

Using Logpeek

Version: 2012.286

Category: For internal and external use

Objective: To provide a written tutorial for users to get the most out of the Logpeek software

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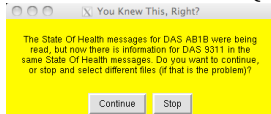
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Intro guide (basic how-to)

Loading files

Open Logpeek by simply typing in 'logpeek' in an X11 or Terminal window, or by clicking on the Logpeek icon.

In versions before 2011.313, if you type in 'logpeek -m' on the command line you will be able to highlight more than one file at a time (using ctrl-click) and open them simultaneously. Later versions of Logpeek have this option automatically without needing the flag. It is possible to load logfiles from different DASes but this is not really useful unless you are looking at two dataloggers at the same station (one right after another).

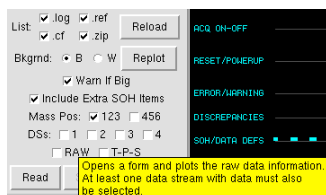


To look at a disk folder, add .cf to the filename

General usage tips:

Make sure that you have an up-to-date version of Logpeek. Click on the "Help" button in the top menu of the Logpeek screen and select "Check For Updates". If a more current version exists, , download it and after opening the Zip file (newlogpeek.zip), copy the file newlogpeek.py into the /opt/passcal/lib/python/logpeek directory. Change the name of the old version if you want to save it (maybe something like logpeek.2010.299.py) and rename newlogpeek.py to be 'logpeek.py'. You will need administrative permissions to do this.

Look at the **Hints** mentioned by hovering the cursor over the "Hints" label in the upper right portion of the window. Some (but not all) of the items in the gray box (middle left) have mouse-over hints as well (see figure below for the mouse-over hint shown when the mouse is hovered above the "RAW" checkbox).



To **zoom**, use shift-click on the start and end times. To zoom back out, shift-click in the row header area (where Dump Call and other headers are listed).

Scroll through time by clicking on the times at the bottom of the main window. The view will jump 90% to the left or the right depending on which side of the screen you clicked on.

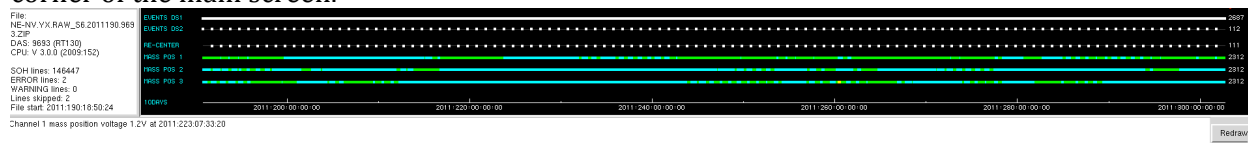
Right click on dots to make them disappear (zapped). You will have to reload the file to get them back.

If this is for a **service run**, focus on:

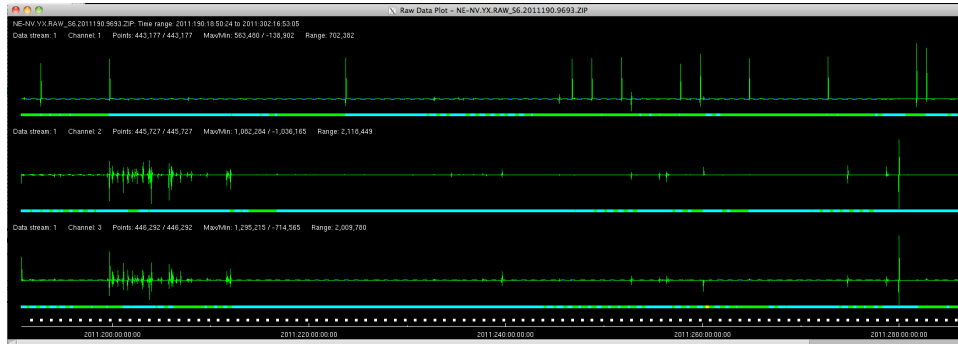
- the battery volts as this will signify if your solar panels (if used) are working correctly and whether they are recharging your batteries or not. You can also see how much your battery is discharging at night (or how the battery is holding up if you are not using any solar panels for recharging).
- check that the GPS is locking and unlocking regularly. Are your phase errors greater than the Nyquist frequency (see below)?
- the mass positions (if used and applicable) are reasonable (see figure below).
- when looking at the ZIP files (or .ref or .cf), plot the RAW data and the T-P-S data for a quick look at data quality.

Look at the range of the **phase errors** to see if you really have a problem or not. Often, there are a wide number of errors, but they are too small to affect your data. Scientifically, only phase errors larger than the Nyquist frequency will affect your data (i.e. your data are not any more accurate than the Nyquist frequency). So, if you are recording at 40sps, it takes an error of 0.05 seconds (50 milliseconds or 5000 microseconds) before you should mark your timing as questionable.

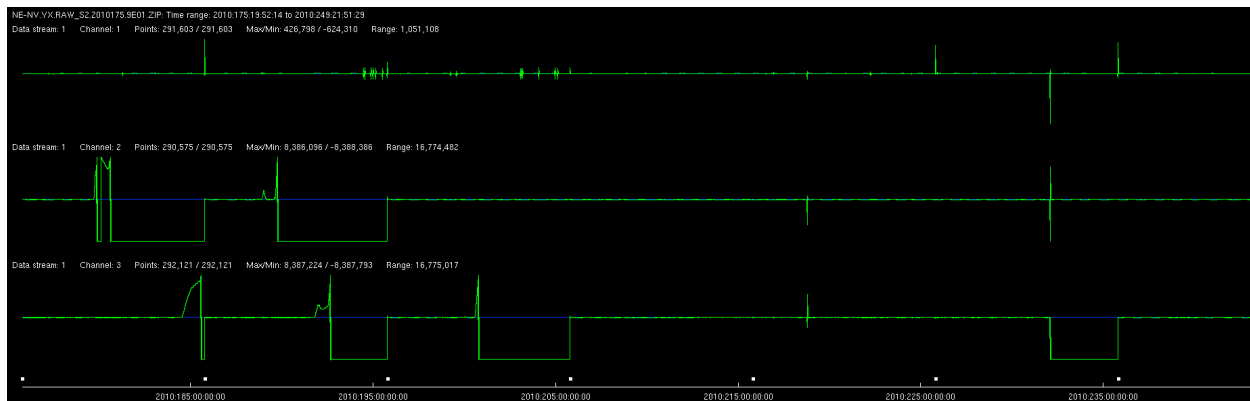
When **plotting mass positions**, the amplitude of the mass position plots as a color in one of three lines at the bottom of the main Logpeek window. Cooler colors (blue) are low numbers and warmer colors are higher mass positions. To identify the rough value at a given time point, click on a mass position dot and the channel and voltage information will appear at the bottom left hand corner of the main screen.



