

Dataset Expocode	740H20121011
Primary Contact	Name: Vassilis Kitidis Organization: Plymouth Marine Laboratory Address: Prospect Place, Plymouth, PL13DH, United Kingdom Phone: +441752633100 Email: vak@pml.ac.uk
Investigator	Name: Kitidis, Dr. Vassilis Organization: Plymouth Marine Laboratory Address: Prospect Place Plymouth PL13DH Phone: +441752633100 Email: vak@pml.ac.uk
Investigator	Name: Brown, Mr. Ian Organization: Plymouth Marine Laboratory Address: Prospect Place Plymouth PL13DH Phone: +441752633100 Email: iaian2@pml.ac.uk
Dataset	Funding Info: UK Natural Environment Research Council - Atlantic Meridional Transect Initial Submission (yyyymmdd): 20170123 Revised Submission (yyyymmdd):
Campaign/Cruise	Expocode: 740H20121011 Campaign/Cruise Name: JC079(AMT22) Campaign/Cruise Info: AMT22 (UK-NERC) Platform Type: CO2 Instrument Type: Equilibrator-IR or CRDS or GC Survey Type: Research Cruise Vessel Name: James Cook Vessel Owner: UK-Natural Environment Research Council Vessel Code: 740H
Coverage	Start Date (yyyymmdd): 20121011 End Date (yyyymmdd): 20121120 Westernmost Longitude: 54.3288 W Easternmost Longitude: 8.65074 W Northernmost Latitude: 49.58775 N Southernmost Latitude: 47.1486 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 and kept by British Antarctic Survey Polar Data Centre (https://www.bas.ac.uk/team/business-teams/information-services/polar-data-centre/) Comments:
Atmospheric Pressure	Location: Met-platform on deck above bridge, 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 deck above bridge, 18 m asl

Drying Method:

Atmospheric CO2 Accuracy: <2 micro-atm fCO2

Atmospheric CO2 Precision: <0.5 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 11 minutes

Aqueous CO2 Accuracy: <2 micro-atm fCO2

Aqueous CO2 Precision: <0.5 micro-atm fCO2

Sensor Calibrations: Sensor calibration during deployment using 3 gas standards (nominally 250; 380 and 450 ppmv CO2 in synthetic air)

Calibration of Calibration Gases: Ship

Number Non-Zero Gas Standards: 3

Calibration Gases:

BOC gases Ltd., nominally 250; 380 and 450 ppmv CO2 in synthetic air

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: