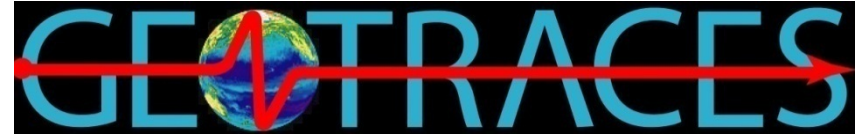


# Australia 2012-2013 report



## **GEOTRACES meetings and workshops:**

- GEOTRACES presentations by Australian scientists
  - ASLO Aquatic Sciences meeting (New Orleans, February 2013)
  - 45<sup>th</sup> International Liège Colloquium on Ocean Dynamics (Liège, May 2013)
  - Joint Aus/NZ Strategic Science in Antarctica (Hobart, June 2013).
- Participation in GEOTRACES particle intercalibration workshop led by Phoebe Lam (Hawaii, March 2013)

## **Cruises:**

- Completion of the GEOTRACES Process Study SIPEX-2 (Glpr02; PI: Meiners), an Antarctic sea ice biogeochemistry study (Sep/Oct 2012)
- Shiptime funded for “Heard/McDonald Islands submarine hydrothermalism and biospheric Impacts” (60 days in 2014/15) (PI: Coffin) – future Process Study?
- 3 shiptime proposals submitted for possible GEOTRACES Process Studies in the Southern Ocean in 2015/16 seasons

## **Funding:**

- Antarctic Climate & Ecosystems CRC re-funded for \$25M over 5 years (2014-19)
  - GEOTRACES relevant projects included in the new science plan
- GEOTRACES funding in Australia remains tight (major Australian Research Council grants pending); recent departures highlight a national expertise shortage

# Australia 2012-2013 report



## Outputs:

- 11 journal articles reporting GEOTRACES activities published 2012-2013

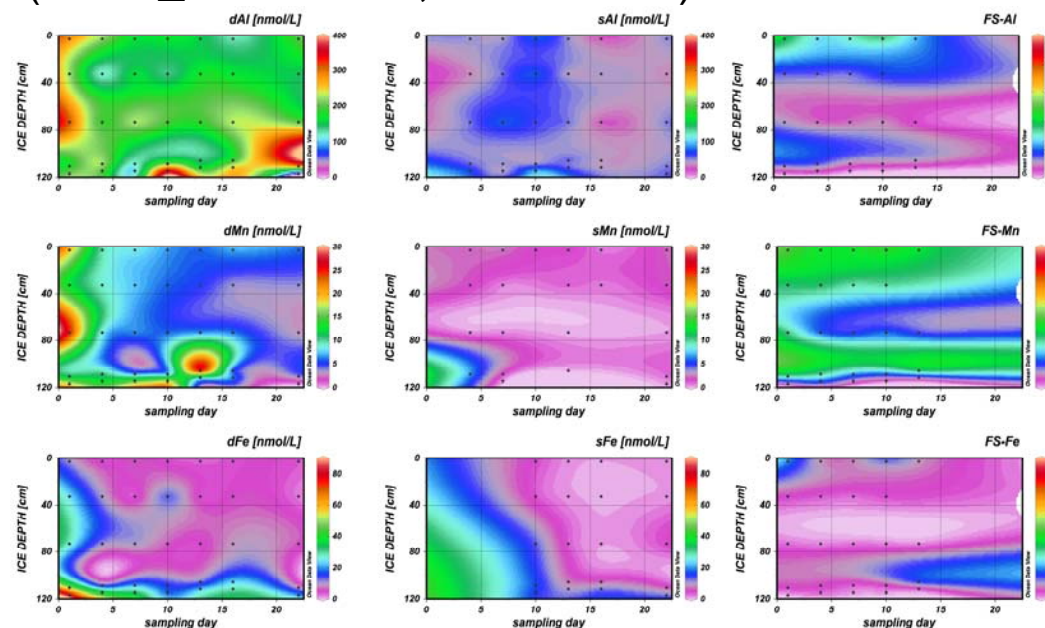
## New results:

