

Data Management Plan

Primary investigator: Pierre St-Laurent

Institution: Old Dominion University

Project Title: Collaborative Research: Investigating the Role of Mesoscale Processes and Ice Dynamics in Carbon and Iron Fluxes in a Changing Amundsen Sea (INSPIRE)

NSF Division: Office of Polar Programs

Submission Date: 15 April 2014

Overview: A collaborative project is proposed to study the Amundsen Sea ecosystem and the physical and biological processes controlling productivity of this system. This modelling project will use a numerical ice sheet-sea ice-ocean coupled model to investigate different hypotheses regarding the controls of the primary production of the Amundsen Sea Polynya and to investigate the effects of climate change on the primary production. The Directory Interchange Format (DIF) files will be stored in the Global Change Master Directory (<http://gcmd.nasa.gov/>), and will be accessible from the USAP Data Coordination Center (<http://www.usap-data.org/search.php>).

Data description: This project will generate experimental (derived products) and model data. Specific data products and PI responsibilities for the data collection, analyses, and sharing are given below.

Data type #1; Responsible PI: Model output; St-Laurent, Hofmann.

Product description: Model output data generated from ROMS (Shchepetkin and McWilliams, 2005; Hedström, 2009). The output files are generated in a standard format (NetCDF) that can be opened using software and libraries freely available on the Internet. These files are self-documented and all variables have their metadata (dimensions, units, etc) included within the NetCDF files. Each computer simulation generates approximately 200 GB of data (for a total of approximately 5 TB) that are stored on redundant filesystems (RAID) that prevent loss from mechanical failure. The initial and boundary conditions used for the simulations are stored in the same format and in the same location as the data. Time-averaged (3-monthly) subsets of the data will be posted on the ODU PI web site with limited access for the first year. Backup copies of the full data files will be stored on the ODU mass storage system. The numerical simulations, especially those used in publications, will be archived for five years after which only the software configurations used to generate the numerical integrations (to insure reproducibility), video and figures will be maintained on the server.

Timeline for data release: Two years from acquisition/analysis.

Intended Repository/Data: BCO–DMO; Time-averaged model outputs occupy about 25 GB of data.

Data type #2; Responsible PI: Results from outreach activities; Dickerson.

Product description: The outreach activities will generate three types of data: 1) artifacts and curricular materials, 2) interviews of teachers, students and careers experts participating in the research, and 3) assessments and questionnaires administered to students, teachers, and educators. Observational notes will be in standard word processor and/or spreadsheet formats. Teacher, student and career experts' interviews may be video or audio recorded or notes will be taken with a text or word processor during the interview. Additional instructional artifacts will generally be on paper or photographed.

The project partners will encourage and facilitate the prompt sharing by other researchers, at no more than incidental cost, of the primary data, samples, physical collections and other supporting materials created or gathered in the course of the work under this grant. The identity of students (minors) will be protected according to protocols established by the Institutional Review Board (IRB) of the Concord Consortium. At the heart of any IRB protocol is the informed consent of participants and that participants identity is not revealed. Data from participants who have not consented will be eliminated from the study.

Researchers will be granted access to all data generated by the project providing: 1) such access is consistent with the terms of the IRB plan for this project, 2) the researchers provide a plan to protect the identity of all participants in subsequent publications, 3) the researchers provide a Data Management Plan that is consistent with this one, 4) the researchers do not share these data with other researchers or groups without the permission of the project partners, and 5) the researchers are qualified to undertake research on these data based on their qualifications and prior work. Curricular materials are developed under open licenses and will be available at the conclusion of the project (or before) at no cost to educators for download from the project website as are all similar materials produced by the collaborators.

Plans for archiving and preservation of access data in digital form will be retained in project partner servers under the protection of a password known only to the Principal Investigators. Non-digital data, such as notes, and student artifacts, will be kept in locked closets, as will any files that link student names to their anonymous monikers. These data will be kept for at least five years after the end of the project.

Timeline for data release: Two years from acquisition/analysis.

Intended Repository/Data: N/A.