

Spreadsheet File Descriptions



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Introduction

Data from Wildlife Computers tags is presented in spreadsheet (CSV) files. Since there are many different categories of data reported, there are likewise many distinct spreadsheet files generated with different data and diagnostic information.

When data is downloaded, you are given the opportunity to assign a name to the file. A suffix is automatically added to the name you supply to help you identify the contents of each spreadsheet. For instance, if your tag sends status messages, a spreadsheet whose name ends with **-Status.csv** will be available.

Following are brief explanations of each spreadsheet and descriptions of the spreadsheet columns and rows. Wildlife Computers intends to preserve the column names, ordering, and meanings as product lines evolve. However, some changes are inevitable. If you are writing software to interpret these files, Wildlife Computers strongly encourages you to minimize your dependence on column order and to localize your use of column names.

Common Elements

Some column headings are common to several of the CSV files. This section describes those common elements.

Generally speaking, an empty cell in a spreadsheet means the data element is unavailable. A specific value in a cell means the item was decoded or otherwise deduced.

Note that for 2000 m instruments, if the setup parameters were not provided when the data were decoded, depth values may need to be doubled. For tags that are programmed in the portal or archival .wch files uploaded to the portal, the setup parameters are automatically accessed, and there is no need to double depth readings for 2000 m tags.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT id.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5m, and 1.0m.
Source	Indicates where the data came from, or how it was generated. Possible values include: Argos - Information was generated on the tag and transmitted through Argos. WCH - Information was interpreted from the .WCH file.

DAP - Information was generated by Wildlife Computers Data Analysis Program.

PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family. The list will grow over time. Presently the values include MiniPAT, Mk10, SPLASH, and SPOT6.
Count	Total number of times a particular data item was received, verified, and successfully decoded.
Date	<p>The date and time associated with the row. In the case of histograms, this is the start of the histogram period. Alternatively, it is the time of reception for status messages. Unless otherwise stated, Date is the time as known on the tag and reported by the tag's real-time clock. It is not corrected for clock error or drift.</p> <p>NOTE: Experimentation reveals that opening a CSV file with Microsoft Excel and saving the file as a CSV will often truncate the seconds from a time field! This is a very important concern with some files such as LightLoc and Fast-GPS. Files such as these</p> <p>have Date separated into 'Day' and 'Time' fields which do not seem to suffer from the problem.</p>
Day	The month, day, and year part of the time associated with a row.
Time	The hours, minutes, and seconds part of the time associated with a row.
Time Offset	<p>The number of seconds of error in the Date field.</p> <p>Time Offset + Date = Real World Time</p>
Satellite	The name of the Argos satellite that received the message.
Latitude	Latitude calculated by Argos for the satellite pass of interest.

Longitude	Longitude calculated by Argos for the satellite pass of interest.
LocationQuality	Class of location generated by Argos for the satellite pass containing this message (see below).

When Argos determines a location, an estimated error is calculated as described in the Argos User's Manual (<http://www.argos-system.org>). Following are the values delivered by Argos which appear in the LocationQuality section of several spreadsheet files:

Class	Estimated error	Number of messages received per satellite pass
3	<250m	4 messages or more
2	250m < < 500m	4 messages or more
1	500m < < 1500m	4 messages or more
0	>1500m	4 messages or more
A	No accuracy estimation	3 messages
B	No accuracy estimation	2 messages
Z	Invalid location (available only for Service Plus/Auxiliary Location Processing)	

-All.csv

This file includes all undecoded messages received from Argos. This is very similar to the RawArgos.csv.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
Platform ID No.	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.

Prg No.	The Argos Program number that the PTT id belongs to.
Latitude	Latitude of tag.
Longitude	Longitude of tag.
Loc. quality	Class of location generated by Argos for the satellite pass containing this message.
Loc. date	Date and time of location.
Loc. type	Type of location: Argos.
Altitude	Altitude of location calculated by Argos. Not applicable to marine deployments.
Pass	Number of the satellite pass.
Sat.	Satellite name.
Mote ID	If this message was received by a WC Mote, the name of the Mote will be here.
Frequency	Measured frequency of the Argos pass.
Msg Date	Date and time that the message was received by Argos.
Comp.	Number of duplicate messages in this satellite pass.
Msg	Number of messages received in this satellite pass.
> - 120 DB	Number of messages with a signal strength > -1200 dB.
Best level	dB level of best message in the pass.

Delta freq.	Same as 'Frequency.'
Long. 1	Longitude of tag (same as 'Longitude').
Lat. sol. 1	Longitude of tag (same as 'Latitude').
Long. 2	Argos DI messages contain a second longitude value, since their location algorithm can generate two possible positions. This is the second longitude value.
Lat. sol. 2	Argos DI messages contain a second latitude value, since their location algorithm can generate two possible positions. This is the second latitude value.
Loc. idx	Location quality index (0...99).
Nopc	Number of likely checks.
Error radius	If the position is best represented as a circle, this field gives the radius of that circle in meters.
Semi-major axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-major elliptical axis (one half of the major axis).
Semi-minor axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-minor elliptical axis (one half of the minor axis).
Ellipse orientation	The angle in degrees of the ellipse from true north, proceeding clockwise (0 to 360). A blank field represents 0 degrees.
GDOP	Geometric Dilution of Precision.
SENSOR #01....	Raw message data.