- Results of the French-led KEOPS-2 (Glpr01; PI Blain) natural iron fertilisation experiment around the Kerguelen Islands submitted to *Biogeosciences* special issue
- Continuing analyses from GP13 cruise zonal section in SW Pacific Ocean (~30°S)
- Submission of data to IDP from Australian cruises GIPY2 (au0703), GIPY3 (au0701), GIPY6 (au0806) and GPpr02 (SS10\_v01 PINTS)
- Publication of results from GPpr02 (SS10\_v01 PINTS; PI: Hassler)

## GEOTRACES Australia highlight:

- Lannuzel et al. (2013). Size fractionation of iron, manganese and aluminium during a spring-summer time series in Antarctic fast ice. Submitted to *Mar. Chem.*

- Informal Aus-NZ GEOTRACES website: [www.austracemarine.net](http://www.austracemarine.net)

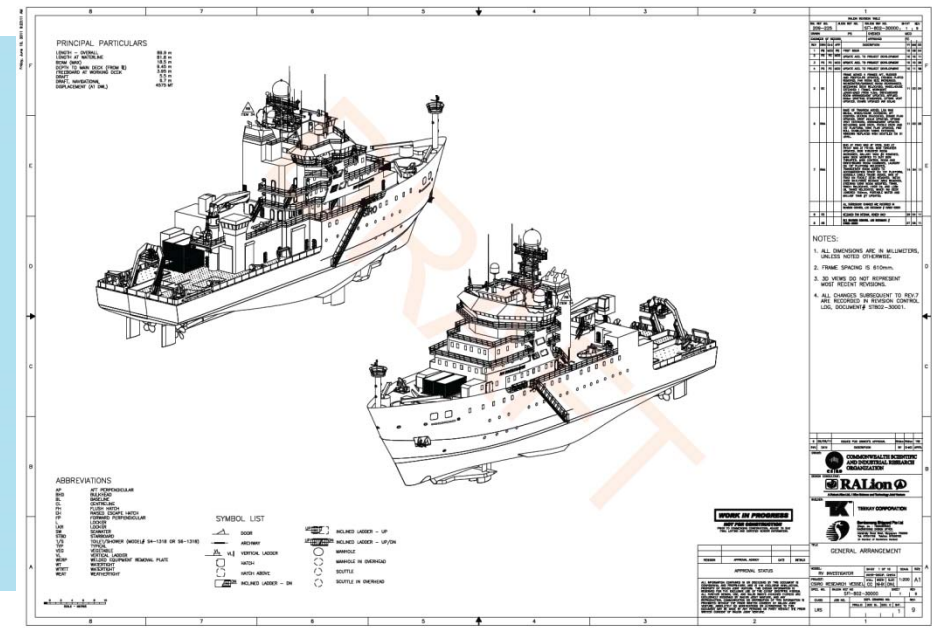
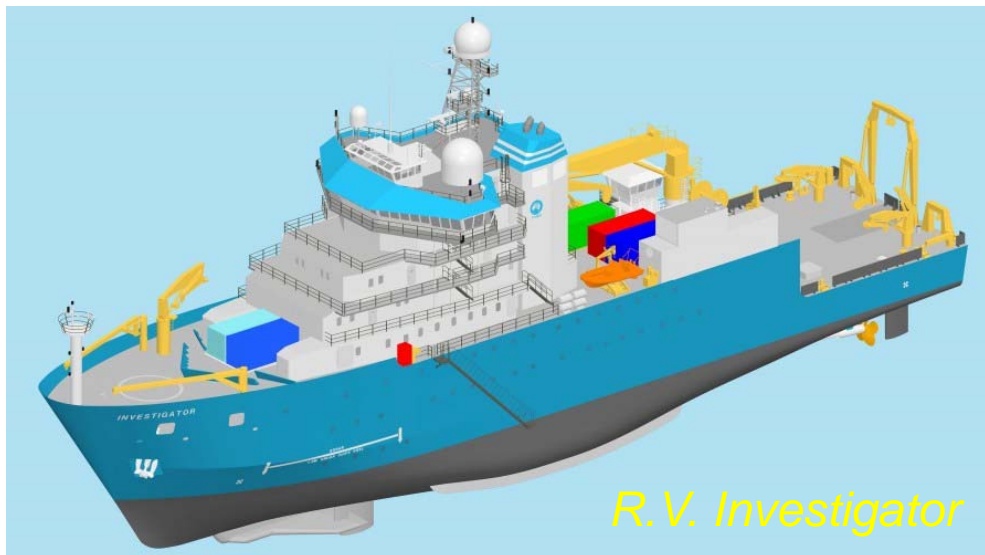


