**Cabled-15\_AT50-29\_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”.

J2-1602\_CT2 = AT50-29\_J2-1602

at50-29001 = AT50-29\_CTD-001

J2-1605\_CT2= AT50-29\_J2-1605

at50-29002 = AT50-20\_CTD-002

at50-29003 = AT50-29\_CTD-003

J2-1612\_CT2= AT50-29\_J2-1612

at50-29004 = AT50-29\_CTD-004

J2-1617\_CT2= AT50-29\_J2-1617

J2-1619\_CT2= AT50-29\_J2-1619

J2-1621\_CT2= AT50-29\_J2-1621

J2-1623\_CT2= AT50-29\_J2-1623

J2-1629\_CT2= AT50-29\_J2-1635

at50-29005 = AT50-29\_CTD-005

at50-29006 = AT50-29\_CTD-006

at50-29007 = AT50-29\_CTD-007

J2-1647\_CT2= AT50-29\_J2-1647

J2-1648\_CT2= AT50-29\_J2-1648

J2-1650\_CT2= AT50-29\_J2-1650

J2-1652\_CT2= AT50-29\_J2-1652

J2-1653\_CT2= AT50-29\_J2-1653

J2-1656\_CT2= AT50-29\_J2-1656

J2-1602\_sealogExport = AT50-29\_J2-1605\_sealogExport

J2-1612\_sealogExport = AT50-29\_J2-1612\_sealogExport

J2-1617\_sealogExport = AT50-29\_J2-1617\_sealogExport

J2-1619\_sealogExport = AT50-29\_J2-1619\_sealogExport

J2-1621\_sealogExport = AT50-29\_J2-1621\_sealogExport

J2-1623\_sealogExport = AT50-29\_J2-1623\_sealogExport

J2-1635\_sealogExport = AT50-29\_J2-1635\_sealogExport

J2-1647\_sealogExport = AT50-29\_J2-1647\_sealogExport

J2-1648\_sealogExport = AT50-29\_J2-1648\_sealogExport

J2-1650\_sealogExport = AT50-29\_J2-1650\_sealogExport

J2-1652\_sealogExport = AT50-29\_J2-1652\_sealogExport

J2-1653\_sealogExport = AT50-29\_J2-1653\_sealogExport

J2-1656\_sealogExport = AT50-29\_J2-1656\_sealogExport

J2-1560\_CT2 = TN422\_J2-1560

J2-1523\_sealogExport = TN-422\_J2-1523\_sealogExport

**Summary Notes:**

AT50-29, J2-1602, Niskin: Forward Starboard: CastFlag: ROV sealogExport file included corrupt lat/long, DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, J2-1602, Niskin: Aft Starboard: CastFlag: ROV sealogExport file included corrupt lat/long

AT50-29, CTD-001, Niskin 3: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 5: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 7: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 9: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 11: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 13: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 15: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 17: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-001, Niskin 19: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, J2-1605, Niskin: Forward: CastFlag: ROV sealogExport file included corrupt lat/long, DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-002, Niskin 3: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH; Chlorophyll samples includes 2 filters as 1st leaked a little

AT50-29, CTD-002, Niskin 7: DiscreteSampleFlag: Oxygen pickled with 1.5 mL of NaOH

AT50-29, CTD-002, Niskin 19: DiscreteSampleFlag: Chlorophyll filtration leaked a little

AT50-29, J2-1612, Niskin Aft Starboard: DiscreteSampleFlag: 12 hour delay in freezing Nutrient sample

AT50-29, CTD-004, Niskin 7: DiscreteSampleFlag: DIC sample possibly taken from wrong Niskin

AT50-29, CTD-004, Niskin 9: DiscreteSampleFlag: DIC sample possibly taken from wrong Niskin

AT50-29, CTD-004, Niskin 11: DiscreteSampleFlag: DIC sample possibly taken from wrong Niskin

AT50-29, CTD-005, Niskin 13: DiscreteSampleFlag: Oxygen bottle chipped during sampling

AT50-29, CTD-006, Niskin 15: DiscreteSampleFlag: Chipped Oxygen bottle was used

AT50-29, CTD-007, Niskin 17: DiscreteSampleFlag: Oxygen titration may have overshot endpoint

AT50-29, CTD-007, Niskin 23: DiscreteSampleFlag: Chlorophyll filtered less than 500 mL

AT50-29, J2-1647, Niskin Aft Starboard: DiscreteSampleFlag: Chlorophyll filtered less than 500 mL (vial 5077)

**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 |

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