

Eventlabel	CAR2013_sel_a_m_05																																																																												
Campaign	King George Island 2013																																																																												
Species	Southern elephant seal (<i>Mirounga leonina</i>)																																																																												
Age	Adult; 8 years																																																																												
Sex	Male																																																																												
Number																																																																													
Length (total)	4840 mm																																																																												
Length (standard)	4280 mm																																																																												
Length (curvatur)	4610 mm																																																																												
Girth (pectoral)	3840 mm																																																																												
Weight [estimated]	>3000																																																																												
Weight [calculated]																																																																													
Weight [measured]																																																																													
ARGOS PTT ID	102365																																																																												
Transmitter type	SMRU/Series 9000 SRDL/CTD																																																																												
Manufacturer	SMRU																																																																												
PTT Serial Number	11691																																																																												
PTT Software	Software specification for CTD_GEN_07B deployment (MEOP: Temp+Salinity share 2 tx)																																																																												
Setting protocol	<p>Transmitting via ARGOS Page transmission sequences:</p> <p style="padding-left: 40px;">Until day 1464: 0 0 1 0 0 2 3 0 0 4 5 using 1 PTT numbers</p> <p>Satellite availability (UTC):</p> <table style="margin-left: 40px;"> <tr><td>00:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>01:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>02:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>03:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>04:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>05:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>06:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>07:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>08:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>09:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>10:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>11:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>12:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>13:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>14:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>15:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>16:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>17:</td><td>--</td><td>on</td><td>--</td></tr> <tr><td>18:</td><td>--</td><td>on</td><td>--</td></tr> </table>	00:	--	on	--	01:	--	on	--	02:	--	on	--	03:	--	on	--	04:	--	on	--	05:	--	on	--	06:	--	on	--	07:	--	on	--	08:	--	on	--	09:	--	on	--	10:	--	on	--	11:	--	on	--	12:	--	on	--	13:	--	on	--	14:	--	on	--	15:	--	on	--	16:	--	on	--	17:	--	on	--	18:	--	on	--
00:	--	on	--																																																																										
01:	--	on	--																																																																										
02:	--	on	--																																																																										
03:	--	on	--																																																																										
04:	--	on	--																																																																										
05:	--	on	--																																																																										
06:	--	on	--																																																																										
07:	--	on	--																																																																										
08:	--	on	--																																																																										
09:	--	on	--																																																																										
10:	--	on	--																																																																										
11:	--	on	--																																																																										
12:	--	on	--																																																																										
13:	--	on	--																																																																										
14:	--	on	--																																																																										
15:	--	on	--																																																																										
16:	--	on	--																																																																										
17:	--	on	--																																																																										
18:	--	on	--																																																																										

19: -- on --
20: -- on --
21: -- on --
22: -- on --
23: -- on --

Transmission targets:

56000 transmissions after 365 days

In Haulouts: ON (one tx every 1 min 20 secs) for first 5 hours
then cycling OFF for 6 hours, ON for 1 hour

Check sensors every 4 secs

When near surface (shallower than 10m), check wet/dry every 1 sec

Consider wet/dry sensor failed if wet for 7 days or dry for 99 days

Dives start when wet and below 6m for 8 secs

and end when above 6m for 0, or dry at any time

No separation of 'Deep' dives

A cruise begins if there has been no dive for 9 mins

A haulout begins when dry for 10 mins

and ends when wet for 40 secs

Dive shape (normal dives):

4 points per dive using broken-stick algorithm

Dive shape (deep dives):

none

CTD upcasts: max 2000 dbar up to 6 dbar in 2 dbar bins.

17 cut points per profile

Send the deepest 1 upcasts in each 6-hour period.

Minimum depth to trigger collection of cast:

1000m in hour 1

600m in hour 2

300m in hour 3

100m in hour 4

50m in hour 5

25m in hour 6

or 20% greater than current maximum.

Sample CTD sensor every 1 seconds.

Temperature: Collected, Stored. Valid range: -2.5 to 30.2 degC

Conductivity: Collected, Not stored.

