

Dataset Expocode	74EQ20170924
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Dataset	Funding Info: UK Natural Environment Research Council - Atlantic Meridional Transect (AMT) Initial Submission (yyyymmdd): 20210115 Revised Submission (yyyymmdd):
Campaign/Cruise	Expocode: 74EQ20170924 Campaign/Cruise Name: DY084 (AMT27) Campaign/Cruise Info: DY084 (AMT27) Platform Type: CO2 Instrument Type: Equilibrator-IR or CRDS or GC Survey Type: Research Cruise Vessel Name: Discovery Vessel Owner: UK-Natural Environment Research Council Vessel Code: 74EQ
Coverage	Start Date (yyyymmdd): 20170924 End Date (yyyymmdd): 20171105 Westernmost Longitude: 57.8038 W Easternmost Longitude: 8.0844 W Northernmost Latitude: 48.7394 N Southernmost Latitude: 54.2871 S
Variable	Name: xCO2_equ[umol/mol] Unit: micro-mol/mol Description: CO2 mixing ratio measured at Tequ (wet)
Variable	Name: Patm [hPa] Unit: hecta-Pascal Description: Atmospheric Pressure
Variable	Name: Tequ [deg.C] Unit: degrees Celsius Description: Temperature in Equilibrator
Variable	Name: SST [deg.C] Unit: degrees Celsius Description: Sea Surface Temperature (at intake depth=6m)

Variable	Name: Sal Unit: unitless or PSU Description: Salinity
Variable	Name: pCO2_sw[uatm] Unit: micro-atm Description: Seawater partial pressure of CO2 at SST (wet)
Variable	Name: pCO2_atm[uatm] Unit: micro-atm Description: Atmospheric partial pressure of CO2 (wet)
Variable	Name: fCO2_sw[uatm] Unit: micro-atm Description: Seawater fugacity of CO2 at SST (wet)
Variable	Name: fCO2_atm[uatm] Unit: micro-atm Description:
Variable	Name: xCO2atm_dry[umol/mol] Unit: micro-mol/mol Description:
Variable	Name: Pequ [hPa] Unit: hecta-Pascal Description: Equilibration Pressure
Sea Surface Temperature	Location: Adjacent to intake at 6 m depth Manufacturer: SeaBird Electronics Model: SBE45 Accuracy: 0.001 (°C if units not given) Precision: 0.001 (°C if units not given) Calibration: Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre (www.bodc.ac.uk) Comments:
Sea Surface Salinity	Location: Adjacent to intake at 6 m depth Manufacturer: SeaBird Electronics Model: SBE45 Accuracy: 0.002 Precision: 0.002 Calibration: Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre (www.bodc.ac.uk) Comments:
Atmospheric Pressure	Location: Met-platform on foremast, 18 m asl Normalized to Sea Level: yes Manufacturer: Vaisala Model: PTB110 barometer Accuracy: 1 hPa (hPa if units not given) Precision: 1 hPa (hPa if units not given) Calibration: Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre (www.bodc.ac.uk) Comments:
Atmospheric CO2	Measured/Frequency: yes, circa every 20 minutes Intake Location: Met-platform on foremast, 18 m asl

Drying Method:
Atmospheric CO2 Accuracy: <2 micro-atm fCO2
Atmospheric CO2 Precision: <0.1 micro-atm fCO2

**Aqueous CO2
Equilibrator Design**

System Manufacturer:
Intake Depth: 6 m
Intake Location: Hull
Equilibration Type: Headspace (vented)
Equilibrator Volume (L): 2.5
Headspace Gas Flow Rate (ml/min): 200
Equilibrator Water Flow Rate (L/min): 1.6
Equilibrator Vented: Yes
Equilibration Comments:
Drying Method: Peltier drier to <20% humidity

**Aqueous CO2
Sensor Details**

Measurement Method: IR
Method details: Non Dispersive IR Sensor
Manufacturer: LICOR
Model: LI-840
Measured CO2 Values: xCO2 dry(wet)
Measurement Frequency: Every 5 minutes
Aqueous CO2 Accuracy: <2 micro-atm fCO2
Aqueous CO2 Precision: <0.1 micro-atm fCO2
Sensor Calibrations: Sensor calibration during deployment using 3 gas standards (BOC gases Ltd., 257.65,374.56,480.3 ppmv CO2 in synthetic air. These are calibrated in lab against NOAA standards (nos:CA07398,CA07305,CB08944) with WMO X2007 certification).
Calibration of Calibration Gases: Ship
Number Non-Zero Gas Standards: 3
Calibration Gases:
BOC gases Ltd., 257.65,374.56,480.3 ppmv CO2 in synthetic air. These are calibrated in lab against NOAA standards (nos:CA07398,CA07305,CB08944) with WMO X2007 certification
Comparison to Other CO2 Analyses:
Comments:
Method Reference:
Ribas-Ribas et al. 2014. Intercomparison of carbonate chemistry measurements on a cruise in northwestern European shelf seas. Biogeosciences. 11: 4339-4355

**Equilibrator
Temperature Sensor**

Location: Platinum Resistance Thermocouple (PT100) in equilibrator
Manufacturer: Pico-Technology
Model: PT100 Class B
Accuracy: 0.01 (°C if units not given)
Precision: 0.01 (°C if units not given)
Calibration: Calibrated prior to cruise (ice-point)
Comments:

**Equilibrator
Pressure Sensor**

Location: In line with equilibrator
Manufacturer: Druck GmbH
Model: PTX7517-3257
Accuracy: 0.1 (hPa if units not given)
Precision: 0.1 (hPa if units not given)
Calibration: Calibrated annually
Comments:

**Additional
Information**

Suggested QC flag from Data Provider: NA
Additional Comments:
Citation for this Dataset:
Other References for this Dataset: