M/V Falstaff cruise: FAL05

This cruise was part of the European CA V ASSOO project.

Most recent update: 12. Jan 2011

Date of cruise (dd/mm/yyyy): 20.05. - 28.05.2002
Geographic coverage: 50°N, 0°W - 35°N, 70°W
Ports of call: Southampton, UK - New York, USA

Vessel name: M/V Falstaff
Vessel ID: SLCO
Country: Sweden
Owner: Wallenius Lines

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Reported variables:
(1-3) Year|Month|Day date
(4-6) Hour|Minute|Second time (UTC)
(7) Day of year decimal year day
(8) Longitude [deg E] Longitude in decimal degrees E
(9) Latitude [deg N] Latitude in decimal degrees N
(10) SST [deg C] Sea surface temperature in deg C
(11) SSS Sea surface salinity
(12) Atm. Pressure [mbar] Atmospheric pressure in mbar
(13) Equi Temp [deg C] Water temperature inside the equilibrator in deg C
(14) Equi Press [mbar] Pressure inside the equilibrator in mbar
(15) xCO2 (equi temp, dry) [ppm] mole fraction of CO2 in the equilibrator headspace (dry) at equilibrator temperature in ppm
(16) pCO2 (SST, 100hum) [uatm] partial pressure of CO2 in seawater at SST and 100% humidity in atm
(17) fCO2 (SST, 100hum) [uatm] fugacity of CO2 in seawater at SST and 100% humidity in atm
(18) Atm. xCO2 (dry) [ppm] mole fraction of CO2 of atmospheric air in ppm
(19) Atm xCO2 (dry, running mean) [ppm] same as 18 but with a running mean (700 minutes) to interpolate between measurements.

Instrument information:
- SST (+- 0.05 deg C):
SST was measured with a thermosalinograph from Seabird (SBE21) with an external SBE38 which was installed near the seawater intake. Both instruments were calibrated approximately every 6 months.

-SSS (+- 0.1 PSU):
SSS was measured with a thermosalinograph from Seabird (SBE21) which was calibrated approximately every 6 months.

-Atmospheric press. (+- 0.1 mbar):
The atmospheric pressure was measured next to the instrument.

-Equilibrator temp (0.1 °C):
The equilibrator temp probe was calibrated with the SBE38.

-Equilibrator press (+- 0.1 mbar):
The measured atmospheric pressure was used also for equilibrator pressure.

\(-p\text{CO}_2/\text{fCO}_2\) (+- 3 atm):

- **IR sensor:** Licor 6262, calibrated with 3 standard gases.
- **Standard gases:** Deuste Steininger (284.7, 349.3, 448.6 ppm), calibrated against NOAA/CMDL standard gases. Resulting uncertainty: +- 0.7 ppm.
- **Water flow rate:** ca. 20 L min⁻¹
- **Gas flow rate:** 100 mL min⁻¹

A custom made system provided by the Lab of Y. Nojiri was used for the pCO₂ measurements. The system is described in detail in Lagger et al. (2004) and Steinhoff (2010). Surface water is pumped continuously from the intake to the equilibrator. The equilibrator is a tandem type with two stages: The seawater enters from the top into a shower-type upper stage which is mounted on top of the bubble-type lower stage. The headspace is dried and xCO₂ is determined by an infrared sensor. Calculations were performed following Pierrot et al. (2009) and are described in detail in Lagger et al. (2004) and Steinhoff (2010).

**References:**


