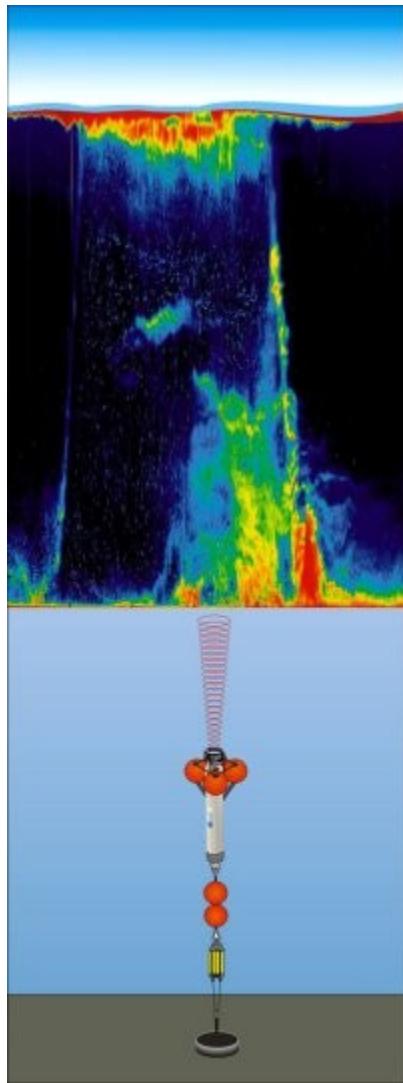


# User Manual

## for the

## AZFP QuickView Utility



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# 1 Installation

Run the app installer using the latest version of the Toolbox located here: [AZFP QuickView](#)

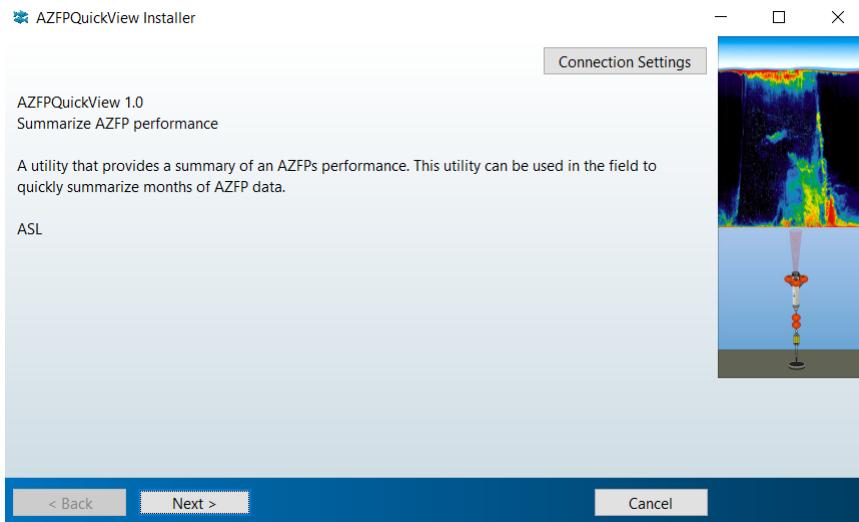
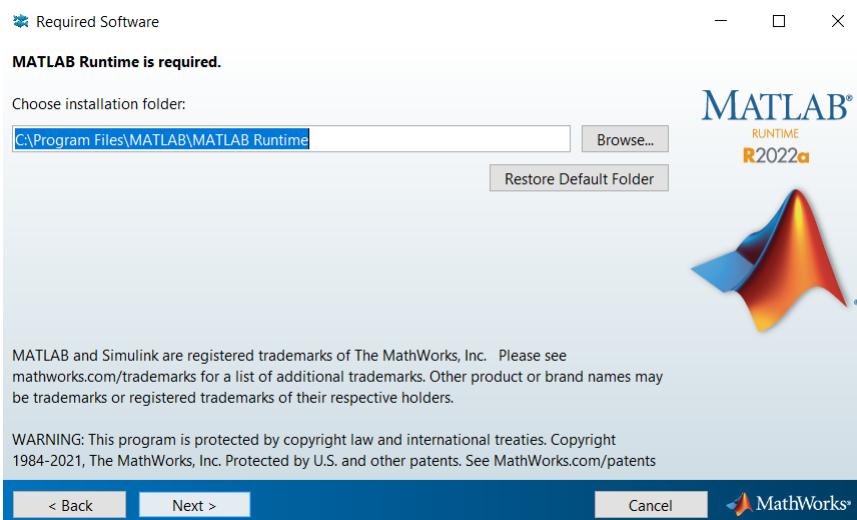


Figure 1: Installing QuickView

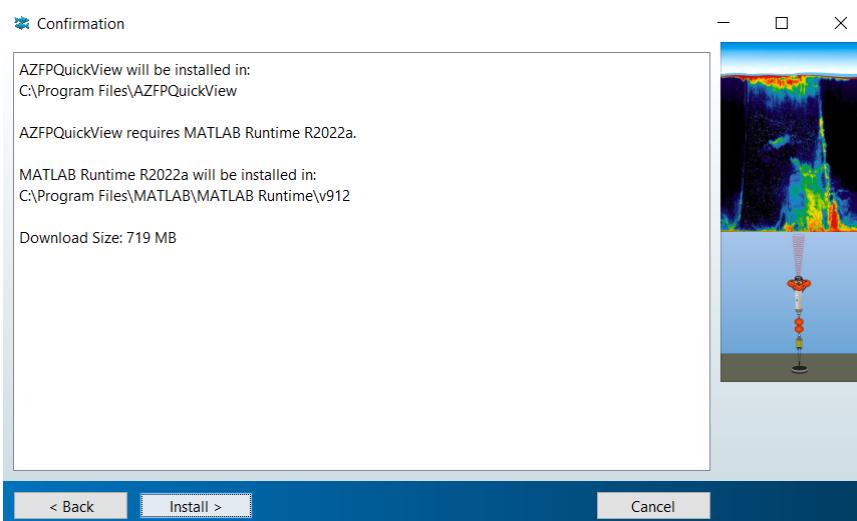
## 1.1 MATLAB Runtime

If this is the first time installing a MATLAB stand alone application, the MATLAB runtime will have to be downloaded and installed (~720 MB).

There is a version of the runtime for a 64bit system located here: [MATLAB RunTime](#)



*Figure 2: Download the MATLAB runtime.*



*Figure 3: MATLAB runtime installation.*

## 1.2 MiKTeX

If this is the first time installing this app, MiKTeX will have to be downloaded and installed. It is used to output LaTeX style reports.