-Argos.csv

Each row in this spreadsheet represents a single Argos satellite pass. Note: that this spreadsheet does NOT contain data from individual received messages.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
RecordType	Type of Argos record, either DS or DI.
MsgCount	The number of messages received from the PTT for the satellite pass.
Duplicates	The number of identical messages received for the satellite pass. An empty cell means no duplicate messages were received for this pass. A value of '1' means the original plus one duplicate was received, '2' means the original plus two duplicates.
Corrupt	The number of corrupt messages in the given satellite pass.
AvgInterval	The average inter-message interval in seconds of all received messages for the given satellite pass.
MinInterval	The minimum inter-message interval in seconds of all received messages for the given satellite pass.
Date	The month, day, year, and time associated with a row.
Satellite	The name of the Argos satellite that received the message.
LocationQuality	Class of location generated by Argos for the satellite pass containing this message.

Latitude	Latitude calculated by Argos for the satellite pass of interest.
Longitude	Longitude calculated by Argos for the satellite pass of interest.
Latitude2	Argos DI messages contain a second latitude value, since their location algorithm can generate two possible positions. This is the second latitude value.
Longitude2	Argos DI messages contain a second longitude value, since their location algorithm can generate two possible positions. This is the second longitude value.
IQ	Argos-supplied value which gives transmitter frequency information.
Duration	Time elapsed between the first and last message received for the satellite pass.
Frequency	Calculated frequency of the transmitter.
Power	The best received signal strength (dB) during the satellite.

-Behavior.csv

Each row of this spreadsheet represents one type of behavior reported by the instrument.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.

Count	Total number of times this particular data item was received, verified, and successfully decoded.
Start	Timestamp when the particular behavior item began, to the nearest 30 seconds.
End	Timestamp when the particular behavior item ended.
What	Kind of element - Surface, Haulout, Dive, Message, or Unrecognized.
Number	The number of times the behavior element described by the following Shape, Depth, and Duration columns occurred back-to-back.
Shape	If the behavior is a dive, this is the shape of the dive determined by the tag (see below).
DepthMin	The dive Depth is between DepthMin and DepthMax meters.
DepthMax	The dive Depth is between DepthMin and DepthMax meters.
DurationMin	The duration of the element is between DurationMin and DurationMax seconds.
DurationMax	The duration of the element is between DurationMin and DurationMax seconds.
Shallow	In between dives, this is the spent ABOVE the threshold to determine start and end of a dive.
Deep	In between dives, this is the time spent BELOW the threshold to determine start and end of a time and ABOVE the depth required to qualify a dive.

Tags that perform behavior processing classify dives into one of three simple shapes (square, V, and U) by assuming the bottom of a dive is any depth reading $\geq 80\%$ of the maximum reading observed for the dive. If the total duration for the dive is **T** and the total time between the first bottom reading and the last bottom reading is **B**:

Shape	Bottom Time
Square	$B > 50\% T$
V	$B \leq 20\% T$
U	$20\% T < B \leq 50\% T$

-Corrupt.csv

Each row is a message whose contents were rejected by DAP. Most messages transmitted by Wildlife Computers' tags incorporate features allowing detection of data corruption. There are many ways perfectly formed messages can be corrupted on their journey to and from an Argos satellite, including:

- Salt water may have splashed over the tag's antenna during the transmission.
- Another message may have been simultaneously transmitted by a different platform, and the two messages may have corrupted each other.
- Atmospheric conditions may have led to the corruption of the message.

An abnormally high number of corrupt messages could indicate the type of tag was misidentified by DAP. For instance, if DAP believes a tag is a MK10 but it is actually a MiniPAT all the tag's status messages will be reported corrupt because MiniPAT and Mk10 encode status messages differently. Such situations will normally reconcile themselves if enough messages are received.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
Date	The time and date when the message was received by Argos.

Duplicates	The number of identical messages received for the satellite pass. An empty cell means no duplicate messages were received for this pass. A value of '1' means the original plus one duplicate was received, '2' means the original plus two duplicates.
Satellite	The name of the Argos satellite that received the message.
LocationQuality	Class of location generated by Argos for the satellite pass containing this message.
Latitude	Latitude portion of the location generated by Argos.
Longitude	Longitude portion of the location generated by Argos.
Reason	A terse explanation of why the message was rejected. A reason such as "CRC" or "Checksum" means mathematical integrity checks indicate a corrupt message.
Possible Timestamp	If the message at all resembled a valid WC messages, this is the timestamp the data could have had. It is important to realize we are dealing with a corrupt message, so this value may be nonsense.
Possible Type	If the message at all resembled a valid WC messages, this is the kind of data the message might have had. It is important to realize we are dealing with a corrupt message, so this value is nonsense.
Byte 0, Byte 1,....	These columns contain the data bytes, in decimal, as received from Argos. Presumably one or more of these data bytes are corrupted.

-DailyData.csv

This spreadsheet is generated if the decoded data contain information regarding the broad daily readings of the tag.

Column	Description
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
Date	The date of the daily data.

MinTemp	The minimum temperature observed during the period.
MaxTemp	The maximum temperature observed during the period.
MinDepth	The minimum depth observed during the period.
MaxDepth	The maximum depth observed during the period.
MaxDeltaTilt	Historical. Replaced by AvgMinMaxTilt.
AvgMinMaxTilt	The average of the minimum observed tilt for the day and the maximum observed tilt for the day.
DeltaLight	The difference between the minimum and maximum light level observed during the previous day.

-DDN.csv

Each line in this spreadsheet classifies one hour of behavior as dry, deep, or neither dry nor deep. The definitions of dry and deep are specified when the tag is configured.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
Date	The date and time of the start of the DDN timeline.
Disposition	Dry, deep or neither.

Code	Number indicating whether it is Dry (0), deep (1), or neither (2).
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-DivePDT.csv

This spreadsheet is generated if the decoded data contain Deepest-Dive Temperature Depth profiles. These temperature profiles are created from data collected during the deepest dive within the histogram summary period.

Column	Description
BadTherm	1 if the tag reported a broken external thermistor during the summary period, 0 if the tag did not report a broken thermistor, and blank if the tag does not report the thermistor condition.
Depth	The depth at which the associated temperature reading was measured. Associated with the maximum number of non-zero bins received in any of the current HistType kind of messages.
TemperatureDelta	The temperature measured at Depth and encoded as a delta from the base temperature. The actual temperature is this value added to the base temperature.
Temperature	The temperature measured at Depth. It is the base temperature plus the Temperature Delta. The tag does not transmit the base temperature and therefore must be obtained from the tag report file. If the setting is not known, this column will be blank.

-FastlocGPS.csv

This spreadsheet is generated if the decoded data contain Fast-GPS snapshot information. Each row in the spreadsheet is an individual snapshot. **Data needs to be processed using Wildlife Computers GPS Solver on the Portal before locations will be shown in this spreadsheet.**

Column	Description
Name	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
Day	The date of the GPS snapshot.
Time	The time of the GPS snapshot.

Count	Total number of times this particular data item was received, verified, and successfully decoded.
Time Offset	Calculated difference between the tag's clock and the time reported by Argos. Adding this value to the value in the 'RTC' column should yield the value in the 'Received' column.
LocNumber	The tag increments a counter each time it successfully gathers satellite data. This is the value of that counter when this row's snapshot was taken.
Failures	The tag increments a counter each time it attempts to gather satellite data but fails to see enough satellites. This is the current value of that counter when the current snapshot was taken.
Hauled Out	Contains '1' if the tag was hauled-out at the time of the snapshot, '0' if not hauled out, and is blank if the tag does not support haul-out or if the original message did not contain haulout information.
Satellites	The number of GPS satellites contained in a snapshot. A minimum of 4 satellites is required to successfully generate a location solution. More satellites tend to have less uncertainty.
InitLat	Latitude used as the seed to solve the location in this record.
InitLon	Longitude used as the seed to solve the location in this record.
InitTime	Time used as the seed time to solve the location in this record.
InitType	Source of the seed (Init) location.
Latitude	The latitude component of the position of this snapshot. This field is empty when the data is decoded from an instrument; it is filled in when a location solution is generated.
Longitude	The longitude component of the position of this snapshot. This field is empty when the data is decoded from an instrument; it is filled in when a location solution is generated.
Height	The altitude of the position in meters above the WCS84 Geoid model (not sea level). This value has a large margin of error and should probably be ignored.
Bad Sats	The number of bad satellites which were discarded when arriving at the solution. Satellites may be discarded because the combination of the observation time and the physical position of the satellite are incompatible (i.e. the satellite should have been on the other side of the earth). Or the satellite could have been out of service. If many rows of the spreadsheet have non-zero 'Bad Sats' values, the timestamp of the observation or the starting location of the snapshot may be in error.

Residual	A quality indicator for a GPS position. Large residuals or large time errors relative to other locations can indicate a high degree of uncertainty in the location.
Time Error	An estimate of the error of the clock on board the instrument after the value in the Time Offset column has been applied. Solver uses the snapshot time and downloaded RINEX files to determine the satellite geometry when the snapshot was taken. Presuming the Date and Time Offset inputs are correct, this value should remain reasonably small and smoothly change over time.
TWIC Power	An optional value indicating how many mAH have been consumed by the instrument's Argos transmitter since the unit had a battery replacement.
Fastloc Power	An optional value indicating how many mAH have been consumed by the instrument's Fast-GPS circuitry since the unit had a battery replacement.
Noise	Snapshot data used by Solver.
Range Bits	Snapshot data used by Solver.
ID	Snapshot data used by Solver.
Range	Snapshot data used by Solver.
Signal	Snapshot data used by Solver.
Doppler	Snapshot data used by Solver.
CNR	Snapshot data used by Solver.

-X-GPE3.csv

This file is produced if light level data has been processed in GPE3 where X is the number of the GPE3 run.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.

PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Date	The date and time of the most likely location.
Most Likely Latitude	The latitude portion of the most likely location at that time represented as decimal latitude.
Most Likely Longitude	The longitude portion of the most likely location at that time represented as decimal longitude.
Observation Type	The observation type that was made at that time if applicable. The model is capable of producing output for times when there are no observations.
Observed SST	The observed SST reading if the observation type is SST.
Satellite SST	The reference SST reading at the most likely location is also reported.
Observed Depth	The observed depth at the time of the SST reading if the observation type is SST.
Bathymetry Depth	The bathymetry depth is reported at the location of maximum likelihood.
Observation LL (MSS)	If the observation type is light level (i.e. Dawn or Dusk), then the observed Mean Sum of Squares (MSS) is reported for that twilight. The MSS is a measure of how well the observed twilight matches a theoretical twilight. A low MSS represents a high-quality observation. The deepest depth experienced during that twilight is also reported.
Observation Score	The model score is reported at each observation. A high observation score means that the location suggested by the observation matches closely with the modeled location.
Sunrise	Theoretical time of geometric sunrise presented in UTC for the most likely location.
Sunset	Theoretical time of geometric sunset presented in UTC for the most likely location.

-HaulOut.csv

Some tags allow the transmission of haul out information through Argos. Each line in this spreadsheet describes one haulout.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.

PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
ID	Every haul out is assigned a numeric identifier by the tag. SPLASH10 tags send the least significant bits of this identifier through Argos to help you detect missing haulout information; this number should cycle from 0-15 and repeat.
Start	The tag's real-time clock value after the first dry minute of the start of the haulout was detected.
End	The tag's real-time clock value after the first wet minute ending the haulout was detected.
Duration	The length in minutes of the haulout, to a maximum of approximately 2 days and 18 hours.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.

-Histos.csv

This spreadsheet accumulates histogram data including Time at Depth (TAD), Time at Temperature (TAT), Percent Timelines, and Twenty Minute Timelines.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.

Instr	Wildlife Computers instrument family.
HistType	The type of histogram data in the current row with values such as TAT, TAD, Percent, TwentyMinTimeline, DiveDuration, DiveMaxDepth.
Date	The date and time the histogram period started.
Time Offset	Calculated difference between the tag's clock and the time reported by Argos.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
BadTherm	1 if the tag reported a broken external thermistor during the summary period, 0 if the tag did not report a broken thermistor, and blank if the tag does not report the thermistor condition.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
NumBins	The number of non-zero bins received in any of the current HistType messages.
Sum	The sum total of the data in each bin on the current row.
Bin1...	Tag data for the corresponding histogram bin.

-Labels.csv

This is a list of the user created labels that were applied to this tag in the Data Portal.

-Lightloc.csv

This spreadsheet consolidates the data used by Wildlife Computers GPE software.

Column	Description
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Index	Counter that increments each time a light curve is identified.
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1, 0.5, and 1.0 m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.
Day	The day the light curve took place.
Time	The time the light curve took place.
Time Offset	Calculated difference between the tag's clock and the time reported by Argos.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
InitLocQ	The location quality of InitLat and InitLon.
InitTime	The time when InitLat and InitLon were experienced by the tag.
InitLat	Most appropriate available latitude within 24 hours of 'Day' and 'Time.'
InitLon	Most appropriate available longitude within 24 hours of 'Day' and 'Time.'
Deepest	The deepest depth the tag was at during the light curve.
SSTTime	Time of day when the sea surface temperature was sampled.

SSTDepth	Depth, in meters, when the temperature was sampled. If greater than 10 m, the value is not considered a reliable surface measurement and is not used in GPE3.
SSTTemp	Temperature in degrees C of the sea surface.
Type	The type of information contained in this row (Dawn curve, Dusk Curve, Begin = deployment start date, End = Deployment end date).
Delta	The number of seconds between individual light level samples in the following list.
MinDepth	The minimum depth in meters for any of the light level samples. The resolution is 32 meters. The midpoint end of the range is reported.
MaxDepth	The maximum depth in meters for any of the light level samples. The resolution is 32 meters. The midpoint of the range is reported.
AttenShallow	The shallow light attenuation constant calculated by the tag and used for this dawn or dusk.
AttenDeep	The deep light attenuation constant calculated by the tag and used for this dawn or dusk.
TravelMetric	A measure of the vertical distance traveled since previous dawn or dusk. The value is log2 of the sum of absolute values of all depth deltas.
FoundPrevious	If the tagware detected the previous dawn or dusk, this value is set to 1. If the previous dawn or dusk could not be detected, this value is set to 0.
K	A value that helps insure the integrity of the light level values.
LL0....	The light level samples.
Depth0....	The depth reading for each corresponding light reading.

-Locations.csv

This spreadsheet consolidates all the Argos locations.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
Date	The date and time of the location.
Type	Type of location: Argos.
Quality	Class of location generated by Argos for the satellite pass containing this message.
Latitude	Latitude portion of the location.
Longitude	Longitude portion of the location.
Error radius	If the position is best represented as a circle, this field gives the radius of that circle in meters.
Error Semi-major axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-major elliptical axis (one half of the major axis).
Error Semi-minor axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-minor elliptical axis (one half of the minor axis).
Error Ellipse orientation	The angle in degrees of the ellipse from true north, proceeding clockwise (0 to 360). A blank field represents 0 degrees.
Offset	This field is non-zero if the circle or ellipse are not centered on the (Latitude, Longitude) values on this row. "Offset" gives the distance in meters from (Latitude, Longitude) to the center of the ellipse.
Offset orientation	If the "Offset" field is non-zero, this field is the angle in degrees from (Latitude, Longitude) to the center of the ellipse. Zero degrees is true north; a blank field represents 0 degrees.
GPE MSD	Historical. No longer applicable.

