

EN640 representative header file

* Sea-Bird SBE 9 Data File:
* FileName = D:\ctd\raw\EN640_002_01.hdr
* Software Version Seasave V 7.26.7.121
* Temperature SN = 4695
* Conductivity SN = 2822
* Number of Bytes Per Scan = 40
* Number of Voltage Words = 5
* Number of Scans Averaged by the Deck Unit = 1
* System UpLoad Time = Jun 15 2019 01:57:38
* NMEA Latitude = 11 17.29 N
* NMEA Longitude = 054 49.04 W
* NMEA UTC (Time) = Jun 15 2019 01:57:32
* Store Lat/Lon Data = Append to Every Scan
* SBE 11plus V 5.2
* number of scans to average = 1
* pressure baud rate = 9600
* NMEA baud rate = 4800
* surface PAR voltage added to scan
* A/D offset = 2
* Latitude/Longitude added to scan
* GPIB address = 1
* advance primary conductivity 0.073 seconds
* autorun on power up is disabled
* S>
** Ship: R/V Endeavor
** Cruise: EN640_Montoya
** Chief Scientist: Joseph Montoya
** Organization: GeorgiaTech
** Area of Operation: Amazon Plume
** Dates: 13 June - 08 July 2019
** Bridgetown, Barbados to Bridgetown, Barbados
** Station: 002
** Bottom Depth: 4667
** Operator: jpm
** Microstar deployment site
* System UTC = Jun 15 2019 01:57:38
nquan = 45
nvalues = 495
units = specified
name 0 = scan: Scan Count
name 1 = timeJ: Julian Days
name 2 = timeS: Time, Elapsed [seconds]
name 3 = prDM: Pressure, Digiquartz [db]

name 4 = depSM: Depth [salt water, m]
name 5 = t090C: Temperature [ITS-90, deg C]
name 6 = t190C: Temperature, 2 [ITS-90, deg C]
name 7 = T2-T190C: Temperature Difference, 2 - 1 [ITS-90, deg C]
name 8 = c0S/m: Conductivity [S/m]
name 9 = c1S/m: Conductivity, 2 [S/m]
name 10 = C2-C1S/m: Conductivity Difference, 2 - 1 [S/m]
name 11 = v0: Voltage 0
name 12 = CStarAt0: Beam Attenuation, WET Labs C-Star [1/m]
name 13 = CStarTr0: Beam Transmission, WET Labs C-Star [%]
name 14 = v1: Voltage 1
name 15 = flECO-AFL: Fluorescence, WET Labs ECO-AFL/FL [mg/m³]
name 16 = v2: Voltage 2
name 17 = altM: Altimeter [m]
name 18 = v3: Voltage 3
name 19 = par: PAR/Irradiance, Biospherical/Licor [umol photons/m²/sec]
name 20 = v4: Voltage 4
name 21 = sbeox0V: Oxygen raw, SBE 43 [V]
name 22 = v5: Voltage 5
name 23 = sbeox1V: Oxygen raw, SBE 43, 2 [V]
name 24 = v6: Voltage 6
name 25 = v7: Voltage 7
name 26 = spar: SPAR, Biospherical/Licor [umol photons/m²/sec]
name 27 = pumps: Pump Status
name 28 = latitude: Latitude [deg]
name 29 = longitude: Longitude [deg]
name 30 = depSM: Depth [salt water, m], lat = 11.2882
name 31 = sal00: Salinity, Practical [PSU]
name 32 = sal11: Salinity, Practical, 2 [PSU]
name 33 = sigma-t00: Density [sigma-theta, kg/m³]
name 34 = sigma-t11: Density, 2 [sigma-theta, kg/m³]
name 35 = sbeox0Mm/L: Oxygen, SBE 43 [umol/l], WS = 2
name 36 = sbeox1Mm/L: Oxygen, SBE 43, 2 [umol/l], WS = 2
name 37 = potemp090C: Potential Temperature [ITS-90, deg C]
name 38 = potemp190C: Potential Temperature, 2 [ITS-90, deg C]
name 39 = svCM: Sound Velocity [Chen-Millero, m/s]
name 40 = svCM1: Sound Velocity, 2 [Chen-Millero, m/s]
name 41 = dz/dtM: Descent Rate [m/s], WS = 2
name 42 = gpa: Geopotential Anomaly [J/kg]
name 43 = nbin: number of scans per bin
name 44 = flag: flag
span 0 = 297, 17259
span 1 = 166.081833, 166.090013
span 2 = 12.326, 719.080
span 3 = 4.023, 501.459

