

**BOP Procedures**  
**\$ICE/note/yped/CHA1/notebook/procedures/BOP**

**BEST PRACTICES**

Start by reading the flight notes. This will inform you of any unusual aspects of the data collection such as PST renamings, restarted instruments, or anything that may have affected the data collection process.

Avoid overloading the QNAP by being mindful of the I/O and bandwidth requirements of your task

Mark your initials on the media envelopes when you finish downloading or deleting.

Do not delete any original data unless it has been archived

Archiving tapes (copies and full tapes) should be distributed to avoid single point failures

Always unmount disks before removing

{\_} brackets are used to denote options or file names F## is the flight number (i.e. F02, F12), J### is for the Julian day (i.e. J055, J132)

Any qualitative notes about what you find in this process go in: \$ICE/note/yped/CHA1/notebook/BOPnotes

BOP tends to be IO-limited, and archiving goes much more slowly if it isn't fed data quickly enough. Use "sudo iotop" to determine which processes are IO-limited vs. CPU-limited. Suggested order: download ELSA, run glnk, download RAD, check for PST renaming, run grad for VHF, then start archiving VHF. Everything else can happen in parallel with the main VHF flow.

Linux tips and useful commands are at the end of this document

**Download**

Preserve the time stamps of the data (i.e. \$ cp -p)

Mark the media envelope after downloaded with your initials

When there are multiple GPS units of the same type, check envelope for ID

Media	Instrument	Instructions
GCX0* drive	VHF (HiCARS2)	<ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/yped/CHA1/acqn/HiCARS2/F##</li> <li>• Copy files from media: (The radar drive will mount to /media/qc/RADP##) \$cp -p /media/qc/RADP##/jddd/radar* \$ICE/orig/yped/CHA1/acqn/HiCARS2/F##</li> </ul>
	ELSA2	<ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/yped/CHA1/acqn/ELSA/F##</li> <li>• Copy files from media: \$cp -p /media/qc/RADP##/jddd/serial* \$ICE/orig/yped/CHA1/acqn/ELSA/F##</li> </ul>
CF or SD card	SOB	(Science Observer - not on most flights) <sup>[1]</sup> <sub>SEP</sub> <ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/yped/CHA1/acqn/SOB/F##</li> <li>• Copy complete camera directories {100CANON, 101CANON, etc.}: \$cp -rp {100CANON, 101CANON, etc.} \$ICE/orig/yped/CHA1/acqn/SOB/F##</li> </ul>
SD card	MAG Base	<ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/yped/CHA1/acqn/MAG_ZGN/F##</li> <li>• Copy files from media: \$cp -p {files} \$ICE/orig/yped/CHA1/acqn/MAG_ZGN/F##</li> </ul>