GPE U	Historical. No longer applicable.
Comment	Optional text field.

-X-Locations.csv

This spreadsheet consolidates Argos and Fastloc GPS locations. The 'X' represents the run number selected in GPS Solver on the Portal.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
Date	The date and time of the location.
Type	The type of location: Argos or GPS.
Quality	Class of location generated by Argos for the satellite pass containing this message.
Latitude	Latitude portion of the location.
Longitude	Longitude portion of the location.
Error radius	If the position is best represented as a circle, this field gives the radius of that circle in meters.
Error Semi-major axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-major elliptical axis (one half of the major axis).
Error Semi-minor axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-minor elliptical axis (one half of the minor axis).
Error Ellipse orientation	The angle in degrees of the ellipse from true north, proceeding clockwise (0 to 360). A blank field represents 0 degrees.

Offset	This field is non-zero if the circle or ellipse are not centered on the (Latitude, Longitude) values on this row. "Offset" gives the distance in meters from (Latitude, Longitude) to the center of the ellipse.
Offset orientation	If the "Offset" field is non-zero, this field is the angle in degrees from (Latitude, Longitude) to the center of the ellipse. Zero degrees is true north; a blank field represents 0 degrees.
GPE MSD	Historical. No longer applicable.
GPE U	Historical. No longer applicable.
Comment	Optional text field.

-MinMaxDepth.csv

This file is produced as a result of examining all sources of data received from the tag, and contains min and max depths experienced by the tag. To avoid having this file grow to a huge size, readings are approximately 6 hours apart or at the interval of the data summary bins, whichever is longer.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Instr	Wildlife Computers instrument family.
Date	The date that the data pertains to.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.

MinDepth	The minimum depth during the period.
MinAccuracy	The accuracy of the MinDepth. For example, "4" means the depth is accurate to within +/- 4 meters.
MinSource	The data product that the depth was pulled from.
MaxDepth	The maximum depth during the period.
MaxAccuracy	The accuracy of the MaxDepth. For example, "4" means the depth is accurate to within +/- 4 meters.
MaxSource	The data product that the depth was pulled from.

-MixLayer.csv

The -MixLayer.csv file is created if Mixed Layer messages (MLT) are enabled on the tag. It contains information about the mixed layer including the percent time spent in and out of the layer.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.
Date	The time and date of the beginning of the mixing layer summary period.

Hours	The length in hours of the summary period.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
PerCentMLTime	The amount of time the tag spends in the mixed layer as a percentage of the summary period.
MLTave	The average of all temperature readings considered to be in the mixed layer for the summary period.
MLTmin	The minimum of all temperature readings considered to be in the mixed layer for the summary period.
MLTmax	The maximum of all temperature readings considered to be in the mixed layer for the summary period.
MLDExtreme	The deepest observed depth reading that was considered to be in the mixed layer for the summary period.
SSTAve	The average of all surface temperature readings in the summary period. A temperature is considered a surface temperature if the depth is no more than 5 meters.
SSTmin	The minimum surface temperature reading in the summary period.
SSTmax	The maximum surface temperature reading in the summary period.
TempMin	The minimum observed temperature in the summary period.
DepthMin	The minimum observed depth reading in the summary period.
DepthMax	The maximum observed depth reading in the summary period.

-PDTs.csv

A PDT is a **P**rofile of **D**epth and **T**emperature. If suitably configured, several Wildlife Computers tags measure external temperature as a function of depth. At the end of each summarization period, the tag examines the collected temperature and depth readings and constructs a message containing a subset of the sampled values. This spreadsheet contains those readings.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.
Date	The time and date of the beginning of the PDT summary period.
Time Offset	Calculated difference between the tag's clock and the time reported by Argos.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
BadTherm	1 if the tag reported a broken external thermistor during the summary period, 0 if the tag did not report a broken thermistor, and blank if the tag does not report the thermistor condition.

NumBins	Number of tuples of PDT available.
Partial	This value indicates whether this PDT contains the full set of data for the summary period. Blank = the entire data set was received and decoded. 1 = Only the shallow part was received and decoded. 2 = Only the deep part was received and decoded.
Depth1	The depth at which a series of readings were taken.
MinTemp1	Minimum temp observed at corresponding depth.
MaxTemp1	Maximum temp observed at corresponding depth.
%Ox1	Percent Oxygen at the corresponding depth.
Discont1	This represents whether or not there was a discontinuity at this depth. 1 = discontinuity. 0 = no discontinuity.

-RawArgos.csv

The RawArgos.csv includes all undecoded messages received from Argos, including satellite pass information.