Lannuzel et al., 2013  
*Mar. Chem.*, submitted

# New ship: R.V. *Investigator*



- New Australian research vessel *Investigator* to be commissioned in early 2014
- Design specifications for GEOTRACES aerosol and seawater sampling requirements
- Marine National Facility equipment funding for GEOTRACES sampling equipment
  - laboratory clean container (\$85k)
  - trace-metal rosette (\$153k)
  - in situ pumps (\$240k)
- Possible GEOTRACES process cruises proposed for 2014/15 and 2015/16 seasons
- Blog on construction of the new ship: <http://csirofrvblog.com/about/>



NZ



## New Zealand 2012-2013 report

### Activities (2012/13)

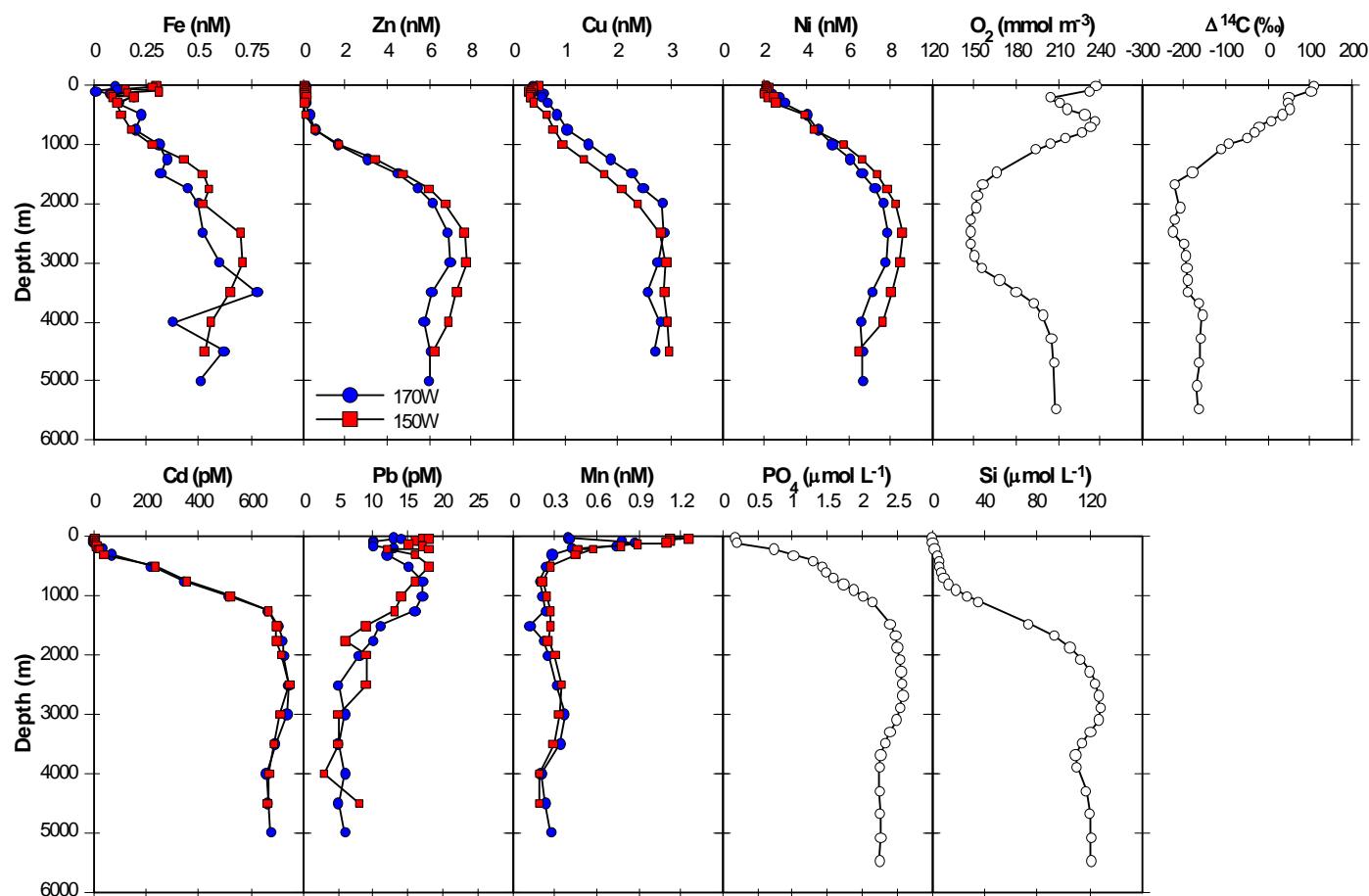
- |                         |   |
|-------------------------|---|
| September /October 2012 | GEOTRACES process voyage<br>FeCycle III – Eastern seaboard of N Island NZ<br>Main foci<br>Fe biogeochemistry in high iron oceanic waters<br>Linking sub-meoscale physics and Fe biogeochemistry<br>Biogeochemical controls on Fe TEI signatures |
| April 2013              | Further data workshop on GP 13 leg 2 (mid 2011)<br>First data workshop on FeCycle III   |
| May 2013                | Boyd relocates to IMAS in Hobart but will continue to co-ordinate data delivery to GEOTRACES from two process voyages (FeCycle II & III) and GP13 leg 2 (with Bowie)  |

# New Zealand 2012-2013 report



## Activities

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



TM profiles for GP13 , stns 150W and 170W, 30.5S. Nutrient, O<sub>2</sub> and delta 14 C data from WOCE P06 voyage 170W, 30.5S (Courtesy: Michael Ellwood)