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# span 4 = 4.000, 498.000
# span 5 = 8.4490, 27.9989
# span 6 = 8.4488, 27.9993
# span 7 = -0.0229, 0.1150
# span 8 = 3.675294, 5.682390
# span 9 = 3.674775, 5.682457
# span 10 = -0.013726, 0.017389
# span 11 = 4.3140, 4.4144
# span 12 = 0.6501, 0.7434
# span 13 = 83.0389, 84.9986
# span 14 = 0.1111, 0.1580
# span 15 = -0.0062, 0.3223
# span 16 = -0.2102, 4.5487
# span 17 = -4.20, 90.97
# span 18 = 0.0036, 1.3499
# span 19 = -4.397e-04, 2.2583e+00
# span 20 = 1.3167, 2.7128
# span 21 = 1.3159, 2.7128
# span 22 = 1.3419, 2.8160
# span 23 = 1.3411, 2.8160
# span 24 = 0.1734, 1.3816
# span 25 = 0.0000, 0.0000
# span 26 = 1.8968e+00, 1.8968e+00
# span 27 = 1, 1
# span 28 = 11.28825, 11.29007
# span 29 = -54.81736, -54.81663
# span 30 = 4.000, 498.000
# span 31 = 27.5020, 37.0642
# span 32 = 27.4977, 37.0611
# span 33 = 16.7722, 27.1286
# span 34 = 16.7689, 27.1244
# span 35 = 111.359, 207.736
# span 36 = 112.564, 209.631
# span 37 = 8.3956, 27.9961
# span 38 = 8.3954, 27.9965
# span 39 = 1492.22, 1541.33
# span 40 = 1492.22, 1541.33
# span 41 = -0.090, 1.539
# span 42 = 0.134, 11.323
# span 43 = 15, 485
# span 44 = 0.0000e+00, 0.0000e+00
# interval = meters: 1
# start_time = Jun 15 2019 01:57:38 [System UTC, header]
# bad_flag = -9.990e-29
# <Sensors count="15" >
```

```

# <sensor Channel="1" >
# <!-- Frequency 0, Temperature -->
# <TemperatureSensor SensorID="55" >
#   <SerialNumber>4695</SerialNumber>
#   <CalibrationDate>01-Jan-19</CalibrationDate>
#   <UseG_J>1</UseG_J>
#   <A>0.00000000e+000</A>
#   <B>0.00000000e+000</B>
#   <C>0.00000000e+000</C>
#   <D>0.00000000e+000</D>
#   <F0_Old>0.000</F0_Old>
#   <G>4.39685694e-003</G>
#   <H>6.43712223e-004</H>
#   <I>2.15839307e-005</I>
#   <J>1.77633866e-006</J>
#   <F0>1000.000</F0>
#   <Slope>1.00000000</Slope>
#   <Offset>0.0000</Offset>
# </TemperatureSensor>
# </sensor>
# <sensor Channel="2" >
# <!-- Frequency 1, Conductivity -->
# <ConductivitySensor SensorID="3" >
#   <SerialNumber>2822</SerialNumber>
#   <CalibrationDate>06-Apr-18</CalibrationDate>
#   <UseG_J>1</UseG_J>
#   <!-- Cell const and series R are applicable only for wide range sensors. -->
#   <SeriesR>0.0000</SeriesR>
#   <CellConst>2000.0000</CellConst>
#   <ConductivityType>0</ConductivityType>
#   <Coefficients equation="0" >
#     <A>0.00000000e+000</A>
#     <B>0.00000000e+000</B>
#     <C>0.00000000e+000</C>
#     <D>0.00000000e+000</D>
#     <M>0.0</M>
#     <CPcor>-9.57000000e-008</CPcor>
#   </Coefficients>
#   <Coefficients equation="1" >
#     <G>-1.01731965e+001</G>
#     <H>1.38552072e+000</H>
#     <I>-7.63638531e-004</I>
#     <J>1.20854147e-004</J>
#     <CPcor>-9.57000000e-008</CPcor>
#     <CTcor>3.2500e-006</CTcor>