Run QuickView and install PDFLatex using the big red button on the start page. If the red button is not visible then it is likely already installed.

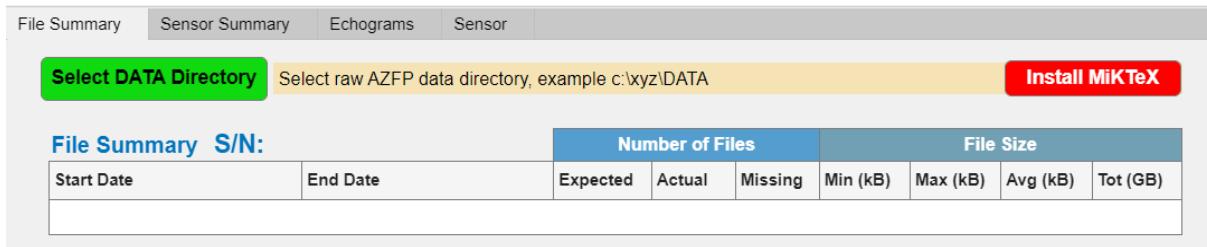


Figure 4: The install MiKTeX button will be visible if it is NOT installed.

When installing MiKTeX, **make sure to change these two settings:**

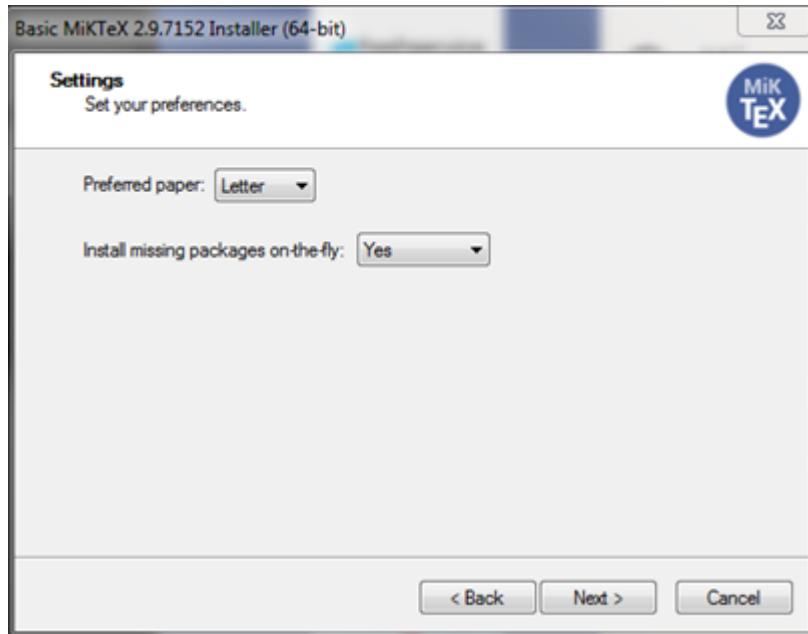


Figure 5: Important MikTex settings.

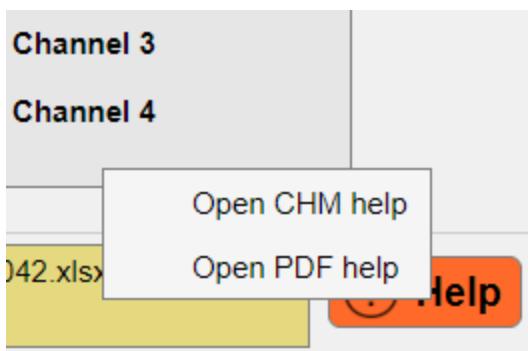
You can also download and run the MiKTeX installer (~200 MB):

[Install MikTex from the InterWeb](#)

## 1.3 Help

Click the help button (shown on the bottom right) to open the chm help file.

Right click the help button to open either the chm help file or the PDF help file:



## 1.4 Version History

Version	Date	Details
1.15	August 31, 2023	<ul style="list-style-type: none"> <li>- fix dpl start date parse bug</li> <li>- add new logo for PDF output</li> </ul>
1.1	March 01, 2023	<ul style="list-style-type: none"> <li>- lots of fixes for loading and plotting ULS6 data</li> <li>- add Phase selection for ULS6</li> </ul>
1.0	September 7, 2022	<ul style="list-style-type: none"> <li>- if MikTeX (pdflatex) is not found then show install button</li> <li>- redesign of gui pages</li> <li>- auto load noise floor values using instrument s/n from nas_man drive</li> <li>- option to plot all data instead of just 5 segments. Shows # pages that will be plotted to PDF.</li> <li>- can plot Sv or raw counts</li> <li>- add settings to plot portrait/landscape and show 2 sub plots with Battey, tilt, temp, depth options. Also can show/hide header and footer.</li> <li>- added Help and Manual chm Help file, PDF file and HELP button</li> <li>- save program settings on exit and load on start</li> <li>- better \DATA loading if selecting folder other than expected (eg. \DATA\20220101)</li> <li>- alert if old files in with data (eg. setup Aug, deploy Nov)</li> <li>- fixed loading xml and dpl if in non-used directory (eg. setup directory with no .01A raw files)</li> <li>- tested on: FlashDump \\Nas1\nas_man\Manufacturing Tests\AZFP5</li> <li>- tested on: Q:\RD-AZFP\Data from Users and Field tests</li> </ul>
0.9	August 16, 2021	- works with depth data, if available ie. glider using azfp toolbox v1.8
0.7	May 15, 2020	- changed size to work on field laptop 1366x768
0.6	December 2, 2019	- bug fixes for 1 month data and < 4 chan data, added plotoffset input (was hard coded to 7 days)
0.5	July 11, 2019	- added latex output
0.1	June 24, 2019	- first release

## 2 File Summary Tab

Displays a summary of the Azfp data: the file start and end dates, number of files (expected/actual/missing), files sizes, Log file (\*.log) and deployment file (\*.dpl) output:

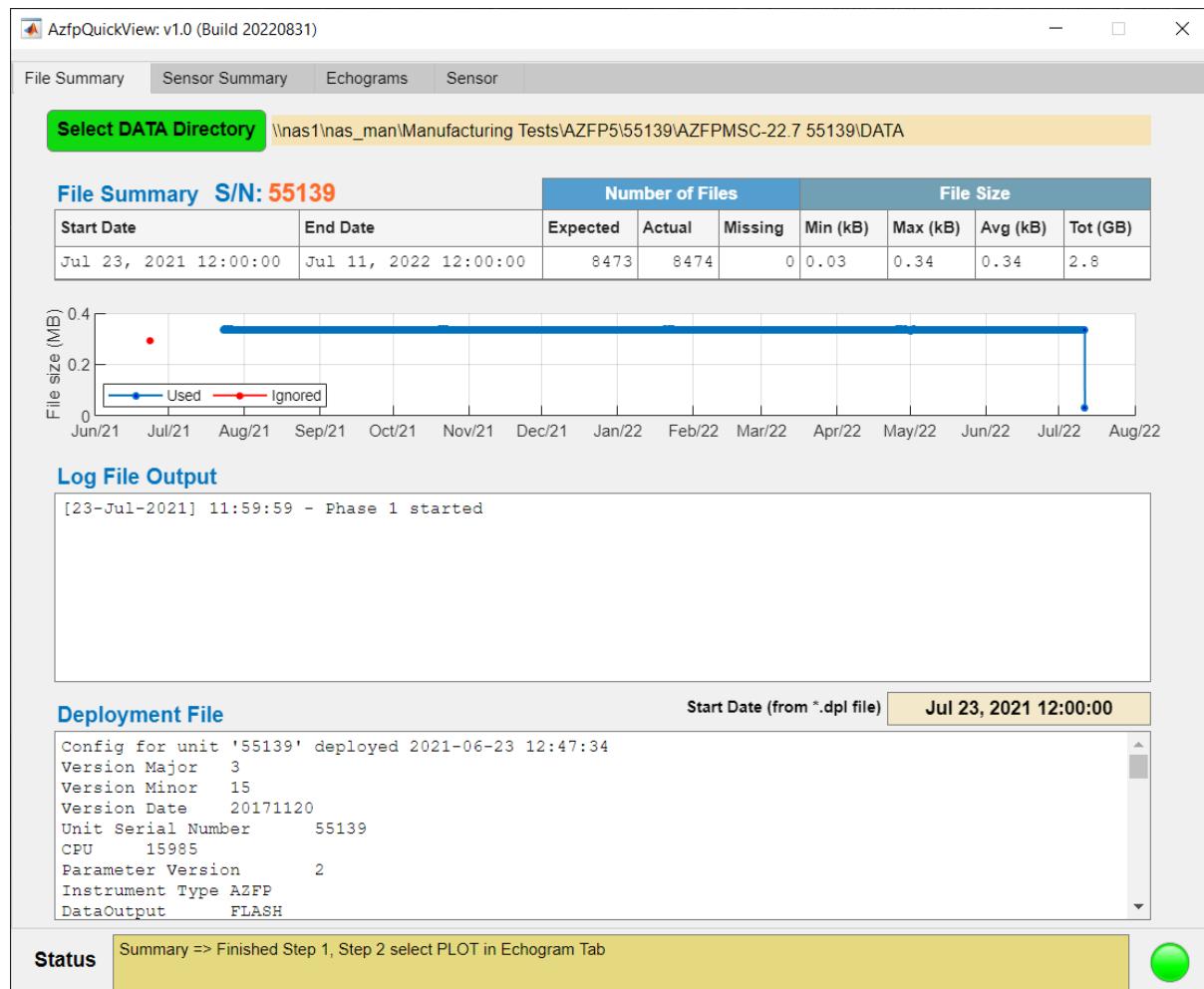


Figure 6: File summary tab.

### 2.1 Select DATA Directory

Select the upper DATA directory to scan the Azfp files. This is the upper directory with the Azfp YYYYMM data folders that contain the raw Azfp data files (Figure 7):