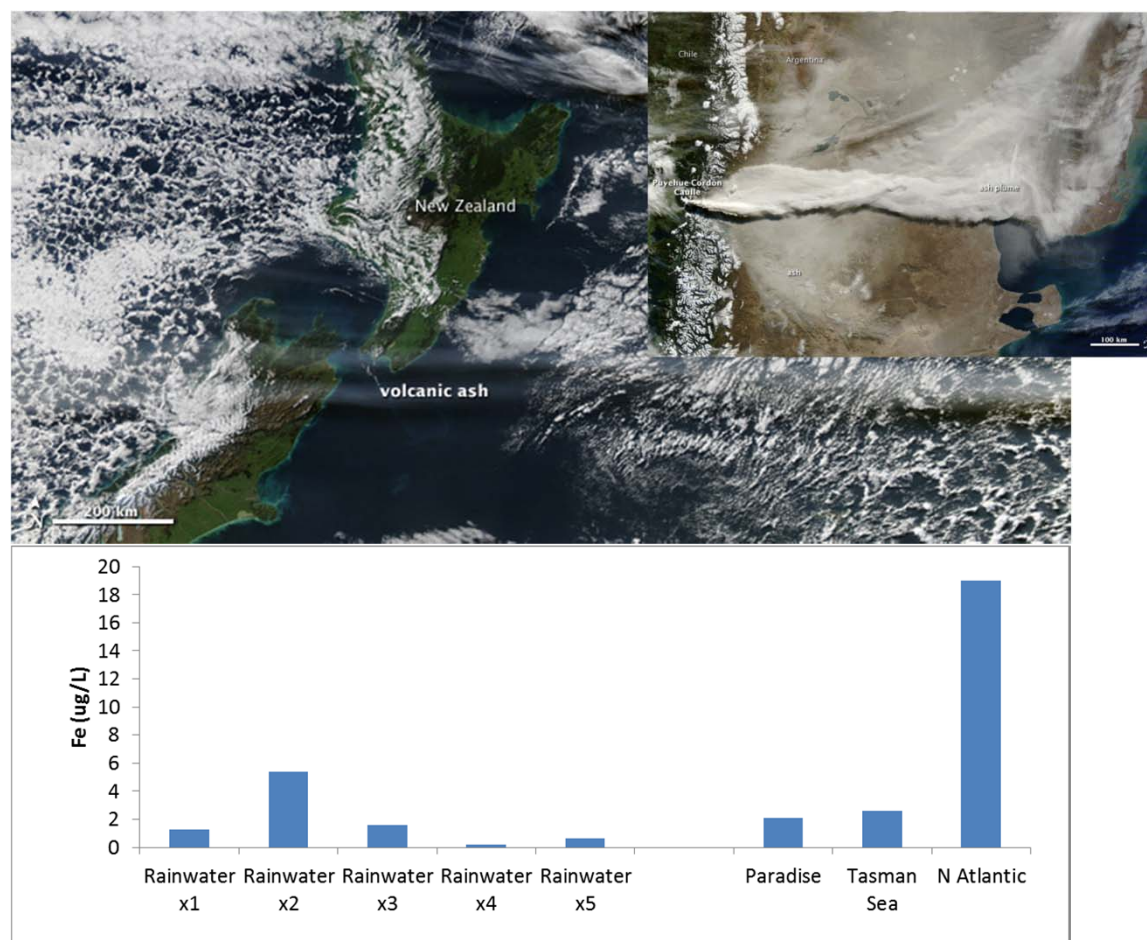
