

( \* =mandatory field)

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- **Dataset\_Info:\*(- )**
  - **Dataset\_ID\*:** TAO170W\_2N\_Aug07\_Aug08
  - **Submission\_Dates:\*(- )**
    - **Initial\_Submission:** 20091007 (YYYYMMDD)
    - **Revised\_Submission:** (YYYYMMDD)
- **Cruise\_Info:\*(- )**
  - **Experiment:( - )**
    - **Experiment\_Name\*:**
    - **Cruise:( - )**
      - **Cruise\_ID:** (EXPOCODE)
      - **Section:** (Leg)
      - **Geographical\_Coverage:\*(- )**
        - **Geographical\_Region:**
        - **Bounds:\*(- )**
          - **Westernmost\_Longitude:**  
Enter decimal fractions of degrees: -170 (+ = E, - = W)  
or Degrees, Minutes, Seconds:
          - **Easternmost\_Longitude:**  
Enter decimal fractions of degrees:  
or Degrees, Minutes, Seconds:
          - **Northernmost\_Latitude:**  
Enter decimal fractions of degrees: +2 (+ = N, - = S)
          - **Southernmost\_Latitude:**  
Enter decimal fractions of degrees:
    - **Temporal\_Coverage:( - )**
      - **Start\_Date:** 20070801 (YYYYMMDD)
      - **End\_Date:** 20080824 (YYYYMMDD)
  - **Vessel:\*(- )**
    - **Vessel\_Name:**
    - **Vessel\_ID:**
    - **Country:**
    - **Vessel\_Owner:**

Platform Identifier: Mooring

Mooring Location

Longitude: Enter decimal fractions of degrees: -170 (+ = E, - = W)

Latitude: Enter decimal fractions of degrees: +2 (+ = N, - = S)

Start\_Date: 20070801 (YYYYMMDD)

End\_Date: 20080824 (YYYYMMDD)

- **Location Notes:**

MBARI collected data at 170W, 2S from June 1998 until July 2007. At the time of this cruise the TAO group determined that they did not have enough equipment to redeploy a buoy at this 170W, 2S, thus interrupting the historical record at this site. As a replacement for this site, MBARI redeployed at 170W, 2N on the same cruise. There was already a MAPCO<sub>2</sub> system on the 170W,0 buoy.

## Variables\_Info:\*(- )

- **Variable:( - )**
  - Variable\_Name\*: (show pick list)
  - Description\_of\_Variable: (E.g., in dry air)

### \*\*General notes:

- All measurements are at sea surface temperature and atmospheric pressure.
- During the equilibration cycle, a closed loop of air equilibrates with seawater. Once the equilibration period is complete, the pump stops and the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure before the measurement is made.
- During the air cycle, fresh air is pumped through the detector. Once the pump stops, the system opens to the atmosphere allowing the pressure to equilibrate with atmospheric pressure before the measurement is made.
- The gas streams for both the air cycle and equilibrator cycle are partially dried before entering the detector. The marine air runs the reference cell and the equilibrated air runs through the sample cell. The Licor is directly reading the delta pCO<sub>2</sub>.
- Sampling occurs every 3 hours. Data are transmitted back daily.
- As a final step in the QC process, each data set is compared with the Marine Boundary Layer data from GlobalView-CO<sub>2</sub>.

GLOBALVIEW-CO 2: Cooperative Atmospheric Data Integration Project - Carbon Dioxide. CD-ROM, NOAA CMDL, Boulder, Colorado [Also available on Internet via anonymous FTP to ftp.cmdl.noaa.gov, Path: ccg/co2/GLOBALVIEW], 2005

### Measured Information: (Variable Name/Description)

xCO<sub>2</sub> SW (dry) (umol/mol) – Mole fraction of CO<sub>2</sub> in air in equilibrium with the seawater at sea surface temperature (dry air).

xCO<sub>2</sub> Air (dry) (umol/mol) – Mole fraction of CO<sub>2</sub> in air at the airblock, 4 feet above the sea surface (dry air).

- **Method\_Description:\*(- )**
  - **Equilibrator\_Design:( - )**
    - Equilibrator\_Type: (show pick list) Bubble Equilibrator
    - Equilibrator\_Volume: (L) N/A
    - Water\_Flow\_Rate: (L/min) N/A
    - Headspace\_Gas\_Flow\_Rate: (L/min) ~600 cc/min
    - Vented: (show pick list) Yes
  - Measurement\_Method: Dual-cell, non-dispersive infrared (NDIR) gas analyzer
  - Manufacturer\_of\_Calibration\_Gas:
  - **CO<sub>2</sub> Sensors:( - )**
    - **CO<sub>2</sub> Sensor:( - )**
      - Manufacturer: Licor
      - Model: Environmental\_Control: LI-820
      - Resolution: 0.01 ppm
      - Uncertainty: < 2.5% of reading with 14 cm bench (stated)  
<1.5 ppm determined in lab
    - CO<sub>2</sub>\_Sensor\_Calibration: (For each calibration gas, document traceability to an internationally recognized scale, including date and place of last calibration. Include uncertainty of assigned value.)  
Before and after each deployment, the licors are calibrated in the lab. At the beginning of each sample, the instrument self-calibrates using a zero standard. The zero standard is generated by cycling a small amount of air through a soda lime chamber.

- Method\_References: (Publication(s) describing method)

Friederich, G.E., P.G. Brewer, R. Herlein, and F.P. Chavez (1995). Measurement of sea surface partial pressure of CO<sub>2</sub> from a moored buoy. Deep-Sea Research, 42, 1175-1186.

Chavez, F.P., J.T. Pennington, R. Herlien, H. Jannasch, G. Thurmond and G.E. Friederich (1997) Moorings and drifters for real-time interdisciplinary oceanography. Journal of Atmospheric and Oceanic Technology **14**, 1199-1211.

- Data\_set\_References: (Publication(s) describing data set)

Chavez, F.P., P.G. Strutton, G.E. Friederich, R.A. Feely, G.A. Feldman, D. Foley, and M.J. McPhaden. (1999) Biological and chemical response of the equatorial Pacific Ocean to the 1997 and 1998 El Niño. Science **286**, 2126-2131.

- Citation: (How to cite this data set)

- **Data\_Set\_Link: ( - )**

- URL\*:(m s t)

- Label\*:(m s t)

- Link\_Note: (Optional instructions or remarks)(m s t)