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