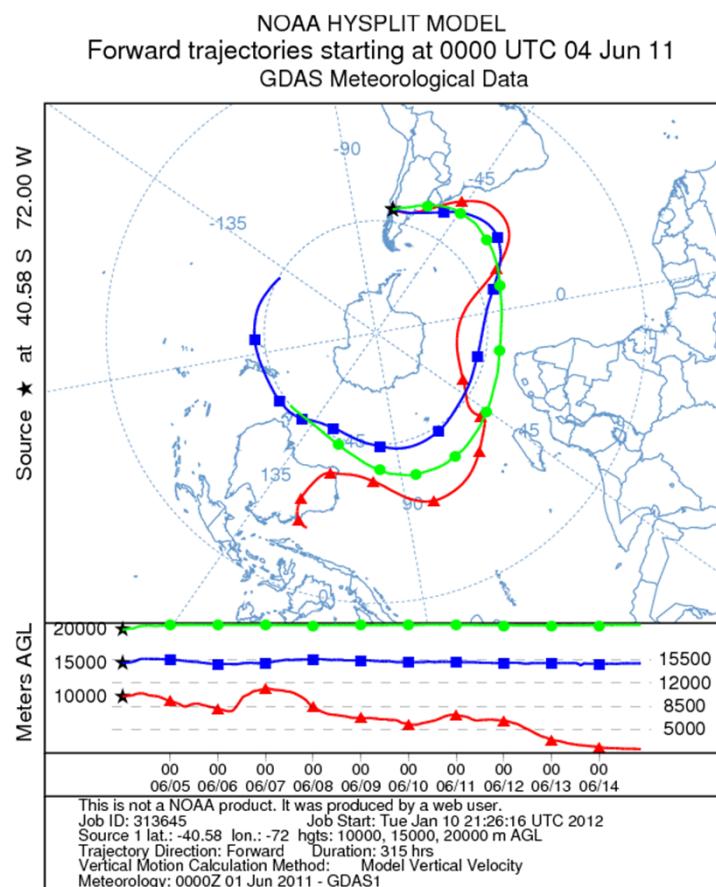