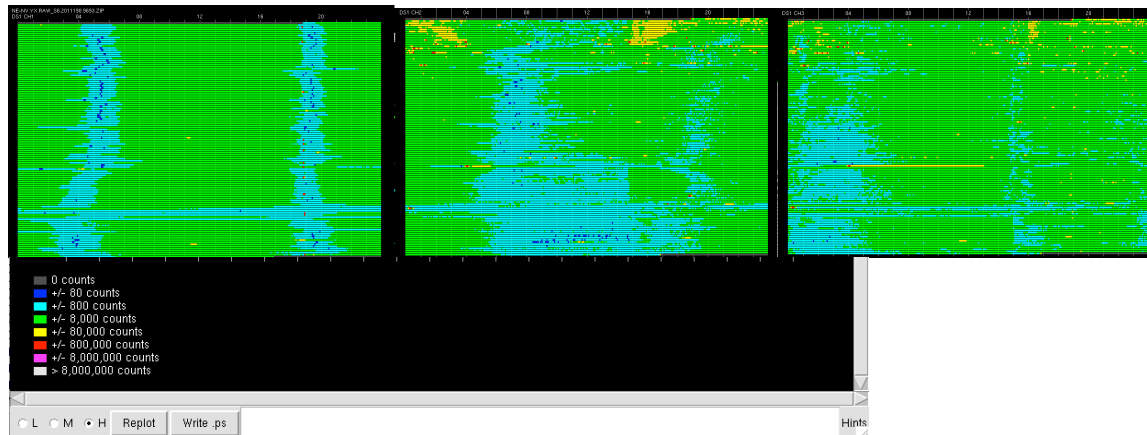
Plotting the RAW data can give you a quick idea of what the data looks like. By selecting a data stream (DSs: 1) and the RAW tick box, Logpeek will plot an averaged rough plot of the data in a new window. The time frame plotted will always match what is plotted in the main Logpeek window (note in the first example below that the horizontal scroll bar indicates that there is more of the plot to the right of what is shown). The green lines show the waveforms plotted on top of a blue zero line. Below each channel trace, the mass positions are plotted again. At the bottom of the screen are white dots indicating the times of mass re-center pulses. By zooming in on the main window, you are also zooming in on the RAW plot.



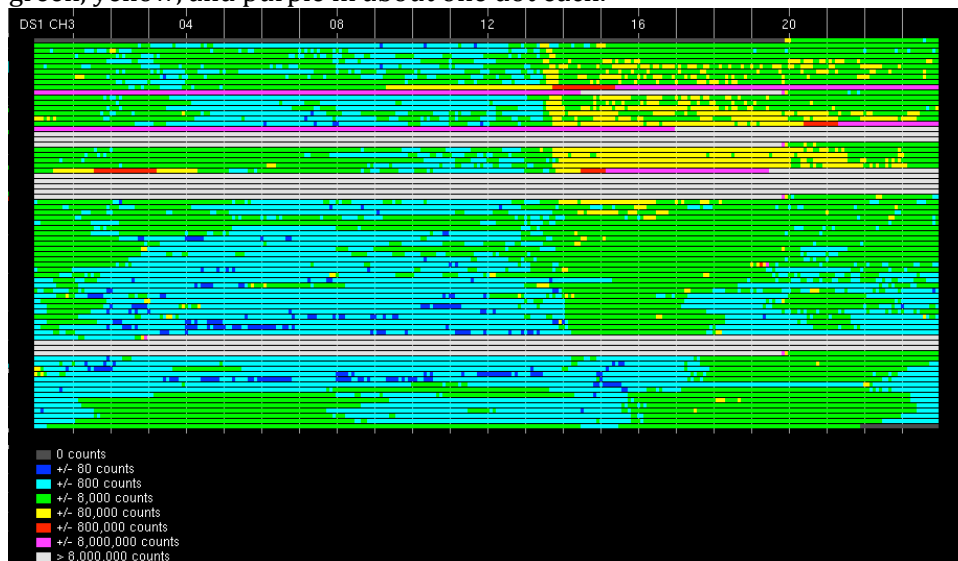
In this next RAW plot below, the sensor had two channels where the masses pegged temporarily. Mass re-center pulses fixed the problem in all of the instances. There are no mass position dots because this RT130 had not been programmed to record them.



The **Time-Power-Squared (TPS)** plot is another good way to look at the quality of the data. The figure below shows the TPS plots for three channels. These plots have been placed side-by-side but in the Logpeek TPS window, they would be stacked vertically. At the bottom of the TPS window is a color key (enlarged where displayed below) for interpreting the amplitude of the counts displayed. There are also radio buttons marked “L”, “M”, and “H” (low, medium, and high) for changing the range of counts assigned to each color. Select the setting you want and then click on “Replot”. Each horizontal line in the plot represents 24 hours. The thin vertical white lines represent hour ticks. Each dot is five minutes. In the example shown below, the station is quieter between 4-6 and 19-20UTC. Higher count dots often indicate earthquakes.



For comparison, the TPS channel 3 plot is displayed below from the station where the RAW data were pegged. The counts increase from green to yellow, then purple and finally gray where they remain until the mass is re-centered. The last instance of this shown, the mass passes through green, yellow, and purple in about one dot each.

