

# CTD Data

Time-series sites represented:

BATS, ESTOC, Ubatuba, NEPTUNE Canada, CVOO



*Comments from report out session captured in slide notes.*

# Instruments

Vertical casts (did not discuss moored mode)

- CTD units:
  - SeaBird 911+ on conducting cable
  - SeaBird 25
  - SeaBird 19+
  - SeaBird 35 (high accuracy Temperature sensor)
  - IDRONAUT
- Reversing thermometers on ships of opportunity

# Popular Sensors

- SBE 43 for profile oxygen
- Optodes used for mooring deployment, and possibly for low-O<sub>2</sub> environment
- WetLABs and Chelsea (fluor)
- WetLABs for Beam Attenuation

# Recommended Methods

- Discussed best-practices for deployment
  - 5 minute at 10 meters, then back to surface and begin downtrace
- Lowering rate to maximum of 60 meter/minute in the deep water
- Stop the rosette for 1-2 minutes for each bottle fire (waiting for uptrace to agree with downtrace)

# Standards

- Are there standards available?
  - Yes, for discrete measurements
    - Salinity: OSIL (standard seawater); every 30 samples
    - Oxygen: Potassium Iodate from OSIL or CSK (equivalent quality, different cost)
  - Many sites use SeaSoft for initial processing (HOT uses their own software ?)
  - Most sites use local software routines to fit profile to discrete samples (for calibration)

# Uncertainties (QA/QC)

- QC: compare with historical data and recent cruises (e.g. BATS looks for data to be within 1.5 sd)
- Needs are Site-specific
  - each site needs to do their own sample procedure tests (e.g. establishment of local procedures and protocols to ensure sufficient quality)



# Nomenclature

- Pressure (decibars)
- Depth (meters) [a few sites derive and report depth]
- Temperature (degrees C, IPTS 90)
  - single temperature measurement reported
- Salinity (SAL78, PSS, dimensionless)
- dissolved oxygen (DO) ml/l or umol/kg
  - Record draw temperature immediately after O2 sample
- beam attenuation coefficient (BAC) (meter <sup>-1</sup>)
- fluorescence (RFU) (relative fluorescence; no units)



# Recommendations

- CTD unit (SeaBird units are most popular)
- Dual sensor configuration (plus SBE35) if possible
- Full depth calibrations with salts and DO
- Report number of scans per record in the final pressure binned profile data
- Calibration: 6-9 month calibration schedule for each CTD sensor (Pressure every 2 years)
- Calibration done by manufacturer
- Intercomparison of CTD calibration facilities