USB	Mag External	<p>Get .txt files from Mr. Wu<sup>[1]</sup><sub>SEP</sub> • Make folder in hierarchy: \$mkdir \$ICE/orig/xped/CHA1/acqn/MAG_ZSH/F##</p> <ul style="list-style-type: none"> <li>• Copy files from media: \$cp -p {files} \$ICE/orig/xped/CHA1/acqn/MAG_ZSH/F##</li> </ul>
USB	MAG GCX	<p>We're downloading backup raw binary data from the onboard magnetometer. It will be on the JVD/CMG USB.<sup>[1]</sup><sub>SEP</sub> • Make folder in hierarchy: \$mkdir \$ICE/orig/xped/CHA1/acqn/MAG_GCX/F##</p> <ul style="list-style-type: none"> <li>• Copy files from media: \$cp -p {files} \$ICE/orig/xped/CHA1/acqn/MAG_GCX/F##</li> </ul>
USB	GT2A	<ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/xped/CHA1/acqn/CMG/F##</li> <li>• Copy files from media: \$cp -p {files} \$ICE/orig/xped/CHA1/acqn/CMG/F##</li> </ul>
GPS  Naming Conventions	<p>Airborne: ##: First number is the location of the gps (CG=1, Tail=2, Left wing=3, Right wing=4) Second number is the current version/iteration of receiver used on the particular antenna</p> <p>Base Station: Prefix: Use the 3 letter acronym of the base (i.e. WSD for WAIS, ZWD for Williams Field) ##: First number is the antenna number Second number is the current version/iteration of the receiver used on the particular antenna</p>	
USB	JVD	<ul style="list-style-type: none"> <li>• Make folder in hierarchy: \$mkdir \$ICE/orig/xped/CHA1/acqn/JVD/F##</li> <li>• Copy files from media: \$cp -p {*.jps} \$ICE/orig/xped/CHA1/acqn/JVD/F##</li> </ul>
CF card	ASH	<ul style="list-style-type: none"> <li>• Mount the media: click on the media name in file browser (i.e. --none--) since it won't automatically mount</li> <li>• Make folder in hierarchy: mkdir \$ICE/orig/xped/CHA1/acqn/ASH/F##</li> <li>• Do NOT move the files on the media or edit the files on the media!</li> <li>• Start the Ashtech GUI software: <sup>[1]</sup><sub>SEP</sub> * cd \$ICE/code/xped/CHA1/download/ASH/dLoad32<sup>[1]</sup><sub>SEP</sub> * wine Dload32.exe<sup>[1]</sup><sub>SEP</sub> * If this is your first time running dLoad32 on this computer, you will have to install it! <sup>[1]</sup><sub>SEP</sub>(cd UPL_disk; wine SETUP.EXE; cd dLoad32; wine Dload32.exe; file-&gt;connect-&gt;PC Drive)</li> <li>On LHS, navigate to the folder with GPS data On RHS, navigate to the destination folder \$ICE/orig/xped/CHA1/acqn/ASH/F## Copy the GPS data files to the destination folder: Right-click on file, select « copy to »</li> <li>• Rename the files beginning B and E with the instrument identifier (i.e. gcx12) <sup>[1]</sup><sub>SEP</sub>Only the first number of the gps will be included in the file name since receivers allow only 4 digits<sup>[1]</sup><sub>SEP</sub> Examples: BGCX1A16.131 → gcx12a.b, EGCX2B16.131 → gcx12b.e For night flights that cross midnight (UTC) use {a, b}.b and {a, b}.e</li> <li>• Files not beginning with either B or E can be discarded</li> <li>• Close Ashtech download Software</li> </ul>

USB	PFX	We have 2 receivers this year: ZGN21 in the 8-bed cabin, ZGN11 in the workspace. Make folders in hierarchy: \$mkdir \$ICE/orig/xped/CHA1/acqn/PFX/F##/ZGN#1 • Copy files from media: \$cp -p G* \$ICE/orig/xped/CHA1/acqn/PFX/F##/ZGN#1/				
USB	Base GPS	(Unknown - still trying to work it out w/ Li Hang)				
PST RENAMING						
NOTE: The need for renaming should be noted in flight log. Also check the results of ELSA breakout against expected PST names						
Create file: modify_pst.rc with lines “old_pst new_pst” using the format: P/S/T P/S/T (one PST change per line). An example file can be found at \$ICE/code/xped/CHA1/breakout/ELSA/src/ex_modpst.rc.						
Copy/place file: \$ \$ICE/orig/xped/CHA1/acqn/{HiCARS2, ELSA}/F##/						
Run respective breakout scripts with the appropriate modify pst flag shown below.						
BREAKOUT						
Scripts in media/ICE/code/xped/CHA1/all breakout data AND generate files for printing To save a log file, run the breakout script using ./glog. (i.e. \$ ./glog ./grad -flags ...) Note: There are warnings that will be displayed (along with other verbose statements). To check if the script worked check the contents of targ and the corresponding print out folders						
AQN (ELSA)	\$ cd \$ICE/code/xped/CHA1/all \$ ./glnk -flight F## -project CHA1 -platform GCX [-overwrite] [-modpst]  Check that all expected PSTs are there \$ du -hcs \$ICE/targ/xped/CHA1/breakout/ELSA/F##/*/*/*					
VHF	\$ cd \$ICE/code/xped/CHA1/all \$ ./grad -proj CHA1 -plat GCX {-f forces overwrite of breakout} {-p causes pdfs to appear on Desktop} {-modpst to change PST} F##					
PFX	On a Windows machine, use RINEX.exe to convert from G file to rinex 2.10(\$ICE/code/xped/CHA1/breakout/PFX/RINEX_Converter)Resulting files should be copied to:\$ICE/orig/xped/CHA1/acqn/PFX/F##/{ZGN11,ZGN21}					
MAG_ZGN (ER EV-1 base mag)	On a Windows machine, use ProtonMag_Utility.exe to convert to .txt(\$ICE/code/xped/CHA1/breakout/MAG_ZGN/ErevASCIIConversion)Resulting files should be copied to:\$ICE/orig/xped/CHA1/acqn/MAG_ZGN/F##/					