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```
# <!-- WBOTC not applicable unless ConductivityType = 1. -->
# <WBOTC>0.00000000e+000</WBOTC>
# </Coefficients>
# <Slope>1.00000000</Slope>
# <Offset>0.00000</Offset>
# </ConductivitySensor>
# </sensor>
# <sensor Channel="3" >
# <!-- Frequency 2, Pressure, Digiquartz with TC -->
# <PressureSensor SensorID="45" >
# <SerialNumber>0712</SerialNumber>
# <CalibrationDate>02-May-18</CalibrationDate>
# <C1>-5.127137e+004</C1>
# <C2>-6.250695e-001</C2>
# <C3>1.463390e-002</C3>
# <D1>3.819700e-002</D1>
# <D2>0.000000e+000</D2>
# <T1>2.998602e+001</T1>
# <T2>-4.688386e-004</T2>
# <T3>4.060280e-006</T3>
# <T4>1.932470e-009</T4>
# <Slope>1.00000574</Slope>
# <Offset>-0.98745</Offset>
# <T5>0.000000e+000</T5>
# <AD590M>1.280800e-002</AD590M>
# <AD590B>-9.760950e+000</AD590B>
# </PressureSensor>
# </sensor>
# <sensor Channel="4" >
# <!-- Frequency 3, Temperature, 2 -->
# <TemperatureSensor SensorID="55" >
# <SerialNumber>4333</SerialNumber>
# <CalibrationDate>27-Dec-18</CalibrationDate>
# <UseG_J>1</UseG_J>
# <A>0.00000000e+000</A>
# <B>0.00000000e+000</B>
# <C>0.00000000e+000</C>
# <D>0.00000000e+000</D>
# <F0_Old>0.000</F0_Old>
# <G>4.39861285e-003</G>
# <H>6.47699445e-004</H>
# <I>2.26254086e-005</I>
# <J>1.80776199e-006</J>
# <F0>1000.000</F0>
# <Slope>1.00000000</Slope>
```

```
# <Offset>0.0000</Offset>
# </TemperatureSensor>
# </sensor>
# <sensor Channel="5" >
# <!-- Frequency 4, Conductivity, 2 -->
# <ConductivitySensor SensorID="3" >
# <SerialNumber>1749</SerialNumber>
# <CalibrationDate>12-Apr-18</CalibrationDate>
# <UseG_J>1</UseG_J>
# <!-- Cell const and series R are applicable only for wide range sensors. -->
# <SeriesR>0.0000</SeriesR>
# <CellConst>2000.0000</CellConst>
# <ConductivityType>0</ConductivityType>
# <Coefficients equation="0" >
# <A>0.00000000e+000</A>
# <B>0.00000000e+000</B>
# <C>0.00000000e+000</C>
# <D>0.00000000e+000</D>
# <M>0.0</M>
# <CPcor>-9.57000000e-008</CPcor>
# </Coefficients>
# <Coefficients equation="1" >
# <G>-4.02069658e+000</G>
# <H>5.07427251e-001</H>
# <I>-5.95189790e-004</I>
# <J>5.62956472e-005</J>
# <CPcor>-9.57000000e-008</CPcor>
# <CTcor>3.2500e-006</CTcor>
# <!-- WBOTC not applicable unless ConductivityType = 1. -->
# <WBOTC>0.00000000e+000</WBOTC>
# </Coefficients>
# <Slope>1.00000000</Slope>
# <Offset>0.00000</Offset>
# </ConductivitySensor>
# </sensor>
# <sensor Channel="6" >
# <!-- A/D voltage 0, Transmissometer, WET Labs C-Star -->
# <WET_LabsCStar SensorID="71" >
# <SerialNumber>969DR</SerialNumber>
# <CalibrationDate>29-Mar-18</CalibrationDate>
# <M>19.5111</M>
# <B>-1.1316</B>
# <PathLength>0.250</PathLength>
# </WET_LabsCStar>
# </sensor>
```

