Directory | Data Display

Data server object: DOGEE-II

BCO-DMO dataset: SAMI-CO2 pCO2 Temperature and Oxygen Time series dataset

Contacts

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Dataset description

SAMI-CO2 pCO2 Temperature and Oxygen Time series dataset collected by ASIS spar buoys during RRS DISCOVERY Cruise D320 (DOGEE-II)

North Atlantic, ASIS-1 deployed at 43°41.5'N, 18°8.5'W, ASIS-2 deployed at 43°22.4'N, 17°51.4'W. ASIS-1 was recovered at 42°29.6'N, 15°55.3'W, ASIS-2 was recovered at 42°45.6'N, 15°55.8'W.

Acquisition description

North Atlantic, ASIS-1 deployed at 43°41.5'N, 18°8.5'W, ASIS-2 deployed at 43°22.4'N, 17°51.4'W. ASIS-1 was recovered at 42°29.6'N, 15°55.3'W, ASIS-2 was recovered at 42°45.6'N, 15°55.8'W.

Sampling and Analytical Methodology:
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 O_2 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.

Processing description

Data Processing:
The data were interpolated to a 30 minute interval

BCO-DMO Processing Notes
- Generated from the following list of original .xlsx files contributed by Corey Beatty
DOGEE_ASIS1_1m_SAMICO2.xlsx
DOGEE_ASIS1_5m_SAMICO2.xlsx
DOGEE_ASIS2_1m_SAMICO2.xlsx
DOGEE_ASIS2_5m_SAMICO2.xlsx
- Parameter names edited to conform to BCO-DMO naming convention found at Choosing Parameter Name
- Date reformatted to YYYYMMDD
- Time reformatted to HHMMSS

Field Names List

Parameter	Description	Units
CruiseId	Cruise Id	text
Expedition	Expedition Name	text
Dataset_Id	Dataset/Deployment Id	text
Date_Start	Start Date of Dataset/Deployment (UTC)	YYYYMMDD
Time_Start	Start Time of Dataset/Deployment (UTC)	HHMMSS
Lat_Start	Start Latitude of Dataset/Deployment (South is negative)	decimal degrees
Lon_Start	Start Longitude of Deployment (West is negative)	decimal degrees
Date_End	End Date of Dataset/Deployment (UTC)	YYYYMMDD
Time_End	End Time of Dataset/Deployment (UTC)	HHMMSS

Lat_End	End Latitude of Dataset/Deployment (South is negative)	decimal degrees
Lon_End	End Longitude of Deployment (West is negative)	decimal degrees
Excel_Date	Excel Date	xxxxx.xxxx
Year_Day	Jan 1 = YD1	xxx.xxxx
Date	Date (UTC)	YYYYMMDD
Time	Time (UTC)	HHMMSS
Temp	Temperature	oC
pCO2	Partial Pressure of Carbon Dioxide	uatm
PAR	PAR	uE m-2 sec-1
O2	O2	uM
ASIS_Lat	Latitude Position of ASIS Buoy at time of measurement (South is negative)	decimal degrees
ASIS_Lon	Longitude Position of ASIS Buoy at time of measurement (West is negative)	decimal degrees

Deployment List

Discovery D320	*Air-Sea Interaction Spar (ASIS) Buoy DOGEE_ASIS1_1m_SAMICO2*	*Air-Sea Interaction Spar (ASIS) Buoy DOGEE_ASIS1_5m_SAMICO2*	*Air-Sea Interaction Spar (ASIS) Buoy DOGEE_ASIS2_1m_SAMICO2*	*Air-Sea Interaction Spar (ASIS) Buoy DOGEE_ASIS2_5m_SAMICO2*

Instruments List

1. **Submersible Autonomous Moored Instrument:**

Short name: SAMI
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 $O_{??2}$ 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.

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 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.

2. **pCO2 Sensor:**

Short name: pCO2 Sensor
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 $O_{??2}$ 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.

Generic description:

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

3. **Water Temperature Sensor:**

Short name: Water Temp Sensor
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 $O_{\diamond\diamond 2}$ 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.

Generic description:

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

4. **Air-Sea Interaction Spar (ASIS) Buoy:**

Short name: ASIS
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 O◆◆2 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.

Generic description:

See: Air-Sea Interaction Spar (ASIS) Buoy

5. **LI-COR LI-192 PAR Sensor:**

Short name: LI-COR LI-192 PAR
PI supplied instrument name: Li-COR LI-192 underwater quantum sensor
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 O◆◆2 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.

Generic description:

The LI-192 Underwater Quantum Sensor (UWQ) measures underwater or atmospheric Photon Flux Density (PPFD) (Photosynthetically Available Radiation from 360 degrees) using a Silicon Photodiode and glass filters encased in a waterproof housing. The LI-192 is cosine corrected and features corrosion resistant, rugged construction for use in freshwater or saltwater and pressures up to 800 psi (5500 kPa, 560 meters depth). Typical output is in um s-1 m-2. The LI-192 uses computer-tailored filter glass to achieve the desired quantum response. Calibration is traceable to NIST. The LI-192 serial numbers begin with UWQ-XXXXX. LI-COR has been producing Underwater Quantum Sensors since 1973.

These LI-192 sensors are typically listed as LI-192SA to designate the 2-pin connector on

the base of the housing and require an Underwater Cable (LI-COR part number 2222UWB) to connect to the pins on the Sensor and connect to a data recording device.

The LI-192 differs from the LI-193 primarily in sensitivity and angular response.

193: Sensitivity: Typically 7 uA per 1000 umol s-1 m-2 in water. Azimuth:

192: Sensitivity: Typically 4 uA per 1000 umol s-1 m-2 in water. Azimuth:

(www.licor.com)

6. **Aanderaa Oxygen Optodes:**

Short name: AOO
PI supplied instrument name: Aanderaa O��2 sensor (model 4175)
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 O��2 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.

Generic description:

Aanderaa Oxygen Optodes are instrument for monitoring oxygen in the environment. For instrument information see the Aanderaa Oxygen Optodes Product Brochure.

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