CMG	(There's a whole procedure ... ) <sup>[1]</sup> Resulting files go to ....
GPS (do this after ELSA and MAG)	<pre>\$ cd \$ICE/code/xped/CHA1/all \$ ./ggps [-ignoremissing] F## Jddd yyyy</pre> <p>NOTE: Use -ignoremissing flag if missing data</p> <p>NOTE: All GPS can be manually broken out separately if there's a problem with above script</p> <pre>\$ cd \$ICE/code/xped/CHA1/breakout/{GPS} \$ ./bo_pos_ash -proj CHA1 -flight F## \$ ./bo_pos_jvd F## {or} JDAY</pre> <p>NOTE: Do the following three steps if re-running to integrate other sensors into the QC sheets</p> <pre>\$ cd \$ICE/code/xped/CHA1/quality/xlob/teqc \$ ./doteqc F##</pre> <pre>\$ cd \$ICE/code/xped/CHA1/quality/flight \$ ./run_qc.sh F##</pre> <pre>\$ cd \$ICE/code/xped/CHA1/print \$ ./ggps -proj CHA1 -year 2015 F## ~/Desktop/F##_gps_printing</pre>
GQC (not an instrument, but do after GPS & ELSA)	<p>Produces Flight QC, Geology QC, Ice QC, and Review pdfs (this will generate the qc sheets)<sup>[1]</sup></p> <pre>\$ cd \$ICE/code/xped/CHA1/all<sup>[1]</sup> \$ ./gqc F##</pre>
ELF (not dependent on good PST)	<pre>\$ cd \$ICE/code/xped/CHA1/quality/xlob/ELF \$ ./run_quality.sh F##</pre>
<div>PRINT</div> <p>NOTE: you may do breakout and printing in parallel</p>	
VHF	<ul style="list-style-type: none"> <li>The grad script at the breakout step should generate a folder on your desktop</li> <li>Print its content: ~/Desktop/F##_HiCARS2_printing/*</li> <li>Classify the sheets in the RADAR binder</li> </ul> <p>NOTE: the VHF radargrams are stored at: \$ICE/targ/xped/CHA1/quality/xtra/plots/pyk1.RADnh3</p>
AQN	<ul style="list-style-type: none"> <li>The glnk script at the breakout step should have generated a folder on your desktop</li> <li>Print its content : ~/Desktop/F##_pcor_printing/*</li> <li>Classify the sheets in the PCOR binder</li> </ul>
GPS	<ul style="list-style-type: none"> <li>The ggps script at the breakout step should have generated a folder on your desktop</li> <li>Print its content: ~/Desktop/F##_GPS_for_printing/*</li> <li>Classify the sheets in the PCOR binder. Group instruments together, in the order:<sup>[1]</sup>GCX12, GCX11, GCX21, GCX31, GCX41, ZGN11, ZGN21, ZHS11, CAS11</li> </ul>

