

DATABASE

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Dataset: SAMI-CO2 pCO2 and Temperature Mooring Time Series

Deployment: EN394_ASIS

SAMI-CO2 pCO2 Temperature and Oxygen Time series dataset

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BCO-DMO Data Manager: Mr Stephen R. Gegg (Woods Hole Oceanographic Institution, WHOI BCO-DMO)
Project: Collaborative research: Air-Sea CO2 Fluxes and Surface Physical Processes in the Labrador Sea (CO2Flux_LabradorSea)
Current State: Final no updates expected
Version: 06 January 2016
Version Date: Wednesday, January 6, 2016
Data URL: http://www.bco-dmo.org/dataset-deployment/630664/data ↗

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Getting started

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Description

SAMI-CO2 pCO2 & temperature mooring time series collected in the Labrador Sea.

Labrador Sea, deployed at 53.04N, 49.207W, 1 SAMI-CO2 deployed at each depth (1, 5, 10, 20 and 35 meters)

Related files and references:

DeGrandpre M.D. , Hammar T.R. , Smith S.P. , Sayles F.L., (1995), *In situ measurements of seawater pCO2* , *Limnology and Oceanography*, 40.

Martz, T. R., M. D. DeGrandpre, P. G. Strutton, W. R. McGillis, and W. M. Drennan (2009), *Sea surface pCO2 and carbon export during the Labrador Sea spring-summer bloom: An in situ mass balance approach*, *J. Geophys. Res.*, 114

Acquisition Description**Dataset acquisition description**

Labrador Sea, deployed at 53.04N, 49.207W, 1 SAMI-CO2 deployed at each depth (1, 5, 10, 20 and 35 meters)

Sampling and Analytical Methodology:

The SAMI-CO2s sampled on a 30 minute interval, a non-absorbing blank measurement was taken every 3.5 days.

Processing Description**Dataset Processing Description****Data Processing:**

See DeGrandpre, et.al (1995). The data were interpolated to 30 minute intervals

BCO-DMO Processing Notes

- Generated from original "LabSea June-Aug 2004_SAMI-CO2.xlsx" file contributed by Corey Beatty
- Parameter names edited to conform to BCO-DMO naming convention found at [Choosing Parameter Name](#)
- Date reformatted to YYYYMMDD
- Time reformatted to HHMMSS

More information about this dataset deployment

Funding

Award Number	Funding Source
OCE-0327274	NSF Ocean Sciences

Instruments

Air-Sea Interaction Spar (ASIS) Buoy

([more info](#))

Short Name: ASIS

Generic Description

See: [Air-Sea Interaction Spar \(ASIS\) Buoy](#)

PI supplied instrument name: ASIS-1, ASIS-2
Dataset-specific description

During the deployment 2 separate ASIS Buoys were deployed, ASIS-1 & ASIS-2, upon each of which 2 SAMIs were attached. Each buoy had 1 SAMI-CO2 attached at 1 meter and 1 SAMI-CO2 attached at 5 meters depth. The SAMI-CO2 sampled on a 30 minute interval and a non-absorbing blank measurement was taken every 3.5 days. PAR was measured by a Li-COR LI-192 underwater quantum sensor (not calibrated). Oxygen data was obtained using a calibrated Aanderaa O2 sensor (model 4175). Both the PAR and O2 sensors were attached to a SAMI-CO2 sensor. There is no pCO2 record at 1 meter on ASIS-2.

pCO2 Sensor

([more info](#))

Short Name: pCO2 Sensor

Generic Description

A sensor that measures the partial pressure of CO2 in water (pCO2)

PI supplied instrument name: SAMI-CO2 pCO2
Dataset-specific description

During the deployment 2 separate ASIS Buoys were deployed, ASIS-1 & ASIS-2, upon each of which 2 SAMIs were attached. Each buoy had 1 SAMI-CO2 attached at 1 meter and 1 SAMI-CO2 attached at 5 meters depth. The SAMI-CO2 sampled on a 30 minute interval and a non-absorbing blank measurement was taken every 3.5 days. PAR was measured by a Li-COR LI-192 underwater quantum sensor (not calibrated). Oxygen data was obtained using a calibrated Aanderaa O2 sensor (model 4175). Both the PAR and O2 sensors were attached to a SAMI-CO2 sensor. There is no pCO2 record at 1 meter on ASIS-2.