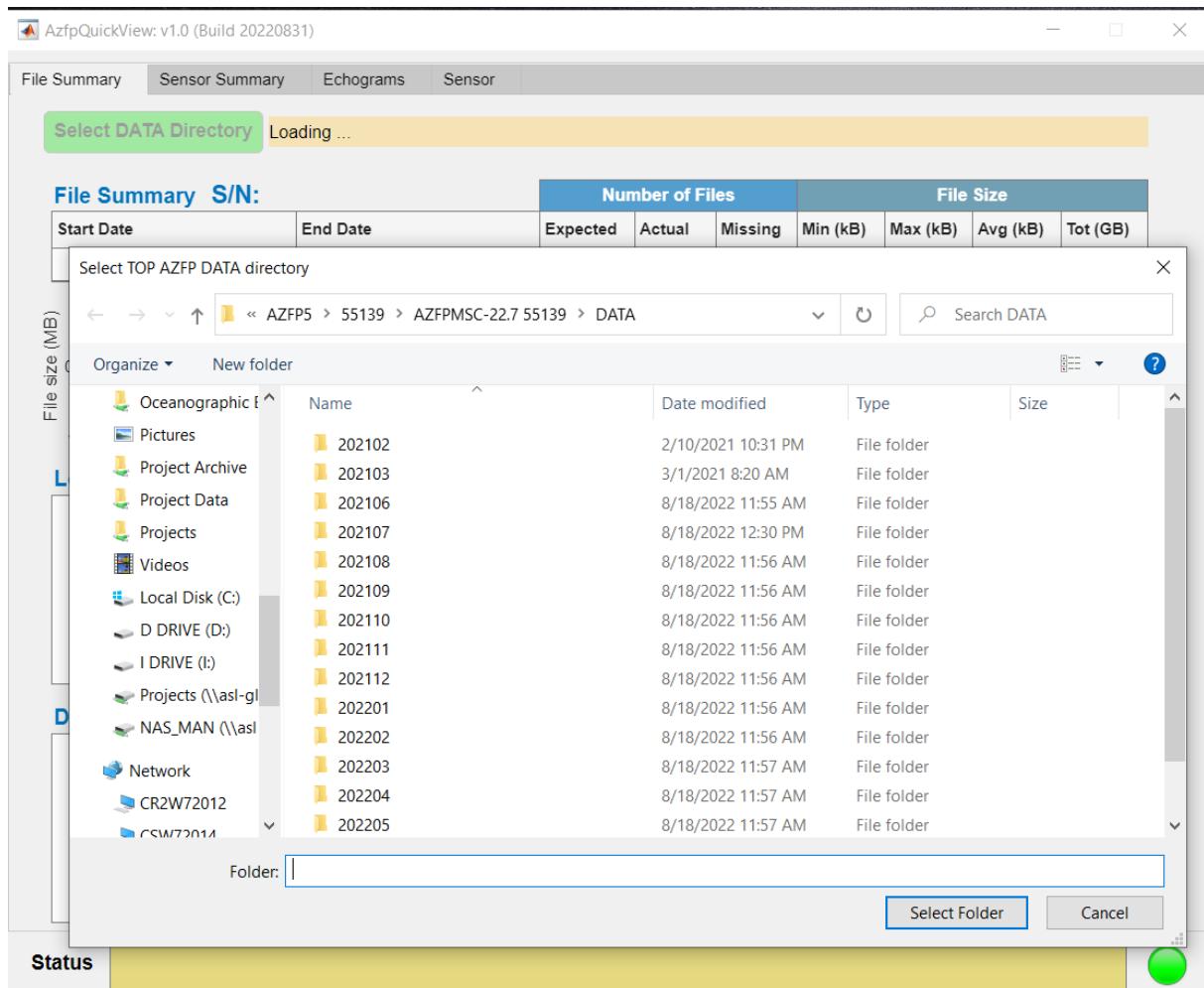


Figure 7: Select upper Azfp DATA directory.

## 2.2 File Summary Details

Once the data directory has been selected, the program will scan through the data folders and summarize the file start and end dates, number of files and file sizes. Figure 8 shows the results of a typical Azfp deployment.

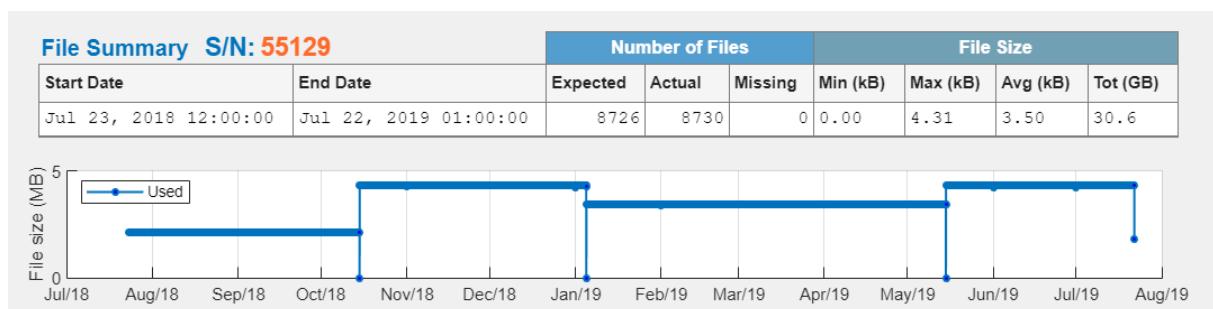


Figure 8: File summary example for a complete Azfp deployment.

The Number of Files (Expected, Actual, Missing) should be checked. The File Size figure shows the number of files used (i.e. the files that will be plotted), the number of files ignored and the number missing.

Files are ignored if there are multiple deployments in the same data set. For example, see Figure 9. A warning message is shown if the start date in the Deployment file is > the start date of the Azfp data files. To plot the ignored data for this example, separate the data into 3 DATA folders:

DATA1 => 201710, 201711

DATA2 => 201805, 201806

DATA3 => 201807 to 201909

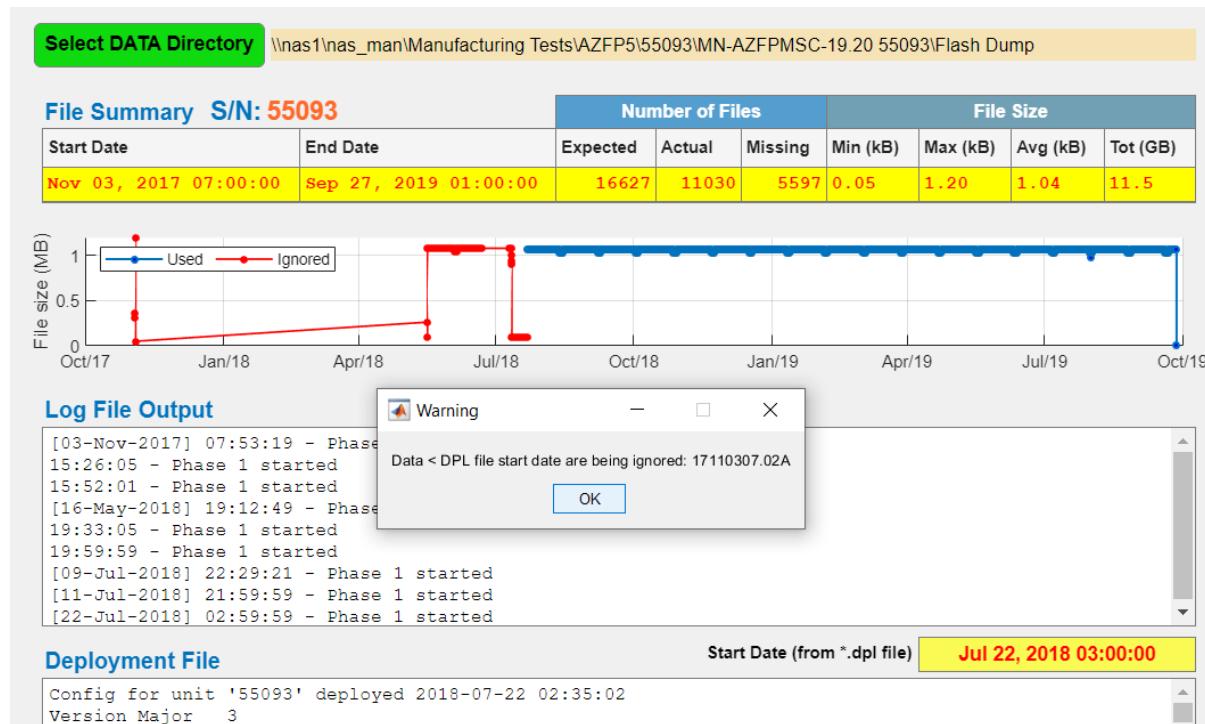


Figure 9: File summary example for data with multi Azfp deployments.

File are shown as missing if there is a gap in the hourly Azfp data, as shown in Figure 10.

