

1-dimensional data assimilative modeling results for Station ALOHA (22.75 N, 158.0 W) from 1991-2005 (C-MORE project)

Website: <https://www.bco-dmo.org/dataset/3415>

Data Type: model results

Version:

Version Date: 2011-01-26

Project

» [Center for Microbial Oceanography: Research and Education](#) (C-MORE)

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Table of Contents

- [Dataset Description](#)
 - [Methods & Sampling](#)
 - [Data Processing Description](#)
- [Parameters](#)
- [Deployments](#)
- [Project Information](#)
- [Funding](#)

Dataset Description

1-dimensional data assimilative modeling results for Sta. ALOHA

Clicking on the Get Data button will download the model to you computer.

Methods & Sampling

1-Dimensional Data Assimilative Modeling Results

Location: Station ALOHA

Vertical Coverage: Surface 200 m (total of 25 layers, 5m/layer in 0 - 50m, 10m/layer in 50 - 200m)

Temporal Coverage: 1991 - 2005, daily average

Variables:

(1) Stocks in mmol/m**3

Normal (non-N₂-fixing) phytoplankton Carbon (C), Nitrogen (N) and Phosphorus (P)

Trichodesmium C, N and P

Unicellular N₂ fixers C, N and P

Heterotrophic bacteria C, N and P

Protozoan C, N and P

Metazoan C, N and P

Labile DOM C, N and P

Semilabile DOM C, N and P

Detritus C, N and P
Ammonium
Nitrate
Phosphate
Normal (non-N₂-fixing) phytoplankton Chlorophyll
Trichodesmium Chlorophyll
Unicellular N₂ fixers Chlorophyll

(2) Rates

Net primary production mmol C/m³/day
Net heterotrophic bacterial production mmol C/m³/day
Heterotrophic bacterial respiration mmol C/m³/day
Phytoplankton (including all 3 groups) nitrate and ammonium uptake rate mmol N/m³/day
N₂ fixation rate mmol N/m³/day
Detritus vertical export flux in C, N and P mmol/m³/day

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Data Processing Description

1-Dimensional Data Assimilative Modeling Results

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Unicellular N₂ fixers C, N and P
Heterotrophic bacteria C, N and P
Protozoan C, N and P
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Semilabile DOM C, N and P
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Yawei Luo
Postdoctoral Investigator
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Parameters

Parameter	Description	Units
depth	depth	m
time2	time	Julian days
SPc	normal phytoplankton C	mmol/m ³
SPn	normal phytoplankton N	mmol/m ³
SPp	normal phytoplankton P	mmol/m ³
TRc	Trichodesmium C	mmol/m ³
TRn	Trichodesmium N	mmol/m ³
TRp	Trichodesmium P	mmol/m ³
UNc	Unicellular N ₂ -fixers C	mmol/m ³
UNn	Unicellular N ₂ -fixers N	mmol/m ³
UNp	unicellular N ₂ -fixers P	mmol/m ³
BAc	heterotrophic bacterial C	mmol/m ³
BAn	heterotrophic bacterial N	mmol/m ³
BAp	heterotrophic bacterial P	mmol/m ³
PRTc	protozoan C	mmol/m ³
PRTn	protozoan N	mmol/m ³
PRTp	protozoan P	mmol/m ³
MZc	metazoan C	mmol/m ³
MZn	metazoan N	mmol/m ³
MZp	metazoan P	mmol/m ³
LDOMc	labile DOM C	mmol/m ³
LDOMn	labile DOM N	mmol/m ³
LDOMp	labile DOM P	mmol/m ³
SDOMc	semi-labile DOM C	mmol/m ³
SDOMn	semi-labile DOM N	mmol/m ³
SDOMp	semi-labile DOM P	mmol/m ³
DETC	detritus C	mmol/m ³
DETN	detritus N	mmol/m ³
DETP	detritus P	mmol/m ³
NH ₄	ammonium	mmol/m ³
NO ₃	nitrate	mmol/m ³
PO ₄	phosphate	mmol/m ³
SPchl	normal phytoplankton chlorophyll	mg/m ³
TRchl	Trichodesmium chlorophyll	mg/m ³

