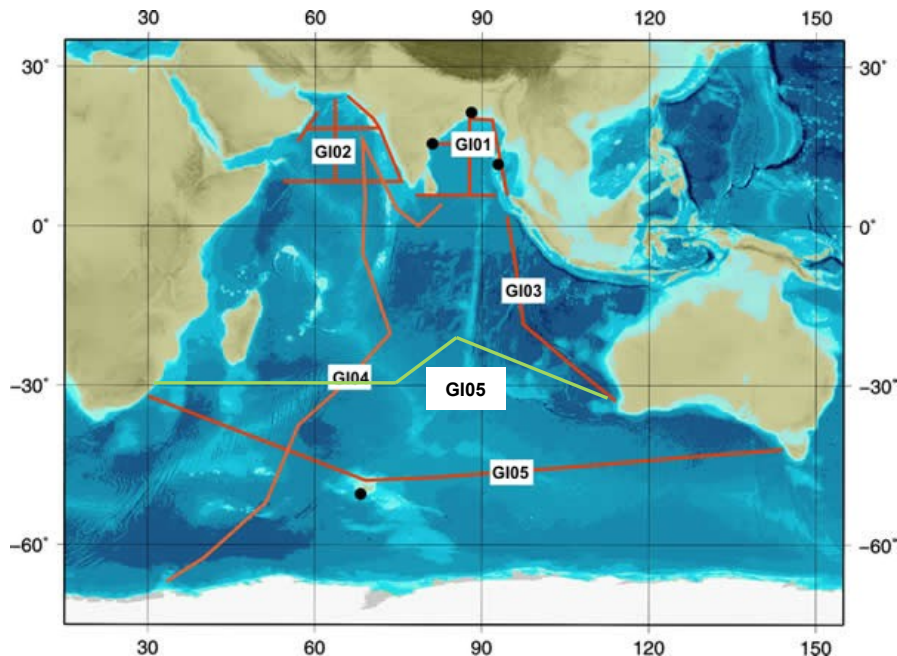
Daily sampling for Fe stable isotopes, underway DFe, Fe recycling, export,
uptake, etc
Over 17 days in the eddy center

GEOTRACES GI05 section



- Expression of Interest: Aus GEOTRACES GI05 section for 2015-16
- 34 berths, 40 days shiptime
- Choice of cruise track:

- (1) southerly zonal GI05 section from Hobart/Fremantle to Kerguelen (on GDAC)
- (2) northerly zonal section in the Southern Indian Ocean (tracks WOCE I5 line)



- (1) - the southernmost line is subjected to ACC jets and transports of tracers, and dispersion of Kerguelen plume (difficult to interpret?)
 - the 30°S section is crossing gyres, which aren't highly dynamic places
 - Southern route captures AABW
- (2) - lack of GEOTRACES Indian Ocean coverage
 - the northerly line is likely to be more impacted by dust
 - Northern route captures inflow to Indian Ocean

- Possible compromise - run the section east from Kerguelen to study the plume and then to Fremantle or Hobart to get dust