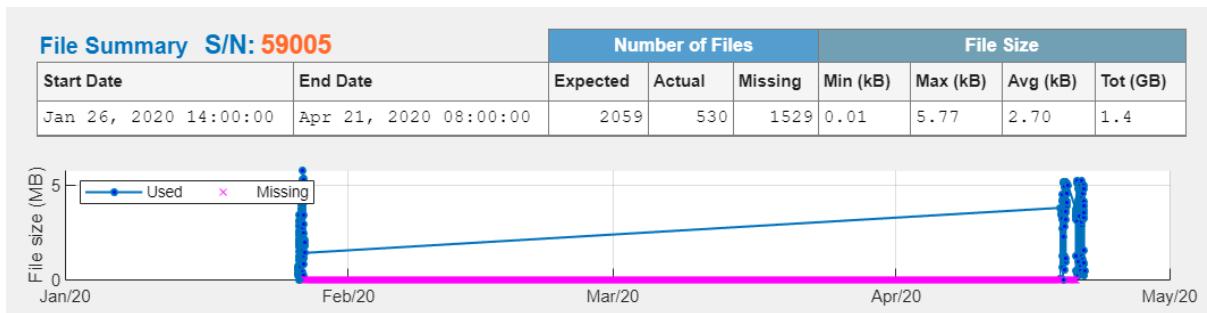


Figure 10: File summary example with missing Azfp data files

## 2.3 Log File Output

Displays the contents of the deployment LOG file from the selected DATA directory:

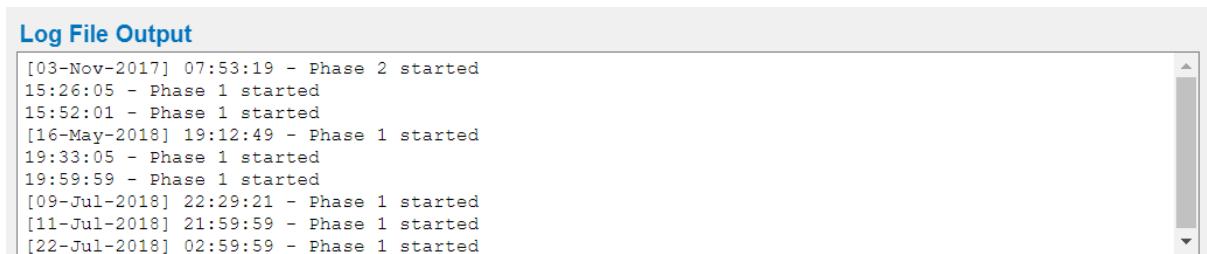


Figure 11: LOG file contents.

## 2.4 Deployment File Output

Displays the contents of the latest deployment (DPL) file from the selected DATA directory:

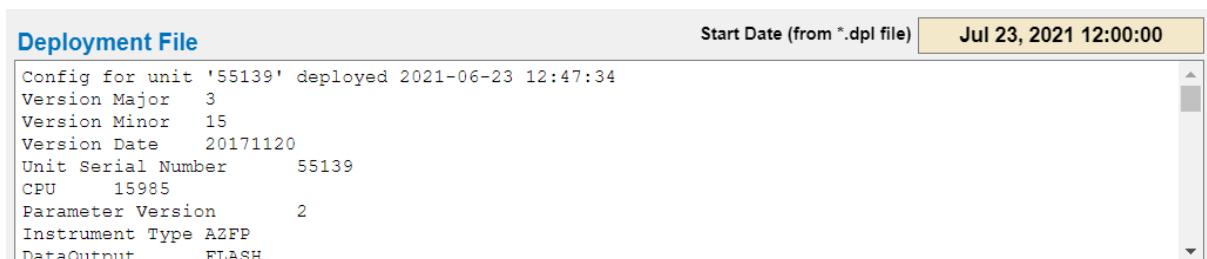


Figure 12: Contents of the deployment log file (DPL).

If the deployment log file has a start date larger than the start date of the raw Azfp data, the date is shown in yellow. The Azfp data before the DPL start date is ignored and not plotted.

Deployment File		Start Date (from *.dpl file)	Jul 22, 2018 03:00:00
Config for unit '55093' deployed 2018-07-22 02:35:02			
Version Major	3		
Version Minor	8		
Version Date	20160329		
Unit Serial Number	55093		
CPU	14501		
Parameter Version	2		
Instrument Type	AZFP		
DataOutput	FLASH		

Figure 13: Deployment log file shown with a startdate > data file start date.

### 3 Sensor Summary Tab

The sensor summary tab displays the values of the battery (Main and Tx), tilt and temperature. The table displays a summary of the values in 5 segments over the deployment. The figure shows the monthly values of the battery and tilt.

