

Station Name:

Bermuda Atlantic Time-series Study (BATS)
Hydrostation "S"

**Type of Station (moored / ship-based) and Location
(geographic region / latitude and longitude coordinates):**

Both are ship-based
Both are in the Subtropical North Atlantic Gyre
BATS – 31°40'N by 064°10'W
Hydrostation "S" – 32°10'N by 064°30'W

**Carbon and biogeochemistry measurements at the station
(indicate the frequency of observations, the year measurements began, and if they are surface / full water column, etc.):**

Most measurements have been made monthly since October 1988. During that time some new measurements have been started (DOC, DON, P cycle measurements), but since initiation have been measured monthly. Most measurements (particle flux excepted) are also measured biweekly from January to April each year starting in 1990. Details on specific measurements, depths and methods are appended below, and still further information can be found at our web site (<http://bats.bios.edu>).

Principle Investigators / Contact Points:

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Affiliation of this station with national, regional, or global research programs and process studies:

The BATS site is one of 3 (formerly 4) US time-series stations near the island of Bermuda: BATS, HS, Ocean Flux Program (OFP) and Bermuda Testbed Mooring (BTM).

BATS is part of OceanSITES and other global coordination programs.

Web-site or links to other information:

<http://bats.bios.edu>

Core Measurements at BATS

Parameter	Depth Range (m)	Method/Instrument
<i>Continuous electronic measurements</i>		
Temperature	0 - 4200	Dual SBE-03f sensors
Conductivity	0 - 4200	Dual SBE04 sensors
Pressure	0 - 4200	SeaBird Digiquartz
Dissolved Oxygen	0 - 4200	SBE43 polarographic membrane sensors
Fluorescence	0 - 4200	Chelsea Instruments
<i>Discrete Samples</i>		
Salinity	0 - 4200	Guildline Autosal 8400B
Dissolved Oxygen	0 - 4200	Winkler Titration, UV endpoint
Total CO ₂	0 - 500	Automated coulometric analysis
Alkalinity	0 - 500	High precision titration
Nitrate, Nitrite	0 - 4200	CFA colorometric
Phosphate	0 - 4200	CFA colorometric
MAGIC-SRP	0 - 200	MAGIC co-precipitation method
Silicate	0 - 4200	CFA colorometric
Dissolved Organic Carbon	0 - 4200	High temperature catalytic oxidation
Dissolved Organic Nitrogen	0 - 4200	UV oxidation
Dissolved Organic Phosphorus	0 - 500	Persulfate digestion
Particulate Organic Carbon	0 - 1000	High temperature combustion CHN
Particulate Organic Nitrogen	0 - 1000	High temperature combustion CHN
Particulate Organic Phosphorus	0 - 500	Ash/hydrolysis
Particulate Silicate	0 - 1000	Chemical digestion, colorometric analysis
Phytoplankton Pigments	0 - 250	HPLC
Pico-phytoplankton	0 - 250	Analytical flow cytometry
Fluorometric Chlorophyll a	0 - 250	Turner fluorometer
Bacteria Enumeration	0 - 4000	DAPI stained, fluorescence microscopy
<i>Rate Measurements</i>		
Primary Production	0 - 140	in-situ incubation , ¹⁴ C uptake
Bacterial activity	0 - 300	Thymidine incorporation
Particle Fluxes	150, 200, 300	Free drifting surface tethered MultiPITs
Mass flux		Gravimetric analysis
Total Carbon flux		Swimmer removal, CHN analysis
Organic carbon flux		Swimmer removal, acidification , CHN
Organic nitrogen flux		Swimmer removal, acidification , CHN
Organic phosphorus flux		Swimmer removal, ash/hydrolysis