# New Zealand 2012-2013 report



## Activities

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



Rainwater for leg 2 of GP13; data collected 9 days after the Puyehue-Cordón Caulle volcanic eruption on 4 June 2011 (Courtesy: Michael Ellwood)

## Publications from FeCycle II GEOTRACES process study

Substantial progress has been made on better understanding the role of microbes in Fe biogeochemistry in both surface and subsurface waters

Boyd, P.W. et al. 2012. Microbial control of diatom bloom dynamics in the open ocean. *Geophysical Research Letters*, 39, L18601, doi:10.1029/2012GL053448.

King, A.L. et al. 2012. A comparison of biogenic iron quotas during a diatom spring bloom using multiple approaches. *Biogeosciences* 9, doi:10.5194/bg-9-667-2012.

Wilhelm SW et al. 2013 Elemental quotas and physiology of a SW Pacific Ocean plankton community as a function of iron availability. *Aquatic Microbial Ecology*, 68: 185–194.

Twining, B.S. et al. (accepted) Differential remineralization of major and trace elements from sinking diatoms. *Limnol & Oceanogr.*

LeClerc, G. et al. (accepted) Temporal changes in particle-associated microbial Communities after interception by non-lethal sediment traps. *FEMS Microbiology Ecology*.

# GEOTRACES GI05 section

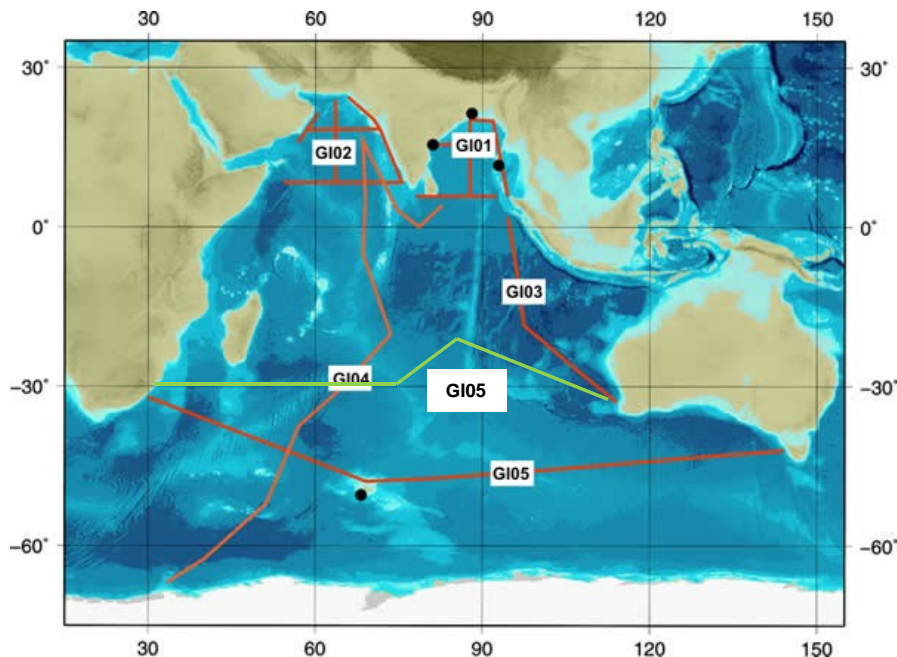


➤ Expression of Interest: Aus GEOTRACES GI05 section for 2015-16

➤ 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