GQC	<ul style="list-style-type: none"> <li>Print the the pdf files and classify the sheets in the FLIGHT NOTES binder: \$ICE/targ/xped/CHA1/quality/flight/plots/F##/*.pdf</li> </ul>
QC	
Instructions	<p>On the flight based QC sheet, highlight quality of each sub-section of transects using the following color code:  1 = blue  2 = yellow  3 = orange  pink = missing data or sections where the instrument could not be expected to perform normally</p> <p>Note any error messages, synchronization problems, or times missing in each dataset</p>
Flight Notes	Review the flight notes to check any PST renaming, FOP passes to BOP, and events that could explain data singularities
GPS	<p>Each reciever has at least 7 satellites, with few I's (indicates loss of lock). See print-out or `teqc -help` for symbol list explanation  Ideally we want observations/cycle slip to be &gt;1000  ORIENTATION (dPOS):  1. At least a combination of 1 tail + 2 wings at any time across full section of transect  2. No combinaison of 1 tail + 2 wings for &lt; 10% of the transect  3. No combinaison of 1 tail + 2 wings for &gt; 30% of the transect</p> <p>CENTER OF GRAVITY (CG):  1. At least 7 satellite at any time across full section of transect  2. No satellites for &lt; 10% of the transect  3. No satellites for &gt; 30% of the transect</p>
MAG	1. Base mag range during the transect is < window (or 100 gamma) and flown in a quiet window 2. Base mag range during the transect is < window (or 100 gamma) but flown in a noisy window 3. Base mag range during the transect is > window
ALT	LASER: 1. Dropouts for <10% of the transect 2. Dropouts for between 10% and 30% of the transect 3. Dropouts for > 30% of the transect
IMU	Roll/Pitch:1. Roll < 1 degree2. Roll < 10 degrees3. Roll > 10 degrees
ELF	<ul style="list-style-type: none"> <li>Play the movie: check for window cleanliness, camera focus, and pictures accordance with targets \$ mplayer \$ICE/targ/xped/CHA1/quality/xlob/ELF/F##/F##_ELF.mp4</li> </ul>

RADAR	<p>It is recommended that VHF QC is done from pyeva or digital copies of the radargrams. The paper printouts do not have sufficient dynamic range to see all features.</p> <pre>\$ cd \$ICE/syst/linux/src/pyeva \$ python pyeva.py \$PST</pre> <p>SURFACE (Low gain, channel 1):</p> <ol style="list-style-type: none"> <li>1. Surface traceable without interruption across entire section</li> <li>2. One or more locations where the surface is present but poorly defined or indistinct</li> <li>3. One or more location where the surface is not present in the radargram</li> </ol> <p>Note: Traces should not saturate at the surface</p> <p>LAYERS (Low/High gain):</p> <ol style="list-style-type: none"> <li>1. Layers visible to a depth of ~8 <math>\mu</math>s above the bed for &gt;80% of the section</li> <li>2. Layers visible to a depth of ~8 <math>\mu</math>s above the bed for 40-80% of the section</li> <li>3. Layers visible to a depth of ~8 <math>\mu</math>s above the bed for &lt;40% of the section</li> </ol> <p>BEDROCK (High gain, channel 2):</p> <ol style="list-style-type: none"> <li>1. Bed is clear and traceable across full section of transect</li> <li>2. Bed is faint or partially obscured by noise at one or more points along the section</li> <li>3. Bed is not present or completely obscured by noise at one or more points along the section</li> </ol>
Gravity	<p>Compare the gravity anomaly to the topography and the mag:</p> <ol style="list-style-type: none"> <li>1. correlation is good</li> <li>3: overly noisy or lack of correlation (i.e. unusable for science)</li> </ol>
Media	On the flight based QC sheet, track each media ID that has been used for this flight
Scans	
FLIGHT NOTES	<p>Scan the flight notes into a pdf/jpg format and copy them to:</p> <pre>\$ICE/note/xfed/CHA1/acqn/Flight_Logs/F##</pre> <p>Flight notes hard copy is stored in the FLIGHT NOTES binder</p>
QC SHEETS	<p>Scan the flight based QC sheet into a pdf/jpg format and copy them to:</p> <pre>\$ICE/note/xfed/CHA1/acqn/Flight_Logs/F##</pre> <p>QC hard copy is stored in the FLIGHT NOTES binder</p>
ARCHIVE	
<p>The LTO-6 tape drive plugs directly into a USB3 port, and usually mounts to /dev/nst0 under Ubuntu. After archiving a flight to a tape, write "F## ##G" on the tape so we know what each contains. Useful commands: <code>* eject tape: \$ mt -f /dev/nst0 offline</code> <code>* add tag to new tape: \$cd \$ICE/code/xfed/CHA1/archive; ./add_tad [tag_type] [copy]</code></p>	