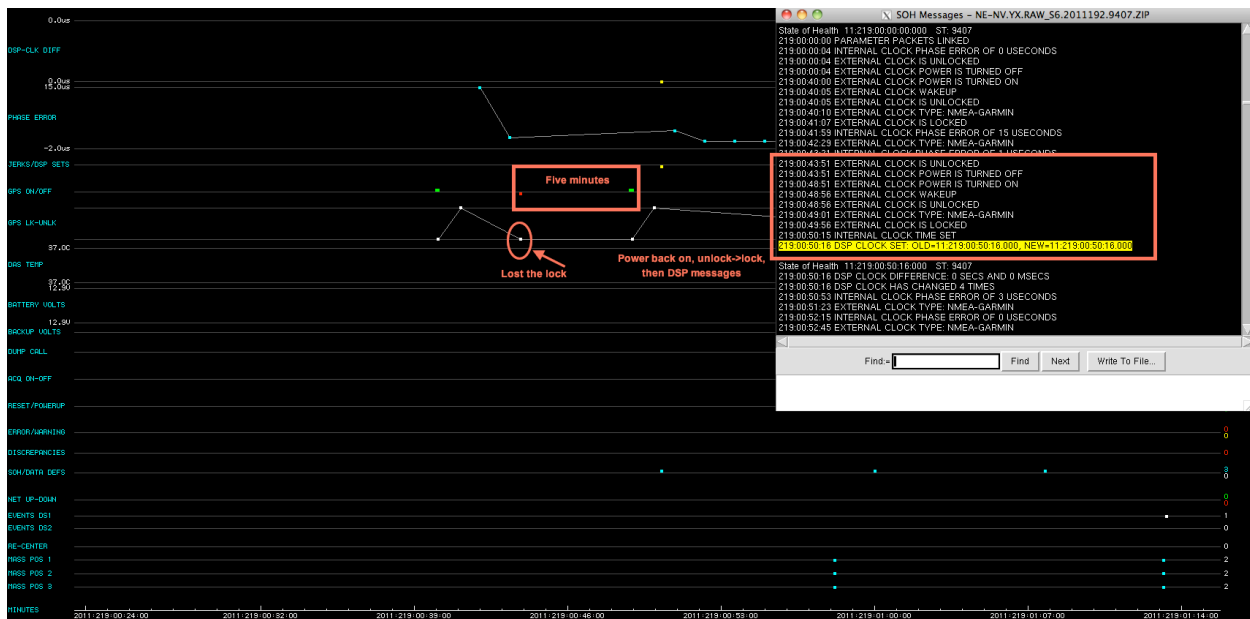
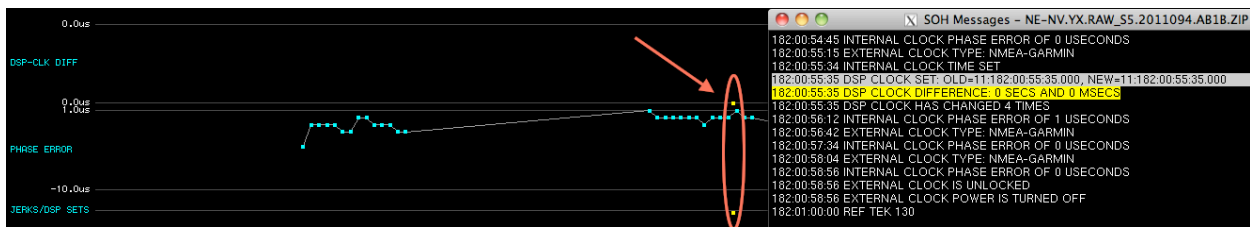


If you do have unusual errors, check the rt130 firmware (search for “CPU SOFTWARE” in the SOH messages). Current firmware used at PASSCAL as of 11 Sept 2012 is 3.0.0

Common logfile problems and suggested solutions

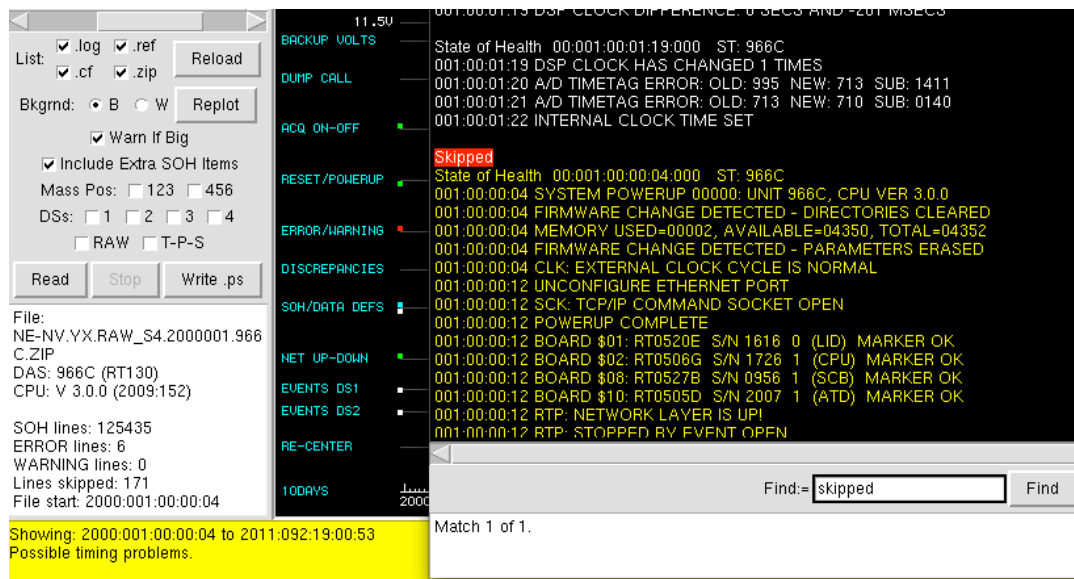
DSP-CLK DIFF of 0 secs and 0 msec coupled with DSP CLOCK SETS with 0 time change

DSP sets are scheduled to occur on 1 January and 1 July (days 001 and 182), so don't be alarmed if you see them on these dates (top figure). Another case is when sometimes the GPS loses a lock or is unable to get a lock (bottom example). It will turn the clock off ("EXTERNAL CLOCK POWER IS TURNED OFF"), wait five minutes and then try again. When it finally locks, it issues a DSP set message with a zero change to the time as well as a DSP-CLK DIFF of zero. There is no problem with data collected during this time period but it may indicate that the clock is going bad.



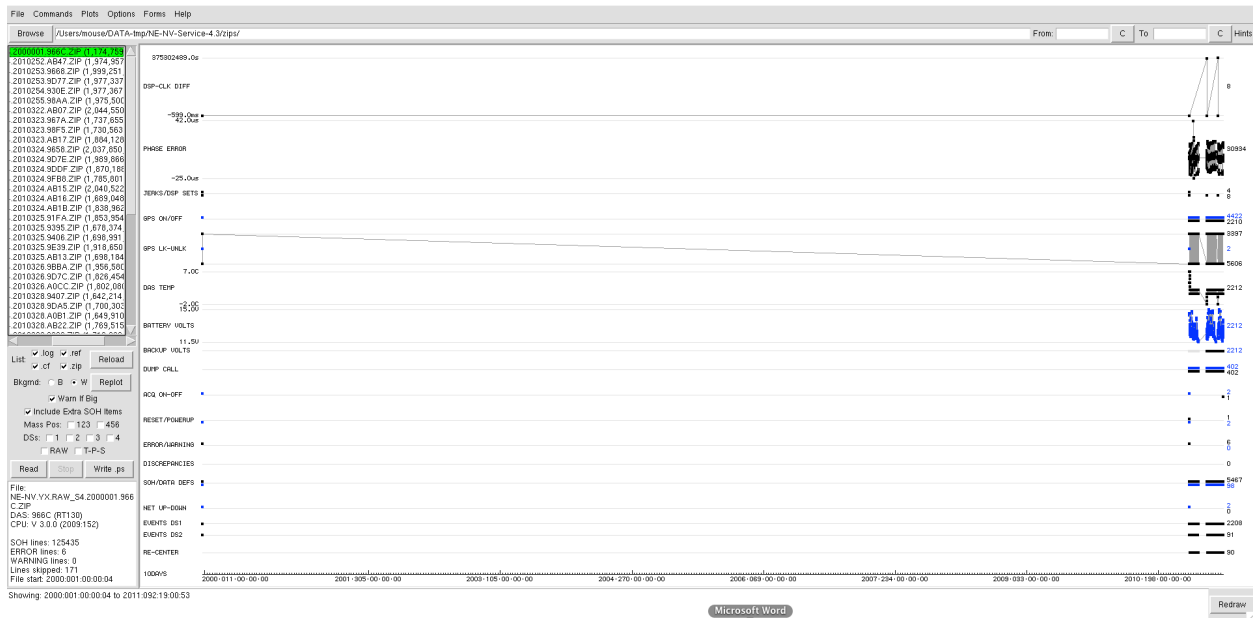
"Possible timing problems"

