

12-20-05

These are notes on how to collect LADCP data by guiding the user through the checkout and check-sheet process. These instructions assume the system has been setup.

1. Fill in the station, cast, jday, lat, lon, and date. All these can be found on the AAIW shipboard website. If the website is not available,

station should match the CTD station.
cast should match CTD cast no. (usually 01)
lat and lon can be found in the waypoints, try a file in
/Users/science/kn0508/cruise_docs/
julian day can be found using "date +%j" in an xterm window.
date can be found by "date -u" in an xterm window.

2. DEPLOY - The LADCP should be connected to the hangar cable (which is attached to the laptop and the power supply in the lab).

a. Turn on the power supply, using the "on/off" button at the bottom-right-hand corner of the power supply keypads. Wait about 30 seconds before recording the "Current per Channel" from the bottom line of the power supply display to one decimal place.

b. In an xterm window, type "cdl". This has been aliased to "cd /Users/science/data/ladcp". This where we log the LADCP sessions and download the LADCP data.

c. If the gui to the LADCP (xwindow titled "tk") is not already open, you need to do so by making sure X-windows is running (there should be a triangle pointing to X in the dock icon; if not, click on the icon to open X-windows), and then in an xterm window type type "rditerm.py". This will open the gui interface with the LADCP. This takes a few seconds so please be patient. NOTE: the xterm where rditerm.py is typed/started will no longer be useable as a terminal window. Open another xterm if needed (in the X11 toolbar at the top of the screen, choose "Applications->Terminal).

d. At the upper-right hand corner of the gui-interface (window labeled "tk"), set the station and the cast numbers.

e. In another xterm window, type "date -u". Use this date and time to compare with the date and time in step f.

f. In the gui interface, using the pull down menus, do "Deploy=>Deployment Initialization". A small window with the pc and LADCP time along with the time offset will appear. Compare the times with the time in step e: They should be close, the difference being the time it took you to to type "date -u" and to initialize. NOTE: Sometimes, this small window with the

time differences does not appear. In that case, redo the "Deploy=>Deployment Initialization".

g. Click on "OK" in the small window with the pc and LADCP time.

h. Look in the gui-interface window, and record two numbers that appear on the screen after clicking "OK" in step g: the "Number of Deployments Recorded", and "Rec Space Used" (the first of the two numbers, in megabytes).

i. If the "Number of Deployments Recorded" is NOT 0, this means that there is/are previous casts on the LADCP recorder. Be sure you want to erase these: that is, make sure that the cast(s) on the recorder have at least been scanned successfully. If so, and you are indeed sure you want to erase the recorder, go to the bottom of the gui-interface window and in the "Transmit line:" box, type "RE ErAsE". The line
[Erasing...]\r
will appear in the gui window, and the recorder will have been erased.

j. If the clock difference between the pc and the LADCP is 2 or more seconds off (steps e. and f., and check the gui-interface window which also shows the seconds difference on the line " #PC-ADCP:), the clock (on the LADCP) needs to be reset. To do this, pull down the Deploy menu in the gui interface, and choose "Set Clock".

k. If all is satisfactory, and you are ready to deploy, pull down the "Deploy" menu in the gui interface and choose "Send Setup". Another small window will pop up, having already hardwired into it the command file "ladcp.cmd". It may just say "ladcp.cmd" or it may have the full path name to it (/Users/science/data/ladcp) - either is OK. Click on "open" in the small pop up window, and a bunch of commands will print to the gui-interface. These are the commands that are being sent to the LADCP to get it going, and the LADCP should start pinging. When the commands stop scrolling by, record the time that the "Data collection started".

l. Turn off the power supply, using the bottom-right-hand button of the power supply keypad. The power supply display shows "ALL OUTPUT OFF"

m. Disconnect the computer and the LADCP by pulling down the "Deploy" menu in the gui-interface select "Disconnect"

n. Go to the rosette and unplug the deck cable from the LADCP cable. Before putting the dummy plugs on either ends of the two cables, make sure the plugs are not wet or damp, and that there is no lint or hairs on or near the o-ring seals. Use additional o-ring grease if needed; spread it thinly and uniformly. Then put a dummy plug on each of the two cables.

8-pin plugs are delicate !!

BE CAREFUL to line up the little rubber dots when you connect plugs.

DO NOT FORCE it (it is sometimes a little stiff, but if you have to force it, that may be an indication that a pin is bending)

DO NOT TWIST them (it won't help, and it can damage the plug as well as increase the likelihood that you will push pins in the wrong holes, thereby increasing the likelihood of bending pins)

KEEP CLEAN AND DRY: "clean" means no lint, so dry the plugs and pins with kimwipes not paper towels. "Dry" means dry off the plugs if there are little beads of water.

You should hear a "whooshing" sound when the plug seats, as all the air is forced out.

o. Secure the LADCP "pig tail" (the end of the cable on the rosette) to the frame of the rosette. Velcro seems to work well. See pictures included in this booklet.

p. When the rosette reaches the bottom and has started back up, record the bottom time, meters depth and meters off the bottom from the ctd console operations log sheet.