RADAR	<p>ORIGINAL DATA (ovhfr x2)</p> <ul style="list-style-type: none"> <li>• \$ cd \$ICE/code/xped/CHA1/archive</li> <li>• \$ ./find_ovhfr F##</li> <li>• Insert "CHA1 ovhfr copy #1" into the tape drive; make sure you have permission to write to drive: <code>sudo chmod a+wr /dev/nst0</code></li> <li>• \$ python arc_syst.py F## ovhfr {copy}</li> <li>• (Same for copy 2, skipping find_ovhfr)</li> </ul> <p>BREAKOUT DATA (tvhfr x1)</p> <ul style="list-style-type: none"> <li>• \$ cd \$ICE/code/xped/CHA1/archive/ make sure you have permission to write to drive: <code>sudo chmod a+wr /dev/nst0</code></li> <li>• \$ ./find_tvhfr F##</li> <li>• Insert "CHA1 tvhfr copy #1" into the tape drive</li> <li>• \$ python arc_syst.py F## tvhfr 1</li> </ul>
ELSA, AQN, GPS, CMG, MAG, oelpo does not require scanned QC sheets telpo does	<p>ORIGINAL DATA (oelpo x2)</p> <ul style="list-style-type: none"> <li>• \$ cd \$ICE/code/xped/CHA1/archive</li> <li>• \$ ./find_oelpo F## Jddd</li> <li>• Insert "CHA1 oelpo copy #1" into the tape drive</li> <li>• \$python arc_syst.py F## oelpo {copy}</li> <li>• (Same for copy 2)</li> </ul> <p>BREAKOUT DATA (telpo x1)</p> <ul style="list-style-type: none"> <li>• \$ cd \$ICE/code/xped/CHA1/archive/</li> <li>• \$ ./find_telpo F## Jddd</li> <li>• Insert "CHA1 telpo copy #1" into the tape drive</li> <li>• \$ python arc_syst.py F## telpo 1</li> </ul>
note, syst, code, PIK	<p>SUNDAY (x2) Whenever you have the chance, we like to archive all of our code, notes and generated picks. This makes recovering from QNAP failure much easier =) Rather than being flight-based, these archives are jday based.</p> <ul style="list-style-type: none"> <li>• \$ cd \$ICE/code/xped/CHA1/archive</li> <li>• \$ ./find_sunday Jddd</li> <li>• Insert "CHA1 sunday copy #1" into the tape drive</li> <li>• \$python arc_syst.py Jddd sunday {copy}</li> <li>• (Same for copy 2)</li> </ul>
CLEAN	