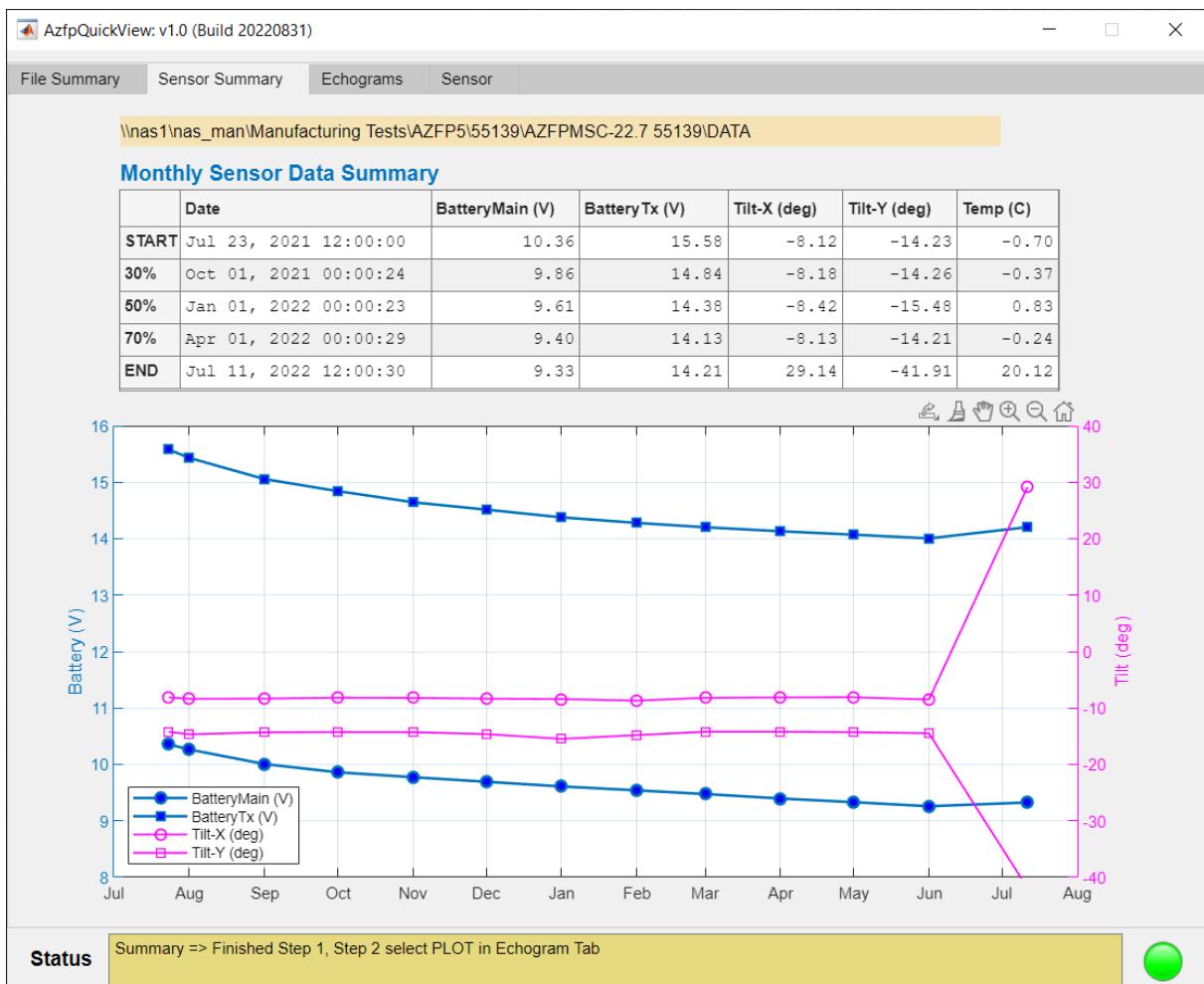


Figure 14: Monthly sensor summary.

## 4 Echogram Tab

The Echogram Tab displays the options for the echograms shown in the summary report.

The **Load** button is the same as shown in the [Select DATA Directory](#) .

Once the settings have been adjusted, use the **Plot** button to create the Echograms and the summary report. This can take a while depending on the **# Days to Plot per segment** setting. The **Cancel** button stops the plotting.

For ULS6 data, Use the Phase pull down to select the phase to plot.

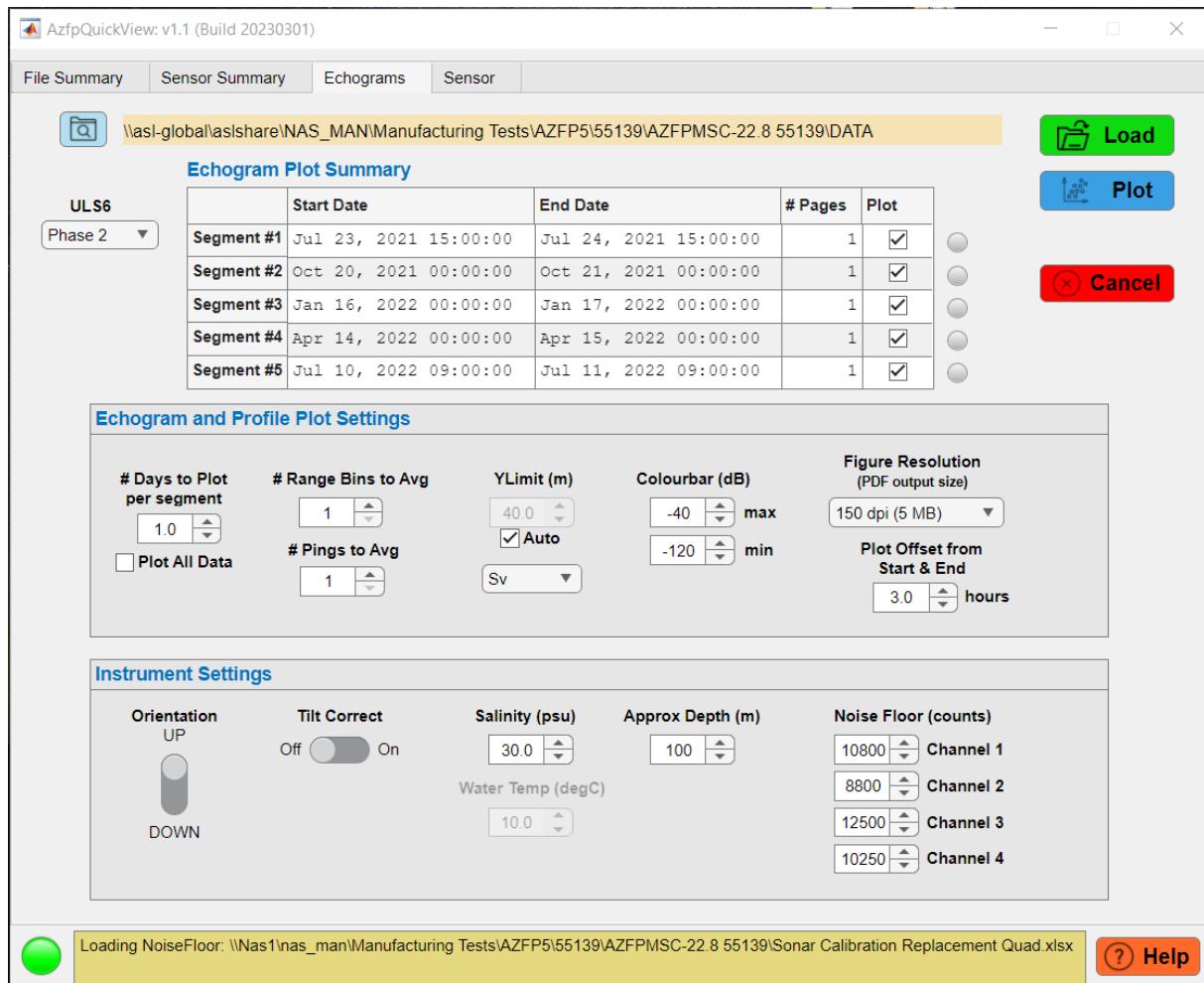


Figure 15: Echogram tab settings.

