

Dataset Expocode 74JC20170324

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Dataset **Funding Info:** UK Natural Environment Research Council - ORCHESTRA
Initial Submission (yyyymmdd): 20200113
Revised Submission (yyyymmdd):

Campaign/Cruise **Expocode:** 74JC20170324
Campaign/Cruise Name: JR16005 (ORCHESTRA)
Campaign/Cruise Info: JR16005
Platform Type:
CO2 Instrument Type: Equilibrator-IR or CRDS or GC
Survey Type: Research Cruise
Vessel Name: James Clark Ross
Vessel Owner: UK-Natural Environment Research Council
Vessel Code: 74JC

Coverage **Start Date (yyyymmdd):** 20170324
End Date (yyyymmdd): 20170501
Westernmost Longitude: 43.4066 W
Easternmost Longitude: 39.3625 W
Northernmost Latitude: 59.7558 S
Southernmost Latitude: 62.8025 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 and kept by British Antarctic Survey Polar Data Centre (<https://www.bas.ac.uk/team/business-teams/information-services/polar-data-centre/>)

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 and kept by British Antarctic Survey Polar Data Centre (<https://www.bas.ac.uk/team/business-teams/information-services/polar-data-centre/>)

Comments:

Atmospheric CO2	<p>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: <0.1 micro-atm fCO2</p>
Aqueous CO2 Equilibrator Design	<p>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</p>
Aqueous CO2 Sensor Details	<p>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., 254.691,376.66,472.82, 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., 254.691,376.66,472.82, 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</p>
Equilibrator Temperature Sensor	<p>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:</p>
Equilibrator Pressure Sensor	<p>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)</p>

Calibration: Calibrated annually

Comments:

**Additional
Information**

Suggested QC flag from Data Provider: NA

Additional Comments:

Citation for this Dataset:

Other References for this Dataset: