DEEPEND cruise DP02: initial CTD depth profiles

Initial depth profiles using data from the 22 CTD casts made during the RV Pt. Sur voyage of August 08-22, 2015

Notes:
• There are 2 (pages or sets of figures) containing profiles for each cast. The first collection of figures is for the entire depth range of the cast. The second group of figures contains profiles over the upper 200 m of the water column, and is accompanied by a Temperature-Salinity diagram made up of values from the entire downcast. The labels on the figures include not only a cast ID, but time (UTC), latitude, and longitude that was retrieved from the CTD file or the ship’s GPS log.
• The CTD system included 2 temperature sensors, 2 conductivity sensors, 1 chlorophyll fluorometer, 2 UV (CDOM) fluorometers, 2 dissolved oxygen sensors, and 1 beam transmissometer.
• The 2 conductivity sensors produced salinity values that differed by ~ 0.1 salinity units (the profiles show the mean of the measurements).
• The 2 oxygen sensors produced significantly different estimates of dissolved oxygen, and a weighted average, that emphasized the more reasonable sensor, is show in the depth profiles.
• The instrument data was processed from raw values to scientific units using Seabird’s “SBEDataProcessing” software version 7.23.1, which used the calibration data stored in the CTD data files from the cruise. The profiles display data from the downcasts that have been binned (using medians) into 1 m depth intervals using custom Matlab scripts and functions, with only minimal application of alignment, filtering, and artifact removal. These profiles still contain some shifts in values that I consider suspicious.
• Chlorphyll fluorometric values have been scaled to approximate chlorophyll a concentrations using selected water samples taken from multiple locations of this cruise. The gelbstoff fluorescence (Aquatracka and ECO-CDM) values have been scaled to approximate absorption coefficients for 400nm light.
• Chl fluorometry was not available for the first cast (DP02-CTD009), and a turbidity sensor deployed on this cast did not yield reasonable data. Also, no reliable data from the beam transmissometer was recovered from cast DP02-CTD024.
DEEPEND CTD cast #011, 11 Aug. 2015 @ station SW3
DEEPEND CTD cast #012, 11 Aug. 2015 @ station SW3
DEEPEND CTD cast #013, 12 Aug. 2015 @ station SE1

Cast: DP02-CTD-013 at 12-Aug 09:10 (27.033, -88.15)

Depth (m)

T (°C)

salinity

σ_t

Depth (m)

Chl.Fluor.

A_g(400):AqTrkUV, ECO

O² (% sat.)
DEEPEND CTD cast #013, 12 Aug. 2015 @ station SE1
DEEPEND CTD cast #014, 13 Aug. 2015 @ station B286
DEEPEND CTD cast #015, 13 Aug. 2015 @ station B286
DEEPEND CTD cast #016, 14 Aug. 2015 @ station B287
DEEPEND CTD cast #017, 15 Aug. 2015 @ station B252

Cast: DP02-CTD-017 at 15-Aug 15 01:35 (28.467, -87.4833)

- Depth (m)
- \(\sigma_t\)
- Chl. Fluor.
- Beam-C (m²)
- Temperature (°C)
- Salinity

Cast: DP02-CTD-017 at 15-Aug 15 01:35 (28.467, -87.4833)
DEEPEND CTD cast #018, 16 Aug. 2015 @ station B175
DEEPEND CTD cast #018, 16 Aug. 2015 @ station B175
DEEPEND CTD cast #019, 16 Aug. 2015 @ station B175
DEEPEND CTD cast #023, 18 Aug. 2015 @ station B003

Cast: DP02-CTD-023 at 18-Aug 09:15 (27.983, -86.95)
DEEPEND CTD cast #024, 19 Aug. 2015 @ station B079

Cast: DP02-CTD-024 at 19-Aug 15 00:15 (27.483, -86.9833)

Depth (m)

T (°C)

Salinity

σ_t

Chl. Fluor.

A_τ(400):AqTrKUV, ECO

O² (% sat.)

ECOCMD

UVAgtrk
DEEPEND CTD cast #025, 19 Aug. 2015 @ station B079

Cast: DP02-CTD-025 at 19-Aug 09:45 (27.5, -86.9833)

- Depth (m) vs. Temperature (°C)
- Salinity vs. Temperature (°C)
- Relative Density (σt)

- Depth (m) vs. Chlorophyll Fluor.
- Absorption Coefficient (A_g) vs. Chl. Fluor.
- Dissolved Oxygen (% sat.)
DEEPEND CTD cast #025, 19 Aug. 2015 @ station B079
DEEPEND CTD cast #027, 19 Aug. 2015 @ station SE3
DEEPEND CTD cast #030, 21 Aug. 2015 @ station B255

Cast: DP02-CTD-030 at 21-Aug 15 11:20 (27.517, -86.5)

Depth (m)

T (°C)
salinity

σ_t

Chl. Fluor.

A_g(400):AqTrkUV, ECO

O^2 (% sat.)

ECOCDM

UVAqTrk
DEEPEND CTD cast #030, 21 Aug. 2015 @ station B255