Salinity: Calculated, Stored. Valid range: 28.9 to 37.1

No GPS data

TRANSMISSION BUFFERS (in RAM):

Dive in groups of 3 (6.25 days @ 10mins/dive): 300 = 1200 bytes

No 'deep' dives

Haulout: 30 = 120 bytes
6-hour summaries in groups of 3 (7.5 days): 10 = 40 bytes
No berniegrams
No timelines
Cruise: 30 = 120 bytes
No diving periods
No spot depths
No emergence records
No Duration histograms
No Max depth histograms
CTD casts (7.5 days): 30 = 120 bytes
No GPS fixes

TOTAL 1600 bytes (of about 21000 available)

MAIN BUFFERS (in 6.2 Mb Flash):
Dive in groups of 3 (416.667 days @ 10mins/dive):
20000 x 100 bytes = 2000000 bytes
No 'deep' dives
Haulout: 3000 x 16 bytes = 48000 bytes
6-hour summaries in groups of 3 (450 days): 600 x 68 bytes = 40800 bytes
No berniegrams
No timelines
Cruise: 3000 x 16 bytes = 48000 bytes
No diving periods
No spot depths
No emergence records
No Duration histograms
No Max depth histograms
CTD casts (500 days): 2000 x 164 bytes = 328000 bytes
No GPS fixes

TOTAL 2407 kb (from 6333 kb available)

PAGE CONTENTS (256 bits - 9 overhead):

PAGE 0:

PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER
-----[3 bits: 8 - 10]

DIAGNOSTICS in format 0:

TX number: wraparound 11 bits in units of
32 (range: 0 to 65504)
-----[11 bits: 11 - 21]

DIVE group in format 0:
Normal dives transmitted in groups of 3
Time of start of last dive: max 5 days 12
hours @ 30 secs= 15840

```

tx as raw 14 bits in units of 1
(range: 0 to 16383 )
(recommended sell-by 5 days 11 hours)
Sell-by range: 5 days
Number of records: raw 2 bits in units of 1
(range: 0 to 3 )
Reason for end: -- not transmitted --
Group number: wraparound 8 bits in units of
1 (range: 0 to 255 )
Max depth: -- not transmitted --
Dive duration: odlog 1/6 in units of 30 s
(range: 0 to 5715 s)
Mean speed: -- not transmitted --
Profile data (4 depths/times, 0
speeds):
Depth profile: odlog 2/6 in units
of 25 dm (range: 0 to 23887.5 dm)
Profile times: raw 5 bits in units
of 32.2581 permille (range: 0 to 1000 permille)
Speed profile: -- not transmitted
--
Residual: raw 2 bits in units of 60
(range: 0 to 180 )
Calculation time: -- not
transmitted --
Surface duration: odlog 2/4 in units of 2.5
s (range: 0 to 588.75 s)
cf. cruise starts after 9 mins (540
secs)
Dive area: -- not transmitted --
-----[225 bits: 22 - 246]

Available bits used exactly
=== End of page 0 ===

PAGE 1:
PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER
-----[3 bits: 8 - 10]

DIAGNOSTICS in format 1:

Max depth ever: odlog 1/4 in units of 500
dm (range: 0 to 23250 dm)
-----[5 bits: 11 - 15]

CRUISE group in format 0:
Number of records: raw 1 bits in units of 1
(range: 0 to 1 )
Cruise number: wraparound 4 bits in units
of 1 (range: 0 to 15 )
Start time: -- not transmitted --
End time: max 5 days 12 hours @ 2 mins=
3960

tx as raw 12 bits in units of 1
(range: 0 to 4095 )
(recommended sell-by 5 days 11 hours)
Sell-by range: 5 days 4 hours

```

```

Duration: raw 9 bits in units of 120 s
(range: 0 to 61320 s)
      cf. Max duration is 16 hours
Speed: -- not transmitted --
Reason for end: -- not transmitted --
-----[26 bits: 16 - 41]

HAULOUT in format 0:
Number of records: raw 1 bits in units of 1
(range: 0 to 1 )
Haulout number: wraparound 3 bits in units
of 1 (range: 0 to 7 )
Start time: -- not transmitted --
End time: max 5 days 12 hours @ 2 mins=
3960
      tx as raw 12 bits in units of 1
(range: 0 to 4095 )
      (recommended sell-by 5 days 11 hours)
Sell-by range: 5 days 4 hours
Duration: raw 9 bits in units of 120 s
(range: 0 to 61320 s)
      cf. Max duration is 16 hours
Reason for end: -- not transmitted --
Contiguous: -- not transmitted --
-----[25 bits: 42 - 66]

SUMMARY group in format 0:
Transmitted in groups of 3
Record could be in buffer for 7 days 12 hours
End time: max 7 days @ 6 hours= 28
      tx as raw 5 bits in units of 1
(range: 0 to 31 )
      (recommended sell-by 6 days 17 hours)
Sell-by range: 7 days
Number of records: raw 1 bits in units of 1
(range: 0 to 1 )
Cruising time: -- not transmitted --
Haulout time: raw 6 bits in units of 15.873
permille (range: 0 to 1000 permille)
Dive time: raw 6 bits in units of 15.873
permille (range: 0 to 1000 permille)
Deep Dive time: -- not transmitted --
Normal dives:
      Avg max dive depth: odlog 2/6 in
units of 25 dm (range: 0 to 23887.5 dm)
      SD max dive depth: odlog 2/4 in
units of 50 dm (range: 0 to 11775 dm)
      Max max dive depth: odlog 2/6 in
units of 25 dm (range: 0 to 23887.5 dm)
      Avg dive duration: odlog 1/6 in
units of 30 s (range: 0 to 5715 s)
      SD dive duration: odlog 1/4 in
units of 60 s (range: 0 to 2790 s)
      Max dive duration: odlog 1/6 in
units of 30 s (range: 0 to 5715 s)
      Avg speed in dive: -- not
transmitted --
      Number of dives: odlog 1/4 in units
of 2 (range: 0 to 93 )
      Deep dives:
      Avg max dive depth: -- not