All EXCEPT ASH	<ul style="list-style-type: none"> <li>• We keep a minimum of data from the two last flights on media.</li> </ul> <p>Before deleting:</p> <p>(1) Check qc sheets to be sure the media was qc-ed and makes sense</p> <p>(2) Create log files of each tape on DIFFERENT LTO than they were written: Look at index written on case, figure out which file you want. To get the 5th file: (use status to check that you're where you expect) \$ mt -f /dev/nst0 rewind<sup>[1]</sup>\$ mt -f /dev/nst0 fsf 5<sup>[1]</sup>\$ mt -f /dev/nst0 status<sup>[1]</sup>\$ tar tv -f /dev/nst0 &gt; \$ICE/note/xped/CHA1/archive/confirmation/F##.{oelpo,ovhfr}.copy#<sup>[1]</sup>Then, to get the 6th file, you can either step forward one:<sup>[1]</sup>\$ mt -f /dev/nst0 fsf<sup>[1]</sup>Or, go back to the start and use `fsf 6`</p> <p>(3) For each piece of media, run: (for rad disks, will have to run for both oelpo and ovhfr)<sup>[1]</sup>\$ cd \$ICE/code/xped/CHA1/archive<sup>[1]</sup>\$ python clear_media.py —tagtype {oelpo, ovhfr} —flight F## —media /path/to/folder/with/files [—dryrun]</p>
ASH	Must be deleted using the receiver itself – FOP to do so at start of every flight
QNAP	<p>If and when the QNAP fills up, we preferentially delete orig VHF data, after checking that the files were archived.</p> <p>(Keeping targ for flight planning / science purposes)</p> <p>\$ cd \$ICE/note/xped/CHA1/archive/confirmed</p> <p>&lt;insert tape into different LTO than written from, and for each flight on tape do:&gt;</p> <p>\$ as-read F##.tar   tar vt &gt; F##.ovhfr.index</p> <p>\$ cd \$ICE/code/xped/CHA1/archive/confirmed</p> <p>\$ ./confirm_ovhfr_one.sh F##</p>
EXTRA	



LINUX	<ul style="list-style-type: none"> <li>• Mounting media: Some media automount – get address by clicking Places (upper left) If the media doesn't mount: \$ sudo fdisk -l (check name of the connected media, should be /dev/sd??) \$ sudo mkdir -p /media/?? (create the directory where the media will be mounted) \$ sudo mount /dev/sd?? /media/?? (mount the media) \$ df -h (check if the media is mounted)</li> <li>• How to unmount media: \$ df -h (check the name of the mounted media) \$ sudo umount /media/?? OR \$ sudo umount /dev/sd?? (if unusual chars in /media option) (unmount the media) \$ df -h (check if the media is unmounted)</li> <li>• Check file systems for errors on a media: \$ sudo fsck /dev/sd?? (see if there are errors) \$ sudo fsck -r /dev/sd?? (repair errors) \$ sudo fsck /dev/sd?? (see if errors have been fixed; run with -r option again if not)</li> <li>• Copy a disk image from a media to another: \$ dd if=/dev/sd1 of=~/Desktop/media.img (create an image from sd1 or other media) \$ dd if=~/Desktop/media.img of=/dev/sd2 (copy the image to sd2 or other media)</li> <li>• Check size of folder or disk: \$ du -ch   grep total</li> <li>• Adjust size of terminal window (without mouse): alt+F8 (use arrows to resize, press enter to fix)</li> </ul>
ROUTER	<ul style="list-style-type: none"> <li>• To administer via the webpage: 192.168.1.1 username: (none) password: default Setup → DHCP reservations to see what devices are currently connected and how</li> </ul>
QNAP	<ul style="list-style-type: none"> <li>• To manually mount: \$ sudo mount \$ICE {or} \$ sudo mount 192.168.1.106:/ICE \$ICE6 \$ source ~/.bashrc</li> <li>• To reprioritize RAID checking: (The QNAP may slow down drastically when its checking the RAID) ssh into QNAP use top to find the PID of the process hogging resources renice &lt;pid&gt; 20</li> <li>• To administer via the webpage: 192.168.1.106:8080</li> </ul>