Anytime Logpeek reads in SOH lines that go back in time from the previous entry, the default result is it will skip plotting those lines, color them yellow in the SOH Messages window, list them in the 'Lines skipped' area in the bottom left section of the main Logpeek window, and show the flag "Possible timing problems". This error is not enough information all by itself to make any decisions about timing flags or notations and more investigation is needed. Searching for the word "Skipped" in the SOH Messages window will help to locate the out-of-time-sequence lines and evaluate their cause and effect on the data.

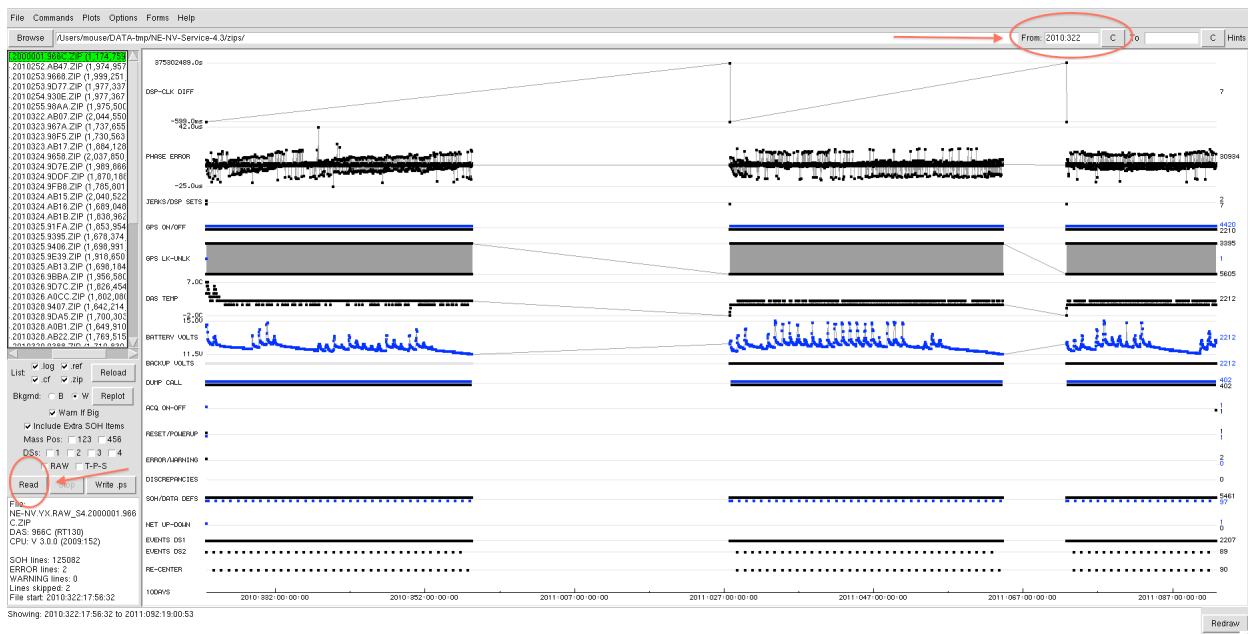


The ZIP file starts at 2000:001

Sometimes the DAS will start recording state of health information before the clock has locked and the DAS has lost its internal time. This results in the ZIP file having a name starting with 2000001.DAS#.ZIP. The most common way for this to happen is if the station suffers from a power loss and then has power returned to it. When power resumes, the DAS restarts recording SOH messages and automatically restarts acquisition, regardless of if the clock has locked yet or not. As soon as the clock locks, the SOH and data are appropriately marked with the correct time. Usually there is a small portion of SOH info (and sometimes data) that is placed in a directory labeled 2000001. This directory will always come first when listing the disk contents and Neo labels the ZIP file based on the date of the first directory on the disk. This is also the first SOH data that Logpeek sees when you read the ZIP file (or CF card). And finally, this is the first directory that rt2ms reads and enters into the .log output. So the 2000 information looks like it is first in the order of events, but upon closer inspection, it becomes clear that the files were actually written at a much later date. If you look at the file creation date using Finder (on a Mac) or using the 'ls -l' command, you can see when the file was actually created and determine where it fits into the greater logfile picture. In general, all data generated during this time period should not be archived and the resulting channel-day volumes from the year 2000 should not be archived either. No other timing correction or notation is needed.

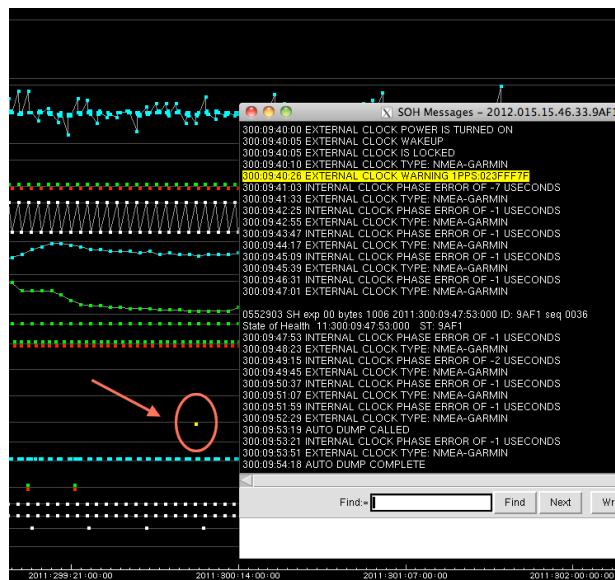


If you want a cleaner picture of the valid SOH information for this service run, you can select the time frame that you want Logpeek to read. For example, for the above file the original acquisition start on was on day 2010:322. You can type 2010:322 (or use the nearby 'C' button to open a calendar to help you select the date using either doy or month-day format) into the 'From:' box at the top right of Logpeek and then click on 'Read' and Logpeek will reread the file but only plot the specified time frame (no end time need be specified). See example below.



