microPAT ECD

The microPAT pop-up tag sends Empirical Cumulative Distribution (ECDs) of depth including the minimum and maximum depths encountered, as well as the depth above which (i.e., "shallower than") the animal spends 25, 50, and 75 percent of its time during fixed 6-hour summary periods.

Tags Containing This Data Product
microPAT

The microPAT also provides the maximum temperature encountered during the summary period for each ECD depth. These temperature-depth pairs result in a behaviorally driven temperature profile for each summary period.

Note: Due to limited bandwidth, the microPAT will attempt to send ECDs and temperature profiles for three out of the four 6-hour summary periods per day at random. Meaning that for a tag that performs as designed and transmits seven hundred total data messages post-release, one should expect to receive 75% of the deployment's ECD data messages. Those transmitted data products can be found in the -ECDHistos.csv (depths) and -PDTs.csv (temperatures) files upon download from the Portal.

Transmitted Data

Every transmitted data message contains one 6-hour ECD summary (with the maximum temperature encountered at each depth), paired with a light curve. The 'Start' timestamp of the message indicates the Date and Time when the 6-hour summary period began. An example of the ECD depths is below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	DeployID	Ptt	Source	Instr	Start	End	Kind	Type	MinDepth	PercentTime	MinSec	MaxSec	MaxDives	Percent_25	Percent_50	Percent_75	Percent_100	
4	236229	236229	Transmissi	UT	2/23/2023 9:00	2/23/2023 15:00	depth	observed	-1					14	15	15	16	
5	236229	236229	Transmissi	UT	2/23/2023 15:00	2/23/2023 21:00	depth	observed	-1					8	12	13	15	
6	236229	236229	Transmissi	UT	2/23/2023 21:00	2/24/2023 3:00	depth	observed	0					3	4	5	8	
7	236229	236229	Transmissi	UT	2/24/2023 3:00	2/24/2023 9:00	depth	observed	-1					2	6	10	14	
8	236229	236229	Transmissi	UT	2/24/2023 9:00	2/24/2023 15:00	depth	observed	5					11	13	14	15	
9	236229	236229	Transmissi	UT	2/24/2023 15:00	2/24/2023 21:00	depth	observed	0					14	15	15	16	
10	236229	236229	Transmissi	UT	2/25/2023 3:00	2/25/2023 9:00	depth	observed	-1					0	1	5	20	
11	236229	236229	Transmissi	UT	2/25/2023 9:00	2/25/2023 15:00	depth	observed	1					3	23	24	26	
12	236229	236229	Transmissi	UT	2/25/2023 21:00	2/26/2023 3:00	depth	observed	1					20	25	28	34	
13	236229	236229	Transmissi	UT	2/26/2023 3:00	2/26/2023 9:00	depth	observed	0					5	7	14	40	
14	236229	236229	Transmissi	UT	2/26/2023 15:00	2/26/2023 21:00	depth	observed	31					43	45	46	49	
15	236229	236229	Transmissi	UT	2/26/2023 21:00	2/27/2023 3:00	depth	observed	4					10	42	45	50	
16	236229	236229	Transmissi	UT	2/27/2023 9:00	2/27/2023 15:00	depth	observed	6					23	45	50	54	
17	236229	236229	Transmissi	UT	2/27/2023 21:00	2/28/2023 3:00	depth	observed	-1					32	40	42	46	
18	236229	236229	Transmissi	UT	2/28/2023 3:00	2/28/2023 9:00	depth	observed	0					1	11	21	41	