## 4.1 Select Phase for ULS6

Select the Phase to plot for ULS6 data. Do this BEFORE using the **LOAD** button. Changing the Phase using the pull down will reset the loaded data and the data will need to be reloaded and scanned. The **LOAD** button scans the directories for the selected phase:

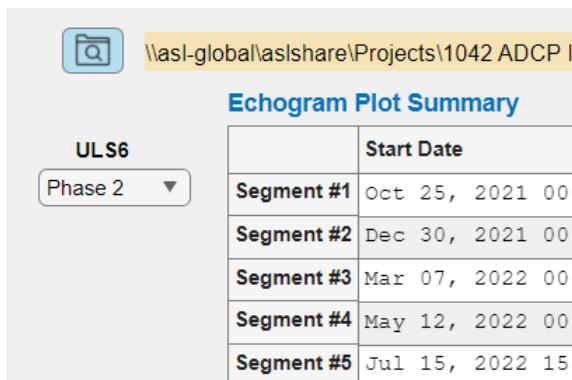


Figure 16: Select Phase to plot for ULS6 data

## 4.2 Echo Plot Summary

The table displays a summary of the Echograms that will be plotted in the summary report. The default is to plot 5 segments over the deployment with 1 page per segment:

Echo Plot Summary				
	Start Date	End Date	# Pages	Plot
Segment #1	Jul 23, 2021 15:00:00	Jul 24, 2021 15:00:00	1	<input checked="" type="checkbox"/>
Segment #2	Oct 20, 2021 00:00:00	Oct 21, 2021 00:00:00	1	<input checked="" type="checkbox"/>
Segment #3	Jan 16, 2022 00:00:00	Jan 17, 2022 00:00:00	1	<input checked="" type="checkbox"/>
Segment #4	Apr 14, 2022 00:00:00	Apr 15, 2022 00:00:00	1	<input checked="" type="checkbox"/>
Segment #5	Jul 10, 2022 09:00:00	Jul 11, 2022 09:00:00	1	<input checked="" type="checkbox"/>

Figure 17: Echo Plot Summary table.

The plotted segments can be turned on/off using the check boxes. The length of the segment is set using the [# Days to Plot per segment](#) <sup>[13]</sup>.

All of the data can be plotted using the [Plot All Data](#) <sup>[13]</sup> checkbox and using the [# Days to Plot per page](#) <sup>[13]</sup> to set the number of days to plot per page (more days = less pages, but this can be really slow and you may run out of memory on the PC).

Echogram Plot Summary				
	Start Date	End Date	# Pages	Plot
Segment #1	Jul 23, 2021 15:00:00	Jul 11, 2022 09:00:00	353	<input checked="" type="checkbox"/>
Segment #2			0	<input type="checkbox"/>
Segment #3			0	<input type="checkbox"/>
Segment #4			0	<input type="checkbox"/>
Segment #5			0	<input type="checkbox"/>

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(X) Can

**Echogram and Profile Plot Settings**

# Days to Plot per page	# Range Bins to Avg	YLimit (m)	Colourbar (dB)	Figure Resolution (PDF output size)
<input type="text" value="1.0"/>	<input type="text" value="1"/>	<input type="text" value="2.5"/> <input checked="" type="checkbox"/> Auto	<input type="text" value="-40"/> max <input type="text" value="-120"/> min	150 dpi (5 MB)
<input checked="" type="checkbox"/> Plot All Data	# Pings to Avg	Sv		Plot Offset from Start & End
	<input type="text" value="1"/>			<input type="text" value="3.0"/> hours

Figure 18: Plot all data option.

### 4.3 Echogram and Profile Plot Settings

Options for the Echogram and Profile plots are shown below. The number of echogram plots are shown in the [Echogram Plot Summary](#) <sup>[12]</sup> table. A Counts vs. Range profile figure for the 5 segments is shown on the last page of the summary report.

**Echogram and Profile Plot Settings**

# Days to Plot per segment	# Range Bins to Avg	YLimit (m)	Colourbar (dB)	Figure Resolution (PDF output size)
<input type="text" value="1.0"/>	<input type="text" value="1"/>	<input type="text" value="2.5"/> <input checked="" type="checkbox"/> Auto	<input type="text" value="-40"/> max <input type="text" value="-120"/> min	150 dpi (5 MB)
<input type="checkbox"/> Plot All Data	# Pings to Avg	Sv		Plot Offset from Start & End
	<input type="text" value="1"/>			<input type="text" value="3.0"/> hours

Figure 19: Echogram and Profile Plot Settings.

**# Days to Plot per segment:** the number of days in each segment as shown in the [Echogram Plot Summary](#) <sup>[12]</sup> table.

**# Plot All Data:** if the plot all data is checked, it will plot the number of pages shown in the [Echogram Plot Summary](#) <sup>[12]</sup> table using the **# Days to Plot per Page**.

**# Range Bins to Avg:** the number of range bins to average (#). Increase this value if the range bins are very small and if there are memory issues (RAM) with the PC.

**# Pings to Avg:** the number of pings to average (#). Increase this value if the range bins are very small and if there are memory issues (RAM) with the PC.

**YLimit (m) or Auto:** set a fixed YLimit for the Echogram plots in (m) or use Auto.

**Sv or Counts:** plot Sv or raw counts for the Echograms.

**Colourbar settings:** the range of the colourbar for the Sv (-120 to -40) or raw Count (0 to 65500) plots. This can be adjusted to depending on the data to show areas

**Figure Resolution:** change this if emailing the summary report and you need to decrease the size.

**Plot Offset from Start & End:** offset to add to the start/end segment (hours) for plotting. This can be used if the instrument was out of water for hours or days at the start of the deployment.

## 4.4 Instrument Settings

Enter the instrument details here.

Instrument Settings				
Orientation UP  DOWN	Tilt Correct Off <input type="checkbox"/> On	Salinity (psu) 30.0	Approx Depth (m) 100	Noise Floor (counts) Channel 1 0 Channel 2 0 Channel 3 0 Channel 4 0
		Water Temp (degC) 10.0		

Figure 20: Instrument settings.

**Orientation:** up or down changes the Echogram plot Y-axis from range to depth.

**Tilt Correct:** performs a tilt correction on the range values.

**Salinity (psu):** the approximate salinity during the deployment. This is used for the depth and absorption coefficient calculation.

**Approx. Depth (m):** the approximate depth of the deployment used for the sound speed and absorption coefficient calculation.

**Water Temp (degC):** used for the sound speed calculation IF there is no temperature sensor on the Azfp. The field will be not normally be enabled if there is a temp sensor.

**Noise Floor (counts):** the noise floor (counts) of the instrument. This is used to set the echogram plots to white if < noise floor. The noise floor values are automatically loaded from the network, if available, otherwise they are set to 0:

[\\Nas1\nas\\_man\Manufacturing Tests\AZFP5](\\Nas1\nas_man\Manufacturing Tests\AZFP5) or [\\Nas1\nas\\_man\Manufacturing Tests\GLIDER5](\\Nas1\nas_man\Manufacturing Tests\GLIDER5)

## 5 Sensor Plot Settings

These are the options to place 1 or 2 figures above the Echogram on each page in the summary report. If the **Plot Sensor Data** checkbox is selected the pages are shown in Portrait orientation. Normally the Echograms are plotted in landscape orientation when the **Plot Sensor Data** checkbox is not selected.

