

Cruise ID: 49WA20150930 (WK1509)

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- Dataset Info:

- Dataset ID: WK150930.csv
- Funding Info: Global Environment Research Account for National Institutes by the Ministry of Environment, Japan
- Submission Dates:
  - Initial Submission: 2016/1/29
  - Revised Submission:

- Cruise Info:

- Survey/Experiment Type: Research Cruise
- Survey/Experiment Name: WK1509
- Cruise ID: 49WA20150930
- Section:
- Geographical Coverage:
  - Geographical Region: Japan coast
- Ports of Call: Shiogama

- Bounds:
  - Westernmost Longitude:
    - +141.1 Degrees, Minutes,
    - Seconds: E
  - Easternmost Longitude:
    - +142.6Degrees, Minutes,
    - Seconds: E
  - Northernmost Latitude:
    - +41.4 Degrees, Minutes,
    - Seconds: N
  - Southernmost Latitude:
    - +38.1Degrees, Minutes,
    - Seconds: N
- Temporal Coverage:
  - Start Date: 2015/9/30
  - End Date: 2015/10/15
- Vessel:
  - Vessel Name: Wakataka-maru
  - Vessel ID: 49WA
  - Country: Japan
  - Vessel Owner: Fisheries Research Agency
- Variables Info:
  - Variable:
    - Variable Name: XCO2\_EQ
    - Description of Variable: umol/mol
    - Variable Name: XH2O\_EQ
    - Description of Variable: mmol/mol
    - Variable Name: EQ\_PRE
    - Description of Variable: hPa
    - Variable Name: EQ\_TMP
    - Description of Variable: deg C
    - Variable Name: SST

- Description of Variable: deg C
- Variable Name: SSS
- Description of Variable: no unit
- Variable Name: ATM\_PRE
- Description of Variable: hPa
- Method Description:
  - Sampling and Equilibrator Design:
    - Depth of sea water intake: 5m
    - Location of sea water intake: Bottom of ship
    - Equilibrator type: menbrane equilibrator
    - Equilibrator volume:0.4 L
    - Water\_Flow\_Rate: 2.0 L/min
    - Headspace\_Gas\_Flow\_Rate:100 ml/min
    - Vented: No
    - Drying method for CO<sub>2</sub> in water:
      - electronic dehumidifier DH109C
    - Additional information:
  - System Design:
    - Measurement Method: automated version of Saito et al. [1995]
    - Manufacturer of Calibration Gas: Nissan-Tanaka Co. Ltd.
    - CO<sub>2</sub> Sensor:
      - Measurement Method: NDIR
      - Manufacturer: Li-COR
      - Model: LI-6262
      - Environmental Control:
        - xCO<sub>2</sub> value submitted are corrected for xH<sub>2</sub>O by sensor's program
      - Frequency: every 1 min
      - Precision of CO<sub>2</sub>water: xCO<sub>2</sub> 1.6 umol/mol
      - Precision of CO<sub>2</sub>air:

- Accuracy of CO<sub>2</sub>water: xCO<sub>2</sub> 1.6 umol/mol
- Accuracy of CO<sub>2</sub>air:
- CO<sub>2</sub> Sensor Calibration:
- LI-6262 was calibrated at factory on Feb. 2012. CO<sub>2</sub> concentration in standard gas cylinder was calibrated once at purchasing against NIES standard gas cylinder, which are traceable to WMO scale
- Manufacture of CO<sub>2</sub> Calibration gases: Nissan Tanaka Co. LTD., 0ppm and 450 ppm
- Method References: Saito et al., A compact seawater pCO<sub>2</sub> measurement system with membrane equilibrator and nondispersive infrared gas analyzer, Deep-Sea Res., 42, 2025-2033, 1995
- CO<sub>2</sub> in Marine Air:
- Measurement:
- Location and Height:
- Sea surface Temperature:
- Location: bottom of ship, just after the bottom seawater intake
- Manufacturer: JFE Advantec.
- Model: ACT-RS
- Accuracy: 0.02 deg C
- Precision: 0.02 deg C
- Calibration: last calibrated on 2015/02/16 at FRA lab., against JMO standard scale mercury thermometer
- Other comments:
- Sea surface Salinity:
- Location: branched just in front of water intake of equilibrator

- Manufacturer: Sea-Bird
- Model: SBE45
- Accuracy: 0.005
- Precision: 0.003
- Calibration: last calibrated on Jan. 2012 in  
manufacture factory
- Other comments:
- Equilibrator Temperature:
- Location: midst of equilibrator vessel
- Manufacturer: Rikagaku-kogyo Inc.
- Model: platinum resistance thermometer  
sensor, grade Pt100
- Accuracy: 0.15 deg C
- Precision: 0.15 deg C
- Calibration: last calibrated on 2015/02/16 at  
FRA lab., against JMO standard scale  
mercury thermometer
- Other comments:
- Equilibrator Pressure:
- Location: just after air outlet from equilibrator
- Manufacturer:
- Model: water gauge
- Accuracy: 2mmH2O
- Precision: 2mmH2O
- Calibration:
- Other comments:
- Atmosphere Pressure:
- Location: just right side of equilibrator
- Manufacturer: T&D Co. LTD.
- Model: TR-73U
- Accuracy: 0.15hPa
- Precision: 0.15hPa

- Calibration: last calibrated on Nov.25 2011 at  
FRA lab. against JMA-calibrated aneroid  
barometer
- Other comments: pCO<sub>2</sub> system is settled in  
CTD room and open to atmosphere
- Other sensors:
- Manufacturer:
- Model:
- Resolution:
- Uncertainty:
- Calibration:
- Other comments:
- Accuracy Info:
- Method References:
- Method References:
- Data Set References:
- Additional Information:
- Citation:
- Measurement of Calibration Report:
- Measurement Type: underway measurement underway  
data underway measurements
- Metadata Source: