

SOP 5: CTD Data Download and Transfer to Network

Version 1

Revision History Log:

Prev. Version #	Revision Date	Author	Changes Made	New Version #
[none]	Oct. 2010	S. Danielson, W. Johnson, L. Sharman, G. Eckert, B. Moynahan	Initial version	1

Summary

During a cruise, typically at the end of each day, the contents of the CTD are downloaded to a laptop computer and given quality assurance tests. If significant problems are found during the quality assurance review, some stations may need to be re-occupied the following day to avoid loss of data. After the data is transferred to the computer and a backup hard drive, the CTD memory is then erased to make room for additional data.

At the end of each cruise, the laptop files are copied to the park's network file server. These files are the basis for many other deliverables.

This process is the responsibility of the Project Leader.

Detailed steps

1. Before a cruise

- 1. Ensure the laptop has working copies of SEATERM software.**
 - If not found on laptop, seek Data Manager's assistance.
- 2. Ensure the serial data cable is packed for the field.**
- 3. If this is the first cruise of the year, create a "c:\oceanography\yyyy\Downloaded HEX files\" folder on the laptop to hold the season's cruise data, where yyyy is the 4-digit year.**
- 4. Create a subdirectory for this cruise as "c:\oceanography\yyyy\Downloaded HEX files\yyymm\" where yy is the 2-digit year, and mm the 2-digit month.**
- 5. Determine the starting dump number for the cruise by incrementing the last dump number used by the OC survey program.**
 - It may be found on the most recently completed survey field log sheet.

Only one sequential dump number is maintained, regardless of how many CTDs are employed at various times.

2. For each cruise day

- 1. Capture casts using the method described in SOP 4.**
- 2. Retrieve daily data from CTD.**
 - Connect laptop serial port to CTD using special cable.
 - Invoke SEATERM software.

3. Be sure SEATERM is set to download one specified cast at a time.
4. Press “connect” software icon.
 1. *If it doesn’t connect, take remedial action such as tightening cables and replacing batteries.*
 2. *If it does connect, the number of casts and the record numbers for each cast will be displayed.*
 1. Complete a CTD Download Checklist from the displayed information; for date, use the local date transferred rather than the GMT collection date.
 2. If no processing is done on the CTD for 90 seconds, the connection is dropped to conserve battery power.
5. Invoke a transfer using the “upload” button.
6. Specify the next cast to save, as tracked on the checklist.
7. You will be prompted for “header” information.
 1. *Enter it from the correct row of the field log sheet.*
 2. *Be mindful of the 90-second disconnect timeout.*
8. Specify the destination file on the laptop as c:\oceanography\yyyy \Downloaded HEX files \yymm\yymm_C_dddd_cc.hex, where yy is year of cast, mm is month of cast, C is local ctd number, dddd is dump number, and cc is cast number. Zero fill any name component to ensure the filename is exactly 18 characters.
9. Watch screen progress to be sure the correct sample numbers are reflected for that cast.
 1. *If the wrong records appear listed, delete the file using Windows explorer and redo the download.*
10. Mark the completed download on the paper checklist.
11. Repeat for each cast until the list is completely checked off.
3. **Visually check basic quality of each HEX file.**
 1. Locate each downloaded file with Windows explorer and open it in NOTEPAD.
 2. The cast number should match the log sheet entry and the filename – this is VERY IMPORTANT.
 3. The header text should match the corresponding log sheet values.
 4. Beyond the header, every line should be exactly the same length. Scan down to the end of the file for short or long lines. For the CTD/sensor configuration currently employed in the GLBA sampling, the line length is 24 characters, but the exact number of characters in the data line varies by the number and type of sensors on the CTD at the time it is used.
4. **If any file does not meet the QA requirements, then delete it with Windows explorer and recreate it with SEATERM.**
 1. A file cannot be deleted if it is still open in NOTEPAD – close the file.
 2. The new file must go through this QA as well.
 3. If a second attempt at downloading the cast also results in data lines that are not exactly 24 characters in length:
 1. *Use the NOTEPAD session to delete the invalid lines.*
 2. *Save the file and close NOTEPAD.*
 3. *Add a comment to the field log sheet specifying the number of invalid rows deleted due to length errors.*
 4. *If, from a particular point in time, files begin exhibiting consistent short or long lines, this suggests the CTD is faulty and must be serviced immediately.*

- 5. Back up the hex files in laptop folder “yymm” to a USB thumb drive.**
 1. Plug in thumb drive and wait for it to be recognized.
 2. Use Windows Explorer to copy files.
 3. Use the “Safely remove hardware” function in the system tray to ensure the copy is complete.
 4. Physically remove the drive
- 6. Clear data from CTD.**
 1. Verify that all casts have been downloaded to the laptop and backed up on the USB drive.
 2. Using SEATERM, enter the command “IL” and confirm the operation by entering “IL” a second time when prompted.
 1. *This permanently erases the CTD memory.*
 2. *Do not use the “Init Log” button on the SEATERM screen: it does not function properly with every CTD used by the program.*
- 7. Disconnect.**
 1. Exit the SEATERM program.
 2. Disconnect the cable from CTD and laptop.
 3. Cap the CTD data socket.
- 3. At end of each cruise:**
 - 1. Copy the HEX files from laptop to network server folder at \\nps\akrdfs\GLBA\Science\Data\Oceanography\Data\yyyy\HEX_raw\ where ‘yyyy’ is the survey year.**
 1. Files for a particular year are comingled and are not segregated by cruise.
 2. Subsequent data processing will fail unless this specific folder holds all files for the season.
 - 2. Store log sheets in an annual paper file kept by the Project Leader.**
 1. They will be required post-season to generate OC_H field log images.
 2. They will also be required before the next cruise to determine the next starting dump number.