EXTERNAL CLOCK WARNING 1PPS errors

1PPS errors are a result of a weak clock lock. This can be the result of a minor problem with the GPS constellation and in these cases these errors can often be seen at the same time on multiple stations that 'see' the same patch of sky. Another cause could be a clock going bad, but the units should first be checked to ensure that they have a clear picture of the sky. No timing correction or notation is needed for these errors.



Zigzag pattern in GPS LK-UNLK vs sawtooth pattern

In the past, RT130 clocks have produced a sawtooth pattern as the clock turns on, registers that it is unlocked, locks, and then twenty minutes later, unlocks and then turns off. This is the pattern shown on the right side of the below figure. These clocks have a 16-HVS receiver. There is a newer receiver, the 16X-HVS. This receiver allows the clock to lock almost instantly after powering on, resulting in no mark indicating that the clock is on, but unlocked. This new LK-UNLK pattern is acceptable and there is nothing wrong with the clock or timing. These new receivers can be identified on the puck-style clocks by the imprint of 16X on the back of the puck. In the older oblate clocks, there is no way to identify which receiver is installed.



Lots of missing dots that should be there in the Logpeek main window

Sometimes the information plotted in Logpeek looks like it might be missing information. In the example below, there are dots marking the presence of Events for data streams 1,2 and 9 in the middle of the plot, but no dots for any SOH information. And then at the right-hand side of the plot the SOH comes back but the data stream info for streams 2 and 9 seems to be gone. This problem can happen if the data were not completely downloaded from the compact flash disk. The second example is the same time frame as the first plot, but the dots are evident for the entire duration. If

The image displays two screenshots of the 'dmesg' application, which is used for monitoring system logs and performance metrics. The interface is divided into a sidebar on the left and a main display area on the right.

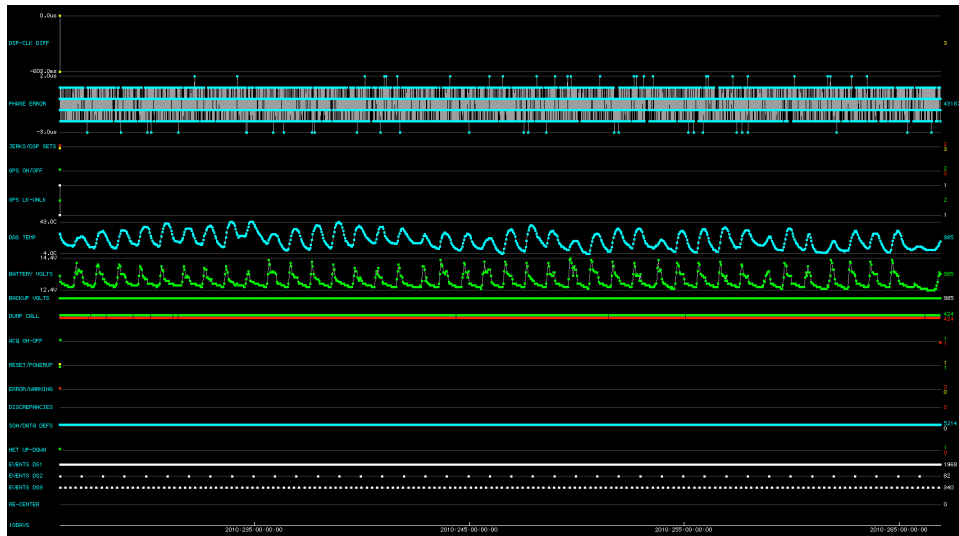
Sidebar (Left):

- File:** 2011.201.15.47.36.9840.log1.log, DAS: 5440 (971130), CPU: V 3.0.0 (20091502), SCH line: 227415, ERROR line: 3, WARNING line: 5, Lines skipped: 3. File start: 2011.201.15.44.10, File end: 2011.201.15.44.10.
- Log:** 2011.201.15.47.36.9840.log1.log (downloaded).
- File:** 2011.201.15.47.36.9840.log1.log, DAS: 5440 (971130), CPU: V 3.0.0 (20091502), SCH line: 227415, ERROR line: 3, WARNING line: 5, Lines skipped: 3. File start: 2011.201.15.44.10, File end: 2011.201.15.44.10.
- Log:** 2011.201.15.47.36.9840.log1.log (downloaded).

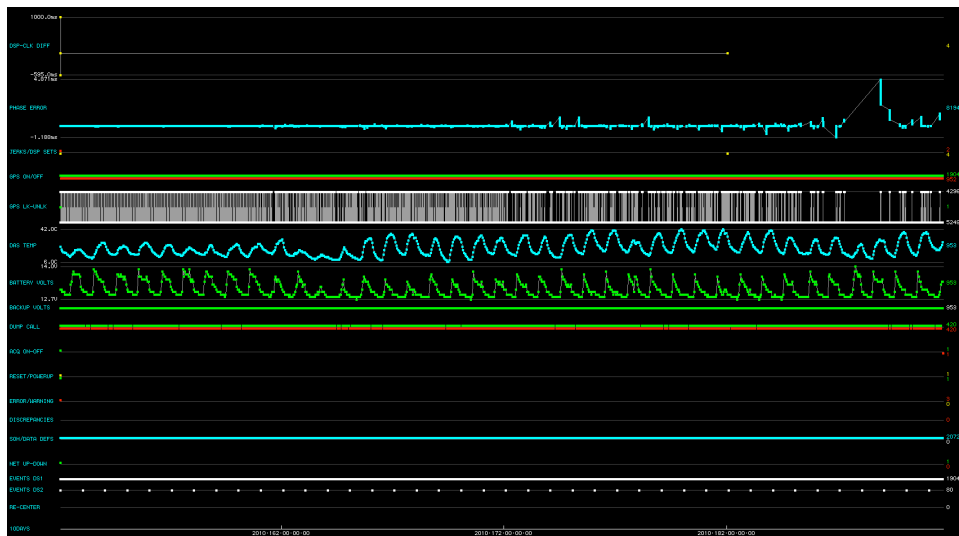
Main Display Area (Right):

- Top Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Second Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Third Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Fourth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Fifth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Sixth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Seventh Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Eighth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Ninth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Tenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Eleventh Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Twelfth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Thirteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Fourteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Fifteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Sixteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Seventeenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Eighteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Nineteenth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.
- Twentieth Panel:** Displays a line graph of 'DAS-GLU' and 'DAS-GLU' over time. The y-axis ranges from -14.00 to 14.00. The x-axis shows time from 2011.201.15.44.10 to 2011.201.15.44.10.

