

Data

3-11-2019

Associated dataset: Modeling the seasonal cycle of iron and carbon fluxes in the Amundsen Sea Polynya, Antarctica

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Recommended Citation

St-Laurent, Pierre, "Associated dataset: Modeling the seasonal cycle of iron and carbon fluxes in the Amundsen Sea Polynya, Antarctica" (2019).

<https://doi.org/10.25773/nhrj-yz78>

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Dataset Information

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Academic Department and/or Research Group:

Biological Sciences

Title of Dataset:

Associated dataset: Modeling the seasonal cycle of iron and carbon fluxes in the Amundsen Sea Polynya, Antarctica

Publication Date:

Manuscript accepted online February 20, 2019

Description:

This dataset features the results from the numerical simulation described in the associated publication (St-Laurent et al.). The simulation results are in the standard, self-documented NetCDF format (extension .nc); see <https://www.unidata.ucar.edu/software/netcdf/> for more information. Files in this format can be manipulated and displayed by a wide range of freely available software. The results from the simulation are divided into monthly files (ocean_avg_0001.nc to ocean_avg_0098.nc). Each file holds 30 days worth of time-averaged daily model fields, from January 2006 to December 2013. The dataset also includes the forcings used in the model calculation (in the same format as above). Detailed information about the open source numerical model used in the study (Regional Ocean Modeling System, ROMS) is available at www.myroms.org.

File Description Table:

File Name	Description
ocean_avg_00xx.nc	Time-averaged oceanic fields (Jan. 2006 to December 2013). Each file contains 30 days worth of results and the fields have a temporal resolution of 1 day.
ocean_bry.nc	Lateral boundary conditions for model calculation
ocean_clm.nc	Climatologies for relaxation at lateral boundaries
ocean_frc.nc	Atmospheric forcing prescribed at ocean surface
ocean_grd.nc	Model grid including lat/lon coordinates
ocean_ini.nc	Initial condition of the model calculation
par_3hourly_amundsen_sea_domain.nc	PAR forcing prescribed in the calculation

Abstract: *Include if data have a unique abstract*

The dataset includes the numerical model data presented in the associated publication (St-Laurent et al.). This study used a biogeochemical model embedded in the Regional Ocean Modeling System (ROMS) to examine the seasonal cycle of iron and carbon fluxes in the Amundsen Sea Polynya (Antarctica). The model simulation covers the period 2006 to 2013 and is fully described in the associated publication. The numerical simulation highlights two roles played by the oceanic circulation: it provides dissolved iron to the polynya but also transports organic matter from the productive central polynya to the western part of the Amundsen embayment. The model results improve our mechanistic understanding of the summer bloom, while suggesting testable hypotheses for future field efforts

DOI: *Please indicate if you would like a DOI assigned to this dataset*

Yes, I would like a DOI assigned to this dataset.

Funding:

This research was supported by the National Science Foundation Office of Polar Programs (collaborative grants 1443657, 1443604, 1443315, 1443569).

Keywords:

polynyas, Antarctica, ice shelves, phytoplankton, sea ice, oceanography

Associated Publications:

St-Laurent, P., P.L. Yager, R.M. Sherrell, H. Oliver, M.S. Dinniman and S.E. Stammerjohn, 2019, Modeling the seasonal cycle of iron and carbon fluxes in the Amundsen Sea Polynya, Antarctica, *Journal of Geophysical Research: Oceans*, <https://doi.org/10.1029/2018jc014773>

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