```

transmitted --
SD max dive depth: -- not
transmitted --
Max max dive depth: -- not
transmitted --
Avg dive duration: -- not
transmitted --
SD dive duration: -- not
transmitted --
Max dive duration: -- not
transmitted --
Avg speed in dive: -- not
transmitted --
Number of dives: -- not transmitted
--
Avg SST: -- not transmitted --
-----[180 bits: 67 - 246]

Available bits used exactly
=== End of page 1 ===

PAGE 2:

PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER
-----[3 bits: 8 - 10]

CTD in format 0:

End time: max 7 days @ 10 mins= 1008
tx as raw 10 bits in units of 1
(range: 0 to 1023)
(recommended sell-by 6 days 23 hours)
Sell-by range: 6 days 18 hours
CTD cast number: -- not transmitted --
Min pressure: -- not transmitted --
Max pressure: raw 10 bits in units of 2
dbar (range: 6 to 2052 dbar)
Min temperature: raw 15 bits in units of 1
(range: 2500 to 35267 = -2.5 to 30.267 °C in steps
of 0.001 °C)
Max temperature: raw 15 bits in units of 1
(range: 2500 to 35267 = -2.5 to 30.267 °C in steps
of 0.001 °C)
cf. Valid temperatures: -2.5 to 30.2
degC
Min salinity: raw 12 bits in units of 2
mPSU (range: 28900 to 37090 mPSU)
Max salinity: raw 12 bits in units of 2
mPSU (range: 28900 to 37090 mPSU)
cf. Valid salinity: 28.9 to 37.1
Number of samples: -- not transmitted --
9 profile points 0 to 8 (from total of 17
cut points):
First 8 pressures are fixed
Min pressure is fixed
Temperature: raw 10 bits in units
of 0.977517 permille (range: 0 to 1000 permille)
Temperature residual: -- not transmitted --

Salinity: raw 8 bits in units of
3.92157 permille (range: 0 to 1000 permille)
Salinity residual: -- not transmitted --
Temperature bounds : -- not transmitted --
Conductivity bounds : -- not transmitted --
Salinity bounds : -- not transmitted --
-----[236 bits: 11 - 246]

Available bits used exactly
=== End of page 2 ===

PAGE 3:

PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER
-----[3 bits: 8 - 10]

CTD in format 1:

End time: max 7 days @ 10 mins= 1008
tx as raw 10 bits in units of 1
(range: 0 to 1023)
(recommended sell-by 6 days 23 hours)

Sell-by range: 6 days 18 hours

CTD cast number: -- not transmitted --

Min pressure: -- not transmitted --

Max pressure: -- not transmitted --

Min temperature: -- not transmitted --

Max temperature: -- not transmitted --

cf. Valid temperatures: -2.5 to 30.2

degC

Min salinity: -- not transmitted --

Max salinity: -- not transmitted --

cf. Valid salinity: 28.9 to 37.1

Number of samples: -- not transmitted --

8 profile points 9 to 16 (from total of 17

cut points):

Max pressure is sent separately

7 pressure bins: raw 9 bits in units
of 1 bin (range: 0 to 511 bin)

Temperature: raw 10 bits in units
of 0.977517 permille (range: 0 to 1000 permille)

Temperature residual: raw 7 bits in units
of 1 mdegC per sample (range: 0 to 127 mdegC per
sample)

Pressure already sent

Salinity: raw 8 bits in units of
3.92157 permille (range: 0 to 1000 permille)

Salinity residual: raw 7 bits in units of 1
mPSU per sample (range: 0 to 127 mPSU per sample)