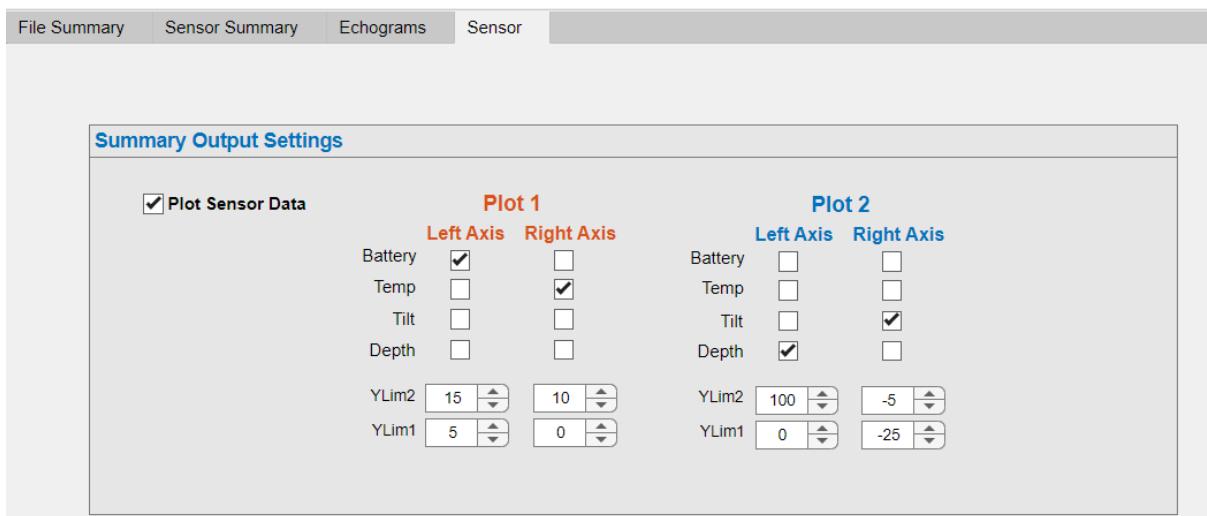


Figure 21: Sensor Plot Settings

The resulting sensor figure:

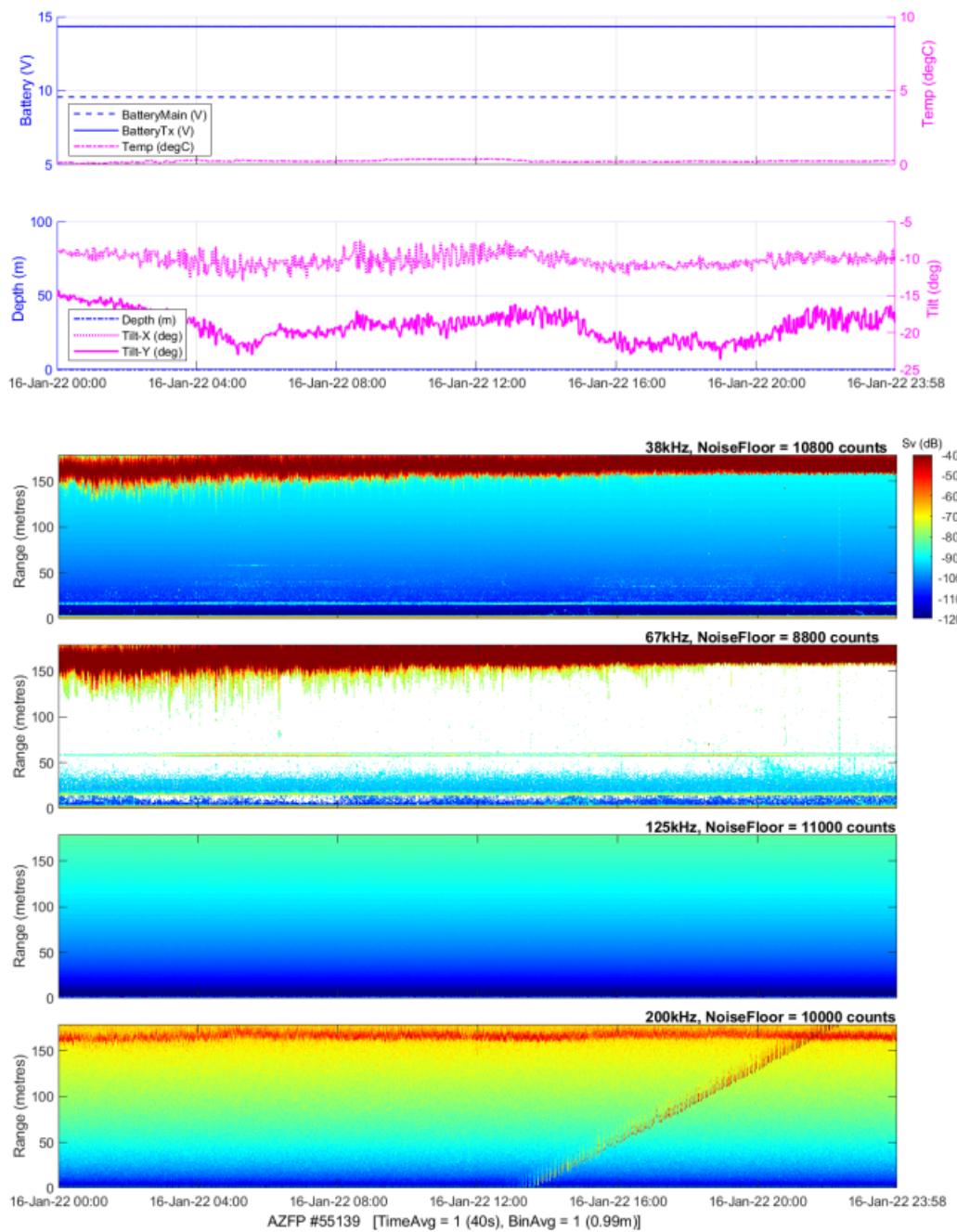


Figure 3: Echogram #1: Jan 16, 2022 00:00 to Jan 16, 2022 23:58

*Figure 22: Sensor plot shown above the echogram plot.*

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