```
# <sensor Channel="7" >
# <!-- A/D voltage 1, Fluorometer, WET Labs ECO-AFL/FL -->
# <FluoroWetlabECO_AFL_FL_Sensor SensorID="20" >
#   <SerialNumber>231</SerialNumber>
#   <CalibrationDate>10-Jan-19</CalibrationDate>
#   <ScaleFactor>7.00000000e+000</ScaleFactor>
#   <!-- Dark output -->
#   <Vblank>0.1120</Vblank>
# </FluoroWetlabECO_AFL_FL_Sensor>
# </sensor>
# <sensor Channel="8" >
# <!-- A/D voltage 2, Altimeter -->
# <AltimeterSensor SensorID="0" >
#   <SerialNumber>49899</SerialNumber>
#   <CalibrationDate>30-Mar-15</CalibrationDate>
#   <ScaleFactor>15.000</ScaleFactor>
#   <Offset>0.000</Offset>
# </AltimeterSensor>
# </sensor>
# <sensor Channel="9" >
# <!-- A/D voltage 3, PAR/Irradiance, Biospherical/Licor -->
# <PAR_BiosphericalLicorChelseaSensor SensorID="42" >
#   <SerialNumber>70513</SerialNumber>
#   <CalibrationDate>02-Jan-2019</CalibrationDate>
#   <M>1.00000000</M>
#   <B>0.00000000</B>
#   <CalibrationConstant>9803921569.00000000</CalibrationConstant>
#   <ConversionUnits>1</ConversionUnits>
#   <Multiplier>1.00000000</Multiplier>
#   <Offset>-0.10346660</Offset>
# </PAR_BiosphericalLicorChelseaSensor>
# </sensor>
# <sensor Channel="10" >
# <!-- A/D voltage 4, Oxygen, SBE 43 -->
# <OxygenSensor SensorID="38" >
#   <SerialNumber>1230</SerialNumber>
#   <CalibrationDate>21-Mar-19</CalibrationDate>
#   <Use2007Equation>1</Use2007Equation>
#   <CalibrationCoefficients equation="0" >
#     <!-- Coefficients for Owens-Millard equation. -->
#     <Boc>0.0000</Boc>
#     <Soc>0.0000e+000</Soc>
#     <offset>0.0000</offset>
#     <Pcor>0.00e+000</Pcor>
#     <Tcor>0.0000</Tcor>
```

```
# <Tau>0.0</Tau>
# </CalibrationCoefficients>
# <CalibrationCoefficients equation="1" >
# <!-- Coefficients for Sea-Bird equation - SBE calibration in 2007 and later. -->
# <Soc>4.6282e-001</Soc>
# <offset>-0.5101</offset>
# <A>-4.5510e-003</A>
# <B> 2.1257e-004</B>
# <C>-3.1781e-006</C>
# <D0> 2.5826e+000</D0>
# <D1> 1.92634e-004</D1>
# <D2>-4.64803e-002</D2>
# <E> 3.6000e-002</E>
# <Tau20> 1.1500</Tau20>
# <H1>-3.3000e-002</H1>
# <H2> 5.0000e+003</H2>
# <H3> 1.4500e+003</H3>
# </CalibrationCoefficients>
# </OxygenSensor>
# </sensor>
# <sensor Channel="11" >
# <!-- A/D voltage 5, Oxygen, SBE 43, 2 -->
# <OxygenSensor SensorID="38" >
# <SerialNumber>0348</SerialNumber>
# <CalibrationDate>18-Aug-18</CalibrationDate>
# <Use2007Equation>1</Use2007Equation>
# <CalibrationCoefficients equation="0" >
# <!-- Coefficients for Owens-Millard equation. -->
# <Boc>0.0000</Boc>
# <Soc>0.0000e+000</Soc>
# <offset>0.0000</offset>
# <Pcor>0.00e+000</Pcor>
# <Tcor>0.0000</Tcor>
# <Tau>0.0</Tau>
# </CalibrationCoefficients>
# <CalibrationCoefficients equation="1" >
# <!-- Coefficients for Sea-Bird equation - SBE calibration in 2007 and later. -->
# <Soc>4.2760e-001</Soc>
# <offset>-0.4676</offset>
# <A>-3.2801e-003</A>
# <B> 1.7741e-004</B>
# <C>-2.4529e-006</C>
# <D0> 2.5826e+000</D0>
# <D1> 1.92634e-004</D1>
# <D2>-4.64803e-002</D2>
```