Column	Description
Prog	The Argos Program number that the PTT ID belongs to.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Len	Length of the message (number of bytes).
Satellite	Satellite name.
Class	Class of location generated by Argos for the satellite pass containing this message.
Pass	This counter increments by 1 for each satellite pass that receives a message from the tag.

PassDate	The date of the satellite pass.
PassTime	The time of the satellite pass.
Latitude	Latitude calculated by Argos for the satellite pass of interest.
Longitude	Longitude calculated by Argos for the satellite pass of interest.
Comment	An optional text field.
Frequency	Calculated frequency of the transmitter.
Power	The best received signal strength (dB) during the satellite.
IQ	Argos-supplied value which gives transmitter frequency information.
Dups	The number of times this message was received.
MsgDate	The date that the message was received by Argos.
MsgTime	The time that the message was received by Argos.
Latitude2	Argos DI messages contain a second latitude value, since their location algorithm can generate two possible positions. This is the second latitude value.
Longitude2	Argos DI messages contain a second longitude value, since their location algorithm can generate two possible positions. This is the second longitude value.
Duration	Duration of the satellite pass.
Error radius	If the position is best represented as a circle, this field gives the radius of that circle in meters.
Error Semi-major axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-major elliptical axis (one half of the major axis).

Error Semi-minor axis	If the estimated position error is best expressed as an ellipse, this field gives the length in meters of the semi-minor elliptical axis (one half of the minor axis).
Error Ellipse orientation	The angle in degrees of the ellipse from true north, proceeding clockwise (0 to 360). A blank field represents 0 degrees.
Offset	This field is non-zero if the circle or ellipse are not centered on the (Latitude, Longitude) values on this row. "Offset" gives the distance in meters from (Latitude, Longitude) to the center of the ellipse.
Offset orientation	If the "Offset" field is non-zero, this field is the angle in degrees from (Latitude, Longitude) to the center of the ellipse. Zero degrees is true north; a blank field represents 0 degrees.
SENSOR #01....	Raw message data.

-RTC.csv

Many tags incorporate an on-board clock to keep track of the current date and time. All clocks have some amount of drift depending on many factors such as initial calibration, reference frequency technology, ambient temperature, etc. The Data Portal maintains an internal database of tag time vs. real-world time and makes timestamp corrections when necessary. This spreadsheet details the Data Portal's internal correction database.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
CorrectionType	<p>The kind of clock correction represented by this entry.</p> <p>Weak -This timestamp is not completely trusted. It was assumed or inferred. For instance, the clock is assumed correct at the beginning of a deployment, so that entry would be marked as "Weak." Another kind of "Weak" correction might be a clock value transmitted by the tag, but without a corresponding CRC or checksum.</p> <p>Strong – The clock correction came from a trustworthy source. The tag's transmitted time was accompanied in the transmission by a CRC or other means of validating the transmitted time value.</p>

	UserSupplied – The times were entered by the user (in the Portal) and are assumed correct.
TagDate	Date on the tag.
TagTime	Time on the tag.
RealDate	Actual real-world date.
RealTime	Actual real-world time.

-Series.csv

Subsampled archive data that is sent through Argos. While potentially consuming significant bandwidth, detailed readings are sometimes critical. If the tag sends such time series data, the resulting decoded values appear in this spreadsheet.

To reduce the bandwidth required to transmit these messages, special message encoding techniques are employed by the tag to pack more information into each Argos message. While this reduces the number of transmitted messages, the tradeoff is a reduction in the accuracy of the decoded values. The 'DRange' and 'TRange' columns characterize the potential error contained in the 'Depth' and 'Temperature' columns respectively.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.

Day	The day the time series data pertains to.
Time	The time the time series data pertains to.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
Depth	Sample depth in meters.
DRange	± error band in meters for 'Depth.'
Temperature	Sample temperature in meters.
TRange	± error band in degrees C for 'Temperature.'

-SeriesRange.csv

This file is a companion file to the Series.csv spreadsheet. It consolidates the minimum and maximum values observed for depth and temperature. The tag is most likely sampling its sensors at a higher rate than what is transmitted in the Time Series messages; the values found in this file may have been observed during one of those higher rate samples. Therefore, it is possible that any min or max value found in this file *might not be present* in the Series.csv file.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.

Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
Start	Start of the time period for which these ranges are valid.
End	End of the time period for which these ranges are valid.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
MinDepth	The minimum depth observed during the period.
MinDepthAccuracy	The accuracy of 'MinDepth.'
MaxDepth	The maximum depth observed during the period.
MaxDepthAccuracy	The accuracy of 'MaxDepth.'
MinTemp	The minimum temperature observed during the period.
MinTempAccuracy	The accuracy of 'MinTemp.'
MaxTemp	The maximum temperature observed during the period.
MaxTempAccuracy	The accuracy of 'MaxTemp.'

-SST.csv

This spreadsheet is produced as a result of examining all sources of data received from the tag and contains a set of readings qualifying as possible Sea Surface Temperatures. A temperature reading within 5 meters of the surface is considered a valid SST. To avoid having this file grow to a huge size, readings are spaced out approximately 90 minutes apart.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Instr	Wildlife Computers instrument family.
Date	The date and time of the start of the summary period.
LocationQuality	Historical. No longer applicable.
Latitude	Historical. No longer applicable.
Longitude	Historical. No longer applicable.
Depth	The depth at which the temperature was measured.
Temperature	The measured temperature.