Occasionally, one reviews the GPS SOH information and finds that there seems to be missing information for the GPS lock-unlock. One way this can happen is if the GPS was left in the continuous setting instead of the cycled setting. In the first example below, there is a single data point for the GPS powering up, then it shows a status of unlocked, then locked, and then nothing for the next ~90 days. The phase error messages are very regular and very small (+2 to -3microseconds). This station had problems with the clock locking at the beginning and the install team decided to leave the clock running continuously to ensure better timing. The main reason that most experiments do not adopt this setting is that it is a bigger draw on power and at many stations power is a major concern.



A more common reason for missing dots in the GPS LK-UNLK line is that the clock is missing some locks. In the example below, the station started out with consistent clock locking but after the first quarter of time has passed, the clock locks start having gaps and by day 2010:186, several days go by with any lock lock at all. The data from 2010:186-2010:189 were marked questionable since the accuracy of the clock was not certain. A station such as this should have the clock's location inspected. Are there buildings or structures in the way? Have some plants or trees grown up to hide part of the sky? If the view of the sky is deemed adequate (check to see how many satellites can be seen from the same location using a hand-held gps), then replace the clock as it may be failing.



Menu/main page commands

Menu commands:

File:

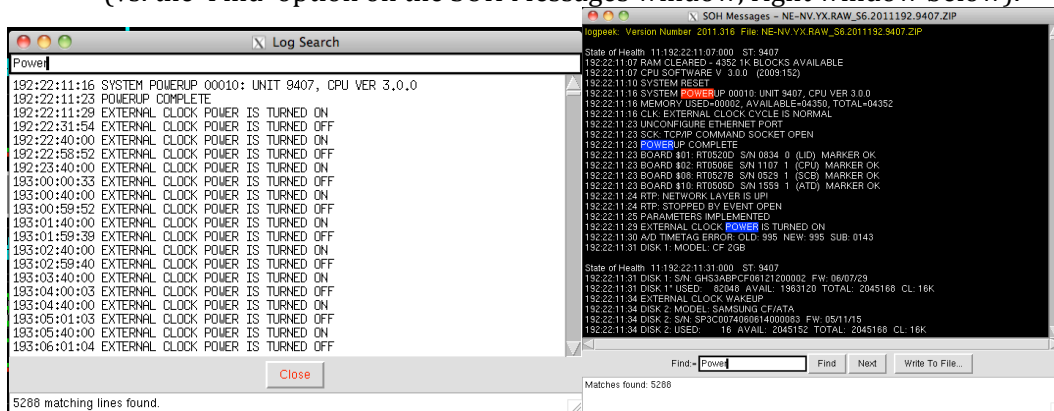
-> delete setups file (This should only be done if the current setups file is causing problems for Logpeek).

->Quit

Commands:

->GPS information: provides popup window with summary of all GPS points plotted as well as mean location and 1 sigma values for lat and lon in degrees and meters. Elevation is also given.

->Log Search: opens a popup (left window below) where you can search the log for key words. Will list all instances of the key word(s) but lacks the context from which they came. (vs. the 'Find' option on the SOH Messages window, right window below).



->Plot Time Ranges of Sources: This opens a popup window where you can select one or more files and it will plot the time range of the messages within the file (not necessarily how much data there are). Some options there are similar in function to the main Logpeek window, but there also is:

Erase: Clears the display section of the window and plots the news values in a blank screen.

Rename: Renames the selected files so the names include the start date of the file as the DAS ID number. It will add these sections onto the first part of the current name that comes before the first dash (-). It will not rename the files that are using the default filename from Neo because it has more than one period (.) in the name and the program is expecting names like '.ZIP', '.log', and '.cf' (with only one period in the entire name). The popup window cautions that the current file name must match a certain pattern for this to work and suggests reading the full Help entry.

->Export TT Times for RAWMEET (Line Format)/Export TT Times for TSP/Export TT Times as YYYY:DDD:HH:MM:SS: This command will scan through the current log messages looking for the lines generated by programs like ref2log that indicate the beginning of each event. These lines contain the string "TT = yyyy:ddd:...". These instances are collected for each data stream and written to a user-selected file. See the full Help entry for more information.

Plots:

This displays a list of possible graphs that appear on the main Logpeek screen. The default is to select all except for mass position values (which need to be indicated via checkboxes on the left hand side main screen). You can toggle the graphs off and on – the change is immediate.

Options:

->Ignore timing errors – In normal operation, Logpeek ignores time stamped lines that have a stamp earlier than lines that have already been read (these lines appear as yellow lines in the SOH messages window). Checking this option forces the program to plot all message lines.

->Add Mass Position Messages: If the mass positions were recorded in Data Stream 9 (as set by the RT130 parameters), then they can be plotted using Logpeek on the .ZIP, .ref or .cf files. If you are looking at a .log file using Logpeek, the mass positions are not available but you can add the mass positions by choosing this option and then adding in a raw data source (.ZIP, .ref, or .cf). The mass positions are then written with the rest of the SOH messages (each mass position line is preceded by 'LPMP') and then that file can be saved as a text file. This output can then be opened in Logpeek and will contain the mass position values, without having any data streams attached (so, a smaller file in digital size that will load in Logpeek faster). **Beware:** if your data have many timing problems, the mass position values will not have any warning flags in the logfile.

->Read qlog-ref2mseed Output Files: This option allows you to read SOH messages pulled from an Antelope database using qlog. This does not apply to Q330 logfiles generated by qlog. Check the Help menu for more info.

->Show YYYY:DDD Dates/Show YYYYMMDD Dates/Show YYYY-MM-DD Dates: gives you options as to how you want the dates displayed at the bottom of the main window. Requires using the Redraw bottom (bottom right) to apply the changes. SOH Messages window will still display in DOY format.

Forms:

Forms are the open windows in Logpeek, including the 'Error File Lines' (optional), 'SOH Messages', and the 'Help' window.

