

## ADEON AZFP Calibrated Matrices ReadMe Document

All AZFP instruments used in ADEON are 4 frequency echosounder systems containing the following frequencies: 38 kHz, 125 kHz, 200 kHz, and 455 kHz. Specifications for the commercial off-the-shelf sensors can be found at <http://www.aslenv.com/brochures/AZFP.pdf>.

For detailed information on hardware deployment, calibrations, and specifications, please see the ADEON standardization documents that are a part of the NCEI archive's ADEON collection.

The AZFP instruments were supplied by the manufacturer with calibrated sensors and documentation. These sensors were also calibrated in the UNH acoustic tank and again at-sea prior to deployment. The most recent calibration information is contained in the AzfpLink software and is applied to exported data for each sensor. The AzfpLink software applies the hardware specifications and calibration information during raw data export. Therefore, the AzfpLink software's generated .csv files included in this archived dataset contain calibrated volume backscatter measurement (Sv) matrices ready for direct reading into the hydroacoustic visualization and analysis software EchoView (<https://www.echoview.com>).

The AZFP file format for daily Sv files is: 551SN\_CX\_FREKHZ\_YYYYMMDD.sv.csv where SN is last two numbers of the instrument serial number, CX is the cycle designation in order of frequency sampling, and FRE is unit frequency.

SN	Two digit serial number (i.e. 44) to complete full 5 digit serial number from manufacturer (55144)
CX	Cycle order of frequency sampling (C1 indicated the first frequency sampled in current duty cycle). Cycle order of frequencies is maintained through the entire deployment.
FRE	Three digit frequency (038, 125, 200, 455)
YYYY	Four digit year
MM	Two digit month
DD	Two digit calendar day

The AZFP sensors are mounted on the ADEON bottom landers at a 15 degree tilt angle off the vertical to minimize interference from the lander structure. This 15 degree angle must be accounted for in further analysis using EchoView or other analysis software.

All ADEON AZFP systems were set up to record with a duty cycle of 12 minutes sampling and 48 minutes of sleep. For consistency, all AZFP systems were configured to record from an

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approximate maximum depth of 400 m. Figure 1 is a screenshot of the deployment parameters (pulse length, digitization rate, etc) for the VAC deployment in November 2017. Note: the sound speed entered for deployment is unique for each of the 3 different ADEON lander sites that include an AZFP. Sound speed is based on each lander site's CTD cast information taken at the time of deployment. Figure 2 shows the duty sampling cycles.