Source	<p>Where the Depth and Temperature measurements came from. Knowing the source of the SST data is very important in understanding the meaning of the associated timestamp and the depth.</p> <ol style="list-style-type: none"> 1) The MixLayer SST data is an estimate of SST integrated over the histogram summary period. So, if you are getting only one MixLayer message per day then the data is a daily summary and the timestamp marks the beginning of that summary period. 2) The TimeSeries SST data are very useful because they are individual discrete samples of temperature each marked with an absolute timestamp. The trouble with TS SST data is that the corresponding depth value can have a varying resolution depending on how the associated Depth was encoded. 3) The SST data contained in LightLoc messages are also discrete temperature readings, most likely sampled during the night, and the associated depths are reported at full resolution.
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-Status.csv

Every Wildlife Computers tag sends regular status messages in addition to transmitting its experimental information. Status messages contain information which indicate the health and overall state of the tag. Not all tags send the same information, so some columns will be blank for specific tags. For instance, the MiniPAT does not support haul out so the 'HaulOut' column will always be empty for a MiniPAT.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
DepthSensor	Indicates the resolution of the depth sensor. Typical values are 0.1m, 0.5, and 1.0m. The value in this column is blank if the gain was unavailable - in this case a 0.5-meter resolution is assumed.
Instr	Wildlife Computers instrument family.
SW	The version of software on the tag.
RTC	Value of the tag's onboard clock.

Received	Time and date of message reception as reported by Argos.
Time Offset	Calculated difference between the tag's clock and the time reported by Argos. Adding this value to the value in the 'RTC' column should yield the value in the 'Received' column.
LocationQuality	Location class assigned by Argos for the computed position of the tag when this status message was received by Argos.
Latitude	Latitude of the position of the tag generated by Argos when this status message was received by Argos.
Longitude	Longitude of the position of the tag generated by Argos when this status message was received by Argos.
Type	Some tags send strongly validated status messages, others do not. If this message was strongly validated, the field contains a value such as 'CRC' or 'CKSUM'. If blank, you may want to look for repeated messages to confirm the data is accurate.
HauledOut	Contains '1' if the tag was hauled out at the time of the transmission, '0' if not hauled out, and is blank if the tag does not support haulout or if the original message did not contain haulout information.
BrokenThermistor	Some tags have an external thermistor which may be subject to damage. This field is '1' if the tag has detected a broken thermistor, '0' if the thermistor is not broken, and blank if the tag does not transmit this information.
BrokenLink	If the tag supports automatic release from the animal, and if the tag has the capability to determine if the release mechanism is currently intact, this field will contain a '0' if the mechanism is intact and a '1' if the mechanism is broken or released.
Transmits	The number of Argos transmissions generated by the tag. NOT the number of messages received by Argos.
BattVoltage	Battery voltage measured by the tag during the transmission of this status message.
TransmitVoltage	Transmitter's Power Amp supply voltage. Used for diagnostics by Wildlife Computers.
TransmitCurrent	Transmitter's Power Amp supply current. Used for diagnostics by Wildlife Computers.
Temperature	Temperature measured by the tag just prior to this transmission.
Depth	Depth sensor reading made just prior to transmission. Since the tag must be at the surface to transmit, this value should be close to zero and therefore indicates any drift in the sensor. The ZeroDepthOffset has not been applied to this value.
MaxDepth	Maximum depth measured by the tag during some previous period (usually the previous day, but can vary depending on tag type).

ZeroDepthOffset	The amount of offset that the tag is currently applying to the Depth sensor readings if the Zero Offset Correction feature is enabled on the tag. The feature is working correctly if $0 \text{ meters} = \text{Depth} + \text{ZeroDepthOffset} * \text{Resolution}$ where Depth is the uncorrected value reported in this status message.
LightLevel	Light level measured by the tag just prior to this transmission.
NoDawnDusk	The number of days during the deployment for which no dawn or dusk curve was found. If present, the count includes only days prior to pop-off.
ReleaseType	<p>For pop-up tags, this is the most likely reason the tag released from the animal. Not all reasons are possible for all tags; other than blank, the possible values are:</p> <p>Pin Broke - the tag sensed the release pin was broken and the tag found itself floating on the surface for an extended period of time.</p> <p>Floater - the tag's configured conditional release parameters were satisfied. Furthermore, the tag was configured to release only at the surface, or the tag was dry for the majority of the time during which the conditional release criteria was satisfied.</p> <p>Battery Low - the tag's battery voltage dropped to a level that could not sustain continued deployment.</p> <p>Scheduled - the tag released on the scheduled date.</p> <p>Interval - the tag released after the programmed number of days.</p> <p>Too Deep - the tag detected it was getting dangerously close to its maximum structural depth.</p> <p>Premature - the tag's configurable conditional release parameters were satisfied.</p>
ReleaseTime	Time recorded by the tag's on-board clock when the tag initiated the release mechanism.
InitiallyBroken	1' if the release link was unexpectedly broken when release was initiated; '0' if not broken, and blank if unknown.
BurnMinutes	Number of minutes the release link was energized before the tag detected the link had burned through.
ReleaseDepth	Depth sensor reading when release was initiated.

