



The Seasonal Dynamics of Iron supply, biological consumption and cycling in the Southern Ocean

A SOCCO (www.socco.org.za) Workshop, supported by SCOR (www.scor-int.org), GEOTRACES (www.geotraces.org) and the National Research Foundation (www.nrf.ac.za).

Cape Town, South Africa

3 - 4 October 2014

Co-convened by: Dr Pedro MS Monteiro (CSIR, South Africa) and Dr Alessandro Tagliabue (University of Liverpool, UK)

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Scope

In this workshop we aim to explore the dynamics of iron (Fe) supply and demand over the annual cycle in the Southern Ocean. We plan to identify, quantify and discuss the key Fe supply and demand dynamics over seasonal and sub-seasonal scales and highlight outstanding questions. We hope to explore whether a scale sensitive approach is necessary to understand the contemporary variability and future evolution of Fe dynamics in the Southern Ocean. Ultimately we hope to close by planning new (scale-sensitive) collaborative experiments that couple *in situ* and modelling platforms and extend to broader large-scale responses in the carbon cycle of the Southern Ocean.

The first day will be based around setting the scene and the current state of our knowledge as well as identifying key scale-sensitivity challenges to our field. On the second day we seek to have a more open discussion based around the questions identified on day one and discuss how future plans for fieldwork and model development may address them. Talks will be expected to be focussed on the state of the art and avoid exhaustive review and should end by posing one key question/hypothesis that will promote discussion. Ideally we would also like synthesise the workshop into a publication that identifies the challenges and research gaps.

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Agenda:**Friday 3rd October 2014: Quayside Hotel, Simonstown, Cape Town**

09:00: Introductory Remarks –*why are we here and what do we want to achieve?* – *Pedro Monteiro and Alessandro Tagliabue*

09:15: Open Discussion of workshop goals

Overview Talk:

09:30: Setting the Scene: what is the state of the art and where are the major gaps? – *Phil Boyd*

Session 1: Seasonal Scales (Chair: Sebastiaan Swart)

10:00: Large Scale and Regional Variability in Seasonal Iron Demand and Limitation – *Mark Moore*

10:20: Questions on the Talk

10:25: Coffee

10:55: The Seasonal Cycle of Iron Supply – *Alessandro Tagliabue*

11:15: Questions on the Talk

11:20: Integrated views of Iron Supply and Demand – *Andrew Bowie*

11:40: Questions on the Talk

11:45: Open Discussion of the morning's key questions/hypotheses (Discussion Leader TBD)

13:00: Lunch

Session 2: Sub-seasonal Scales (Chair: Thato Mtshali)

14:00: Seasonal and Sub-seasonal Variations in Biological Iron Demand – *Sandy Thomalla*

14:20: Questions on the Talk

14:25: Iron Supply and Demand at Sub-seasonal Scales: Insights from in situ studies – *Géraldine Sarthou*

14:45: Questions on the Talk

14:50: Quantifying the Importance of Sub-seasonal Processes on Iron Dynamics – *Sarah Nicholson or Pedro Monteiro*

15:10: Questions on the Talk

15:15: Coffee

Session 3: Biogeochemical Dynamics (Chair: Suzanne Fietz)

15:45: Key Processes and Pools of Iron – *Phoebe Lam*

16:05: Questions on the Talk

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16:10: How Food-web Dynamics Influence Iron Cycling – *Maite Maldonado*

16:30: Questions on the Talk

16:35: Open Discussion of the afternoon's key questions/hypotheses (Discussion Leader TBD)

17:30-18:00: Poster Session and Drinks

19:00-19:30: End of Day 1: Dinner Locally

Saturday 4th October 2104: Quayside Hotel, Simonstown, Cape Town

10:00: Recap Aims and Key Questions Raised on Friday: *How do we take them forward?* – *Pedro Monteiro and Alessandro Tagliabue*

In the following discussions we wish to explore how new experiments, allied with the development and deployment of numerical modelling and remote sensing platforms, can address the key questions identified on the first day over the coming years. In particular, we will discuss upcoming fieldwork plans in the Southern Ocean and opportunities for collaboration – please communicate other plans or opportunities to the speaker ahead of the workshop for inclusion.

Overview Talk:

10.30: What to Consider When Planning an Integrated Fieldwork – Modelling Experiment: *Stephane Blain*

Session 4: Future Fieldwork Chair: Sandy Thomalla

11:00: In situ Studies: *SOSCEX I – III (and others)* – *Sebastiaan Swart*

12:30: Lunch

Session 5: Future Modelling Chair: Precious Mongwe

13:30: What do the climate models predict for the future of the Southern Ocean and do they represent the key processes accurately? *Laurent Bopp*

14:00: How do we move the models forward and better link with field programmes? *Alessandro Tagliabue*

15:00: Coffee

15:30 Wrap Up Discussion and Future Plans

16:30: End

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