

## South Africa



**Figure 12:** *The new South African research vessel: SA Agulhas II*

South Africa has taken the delivery of the new ice-breaker (SA Agulhas II) in May (Figure 12). The SA Agulhas II provides South Africa with a golden opportunity to address important issues facing us. These include protection of our population and property from extreme weather events, such as increasing frequency and severity of storms, and climate impact on biodiversity. This is a well-equipped supply and research vessel and with specialized laboratories to conduct GEOTRACES related activities. The ship took its maiden voyage in July as a shake down cruise to the ice edge in the Southern Ocean not only to test the ship and the equipment but also to collect much needed winter biogeochemical data.



Center for  
Trace & Experimental  
Biogeochemistry



**Activities of Interest and Personnel Training**

In 2011, definitive activities have started to kick-start and expand Geotraces activities in South Africa. A Center for Trace and Experimental Biogeochemistry has been established by Prof Roychoudhury of Stellenbosch University to further the mandate of GEOTRACES in South Africa. Thanks to SCOR funding, Dr Thato Mtshali was able to participate in GEOTRACES GP13 where he was trained in protocols of seawater sampling and analysis for trace elements, to work in a clean trace metal container van, how to deploy and retrieve trace metal rosette (for TDFe and DFe) and McLane pump (for PFe) and how to measure TDFe and DFe concentrations in seawater using Flow Injection Analyser (FIA). Another PhD student Ms Riana Rossouw also visited the laboratory of Bill Landing at FSU to learn analysis of Bioactive trace metals using ICP-MS techniques. She will be responsible to set-up these methods at Stellenbosch University over the course of next couple of years.

### ***Conferences***

#### 3<sup>rd</sup> Geotraces Data-Model Synergy Workshop

Alessandro Tagliabue (2011) Sensitivity of TEI cycles to metal-organic complexes in biogeochemistry models

Alessandro Tagliabue, Thato Mtshali, Olivier Aumont, Andrew R. Bowie, A.N. Roychoudhury, and Sebastiaan Swart (2011) A global compilation of over 13,000 dissolved iron measurements: focus on distributions and processes in the Southern Ocean

AN Roychoudhury, B von der Heyden, SCB Myneni (2011) Chemical characteristics of iron-rich nano- and colloid-sized particles in the South Atlantic and Southern Oceans

#### Goldschmidt Conference

A. N. Roychoudhury, B.P. von der Heyden, and S.C. B. Myneni (2011) The Fe L<sub>3</sub>-edge as a probe for Fe oxide speciation. 21st Annual V M Goldschmidt Conference, Prague, Czech Republic, Aug. 14-19, 2011

B.P. von der Heyden, A. N. Roychoudhury and S.C. B. Myneni (2011) Chemical speciation of Fe-rich colloids and nanoparticles in the Southern Ocean. 21st Annual V M Goldschmidt Conference, Prague, Czech Republic, Aug. 14-19, 2011

### ***Publications***

Tagliabue, Alessandro, Mtshali, T., Aumont, O., Bowie, A. R., Klunder, M. B., Roychoudhury, A. N., and Swart, S (2012) A global compilation of over 13 000 dissolved iron measurements: focus on distributions and processes in the Southern Ocean, *Biogeosciences*, 9, 2333-2349.

Sebastiaan Swart, Nicolette Chang, Nicolas Fauchereau, Warren Joubert, Mike Lucas, Thato Mtshali, Alakendra Roychoudhury, Alessandro Tagliabue, Sandy Thomalla, Howard Waldron, Pedro M.S. Monteiro (2012) Southern Ocean Seasonal Cycle Experiment – 2012 (SOSCEx2012): Coupling of Climate and Carbon Cycling at the Seasonal Scale, *South African Journal of Science*, 108(3/4), 1-3.

### ***Service***

Prof Alakendra Roychoudhury was appointed as a new member of the Scientific Steering Committee of the GEOTRACES project to serve for the period from 1 January 2012 to 31

December 2014.

Dr Alessandro Tagliabue was appointed on the standing committee on Data Management of the GEOTRACES project

Submitted by: Alakendra Roychoudhury