3. RECOVER -

a. Go to the rosette and squirt clean water on the connection between dummy plug and the LADCP cable. Dry it off well with a towel, and try to tap/slap the water out from between the connection. Remove the dummy plug, and clean up any water or condensation on the dummy and the pins on the end of the LADCP rosette cable using a Kim-Wipe because they are lint-free. If all the o-ring grease needs to be removed, that is ok; just make sure the water has been sopped up. Connect the hangar end of the LADCP cable to the rosette end of the LADCP cable: you now should have a connection to the lab, and the LADCP should still be pinging.

b. In the lab, turn on the power supply, using the on/off button on the bottom right hand side of the keypad on the power supply. Typically, the power supply with a used battery will not show a decrease after 20 seconds, so the "N" on the check sheet will be circled.

c. If the gui-interface is no longer open, repeat "1. DEPLOY -", "steps b. c. and d."

d. From the menu in gui-interface, choose "Recover => Recovery Initialization". Click "OK" on the small window that pops up showing the time difference. Record the "ADCP time:", which is the time that the LADCP stopped pinging and recording. If the time stopped doesn't appear, redo "Recover => Recovery Initialization" step from the gui-interface menu. Also record the "Number of Deployments" and the "Rec Space Used" in megabytes (the first of the two numbers).

e. From the menu in the gui-interface, choose "Recover => download". This will pop up a window asking which file to download. If there are multiple casts on the LADCP recorder, the last cast is the default choice. For example, if there are 2 casts on the recorder, the window will ask if you want to download the 2nd cast, which is the most recent cast. You can change this number. But usually, there will only be one cast on the recorder, so the window will ask if you want to download 1, and therefore click on "OK".

f. If something went wrong refer to the "Python Terminal Issues, Common Problems" in this booklet to kill processes before redoing steps d. and e.

g. Sit back and relax while watching the data downloading and the battery charging. Typically, when the data download is complete, the battery will also be charged and the power supply can be turned off.

The data will download, showing "Blocks received: [1-255] in the gui-interface, until the download is complete. When the download is complete (about 45 minutes), a small gui-window will pop up, asking if you want to rename the file. Check that the file name reflects the correct station and cast, then click "OK". IF the small gui-window does not pop up, scroll back up the gui-window to the beginning of the download, and look for the line just above the first "Blocks received" line that says "Receiving: < filename.402 >". This is the file that was just downloaded, so rename it to the standard format using an xterm window, for example "mv 91923001.402 K083_01.000" (make sure you are in the correct directory by typing "cdl" first). When the download is complete, record the "Bytes received:" and the "ymodem download number of retries:". The last command sent to the LADCP after clicking "OK" to rename the file is to power it down. The last line in the gui-interface window should be "[POWERING DOWN]\r". If not, in the gui-interface menu, choose "Command->ZZZZ(go to sleep)"

Keep an eye on the power supply - After about 10 minutes, from when you initiated the download, the power supply will start beeping as it changes from constant current to constant voltage (about 29.01 volts, 1.79 amps). It will stop beeping after the switch-over is stable (usually

less than 10 beeps). When the power supply gets down to a constant current of about 0.7 amps, the power supply should be turned off by using the on/off button on the bottom-right-hand side of the power supply keypad. HOWEVER, keep the power supply on until the data has finished downloading. Record the current when the power supply is shut off. The power supply display shows "ALL OUTPUT OFF"

4. PROCESSING - Refer to the program printouts in the booklet for specifics about programs called during the processing procedure. If this is the first time that processing has been done for a cruise, edit the file ~/bin/pladcp.scr to reflect names and data directory locations for the specific cruise.

a. At a minimum, you want to scan the raw LADCP file, to ensure the data are readable and it is ok to erase the recorder before the next cast. If you have time to process the cast, skip this step and proceed to b. Scanning is part of the automated processing. Otherwise, you should scan the file manually with the two following steps:

```
cdl # to start in the correct directory
scanbb K125_01.000 # to scan data from station 125 cast 1
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The output will print to the screen - record the zmax and the zmin on the logsheet. The scan will be save to the file K125_01.scn for this example.

b. In an xterm window, type "cdsl; cd proc", where "cdsl" has been aliased to " cd /Users/science/kn0508/ladcp", and "proc" is the directory we like to start our processing.

c. In the same xterm window from step b. above, type "pladcp.scr sss cc" where sss is the station number and cc is the cast number. For example, "pladcp.scr 088 01". This starts a script which takes you through the processing steps. The script queries whether you want various data files to be updated. Answer accordingly.

c. The first question in the script asks if you want to back up the LADCP data. Answer "y" or "s" and circle the "Y" for "Backup copy made?" towards the end of the checksheet.

d. Answer accordingly to all the other questions about updating data. Usually you want to update everything, unless this is a reprocessing.

e. During the processing of procm1.scr, you will be asked if yu want to append a file and if you want to load data. Answer "y" to each question if processing for the first time. Answer accordingly thereafter. After processing "procm1.scr" has finished, and before answering "y" to "Do you want to process procm2.scr", record the zmax and the zmin that shows on the screen.

f. After processing procm2.scr, note that the number preceeding "from bottom.dat" is NOT -1. If it is, something went wrong with the script procm2.scr.

g. The last few lines before the script exits tell where the plots and scan have been stored.