# Data Files

Data files are summarized in Table 1.

Table : Data file descriptions

|  |  |  |  |
| --- | --- | --- | --- |
| **File Name** | **Survey Date** | **Location within WETS** | **Comment** |
| WETS\_DAISY\_81 | Jul. 15, 2024 | Reference site  (1200 m NE of SeaRay) | Instrument intercomparison |
| WETS\_DAISY\_82 | Jul. 15, 2024 | Reference site | Instrument intercomparison |
| WETS\_DAISY\_83 | Jul. 15, 2024 | Reference site | Instrument intercomparison |
| WETS\_DAISY\_84 | Jul. 15, 2024 | SeaRay | ~80 m range |
| WETS\_DAISY\_85 | Jul. 15, 2024 | Reference site |  |
| WETS\_DAISY\_86 | Jul. 15, 2024 | SeaRay | ~80 m range |
| WETS\_DAISY\_87 | Jul. 15, 2024 | SeaRay | ~20 m range |
| WETS\_DAISY\_88 | Jul. 15, 2024 | Reference site |  |
| WETS\_DAISY\_89 | Jul. 15, 2024 | SeaRay | ~10 m range |
| WETS\_DAISY\_90 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_91 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_92 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_93 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_94 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_95 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_96 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_97 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_98 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_99 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_100 | Jul. 16, 2024 | SeaRay |  |
| WETS\_DAISY\_101 | Jul. 16, 2024 | SeaRay |  |

# Acoustic Data File Format

All [site]\_DAISY\_[Drift #].mat files follow the same data conventions. Variables are summarized here.

*acoustic\_proc*: acoustic processing parameters

* *V\_range*: Voltage range (+/- VDC) for the DAISY hydrophone
* *f\_range*: Minimum and maximum frequencies reported
* *cal\_path*: Path for sensitivity data [*will be deprecated*]
* *settings*: acoustic processing settings (2)
  + *dt*: duration of each window for frequency-domain processing
  + *win\_overlap*: fractional overlap of adjacent windows
  + *taper*: tape applied to each window
  + settings(1) contains processing for time-resolved spectrogram plots
  + settings(2) contains processing for frequency-resolved periodogram plots
* *f\_trunc*: Maximum frequency to store during processing (blank indicates no limit)
* *Pref*: acoustic reference pressure squared (1e-12 uPa2)
* *resample\_rate*: sample rate for embedded audio for playback

*audio*: resampled audio for playback purposes

* *time*: datetime (Nx1)
* *v*: voltage (Nx1)
* *fs*: sample rate (equal to resample\_rate)

*boat*: position of survey vessel recorded by handheld GPS (if available)

* *time*: datetime (Nx1)
* *lat*: latitude (Nx1)
* *lon*: longitude (Nx1)
* *U*: vessel speed over ground (Nx1) [m/s]
* *cog*: vessel course over ground (Nx1) [degrees true]
* *PDOP*: GPS dilution of precision (Nx1) [not accurate]
* *HDOP*: GPS horizontal dilution of precision (Nx1) [not accurate]
* *x*: UTM easting (Nx1) [m]
* *y*: UTM northing (Nx1) [m]

*GPS*: DAISY position during drift – this is interpolated to acoustic time stamps

* *time*: datetime (Nx1)
* *lat*: latitude (Nx1)
* *lon*: longitude (Nx1)
* *U*: DAISY speed over ground (Nx1) [m/s]
* *cog*: vessel course over ground (Nx1) [degrees true]
* *U\_uncertain*: uncertainty in DAISY speed over ground (Nx1) [not accurate]
* *HDOP*: GPS horizontal dilution of precision (Nx1) [not accurate]
* *x*: UTM easting (Nx1) [m]
* *y*: UTM northing (Nx1) [m]

*lower\_imu*: inertial measurement unit co-located with hydrophone

* *time*: datetime (Nx1)
* *roll*: roll angle (Nx1) [degrees]
* *pitch*: pitch angle (Nx1) [degrees]
* *heading*: yaw angle (Nx1) [degrees]
* *acceleration* (Nx3) [m/s2]
* *magnetometer* (Nx3) [radians?]
* *gyroscope* (Nx3) [radians?]

*upper\_imu*: inertial measurement unit on surface expression

*met*: Airmar meteorological station on surface expression (if available)

* *time*: datetime (Nx1)
* *lat*: latitude (Nx1)
* *lon*: longitude (Nx1)
* *x*: UTM easting (Nx1) [m]
* *y*: UTM northing (Nx1) [m]
* *airpres*: air pressure (Nx1) [kPa]
* *airtemp*: air temperature (Nx1) [oC]
* *winddir*: wind direction (Nx1) [degrees true]
* *windspd*: wind speed (Nx1) [m/s]
* *roll*: roll angle (Nx1) [degrees]
* *pitch*: pitch angle (Nx1) [degrees]
* *sog*: speed over ground (Nx1) [m/s]
* *cog*: course over ground (Nx1) [m/s]

*pressure*: pressure logger co-located with hydrophone

* *time*: datetime (Nx1)
* *p*: pressure (Nx1) [kPa]
* *T*: temperature (Nx1) [oC]
* *z*: depth corrected for pressure sensor drift (Nx1) [m]
* *z\_rough*: uncorrected depth (Nx1) [m]

*spectra*: processed acoustic data – each element corresponds to the settings in acoustic\_proc.settings

* *time*: datetime (Nx1)
* *f*: frequency (Mx1) [Hz]
* *Ppp*: mean-square sound pressure spectral density (MxN) [µPa2/Hz]
  + Pressure spectral density: 10log10(*Ppp*/*Pref*) [dB re 1 µPa2/Hz]
* *x*: georeferenced UTM easting (Nx1) [m]
* *y*: georeferenced UTM northing (Nx1) [m]
* *t\_end*: end of drift [datetime]

*t\_end:* end of drift [datetime]

*t\_start*: start of drift [datetime]