**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).
  + Carbonic acid dissociation constants: Millero (2010), with full resolution constants provided by Millero via private conversation, equal to Lueker’s constants at S > 25).
  + Kw: Millero (1995)
  + Kb: Dickson (1990)
  + Ksp for calcite and aragonite: Mucci (1980)
  + Kh: Weiss (1973)
  + Alkalnity is modeled as: HCO3- + 2CO3= + 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 |

|  |  |
| --- | --- |
|  |  |