Cabled-14_TN422_Discrete_Summary Information:

File Mapping:
Hex files were renamed from the original ship-provided files for consistency and ease of processing. Original file names are listed below on the left, with corresponding new file names on the right. Original Hex files are accessible for each cruise in the Cruise Data folder under the "Ship Data" sub-directory. Bottle files used to populate the discrete summary can be found in the Water Sampling sub-directory under "Shipboard Data".

TN-422_CTD_01 = TN422_CTD-001
TN-422_CTD_02 = TN422_CTD-002
J2-1523_CT2 = TN422_J2-1523
J2-1528_CT2 = TN422_J2-1528
TN-422_CTD_03 = TN422_CTD-003
J2-1538_CT2 = TN422_J2-1538
J2-1541_CT2 = TN422_J2-1541
TN-422_CTD_04 = TN422_CTD-004
J2-1547_CT2 = TN422_J2-1547
TN-422_CTD_05 = TN422_CTD-005
TN-422_CTD_06 = TN422_CTD-006
TN-422_CTD_07 = TN422_CTD-007
TN-422_CTD_08hex = TN422_CTD-008
J2-1554_CT2 = TN422_J2-1554
J2-1555_CT2 = TN422_J2-1555
TN-422_CTD_09hex = TN422-CTD-009
J2-1560_CT2 = TN422_J2-1560
J2-1523_sealogExport = TN-422_J2-1523_sealogExport
J2-1528_sealogExport = TN-422_J2-1528_sealogExport
J2-1538_sealogExport = TN-422_J2-1538_sealogExport
J2-1541_sealogExport = TN-422_J2-1541_sealogExport
J2-1547_sealogExport = TN-422_J2-1547_sealogExport

J2-1554_sealogExport = TN-422_J2-1554_sealogExport
J2-1555_sealogExport = TN-422_J2-1555_sealogExport
J2-1560_sealogExport = TN-422_J2-1560_sealogExport

Summary Notes:

TN422, CTD-003, Niskin 1: DiscreteSampleFlag: DIC overpoisoned; resampled from Niskin 2
TN422, CTD-003, Niskin 3: DiscreteSampleFlag: DIC overpoisoned; resampled from Niskin 4; Oxygen titrated with 1.4 mL acid
TN422, CTD-003, Niskin 19: DiscreteSampleFlag: Oxygen titrated with 1.4 mL acid
TN422, CTD-003, Niskin 19: DiscreteSampleFlag: Oxygen titrated with 1.4 mL acid
TN422, CTD-004, Niskin 7: DiscreteSampleFlag: Chlorophyll filtered less than 500 mL
TN422, CTD-004, Niskin 15: DiscreteSampleFlag: Chlorophyll filtered less than 500 mL
TN422, CTD-004, Niskin 23: DiscreteSampleFlag: Chlorophyll filtered less than 500 mL
TN422, CTD-006, Niskin 19: DiscreteSampleFlag: Chlorophyll filtered slowly and used 2 filters

General File Notes:

- Discrete sample fields containing text or non-decimal numbers ("DIC-###", "CH-##", "OX-###", "SA####", or "673") list sample bottle numbers and not analyzed data. Bottle numbers are included when data are not yet available, and will be replaced with analysis results as data are received from analysis labs.
- Fill value = -9999999
- Carbon analysis was provided by Burke Hales lab at Oregon State University. All Carbon parameters are provided at in situ temperatures. Calculated carbon parameters were provided by Hales using custom software routines using published values for the various carbon chemistry constants. Hale's lab provides the following references regarding constants used in the calculations. For further information, please contact Burke Hales (bhales@coas.oregonstate.edu).

- o Carbonic acid dissociation constants: Millero (2010), with full resolution constants provided by Millero via private conversation, equal to Lueker's constants at S > 25).
- o K_w: Millero (1995)
- o K_b: Dickson (1990)
- o K_{sp} for calcite and aragonite: Mucci (1980)
- o K_h: Weiss (1973)
- o Alkalnity is modeled as: $HCO_3^- + 2CO_3^= + B(OH)_4^- + OH^- - H^+$

Data Flag bit maps:

Bit Position	Cast Flags	CTD File Flags	CTD Parameter Flags	Niskin Flags	Discrete Sample Flags	Discrete Replicate Flags
0	Notes/Other	Notes/Other	Notes/Other	Notes/Other	Notes/Other	Notes/Other
1	Delayed start to data collection	Data cast only, no Niskins triggered	Not calibrated	Bottle information unavailable	Sample for this measurement was drawn from water bottle but analysis not received	Duplicate analysis on same sample
2	Acceptable; normal cast according to SOP	Acceptable; file processed according to SOP	Acceptable measurement	No problems noted	Acceptable; sample processed according to SOP	Single sample
3	Non-standard winch speed	File processed using modified parameters	Questionable measurement	Leaking	Questionable measurement	Duplicate analysis from same Niskin
4	Non-standard surface soak time	File processed using alternate XMLCON	Bad measurement	Ran out of water during sampling	Bad measurement	Triplicate analysis from same Niskin
5	Non-standard bottle soak time before Niskin trip	Missing scans as indicated by modulo error counts	Not reported	Vent open	Not reported	Unassigned
6	Sensor issues but cast completed and data collected	Missing metadata	Calibration coefficients > 1 year old	Misfire at wrong depth	Sample collected out of order	Unassigned
7	Cable issues but cast completed and data collected	Unassigned	Corresponding discrete sample	Unknown problem	Sample processed using alternative method; see notes	Unassigned
8	Winch issues but cast completed and data collected	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
9	Premature cast end with data and/or data loss	Unassigned	Unassigned	Sample not drawn for this measurement from this bottle	Unassigned	Unassigned
10	Significant ship heave	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
11	Station position not adequately maintained during cast	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
12	Tow-yo, Yo-yo cast	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
13	ROV bottle sample	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
14	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned
15	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned	Unassigned