Special Cases

The 6-hour summary period is fixed, but you can program an offset. The offset is the number of hours after UTC 00:00 that you want your summary periods to begin. Use this to choose summary periods based on the local time of day. It is most useful when you know the animal you tag will stay close to the same longitude during the deployment and want the ECD message to synchronize to local time. We do not recommend setting an offset if your animal may migrate long distances east or west, or if their migratory behavior is unknown.
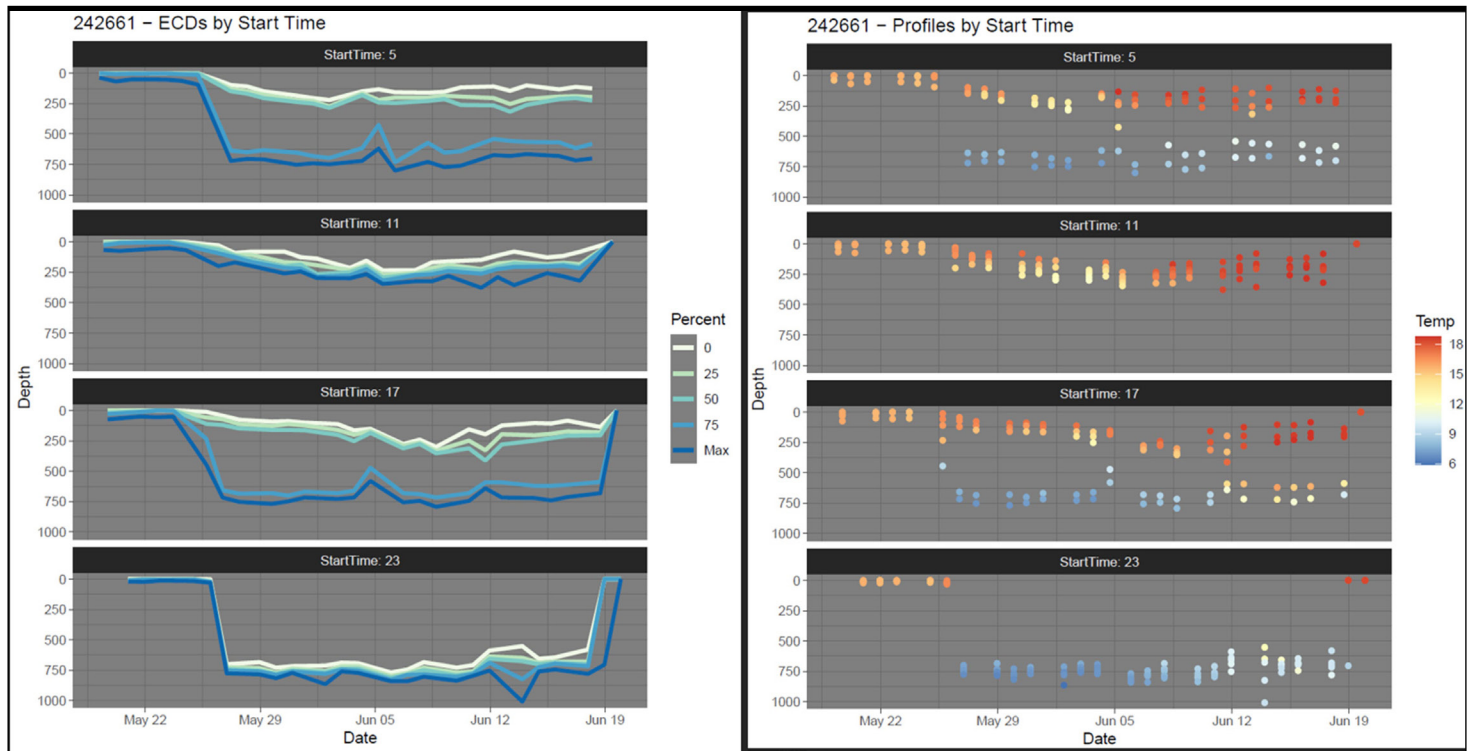

Figure 2—R- visual: ECD and temperature profiles at the ECD depths at 6-hour summary periods - for WC Beta Trial PTT 242661 – depicting distinct diurnal movement. In this example, the period starting at 23:00 is daytime, centered on local noon, and the period starting at 11:00 is nighttime.

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