FastGPSPower	Number of mAH consumed to date by the Fastloc GPS board.
TWICPower	Number of mAH consumed to date by the Argos transmitter.
PowerLimit	Deployment may stop if consumed mAHrs exceeds this value.
WetDry	The wet/dry sensor reading at the time of this status message.
MinWetDry	The minimum wet/dry sensor value observed during the previous day.
MaxWetDry	The maximum wet/dry sensor value observed during the previous day.
WetDryThreshold	The current wet/dry sensor threshold value. Wet/dry sensor values above this value indicate the tag is dry. Sensor values less than this value indicate the tag is wet.
StatusWord	This low-level diagnostic work is sent to illuminate the tag's internal state. This is used for diagnostics at Wildlife Computers.
TransmitPower	Some tags have variable power transmitters. This field indicates the tag's current transmitter power setting.
Resets	The number of resets the tag has experienced during deployment. It should be blank or zero.
PreReleaseTilt	The measured tilt in degrees for one hour prior to release.
PreReleaseTiltSd	The standard deviation of the PreReleaseTilt measurements.
PreReleaseTiltCount	The number of samples used to calculate pre-release tilt.
XmitQueue	How many data messages are waiting to be sent.
FastGPSLocNumber	The tag increments a counter every time a FastLoc snapshot is attempted. Success and failures are included in this count. This is the value of that counter at the time of transmission.
FastGPSFailures	The tag increments a counter each time it attempts to gather satellite data but fails to see enough satellites. This is the value of that counter at the time of transmission.

BattDiscon

If a tag has a dangerous goods switch, this field indicates whether the screw has been inserted. '1' if disconnected (screw not inserted), '0' if connected (screw inserted), and blank if the tag does not send this info.

-STP.csv

This spreadsheet contains stomach temperature data.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Source	Indicates where the data came from, or how it was generated.
Instr	Wildlife Computers instrument family.
Day	The date of the STP data.
Time	The time of the STP data.
Count	Total number of times this particular data item was received, verified, and successfully decoded.
Type	The kind of STP data. Values include: NoPill, High Resolution, Low Resolution, Feeding starts, Feeding Initial STP, Feeding Second STP, Feeding Minimum STP, Feeding Deepest Depth, and Feeding Ends.
STP	Stomach Temperature as reported by the stomach temperature pill.
Depth	The depth at which the element occurred.
Ext Temp	The external temperature at which 'Type' occurred.
Descending	A very crude and probably unreliable indicator which is '1' if the animal was descending and '0' if the animal was not descending.

-Summary.csv

Each line in this spreadsheet contains information about one tag and gives general, high-level information about the tag's deployment.

Column	Description
DeployID	Friendly name given to the tag by the user. If no specific friendly name is given, this is the PTT ID.
PTT	Argos Platform Transmitter Terminal identifier, which is a unique number identifying your instrument.
Instr	Wildlife Computers instrument family.
SW	The tagware version on the tag, if available.
PercentDecoded	The percentage of successfully decoded messages.
Passes	The number of Argos satellite passes that detected the tag's transmissions during the deployment.
PercentArgosLoc	The percentage of Argos satellite passes that resulted in a calculated Argos location. Multiple messages must be received on a pass for Argos to calculate a location.
MsgPerPass	The average number of received messages per satellite pass.
DS	The number of messages received from the tag including corrupt and duplicate messages.
DI	The number of diagnostic reports generated by Argos on a per satellite pass basis.
MinPower	The minimum received signal strength (dB) for all received transmissions as reported in the Diagnostic reports.
AvgPower	The average of the reported received signal strength (dB) for all transmissions as reported in the Diagnostic reports.
MaxPower	The maximum received signal strength (dB) for all received transmissions as reported in the Diagnostic reports.
MinInterval	The shortest interval between received Argos transmissions for the tag.

EarliestXmitTime	The time of the first received Argos transmission.
LatestXmitTime	The time of the last received Argos transmission.
XmitDays	The difference in days between LatestXmitTime and EarliestXmitTime. The number of complete days the tag has been transmitting.
EarliestDataTime	The time stamp of the first data point, including status messages. This should be close to the deployment date.
LatestDataTime	The time stamp of the last data point, excluding status messages.
DataDays	The difference in days between LatestDataTime and EarliestDataTime. The number of days for which data was received through Argos.
ReleaseDate	The date on which a pop-up tag released.
ReleaseType	The reason a pop-up tag released, if it is known.
DeployDate	The date the tag was deployed, if it is known.

Contacting Wildlife Computers

U.S. and International

Members of the Wildlife Computers technical sales and support team are located in Redmond, WA, USA, and Havelock North, New Zealand, allowing us to cover promptly a wide range of time zones.

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For Asian Clients

While we welcome your direct correspondence, we recommend that you contact our colleague, Yong Huang, for assistance. Mr. Huang understands the special purchase processes for your countries and will provide you with the best service for the best price. He also is fluent in Japanese, Chinese, and English.

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