

Nanoplankton abundance and biovolume from R/V Thomas G. Thompson TT043, TT045 cruises in the Arabian Sea in 1995 (U.S. JGOFS Arabian Sea project)

Website: <https://www.bco-dmo.org/dataset/2527>

Version: February 25, 1997

Version Date: 1997-02-25

Project

» [U.S. JGOFS Arabian Sea](#) (Arabian Sea)

Program

» [U.S. Joint Global Ocean Flux Study](#) (U.S. JGOFS)

Contributors	Affiliation	Role
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Dataset Description

Nanoplankton abundance and biovolume

Methods & Sampling

See Platform deployments for cruise specific documentation

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Parameters

Parameter	Description	Units
event	event number from event log	
sta	station number from event log	
sta_std	Arabian Sea standard station identifier	
cast	CTD cast number	
bot	CTD bottle number	
press	sample depth reported as pressure	decibars
pnp	phototrophic nanoplankton	cells/milliliter
hnp	heterotrophic nanoplankton	cells/milliliter
pnp_biov	phototrophic nanoplankton biovolume	10 ⁶ cubic micrometers/liter
hnp_biov	heterotrophic nanoplankton biovolume	10 ⁶ cubic micrometers/liter

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Instruments

Dataset-specific Instrument Name	Niskin Bottle
Generic Instrument Name	Niskin bottle
Dataset-specific Description	Niskin bottles were mounted on the CTD rosette.
Generic Instrument Description	A Niskin bottle (a next generation water sampler based on the Nansen bottle) is a cylindrical, non-metallic water collection device with stoppers at both ends. The bottles can be attached individually on a hydrowire or deployed in 12, 24, or 36 bottle Rosette systems mounted on a frame and combined with a CTD. Niskin bottles are used to collect discrete water samples for a range of measurements including pigments, nutrients, plankton, etc.

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Deployments

TT043

Website	https://www.bco-dmo.org/deployment/57704
Platform	R/V Thomas G. Thompson
Report	http://osprey.bcodmo.org/datasetDeployment.cfm?ddid=2580&did=353&flag=view
Start Date	1995-01-08
End Date	1995-02-05
Description	<p>Purpose: Process Cruise #1 (Late NE Monsoon)</p> <p>Methods & Sampling PI: David Caron of: Woods Hole Oceanographic Institution dataset: Nanoplankton abundance and biovolume dates: January 09, 1995 to January 31, 1995 location: N: 22.4826 S: 10.0013 W: 57.2999 E: 68.75 project/cruise: Arabian Sea/TTN-043 - Process Cruise 1 (Late NE Monsoon) ship: Thomas Thompson David Caron WHOI Methods for nanoplankton counts Assemblages of phototrophic (pnp) and heterotrophic (hnp) nanoplankton were preserved in a final concentration of 1% formalin and stored at 4 degrees C. Samples were prepared for enumeration by epifluorescence microscopy within 24 hrs of preservation by staining with DAPI at a final concentration of 25 ug/ml (Caron, 1983; Sherr et al, 1993). Phototrophic (chloroplast-bearing) nanoplankton were distinguished from heterotrophs by the autofluorescence of chlorophyll a. Biovolumes were estimated by calculating the volume of an appropriate geometric shape (usually a sphere) from samples at 4 representative depths and then extrapolated through the water column. References Caron, D.A. (1983) Technique for enumeration of heterotrophic and phototrophic nanoplakton, using epifluorescence microscopy, and comparison with other procedures. Applied and Enviromental Microbiology, 46, 491-498. Sherr, E.B., D.A. Caron and B.F. Sherr (1993) Staining of heterotrophic protists for visualization via epifluorescence microscopy. In: Handbook of methods in aquatic microbial ecology, Kemp, P., J. Cole, B. Sherr and E. Sherr, eds. Lewis Publishers, Boca Raton, pp. 213-227.</p>

TT045

Website	https://www.bco-dmo.org/deployment/57706
Platform	R/V Thomas G. Thompson
Start Date	1995-03-14
End Date	1995-04-10
Description	<p>Methods & Sampling PI: David Caron of: Woods Hole Oceanographic Institution dataset: Nanoplankton abundance and biovolume dates: March 15, 1995 to April 07, 1995 location: N: 22.4853 S: 9.9994 W: 57.3007 E: 68.7532 project/cruise: Arabian Sea/TTN-045 - Process Cruise 2 (Spring intermonsoon) ship: Thomas Thompson David Caron WHOI Methods for nanoplankton counts Assemblages of phototrophic (pnp) and heterotrophic (hnp) nanoplankton were preserved in a final concentration of 1% formalin and stored at 4 degrees C. Samples were prepared for enumeration by epifluorescence microscopy within 24 hrs of preservation by staining with DAPI at a final concentration of 25 ug/ml (Caron, 1983; Sherr et al, 1993). Phototrophic (chloroplast-bearing) nanoplankton were distinguished from heterotrophs by the autofluorescence of chlorophyll a. Biovolumes were estimated by calculating the volume of an appropriate geometric shape (usually a sphere) from samples at 4 representative depths and then extrapolated through the water column. References Caron, D.A. (1983) Technique for enumeration of heterotrophic and phototrophic nanoplakton, using epifluorescence microscopy, and comparison with other procedures. Applied and Enviromental Microbiology, 46, 491-498. Sherr, E.B., D.A. Caron and B.F. Sherr (1993) Staining of heterotrophic protists for visualization via epifluorescence microscopy. In: Handbook of methods in aquatic microbial ecology, Kemp, P., J. Cole, B. Sherr and E. Sherr, eds. Lewis Publishers, Boca Raton, pp. 213-227.</p>

Project Information

U.S. JGOFS Arabian Sea (Arabian Sea)

Website: <http://usjgofs.whoi.edu/research/arabian.html>

Coverage: Arabian Sea

The U.S. Arabian Sea Expedition which began in September 1994 and ended in January 1996, had three major components: a U.S. JGOFS Process Study, supported by the National Science Foundation (NSF); Forced Upper Ocean Dynamics, an Office of Naval Research (ONR) initiative; and shipboard and aircraft measurements supported by the National Aeronautics and Space Administration (NASA). The Expedition consisted of 17 cruises aboard the R/V Thomas Thompson, year-long moored deployments of five instrumented surface buoys and five sediment-trap arrays, aircraft overflights and satellite observations. Of the seventeen ship cruises, six were allocated to repeat process survey cruises, four to SeaSoar mapping cruises, six to mooring and benthic work, and a single calibration cruise which was essentially conducted in transit to the Arabian Sea.

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Program Information

U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Website: <http://usjgofs.whoi.edu/>

Coverage: Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

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Funding

Funding Source	Award
National Science Foundation (NSF)	unknown Arabian Sea NSF

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