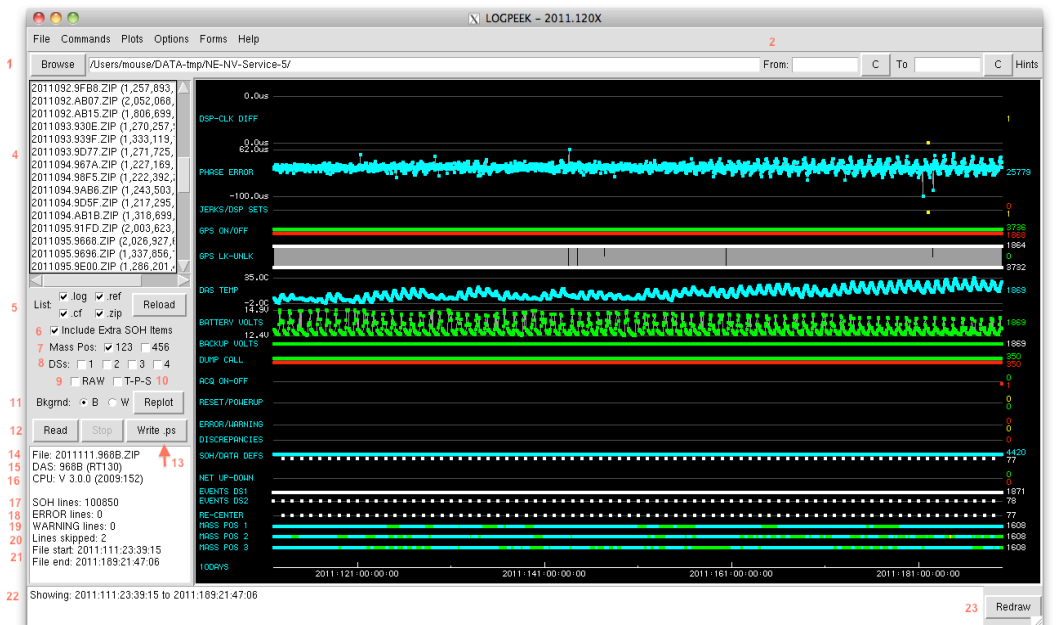
Help:

->Help: Opens a searchable help document in a pop-up window.

->Calendar: Opens a pop-up window with a three-month calendar from which you can look at day of year or month-day listings. The LT button will estimate what local time is based on what is setup on your computer (which might not be correct).

->Check for updates: Will check your version vs. the latest version available (which might be more recent than what is in the PASSOFT release). If you do download the latest version, take note of where it was downloaded. You will then need admin privileges to put the new logpeek.py into the /opt/passcal/lib/python/logpeek/ directory.

->About: A pop-up window opens that tells you about the version and gives you contact information if you have questions about Logpeek.

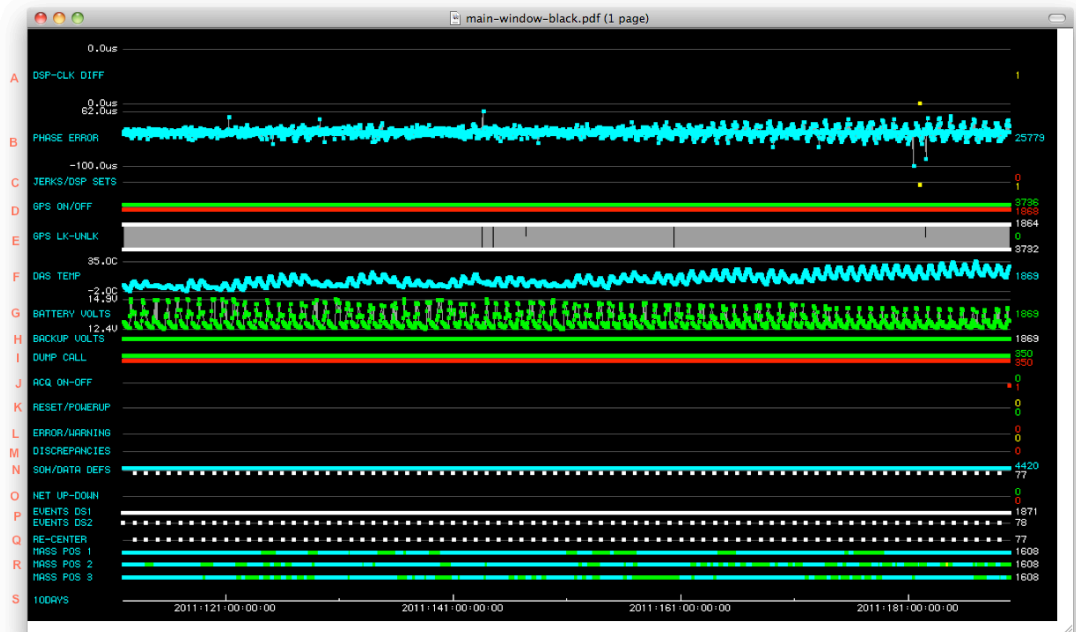


Left-hand column buttons

When there are two variables such as a/b => above line/below line

1. **Browse:** Search directories for available data.
2. **From/To:** To zero in on a certain time frame (if for example, your file has a tiny bit of info with year 2000) specify a start time in the "From:" window at the top right of the screen. Clicking on the C button will give you a popup window where you can pick dates on a calendar using either month-day or day-of-year. If you click on "Read" (or double click on the file name) you will get a plot of the log info after and including that start date.
3. **Hints:** Popup of useful hints.
4. **List of files available in the current directory for opening in Logpeek** (based upon file ending and not actual ability of file to be opened in Logpeek).
5. **List and Reload:** Checkboxes for file endings that Logpeek will look for in the current directory. The Reload button allows you to refresh/update the list to the current availability in that directory.
6. **Include Extra SOH Items:** No effect on .log files and little effect on .ref, used for plotting the Events from DS1, DS2, etc when .ZIP and .cf are used.
7. **Click on "Mass Pos:":** To get mass position colors/values – clicking on any mass pos dot will give you the dot's value at the bottom of the screen.
8. **DSs data stream(s):** click to select which data streams to view for RAW and TPS screens.
9. **RAW:** produces raw plots of all waveform components in a new window, this window always matches the time frame from the main window so zooming in or out there will zoom in or out in the raw data plot screen.
10. **TPS:** time-power-squared, a plot of amplitude from data binned in 5-minute bins, uses a variable color scale.
11. **Bkgrnd:** Options for background color of graphs. Recommend switching to white background for plotting to postscript (ps) files. The Replot button actually implements the change in color. Note: The white background plot only uses blue, black, white, and gray for the dots (vs. blue, green, red, yellow, and white with the black background).

- 12. Read (and Stop):** Read opens the selected file(s) from the file list. Stop will stop the process of opening the file for plotting.
- 13. Write ps:** this option creates a postscript (ps) file from the current plots in the main window. You have the options of what you name the file as well as where it will be saved. If you are planning to eventually print a hard copy, you might want to switch the background to white.
- 14. File:** name
- 15. DAS:** Datalogger
- 16. CPU:** Current firmware
- 17. SOH lines:**
- 18. ERROR lines:**
- 19. WARNING lines:**
- 20. Lines skipped:** Lines skipped from the SOH Messages window in plotting due to timing problems. Two lines are always skipped from the beginning of the messages window as they simply state the Logpeek version number currently in use and the blank line that follows.
- 21: File start and File end:** Date and time range for selected file
- 22. Showing:** A to B (zoomed)
- 23. Redraw:** Redraws the plots, useful if you have resized the window at all since the differences in operating systems prevents this from being done automatically.