Submersible Autonomous Moored Instrument

([more info](#))

Short Name: SAMI

Generic Description

The Submersible Autonomous Moored Instrument (SAMI) measures and logs levels of dissolved chemicals in sea and fresh water. It is a plastic cylinder about 6 inches wide and 2 feet long that is self-powered and capable of hourly measurements for up to one year. All data collected are logged to an internal memory chip to be downloaded later. SAMI sensors usually

PI supplied instrument name: SAMI-CO2 pCO2
Dataset-specific description

During the deployment 2 separate ASIS Buoys were deployed, ASIS-1 & ASIS-2, upon each of which 2 SAMIs were attached. Each buoy had 1 SAMI-CO2 attached at 1 meter and 1 SAMI-CO2 attached at 5 meters depth. The SAMI-CO2 sampled on a 30 minute interval and a non-absorbing blank measurement was taken every 3.5 days. PAR was measured by a Li-COR LI-192 underwater quantum sensor (not

are placed a few feet underwater on permanent moorings, while others on floating drifters sample the water wherever the wind and currents carry them. The instruments have been used by researchers around the globe in a variety of studies since 1999. Dr. Mike DeGrandpre, University of Montana, developed the SAMI between 1990 and 1993 during his postdoctoral work at the Woods Hole Oceanographic Institution (Woods Hole, MA, USA). For additional information, see URL: <http://www.sunburstsensors.com/> from the manufacturer, Sunburst Sensors, LLC, 1226 West Broadway, Missoula, MT 59802.

calibrated). Oxygen data was obtained using a calibrated Aanderaa O2 sensor (model 4175). Both the PAR and O2 sensors were attached to a SAMI-CO2 sensor. There is no pCO2 record at 1 meter on ASIS-2.

Water Temperature Sensor

([more info](#))

Short Name: Water Temp Sensor
Community Standard Description

Generic Description

General term for an instrument that measures the temperature of the water with which it is in contact (thermometer).

PI supplied instrument name: SAMI-CO2 pCO2 and Temperature

Dataset-specific description

During the deployment 2 separate ASIS Buoys were deployed, ASIS-1 & ASIS-2, upon each of which 2 SAMIs were attached. Each buoy had 1 SAMI-CO2 attached at 1 meter and 1 SAMI-CO2 attached at 5 meters depth. The SAMI-CO2 sampled on a 30 minute interval and a non-absorbing blank measurement was taken every 3.5 days. PAR was measured by a Li-COR LI-192 underwater quantum sensor (not calibrated). Oxygen data was obtained using a calibrated Aanderaa O2 sensor (model 4175). Both the PAR and O2 sensors were attached to a SAMI-CO2 sensor. There is no pCO2 record at 1 meter on ASIS-2.

Parameters

Supplied Name	Supplied description	Supplied Units	Standard Name
Excel_Date	Excel Date	xxxxx.xxxx	unknown
Year_Day	Jan 1 = YD1	xxx.xxxx	yday
Date	Date (UTC)	YYYYMMDD	date
Time	Time (UTC)	HHMMSS	time
SAMI_52_1m_pCO2	Partial Pressure of Carbon Dioxide – SAMI 52 at 1m	uatm	pCO2
SAMI_52_1m_Temp	Temperature – SAMI 52 at 1m	oC	temp
SAMI_11_5m_pCO2	Partial Pressure of Carbon Dioxide – SAMI 11 at 5m	uatm	pCO2
SAMI_11_5m_Temp	Temperature – SAMI 11 at 5m	oC	temp
SAMI_51_10m_pCO2	Partial Pressure of Carbon Dioxide – SAMI 51 at 10m	uatm	pCO2
SAMI_51_10m_Temp	Temperature – SAMI 51 at 10m	oC	temp

SAMI_12_20m_pCO2	Partial Pressure of Carbon Dioxide – SAMI 12 at 20m	uatm	pCO2
SAMI_12_20m_Temp	Temperature – SAMI 12 at 20m	oC	temp
SAMI_50_35m_pCO2	Partial Pressure of Carbon Dioxide – SAMI 50 at 35m	uatm	pCO2
SAMI_50_35m_Temp	Temperature – SAMI 50 at 35m	oC	temp
ASIS_Lat	Latitude Position of ASIS Buoy at time of measurement (South is negative)	decimal degrees	lat
ASIS_Lon	Longitude Position of ASIS Buoy at time of measurement (West is negative)	decimal degrees	lon

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