LTO DRIVE	<ul style="list-style-type: none"> <li>• To check files archived on a tape: <code>tar tv -f /dev/nst0</code> (I think this only reads back whichever file is the current next one, so will be used with <code>mt -f /dev/nst0 fsf</code>)</li> <li>• The LTO-6's are standard tape drives. They are controlled using <code>mt`</code> and <code>tar`</code>, both of which have extensive man pages.</li> <li>• The LTO-3's try to have a filesystem. We have implemented an assortment of <code>as-*</code> scripts that attempt to make them behave like standard tape drives.</li> <li>• Tape Drive Check (lights): <ul style="list-style-type: none"> <li>amber status light: cleaning request</li> <li>orange error and amber status light blinking fast: cleaning error or media failure</li> <li>error blinking fast: hardware error</li> <li>error light stuck on: manual intervention requested</li> </ul> </li> <li>Redoing/rerunning Archive: <ul style="list-style-type: none"> <li>delete Index and Log files in <code>\$ICE/note/xped/CHA1/archive/{ovhfr, telpo, etc}</code></li> </ul> </li> </ul>
TAPES	<ul style="list-style-type: none"> <li>• Tagging new tapes: <pre>\$ cd \$ICE/code/xped/CHA1/archive \$ python add_tag.py {tape_type} {1 or 2 or 3}</pre> </li> <li>• Checking tape was recorded properly:</li> </ul>

PYEVA	<p>Opening pyeva</p> <ul style="list-style-type: none"> <li>• cd \$ICE/syst/linux/src/pyeva</li> <li>• python list_picks.py {look at output, pick pst that needs picking} • python pyeva.py PSTNAME</li> </ul> <p>Initial setup</p> <ul style="list-style-type: none"> <li>• If picking the srf, select chan1; for bed, select chan2 • Enter {srf,bed}_{lel} in the text box, then click “new picks” (replace lel with your initials)</li> <li>• Select your picks from the list below</li> </ul> <p>Maneuvering in the gui</p> <ul style="list-style-type: none"> <li>• You can left click and drag along the bars below and to the left of the radar gram to select how much is displayed. • Another option for moving the image is to select the next/prev buttons at the bottom of the horizontal bar. This will move the screen just about the same distance that is shown on the bar, with some overlap. This allows for smoother transitions to keep picking.</li> </ul> <p>Picking!!!</p> <ul style="list-style-type: none"> <li>• On the display tab, pik1 should be deep blue. This means it is selected. Click along the top of the surface or bed (a little bit above what you want)</li> <li>• Click pik2 until it is deep blue/ selected. Click along the bottom of the surface or bed (a little bit below what you want).</li> <li>• If you made a mistake (pik1 points being below the desired line, for instance) and wish to delete one or more of your points, you can hold down the right mouse button and drag across the points to be removed. • If there is an area that you just can't make out (this mostly happens on the bed) select points for pik1 below pik2, this will indicate to the algorithm to ignore this section. • As you pick, select “autopick” to see what the algorithm will select for you; go back and make adjustments to your picks if it doesn't look good.</li> <li>• Be sure to save frequently! There are automatic backups, but recovering data from them is a manual process.</li> </ul>
ELSA STREAMS	<p>Location: targ/xped/CHA1/breakout/ELSA/P/S/T/&lt;stream&gt;</p> <p>Stream convention:</p> <p>AAAaa# : AAA = instrument;  aa = first letter: abbrev for manufacture; second letter: abbrev for what it is measuring;  # = version</p> <ul style="list-style-type: none"> <li>• GPSap3 → GG24</li> <li>• GPSkc1 → true time</li> <li>• AUNcp1 → status ... IMU</li> <li>• AUNcp2 → data from ... IMU</li> <li>• PRSpz2 → current pressure</li> <li>• MAGgm2 → 823A mag, scalar</li> <li>• MAGim1 → flux mag • MAGrm1 → Compensated mag, flux &amp; scalar • LAZrz1 → RIGL</li> <li>• AVNiz → radar altimeter (for MKB itself)</li> <li>• RADnh3 → VHF</li> <li>• AVNnt1 → OAT</li> <li>• AVNnt2 → OAT</li> <li>• CCMei1 → Elphel</li> <li>• AQNnr{1,2,3,4,5} → internal status packets</li> <li>• GPSpp1 →</li> <li>• GPStp3 →</li> </ul>

Stream convention:

AAAaa# : AAA = instrument;

aa = first letter: abbrev for manufacture; second letter: abbrev for what it is measuring;

# = version