```
# <E> 3.6000e-002</E>
# <Tau20> 1.2200</Tau20>
# <H1>-3.3000e-002</H1>
# <H2> 5.0000e+003</H2>
# <H3> 1.4500e+003</H3>
# </CalibrationCoefficients>
# </OxygenSensor>
# </sensor>
# <sensor Channel="12" >
# <!-- A/D voltage 6, User Polynomial -->
# <UserPolynomialSensor SensorID="61" >
# <SerialNumber>783</SerialNumber>
# <CalibrationDate>28-Jul-2016</CalibrationDate>
# <SensorName>SUNA</SensorName>
# <A0>-6.80600000</A0>
# <A1>24.79800000</A1>
# <A2>0.00000000</A2>
# <A3>0.00000000</A3>
# </UserPolynomialSensor>
# </sensor>
# <sensor Channel="13" >
# <!-- A/D voltage 7, Free -->
# </sensor>
# <sensor Channel="14" >
# <!-- SPAR voltage, Unavailable -->
# </sensor>
# <sensor Channel="15" >
# <!-- SPAR voltage, SPAR, Biospherical/Licor -->
# <SPAR_Sensor SensorID="51" >
# <SerialNumber>20121</SerialNumber>
# <CalibrationDate>02-Jan-2019</CalibrationDate>
# <ConversionUnits>1</ConversionUnits>
# <ConversionFactor>1.5535e+003</ConversionFactor>
# <RatioMultiplier>1.00000000</RatioMultiplier>
# </SPAR_Sensor>
# </sensor>
# </Sensors>
# datcnv_date = Jul 04 2019 03:29:37, 7.26.7.129 [datcnv_vars = 30]
# datcnv_in = D:\CTD\raw\640_002_01.hex D:\CTD\raw\640_002_01.XMLCON
# datcnv_skipover = 0
# datcnv_ox_hysteresis_correction = yes
# filter_date = Jul 04 2019 03:29:50, 7.26.7.129
# filter_in = D:\CTD\proc\640_002_01.cnv
# filter_low_pass_tc_A = 0.030
# filter_low_pass_tc_B = 0.150
```

```
# filter_low_pass_A_vars =
# filter_low_pass_B_vars = prDM depSM
# alignctd_date = Jul 04 2019 03:29:53, 7.26.7.129
# alignctd_in = D:\CTD\proc\640_002_01.cnv
# alignctd_adv = c1S/m 0.073, v4 4.000, sbeox0V 4.000, v5 4.000, sbeox1V 4.000
# celltm_date = Jul 04 2019 03:29:55, 7.26.7.129
# celltm_in = D:\CTD\proc\640_002_01.cnv
# celltm_alpha = 0.0300, 0.0300
# celltm_tau = 7.0000, 7.0000
# celltm_temp_sensor_use_for_cond = primary, secondary
# Derive_date = Jul 04 2019 03:29:57, 7.26.7.129 [derive_vars = 13]
# Derive_in = D:\CTD\proc\640_002_01.cnv D:\CTD\proc\640_002_01.XMLCON
# derive_time_window_docdt = seconds: 2
# derive_ox_tau_correction = yes
# derive_time_window_dzdt = seconds: 2
# binavg_date = Jul 04 2019 03:30:03, 7.26.7.129
# binavg_in = D:\CTD\proc\640_002_01.cnv
# binavg_bintype = meters
# binavg_binsize = 1
# binavg_excl_bad_scans = yes
# binavg_skipover = 0
# binavg_omit = 0
# binavg_min_scans_bin = 1
# binavg_max_scans_bin = 2147483647
# binavg_surface_bin = yes, min = 0.000, max = 0.000, value = 0.000
# file_type = binary
*END*
```