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WHOTS-8 (AC-31) CTD Data Processing Report

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Post-cruise processing of CTD data from the WHTOS-8 cruise.

SUMMARY

WHOTS-8 was conducted aboard the NOAA ship *R/V Hi'ialakai* (KM) from July 5th – 13th, 2011. A total of 16 CTD casts were conducted.

Easterly winds averaged 15-20 kts and there was a swell of 6-8 ft. Winch speeds averaged 30 m/min for the first 100 dbar and 60 m/min after that.

A test cast was conducted near Kahe Pt. (arbitrarily named Station 3 during the post-cruise processing) to 1020 dbar. Nine yo-yo CTD casts were conducted to 500 dbar while sitting approximately a quarter mile away from the respective WHOTS buoy; these casts included Station 50 (WHOTS-7) Casts 1-5 and Station 52 (WHOTS-8) Casts 1-4. All other casts were conducted to approximately 1020 dbar during a survey; these casts included Station 51 Cast 1, Station 50 Casts 5- 6, Station 2 Cast 1, Station 3 Cast 1, Station 53 Cast 1.

The primary and secondary temperature, conductivity, and oxygen sensors functioned correctly during WHOTS-8. No problems were reported with the fluorometer either.

The temperature and salinity mixed layers ranged between 80-100 dbar and remained fairly constant throughout the cruise. The salinity minimum ranged between 400 dbar to 450 dbar and was approximately 34.06 psu.

The oxygen mixed layer was also to 100 dbar throughout the entire cruise. The oxygen maximum was at approximately 100 dbar, directly after the mixed layer. The oxygen minimum was at approximately 780 dbar.

There was no deep casts conducted during the WHOTS-8 cruise.

1 SENSOR CONFIGURATION

SeaBird 9/11-Plus CTD SN 850 with pressure sensor SN 1430 was used during WHOTS-8. The CTD was equipped with dual temperature, conductivity and oxygen sensors to acquire hydrographic data. SBE-3 Plus temperature sensors SN 1416 and SN 2454 were used for all casts. Conductivity sensors SN 2218 and SN 3162 were used for all casts. Oxygen sensors SN 1601 and SN 43918 were used for all casts. Pumps SN 968 and 1368 were used for all casts.

Rosette configuration included SeaBird carousel SN 518 which functioned correctly throughout the cruise. Fluorometer SN 3199 was used for all casts and had no issues.

2 POST-CRUISE CHANGES

There were no marks recovered or removed during the post-cruise processing.

Notes from FSM:

s52c2 was split in two casts (s52c2 and s52c22) because of software crash, but it was read from tape as s52c222.

The cruise was on the NOAA's ship Hi'ialakai, but entered as Kilo Moana in the database.

Used HOT-233 (conducted after WHOTS-8 cruise) CTD-C and O2 calibrations

No problem with any of the casts.

3 PROCESSING PARAMETERS

The time lags were calculated between the primary and secondary temperature sensors, as well as between corresponding temperature and conductivity sensors. The alpha values for the Lueck correction were calculated for both conductivity sensor. The secondary-primary temperature lag remained 0. The primary sensors lag value remained at 0. The secondary sensors lag value remained at -2. The alpha values for the primary and secondary sensors were 0.028 and 0.020 respectively.