**CTD CAST INSTRUCTIONS**

August 22, 2013

* Periodically **check the ETA** for the next station. The ETA will change with ship’s speed and weather conditions.

* At **10 minutes before** arriving on station, remove the solution from the sensors but leave the syringes on. Power on the **deck unit** and note the time. Standby for 60 seconds and check the display is 0010. If the pumps turn on (0011) then turn off deck unit immediately, flush the sensors, and try again. Survey will remove the **syringes** and rinse the **optical** sensors windows just before deployment.
* Initiate the **SEASAVEV7** software program through the desktop icon. Save the Configuration Input file as C:\repeat\a16n\_13\data**\\*.con for Courtney** (Hint: Config Input, Modify, Save As, \data\rh20711.con, Save, Exit, Cancel). Exit SEASAVEV7, do not save changes.
* **On station**, initiate the **SEASAVEV7** software again through the desktop icon. Select ‘Real-Time Data’ and ‘Start’. Verify ‘Begin archiving data immediately’ is selected. Select ‘Output Data File Name’ in C:\repeat\a16n\_13\data to be of the form rh20711, which stands for Repeat Hydrography leg 2 station 071 cast 1. Verify or select the correct .XMLCON file, pri\_24\_4.xmlcon. FYI, the CTD serial port is COM5, 19200, 8, none. The water sampling serial port (modem) is COM1, 300, 8, none. Both timeout values should be 20 seconds. Hit **‘Start’**. Watch the screen for ‘Establishing Communications with the Instrument’, ‘Initializing Water Sampler’, ‘Initializing NMEA’. Verify that the data being listed are reasonable on-deck values.
* Fill out the CTD Cast **Log Start of Cast** information and hit **Markscan** on deck. Also, record the on-deck pressure value.
* After **deployment**, the winch operator should place the package at 30 meters and hold it there for at least 3 minutes. Verify that the data being listed are reasonable surface values. Watch the surface plots and differences plot. When the differences have settled down, instruct Survey to return it to just beneath the surface. If the sensors come out of the water at the surface, return the package to at least 10 meters for another minute and watch the plots again.
* Hit **Markscan** and then start the **winch down at 30 m/min**. Give the winch operator an approximate **target depth**. Decent rates are 30 m/min from 0-50 m, **45 m/min** from 50-200 m, and **60 m/min** >200 meters. Rates may vary in bad weather.
* Winch speed and cable tension can be monitored on the winch box display above the CTD console. Minimum **winch tension** should be **350** lbs; maximum winch tension should be **3000** lbs, never 0 or 4500 lbs.
* Set the appropriate depth range on the **altimeter** plot. Watch for it to come on within 300 meters of the bottom.
* At bottom **depth-100 m**, slow the winch to 30 m/min. Tell the wince to **standby** at 20 m from the bottom, and **stop** the winch 10 meters from the bottom. Announce to all stations that the CTD is at depth and hit **Markscan**. Wait 30 seconds before firing a bottle to allow the bottles to flush. Continue to monitor the depth of the package during this time and raise the package if necessary. Note the CTD Cast **Log at Depth** information.
* Close the bottle in the ‘**Bottle Fire** Control’ window. The green light on the deck unit Water Sampler Control will light for 5 seconds. Then wait for another 15 seconds for the SBE 35 to sample before instructing the **winch up**. If there is more than one bottle to be fired at any depth, wait 15 seconds between firing each one.
* The ascent rate should not exceed **60 m/min**. Approaching each bottle stop, give the winch a 10-15 m “standby” and “stop” at the target pressure. Again, wait **30 seconds** **before** closing a bottle and **15 seconds after** closing a bottle.
* After closing **the second to surface bottle,** give control of the winch to Survey. They will direct the winch to stop just beneath the surface and let you know. Wait 30 seconds, trip the surface bottle, wait 15 seconds, and tell Survey when you’re done. They will then recover the package.

* After the CTD is on deck, hit **Markscan**, stopReal-Time **data acquisition**, and turn off the **deck unit** (in this order). Complete the CTD Cast **Log End of Cast** information.
* From Windows Start, Run, sbebatch C:\repeat\a16n\_13\proc\**backup.bat** 20711 to archive the raw data files to the thumb drive. Close window.
* From Windows Start, Run, sbebatch C:\repeat\a16n\_13\proc\**copy.bat** 20711 to copy the .xmlcon file from \data to \proc in order to run process.bat. Close window.
* From Windows Start, Run, sbebatch C:\repeat\a16n\_13\proc\**process.bat** 20711 to generate an .ASC file for Oyvind (LADCP) and a .BTL file for Courtney (data manager) who will merge them with previous bottle data for the samplers.
* Outside, Survey will reattach the **syringes** and flush the sensors several times, rinse and cap the transmissometer windows, and rinse the **carousel** with hot water (if necessary). Visually check the TC duct, sensor positions, cables, etc. before you start sampling.
* The CTD Cast Log and Sample Log should be added to the cruise binders, most recent cast on top.