UNchl	Unicellular N ₂ -fixers chlorophyl	mg/m ³
npp	net primary production	mmol C/m ³ /day
nbp	net heterophic bacterial product	mmol C/m ³ /day
respBA	heterotrophic bacterial respirat	mmol C/m ³ /day
growDIN	phytoplankton nitrate and ammoni	mmol N/m ³ /day
growNF	N ₂ fixation rate by Trichodesmiu	mmol N/m ³ /day
exportc	C export flux	mmol C/m ² /day
exportn	N export flux	mmol C/m ² /day
exportp	P export flux	mmol C/m ² /day

[[table of contents](#) | [back to top](#)]

Deployments

lab_MBL_1d_model

Website	https://www.bco-dmo.org/deployment/58641
Platform	MBL
Start Date	1991-01-01
End Date	2005-12-31
Description	*/ The Ecosystems Center (MBL)

[[table of contents](#) | [back to top](#)]

Project Information

Center for Microbial Oceanography: Research and Education (C-MORE)

Website: <http://cmore.soest.hawaii.edu/>

Coverage: North Pacific Subtropical Gyre (large region around 22 45 N, 158 W)

Project summary

The **Center for Microbial Oceanography: Research and Education** (C-MORE) is a recently established (August 2006; NSF award: EF-0424599) NSF-sponsored Science and Technology Center designed to facilitate a more comprehensive understanding of the diverse assemblages of microorganisms in the sea, ranging from the genetic basis of marine microbial biogeochemistry including the metabolic regulation and environmental controls of gene expression, to the processes that underpin the fluxes of carbon, related bioelements and energy in the marine environment. Stated holistically, C-MORE's primary mission is: *Linking Genomes to Biomes*.

We believe that the time is right to address several major, long-standing questions in microbial oceanography. Recent advances in the application of molecular techniques have provided an unprecedented view of the structure, diversity and possible function of sea microbes. By combining these and other novel approaches with more well-established techniques in microbiology, oceanography and ecology, it may be possible to develop a meaningful predictive understanding of the ocean with respect to energy transduction, carbon sequestration, bioelement cycling and the probable response of marine ecosystems to global environmental variability and climate change. The strength of C-MORE resides in the synergy created by bringing together experts who traditionally have not worked together and this, in turn, will facilitate the creation and dissemination of new knowledge on the role of marine microbes in global habitability.

The new Center will design and conduct novel research, broker partnerships, increase diversity of human resources, implement education and outreach programs, and utilize comprehensive information about microbial life in the sea. The Center will bring together teams of scientists, educators and community members who otherwise do not have an opportunity to communicate, collaborate or design creative solutions to long-term ecosystem scale problems. The Center's research will be organized around four interconnected themes:

- (Theme I) microbial biodiversity,
- (Theme II) metabolism and C-N-P-energy flow,
- (Theme III) remote and continuous sensing and links to climate variability, and
- (Theme IV) ecosystem modeling, simulation and prediction.

Each theme will have a leader to help coordinate the research programs and to facilitate interactions among the other related themes. The education programs will focus on pre-college curriculum enhancements, in service teacher training and formal undergraduate/graduate and post-doctoral programs to prepare the next generation of microbial oceanographers. The Center will establish and maintain creative outreach programs to help diffuse the new knowledge gained into society at large including policymakers. The Center's activities will be dispersed among five partner institutions:

- Massachusetts Institute of Technology,
- Woods Hole Oceanographic Institution,
- Monterey Bay Aquarium Research Institute,
- University of California at Santa Cruz and
- Oregon State University

and will be coordinated at the University of Hawaii at Manoa.

Related Files:

[Strategic plan \(PDF file\)](#)

[[table of contents](#) | [back to top](#)]

Funding

Funding Source	Award
NSF Division of Biological Infrastructure (NSF DBI)	DBI-0424599

[[table of contents](#) | [back to top](#)]