



## **Carbon Export from an Iron fertilised Plankton Bloom in the Southern Ocean**

R. Sanders (1), I. Salter (1), R. Pollard (1), P. Statham (1), M. Lucas (2)

(1) National Oceanography Centre, Southampton, University of Southampton Waterfront Campus, European Way, Southampton SO14 3ZH, (2) Zoology Department, University of Cape Town, South Africa ([rics@noc.soton.ac.uk](mailto:rics@noc.soton.ac.uk) / Phone: +44 2380 596643 / Fax: +44 2380 596247)

**Some regions of the global ocean, notably the Southern Ocean, have high levels of macronutrients yet low levels of chlorophyll (the high nutrient, low chlorophyll or HNLC condition). Numerous artificial iron fertilization experiments conducted in the Southern Ocean have resulted in enhanced phytoplankton biomass and macronutrient drawdown. However the subsequent long-term biogeochemical consequences of such iron fertilization are unclear due in part to the limited size and duration of such experiments. An alternative way to assess the affect of iron over the Southern Ocean biological carbon pump is to observe the evolution of plankton production in regions of the Southern Ocean where shallow topography and Ocean currents interact to promote to release terrestrial iron into HNLC waters. During 2004-5 RRS Discovery conduced a complex programme of observations in such a region around the Crozet Islands in the SW Indian Ocean. Export fluxes were significantly larger in the iron fertilised high chlorophyll region compared to the control HNLC region suggesting that any climate change induced increase in iron supply to Southern Ocean would increase the flux of organic carbon to deep waters.**