Detailed descriptions of main Logpeek plots

Inside the main Logpeek window

A. DSP-CLK DIFF: The Digital Signal Processor (DSP) is the chip that samples the analog data. The DSP clock resets every time a time jerk occurs. Since the DSP includes a separate counter for seconds and milli-seconds, the reset may occur in two steps. Resets and powerups are always followed by 3 DSP sets; if there are less than 3 than there might be a timing problem unless the following line applies. DSP sets also occur on 1 January and 1 July (days 001 and 182). The total number of resets in the file so far are indicated in the "DSP CLOCK HAS CHANGED X TIMES". So, if you had the three normal resets when you powered up your station on March 15, on the 2nd of July you would have a total of 4 resets after the original 2 plus the 1 July reset. If there are no SOH messages about DSP clock difference, this line will not appear. In the example show, the difference is 0.0us.

example->

182:00:55:36 DSP CLOCK SET: OLD=11:182:00:55:36.000, NEW=11:182:00:55:36.000

182:00:55:36 DSP CLOCK DIFFERENCE: 0 SECS AND 0 MSECS

182:00:55:36 DSP CLOCK HAS CHANGED 5 TIMES

B. PHASE ERROR: Reports the difference between the internal and external clock.

Small errors (in microseconds) indicate that external and internal clocks agree. Errors in the order of milliseconds are written when a clock has been unlocked for some time and then locked. If large enough, these should be associated with time jerks. Scientifically, only phase errors larger than the Nyquist frequency will affect your data (i.e. your data are not any more accurate than the Nyquist frequency). So, if you are recording at 40sps, it takes an error of 0.05 seconds (50 milliseconds or 5000 microseconds) before you should mark your timing as questionable.

example->

172:02:41:19 INTERNAL CLOCK PHASE ERROR OF 3526 USECONDS

C. JERKS/DSP SETS: This is a reset of the internal clock. It usually occurs if the phase error between the external and internal clock exceeds the limits of -5 and +11 milliseconds.

example->
172:23:41:44 INTERNAL CLOCK TIME JERK # 11 OCCURRED AT 23:41:44.994
172:23:41:45 DSP CLOCK SET: OLD=01:172:23:41:45.996,
NEW=01:172:23:41:45.007

D. GPS ON/OFF: Shows GPS status.

examples->
173:00:39:58 GPS: POWER IS TURNED ON
(72-series instruments)
173:00:39:58 EXTERNAL CLOCK WAKEUP
(RT130-series instruments)

E. GPS LK-UNLK: GPS LOCK – means the external GPS clock is synchronized to the GPS satellites.
GPS UNLOCK –In a normal cycle, the GPS will be on for 20 minutes and off for 40 minutes every 1 hour.

example->
173:00:41:53 EXTERNAL CLOCK IS LOCKED
173:00:46:53 EXTERNAL CLOCK IS UNLOCKED

F. DAS TEMP: Temperature at the DAS, not necessarily the same as at the sensor.

example->
242:17:48:12 BATTERY VOLTAGE = 13.4V, TEMPERATURE = 30C, BACKUP = 03.3V

G. BATTERY VOLTS: External (to the RT130) battery voltage.

example->
242:17:48:12 BATTERY VOLTAGE = 13.4V, TEMPERATURE = 30C, BACKUP = 03.3V

H. BACKUP VOLTS: The voltage of the small backup battery within the RT130.

example->
242:17:48:12 BATTERY VOLTAGE = 13.4V, TEMPERATURE = 30C, BACKUP = 03.3V

I. DUMP CALL: Call for RAM dump.

example->
173:01:17:25 AUTO DUMP CALLED
173:01:18:03 AUTO DUMP COMPLETE

J. ACQ ON-OFF: Reflects times when acquisition started or stopped.

examples->
159:15:09:11 ACQUISITION STARTED
253:22:57:43 ACQUISITION STOP REQUESTED

K. RESETS/POWERUP: Indicates when resets or power ups happened during recording time.

These are usually due to power fluctuations.

example->
242:17:45:34 SYSTEM RESET
242:17:45:41 SYSTEM POWERUP 00032: UNIT 9BCD, CPU VER 3.0.0

L. ERROR/WARNING: Lines are placed in the log file by programs like ref2segy that have the word "ERROR" or "WARNING" in them. The position of the dots on the graph for these messages may, at times, not make any sense. These message lines in the log files do not have a time stamp, so the

program just uses the time from the last line that had a time stamp, which, since a lot of the warning messages have to do with clock problems, means that the dots will show up in the wrong place

M. DISCREPANCIES: If any time discrepancies occur they will be shown here. These are so unusual, I don't even have an example.

N. SOH/DATA DEFS: State of Health –top of line Data definition/parameter file –bottom of line.
examples->

State of Health 01:159:15:06:02:839 ST: 0108

Data Stream Definition 01:159:15:08:59:392 ST: 0108

This block of information is normally followed by lines for the other parameter blocks such as:

Station Channel Definition 01:159:15:08:59:392 ST: 0108

Calibration Definition 01:159:15:08:59:392 ST: 0108

O. NET UP/DOWN: Indicates when acquisition was started or stopped, used mostly in PASSCAL experiments with telemetry, it can indicate problems with a backlog of sending data.

example->

277:20:37:06 RTP: Network layer is UP!

3:20:00:40 ACQUISITION STOP REQUESTED

053:20:00:40 ACQUISITION STOPPED

P. EVENTS DS1 (DS2, etc): Refers to recorded events for each data stream.

example->

DAS: 0108 EV: 0377 DS: 2 FST = 001:173:01:09:51:447

TT = 2001:173:01:09:51:447 NS: 144005 SPS: 40 ETO: 0

Which line a point is plotted on is determined by the data stream value following "DS:" in the log file line

Q. RE-CENTER: Indicates automatic, scheduled re-centering during recording. Also shows manual re-center commands.

example->

086:16:04:36 SENSOR 1 MASS RE-CENTER: MANUAL

R. MASS POS 1 (2,3): Gives you a color scale of mass position values where cooler colors are good and warmer colors represent higher mass position voltages. If you click on any of the points, you will see the actual value displayed at the bottom of the window.

S. HOURS (or DAYS or 10DAYS): This gives you an idea of how long a time span you are currently viewing.