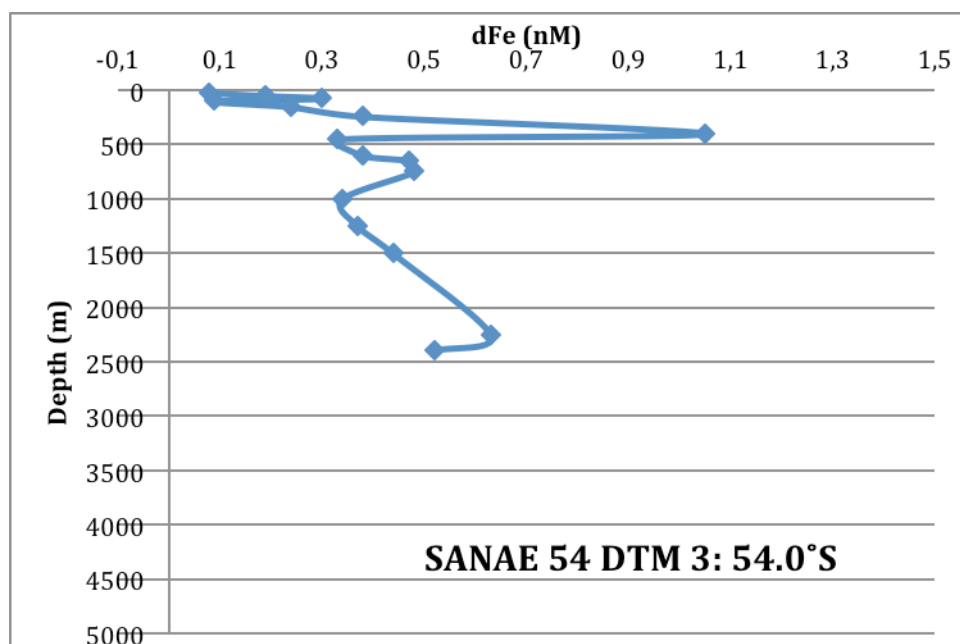


ANNUAL REPORT ON GEOTRACES ACTIVITIES IN SOUTH AFRICA
MAY 2014 – JUNE 2015

New results

Validation of clean sampling protocol using of Go-Flo bottles and Trace CTD rosette. The reproduced profile matches well with data from Klunder et al., (2011). Samples were analyzed in the laboratory of Maeve Lohan, Plymouth, UK.



New publications

- Bjorn P. Von der Heyden and Alakendra N. Roychoudhury (2015) A review of colloidal iron partitioning and distribution in the open ocean, *Marine Chemistry*, doi:10.1016/j.marchem.2015.05.010.
- P. J. Lam, B. S. Twining, C. Jendel, A. N. Roychoudhury, J. Resing, W. Geibert, P. Santschi, R. F. Anderson (2015) Methods for analyzing the composition and speciation of marine particles, *Progress in Oceanography*, 133; pp 32-42.
- Bjorn P. Von der Heyden, Emily J. Hauser, Bhoopesh Mishra, Gustavo A. Martinez, Andrew R. Bowie, Tolek Tyliczszak, Thato N. Mtshali, Alakendra N. Roychoudhury, Satish C.B. Myneni (2014) Ubiquitous presence of Fe(II) in aquatic colloids and its association with organic carbon. *Environmental Science & Technology, Letters*, 1; pp 387 – 392.

Cruises

- SANA 54 (Southern Ocean physics and biogeochemistry) cruise was undertaken along the BONUS-GOODHOPE line in the Southern Ocean to support the following projects (Dec 2014 – Feb 2015):
 1. Seasonal Cycle of Carbon in Southern Ocean – SNA2011112600001
 2. Fe and light limitation in Southern Ocean phytoplankton – SNA2011120600005
 3. Bioactive trace elements in Southern Ocean – SNA2011110100001
 4. Stratification dynamics in the Southern Ocean mixed layer: a high resolution approach – YREF 0000005441

5. Southern Ocean Phytoplankton Adaption to mimicked future changes in light and iron availability - Molecular bases and modelling – SANCOOP 234229
6. Bio-optics - SNA2011120800004

New funding

- Roychoudhury AN (2015) ICP-MS mass spectrometer for ultra-trace metal analysis. National Equipment Program, NRF, R 2,699,000
- Roychoudhury AN (2015-2017) Speciation and interaction of iron nanoparticles in Southern Ocean, SANAP, R 1,353,500
- Roychoudhury AN (2014 – 2016) Iron nanoparticles in environment, NRF Competitive Rated Researcher Grant, R 1,427,220
- Fietz, S and Roychoudhury, AN (2014- 2016) Southern Ocean Phytoplankton adaption to mimicked future changes in light and iron availability – molecular bases and modeling, South Africa – Norway bilateral grant, R2,421,712 + NOK1,453,027

Other activities (e.g., acquisition of new sampling systems)



A pico-Fast[®] system has been acquired for pre-concentration of sea-water samples for trace elemental analysis using ICP-MS. The system is currently undergoing installation and validation for measurement of bioactive trace elements.

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