

Cruise: EX0908
Ship: M/V Explorer of the Seas
Dates: March 16 - 22, 2009
Expocode: 33KF20090315
Chief Scientist: not applicable
Equipment: Surface samples collected.
Total number of stations: VOS Underway Cruise

Sample Collection

The discrete samples were collected by Dr. Denis Pierrot from a metering ball valve next to the underway pCO₂ instrument. The underway pCO₂ instrument was located in the bow thruster space next to the TSG and a short distance from the inlet pump. The sea water takes less than 10 seconds to travel from the inlet to the instruments. The TSG temperature is believed to be no more than 0.15 degrees C warmer than in-situ SST. The date and time listed in the data file are UTC when each sample bottle was collected.

DIC:

15 locations, 20 samples each 500-ml, 5 sets of duplicate samples
Sample_ID#: 41 - 60
PI: Dr. Rik Wanninkhof
Analyzed by: Esa Peltola

TAlk:

15 locations, 20 samples each 500-ml, 5 sets of duplicate samples
Sample_ID#: 41 - 60
PI: Dr. John Morse
Analyzed by: will be analyzed by?

Sample Analysis

DIC:

Analysis date: April 6-8, 2009
Coulometer used: AOML2
Blank: 40 counts/min
CRM # used and assigned value (include both DIC and salinity): Batch 85, c: 2000.4 umol/kg,S: 33.326
CRM value measured: AOML 2: offset 5.0 umol/kg (2005.4 umol/kg), -3.6 umol/kg (1996.8 umol/kg), and -1.5 umol/kg (1999.0 umol/kg)

Average run time, minimum run time, maximum run time: 16 min, 9 min, 20 min
Reproducibility: (# samples and average difference): 5 sets of duplicate samples, average difference 0.8 umol/kg
CRM, salinity and HgCl₂ correction applied: Salinity correction was applied using TSG

salinity

Remarks-

The volume correction was applied due to added HgCl₂ (Measured DIC*1.00037).

The first CRM of each cell was used for a CRM correction.

The coulometer reset itself during the sample run 51. The DIC value for this sample was calculated using the sum of counts.

Comments

The GPS transducer and the thermosalinographs (TSG) were logged by a computer system installed by NOAA and the University of Miami. These instruments were maintained by a technician from the University of Miami's Marine Technology Group (<http://www.marinetechnologygroup.org/>) sailing on the Explorer of the Seas full-time. The data from the TSGs, Seabird SBE-21 and SBE-45, are archived by the Ship of Opportunity Program at AOML (<http://www.aoml.noaa.gov/phod/tsg/soop/index.php>).

The latitude, longitude, temperature and salinity reported with the DIC and TAlk measurements were taken from the raw TSG data file. The merging of the discrete measurements with the TSG data was done on the basis of date and time. The TSG values are provided for reference; no post-cruise assurance of accuracy has been done to this data.

The Sample_ID is the sample bottle number for the discrete samples.

UPDATE:

Between March and June of 2021, all of the data for the discrete samples was put into a uniform format. The supporting information was checked for accuracy, especially the expocode, date, time, and positions.