Temperature bounds : raw 2 bits in units of
1 lo/hi (range: 0 to 3 lo/hi)

Conductivity bounds : -- not transmitted --

Salinity bounds : raw 2 bits in units of 1
lo/hi (range: 0 to 3 lo/hi)

-----[235 bits: 11 - 245]

UNUSED

-----[1 bits: 246 - 246]

=== End of page 3 ===

PAGE 4:

PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER
-----[3 bits: 8 - 10]

CTD in format 2:

End time: max 3 days 6 hours @ 10 mins= 468
tx as raw 9 bits in units of 1
(range: 0 to 511)
(recommended sell-by 3 days 5 hours)

Sell-by range: 3 days

CTD cast number: -- not transmitted --

Min pressure: -- not transmitted --

Max pressure: raw 10 bits in units of 2

dbar (range: 6 to 2052 dbar)

Min temperature: raw 15 bits in units of 1
(range: 2500 to 35267 = -2.5 to 30.267 °C in steps
of 0.001 °C)

Max temperature: raw 15 bits in units of 1
(range: 2500 to 35267 = -2.5 to 30.267 °C in steps
of 0.001 °C)

cf. Valid temperatures: -2.5 to 30.2
degC

Min salinity: raw 12 bits in units of 2
mPSU (range: 28900 to 37090 mPSU)

Max salinity: raw 12 bits in units of 2
mPSU (range: 28900 to 37090 mPSU)

cf. Valid salinity: 28.9 to 37.1

Number of samples: -- not transmitted --

9 profile points 0 to 8 (from total of 17
cut points):

First 8 pressures are fixed

Min pressure is fixed

Temperature: raw 10 bits in units
of 0.977517 permille (range: 0 to 1000 permille)

Temperature residual: -- not transmitted --

Salinity: raw 8 bits in units of
3.92157 permille (range: 0 to 1000 permille)

Salinity residual: -- not transmitted --

Temperature bounds : -- not transmitted --

Conductivity bounds : -- not transmitted --

Salinity bounds : -- not transmitted --

-----[235 bits: 11 - 245]

UNUSED

-----[1 bits: 246 - 246]

=== End of page 4 ===

PAGE 5:

PTT NUMBER OVERHEAD (28-bit code)
-----[8 bits: 0 - 7]

PAGE NUMBER

-----[3 bits: 8 - 10]

DIAGNOSTICS in format 2:

Number of resets: wraparound 2 bits in
units of 1 (range: 0 to 3)

-----[2 bits: 11 - 12]

CTD in format 3:

End time: max 3 days 6 hours @ 10 mins= 468
tx as raw 9 bits in units of 1
(range: 0 to 511)

(recommended sell-by 3 days 5 hours)

Sell-by range: 3 days

CTD cast number: -- not transmitted --

Min pressure: -- not transmitted --

Max pressure: -- not transmitted --

Min temperature: -- not transmitted --

Max temperature: -- not transmitted --

cf. Valid temperatures: -2.5 to 30.2

degC

Min salinity: -- not transmitted --

Max salinity: -- not transmitted --

cf. Valid salinity: 28.9 to 37.1

Number of samples: -- not transmitted --

8 profile points 9 to 16 (from total of 17
cut points):

Max pressure is sent separately

7 pressure bins: raw 9 bits in units
of 1 bin (range: 0 to 511 bin)

Temperature: raw 10 bits in units
of 0.977517 permille (range: 0 to 1000 permille)

Temperature residual: raw 7 bits in units
of 1 mdegC per sample (range: 0 to 127 mdegC per
sample)

Pressure already sent

Salinity: raw 8 bits in units of
3.92157 permille (range: 0 to 1000 permille)

Salinity residual: raw 7 bits in units of 1
mPSU per sample (range: 0 to 127 mPSU per sample)

Temperature bounds : raw 2 bits in units of
1 lo/hi (range: 0 to 3 lo/hi)


Conductivity bounds : -- not transmitted --

Salinity bounds : raw 2 bits in units of 1
lo/hi (range: 0 to 3 lo/hi)

-----[234 bits: 13 - 246]

Available bits used exactly

=== End of page 5 ===

Deployment	
Immobilisation	http://doi.pangaea.de/10.1594/PANGAEA.833216
Comment	Seal tag: 835 ST - ST 72 ST A0816 C343 Deployment site: P5 - Refugio Elephante Prev. Deployment: none
Tag deployed	2013-11-11T19:37 -62.254 -58.653
Tag retrieved	-- //
First transmission	2013-11-11T19:54:13 -62.254 -58.653
Last transmission	2014-03-15T22:33:31 -61.986 -57.325