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| **Dataset Expocode** | **74JC20130109** |
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| **Dataset** | **Funding Info:** UK Natural Environment Research Council & Department Department for Environment, Food and Rural Affairs - UK Ocean Acidification (UKOA) (grant #:NE/H017348/1)<br>**Initial Submission (yyyymmdd):** 20140711<br>**Revised Submission (yyyymmdd):** 20160128 |
| **Campaign/Cruise** | **Expocode:** 74JC20130109<br>**Campaign/Cruise Name:** JR_274<br>**Campaign/Cruise Info:** UK Ocean Acidification (UKOA)<br>**Platform Type:**<br>**CO2 Instrument Type:** Equilibrator-IR or CRDS or GC<br>**Survey Type:** Research Cruise<br>**Vessel Name:** James Clark Ross<br>**Vessel Owner:** UK-Natural Environment Research Council<br>**Vessel Code:** 74JC |
| **Coverage** | **Start Date (yyyymmdd):** 20130109<br>**End Date (yyyymmdd):** 20130111<br>**Westernmost Longitude:** 58.27884 W<br>**Easternmost Longitude:** 57.05149 W<br>**Northernmost Latitude:** 52.36995 S<br>**Southernmost Latitude:** 57.11795 S<br>**Port of Call:** Stanley, Falkland Islands |
| **Variable** | **Name:** xCO2_equ[umol/mol]<br>**Unit:** micro-mol/mol<br>**Description:** CO2 mixing ratio measured at Tequ (wet) |
| **Variable** | **Name:** Patm [hPa]<br>**Unit:** hecta-Pascal<br>**Description:** Atmospheric Pressure |
| **Variable** | **Name:** Tequ [deg.C]<br>**Unit:** degrees Celsius<br>**Description:** Temperature in Equilibrator |
| **Variable** | **Name:** SST [deg.C]<br>**Unit:** degrees Celsius |

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| | **Description:** Sea Surface Temperature (at intake depth=6m) |
| **Variable** | **Name:** Sal<br>**Unit:** unitless or PSU<br>**Description:** Salinity |
| **Variable** | **Name:** pCO2_sw[uatm]<br>**Unit:** micro-atm<br>**Description:** Seawater partial pressure of CO2 at SST (wet) |
| **Variable** | **Name:** pCO2_atm[uatm]<br>**Unit:** micro-atm<br>**Description:** Atmospheric partial pressure of CO2 (wet) |
| **Variable** | **Name:** fCO2_sw[uatm]<br>**Unit:** micro-atm<br>**Description:** Seawater fugacity of CO2 at SST (wet) |
| **Variable** | **Name:** fCO2_atm[uatm]<br>**Unit:** micro-atm<br>**Description:** |
| **Variable** | **Name:** xCO2atm_dry[umol/mol]<br>**Unit:** micro-mol/mol<br>**Description:** |
| **Variable** | **Name:** Pequ [hPa]<br>**Unit:** hecta-Pascal<br>**Description:** Equilibration Pressure |
| **Sea Surface Temperature** | **Location:** Adjacent to intake at 6 m depth<br>**Manufacturer:** SeaBird Electronics<br>**Model:** SBE45<br>**Accuracy:** 0.001 (°C if units not given)<br>**Precision:** 0.001 (°C if units not given)<br>**Calibration:** Recorded and kept by British Antarctic Survey Polar Data Centre (https://www.bas.ac.uk/team/business-teams/information-services/polar-data-centre/)<br>**Comments:** |
| **Sea Surface Salinity** | **Location:** Adjacent to intake at 6 m depth<br>**Manufacturer:** SeaBird Electronics<br>**Model:** SBE45<br>**Accuracy:** 0.002<br>**Precision:** 0.002<br>**Calibration:** Recorded and kept by British Antarctic Survey Polar Data Centre (https://www.bas.ac.uk/team/business-teams/information-services/polar-data-centre/)<br>**Comments:** |
| **Atmospheric Pressure** | **Location:** Met-platform on deck above bridge, 18 m asl<br>**Normalized to Sea Level:** yes<br>**Manufacturer:** Vaisala<br>**Model:** PTB110 barometer<br>**Accuracy:** 1 hPa (hPa if units not given)<br>**Precision:** 1 hPa (hPa if units not given)<br>**Calibration:** Recorded by National Marine Facilities Sea Systems and kept by British Oceanographic Data Centre (www.bodc.ac.uk) |

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| | **Comments:** |
| **Atmospheric CO2** | **Measured/Frequency:** yes, circa every 20 minutes<br>**Intake Location:** Met-platform on deck above bridge, 18 m asl<br>**Drying Method:**<br>**Atmospheric CO2 Accuracy:** <2 micro-atm fCO2<br>**Atmospheric CO2 Precision:** <0.5 micro-atm fCO2 |
| **Aqueous CO2 Equilibrator Design** | **System Manufacturer:**<br>**Intake Depth:** 6 m<br>**Intake Location:** Hull<br>**Equilibration Type:** Headspace (vented)<br>**Equilibrator Volume (L):** 2.5<br>**Headspace Gas Flow Rate (ml/min):** 200<br>**Equilibrator Water Flow Rate (L/min):** 1.6<br>**Equilibrator Vented:** Yes<br>**Equilibration Comments:**<br>**Drying Method:** Peltier drier to <20% humidity |
| **Aqueous CO2 Sensor Details** | **Measurement Method:** IR<br>**Method details:** Non Dispersive IR Sensor<br>**Manufacturer:** LICOR<br>**Model:** LI-840<br>**Measured CO2 Values:** xCO2 dry(wet)<br>**Measurement Frequency:** Every 20 minutes<br>**Aqueous CO2 Accuracy:** <2 micro-atm fCO2<br>**Aqueous CO2 Precision:** <0.5 micro-atm fCO2<br>**Sensor Calibrations:** Sensor calibration during deployment using 3 gas standards (nominally 250; 380 and 450 ppmv CO2 in synthetic air)<br>**Calibration of Calibration Gases:** Ship<br>**Number Non-Zero Gas Standards:** 3<br>**Calibration Gases:**<br>BOC gases Ltd., nominally 250; 380 and 450 ppmv CO2 in synthetic air<br>**Comparison to Other CO2 Analyses:**<br>**Comments:**<br>**Method Reference:**<br>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<br>**Manufacturer:** Pico-Technology<br>**Model:** PT100 Class B<br>**Accuracy:** 0.01 (°C if units not given)<br>**Precision:** 0.01 (°C if units not given)<br>**Calibration:** Calibrated prior to cruise (ice-point)<br>**Comments:** |
| **Equilibrator Pressure Sensor** | **Location:** In line with equilibrator<br>**Manufacturer:** Druck Gmbh<br>**Model:** PTX7517-3257<br>**Accuracy:** 0.1 (hPa if units not given)<br>**Precision:** 0.1 (hPa if units not given)<br>**Calibration:** Calibrated annually<br>**Comments:** |

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| **Additional Information** | **Suggested QC flag from Data Provider:** NA<br>**Additional Comments:**<br>**Citation for this Dataset:**<br>**Other References for this Dataset:** |