

Data report from the RVIB Nathaniel B. Palmer NBP1302 cruise in the Ross Sea during 2013 (TRACERS project)

Website: <https://www.bco-dmo.org/dataset/559066>

Data Type: document, cruise report

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Project

» [TRacing the fate of Algal Carbon Export in the Ross Sea](#) (TRACERS)

Contributors	Affiliation	Role
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Dataset Description

Data Report NBP1302

Dr. Hansell, Dr. Kooyman and Dr. Yuan

RVIB Nathaniel B. Palmer
United States Antarctic Program
Antarctic Support Contractor
Prepared by Julian Race and Chris Linden

Methods & Sampling

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Parameters

Parameters for this dataset have not yet been identified

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Deployments

NBP1302

Website	https://www.bco-dmo.org/deployment/547873
Platform	RVIB Nathaniel B. Palmer
Report	http://dmoserv3.whoi.edu/data_docs/TRACERS/NBP1302_data_report.pdf
Start Date	2013-02-12
End Date	2013-04-05
Description	Ross Sea, Antarctica (53 days) RVIB Nathaniel B. Palmer : February-April 2013 McMurdo Station, Antarctica - Punta Arenas, Chile Project Title: "TRacing the fate of Algal Carbon Export in the Ross Sea" (TRACERS) Chief Scientist: Dennis Hansell, UM-RSMAS Project Description: The research focus of this cruise was to investigate the biogeochemistry associated after a phytoplankton bloom at the end of the Antarctic Austral Summer. I helped analyze and coordinate analyses of nutrients (silicic acid, phosphate, and nitrate) and collect samples for dissolved organic carbon (DOC). Note R2R Link takes user to Marine Geoscience Data System (MGDS): NBP1302 Nathaniel B. Palmer Systems and Specifications

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Project Information

TRacing the fate of Algal Carbon Export in the Ross Sea (TRACERS)

Coverage: Ross Sea

Sinking particles are a major element of the biological pump and they are commonly assigned to two fates: mineralization in the water column and accumulation at the seafloor. However, there is another fate of export hidden within the vertical decline of carbon, the transformation of sinking organic matter to fine suspended and/or dissolved organic fractions. This process has been suggested but has rarely been observed or quantified. As a result, it is presumed that the solubilized fraction is largely mineralized over short time scales. However, global ocean surveys of dissolved organic carbon are demonstrating a significant water column accumulation of organic matter under high productivity environments. This proposal will investigate the transformation of organic particles from sinking to solubilized phases of the export flux in the Ross Sea. The Ross Sea experiences high export particle production, low dissolved organic carbon export with overturning circulation, and the area has a predictable succession of production and export events. In addition, the basin is shallow (< 1000 m) so the products the PIs will target are relatively concentrated. To address the proposed hypothesis, the PIs will use both well-established and novel biochemical and optical measures of export production and its fate. The outcomes of this work will help researchers close the carbon budget in the Ross Sea.

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Funding

Funding Source	Award
NSF Division of Polar Programs (NSF PLR)	PLR-1142117

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