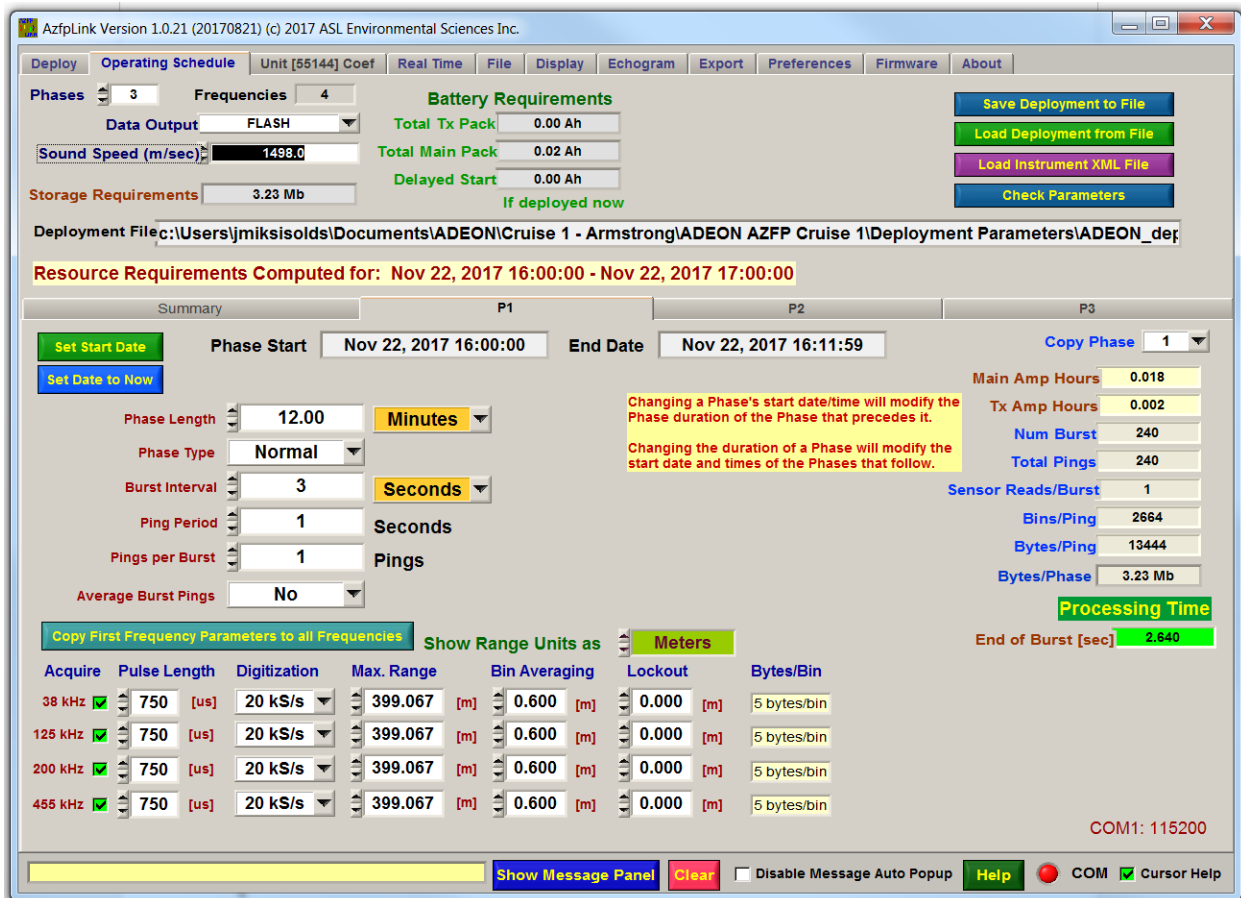


Figure 1. Deployment parameters for the AZFP deployed at VAC on Nov 22, 2017.

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AzfpLink Version 1.0.21 (20170821) (c) 2017 ASL Environmental Sciences Inc.

Deploy | Operating Schedule | Unit [55144] Coef | Real Time | File | Display | Echogram | Export | Preferences | Firmware | About

**End Deployment - Get Status**

**Instrument Status**

Last Update:

Firmware:

UNIT S/N:

CPU S/N:

Mode:

Param. Status:

Param. Saved:

Free (MB):

Used (MB):

Total (MB):

**Load Deployment File**

**Show Units Date/Time**

Unit:

PC:

**Manually Set Unit's Date/Time**

**Set Unit to PC's Date/Time**

**Deploy Instrument**

**Terminal Emulator**

**Retrieve Parameters from Unit**

Log AZFP Status Information

**Deployment Summary**

Deployment File: **ADEON\_deploy\_55144\_VAC.mfawcpl**

**Repeat - Battery capacity=120 Ahr, will last 5502.2 repeats or 229.3 days, and storage=17.8 Gb**

Phase #	Type	Start Date	Duration	Burst Interval	Ping Period	Pings/Burst	Average	Bytes	Main Ah
1	Normal	Nov 22, 2017 16:00:00	12.0 min	3 sec	1 sec	1	no	3.2 Mb	0.02
2	Sleep	Nov 22, 2017	This table shows a summary of the phases. Click on the phase column to go to the phase.						
3	Repeat	Nov 22, 2017 17:00:00							

COM1: 115200

**Show Message Panel** **Clear**  Disable Message Auto Popup **Help** COM  Cursor Help

Figure 2. Deployment summary of the duty cycle for the AZFP deployed at VAC in November 2017.