<table>
<thead>
<tr>
<th><strong>Eventlabel</strong></th>
<th>FIL2014_Wed_a_m_08</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Campaign</strong></td>
<td>Filchner 2014</td>
</tr>
<tr>
<td><strong>Species</strong></td>
<td>Weddell seal (<em>Leptonychotes weddellii</em>)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>Adult</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td>Female</td>
</tr>
<tr>
<td><strong>Number</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td>256 cm</td>
</tr>
<tr>
<td><strong>Girth</strong></td>
<td>194 cm</td>
</tr>
<tr>
<td><strong>Weight [estimated]</strong></td>
<td>400</td>
</tr>
<tr>
<td><strong>Weight [calculated]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Weight [measured]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ARGOS PTT ID</strong></td>
<td>13067</td>
</tr>
<tr>
<td><strong>Transmitter type</strong></td>
<td>SMRU series 9000 SRDL CTD satellite tag with 0.5 Watt WildCat RF unit, D</td>
</tr>
<tr>
<td><strong>Manufacturer</strong></td>
<td>SMRU</td>
</tr>
<tr>
<td><strong>PTT Serial Number</strong></td>
<td>12832</td>
</tr>
<tr>
<td><strong>PTT Software</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Setting protocol</strong></td>
<td>Software specification for CTD_GEN_13A deployment (Standard CTD)</td>
</tr>
<tr>
<td></td>
<td>Valid for dates in years 2013 to 2016</td>
</tr>
<tr>
<td></td>
<td>Transmitting via ARGOS</td>
</tr>
<tr>
<td></td>
<td>Argos page transmission sequences:</td>
</tr>
<tr>
<td></td>
<td>Until day 1464: 0 0 1 0 0 2 3 0 0 4 5</td>
</tr>
<tr>
<td></td>
<td>An additional diagnostics page (6) is sent every 60 transmissions</td>
</tr>
<tr>
<td></td>
<td>Argos airtest for first 7 hours:</td>
</tr>
<tr>
<td></td>
<td>Transmission interval is chosen randomly between 48 and 72 seconds</td>
</tr>
<tr>
<td><strong>Satellite availability (UTC):</strong></td>
<td></td>
</tr>
<tr>
<td>00:</td>
<td>-- on --</td>
</tr>
<tr>
<td>01:</td>
<td>-- on --</td>
</tr>
<tr>
<td>02:</td>
<td>-- on --</td>
</tr>
<tr>
<td>03:</td>
<td>-- on --</td>
</tr>
<tr>
<td>04:</td>
<td>-- on --</td>
</tr>
<tr>
<td>05:</td>
<td>-- on --</td>
</tr>
<tr>
<td>06:</td>
<td>-- on --</td>
</tr>
<tr>
<td>07:</td>
<td>-- on --</td>
</tr>
<tr>
<td>08:</td>
<td>-- on --</td>
</tr>
<tr>
<td>09:</td>
<td>-- on --</td>
</tr>
<tr>
<td>10:</td>
<td>-- on --</td>
</tr>
<tr>
<td>11:</td>
<td>-- on --</td>
</tr>
<tr>
<td>12:</td>
<td>-- on --</td>
</tr>
<tr>
<td>13:</td>
<td>-- on --</td>
</tr>
<tr>
<td>14:</td>
<td>-- on --</td>
</tr>
<tr>
<td>15:</td>
<td>-- on --</td>
</tr>
<tr>
<td>16:</td>
<td>-- on --</td>
</tr>
<tr>
<td>17:</td>
<td>-- on --</td>
</tr>
<tr>
<td>18:</td>
<td>-- on --</td>
</tr>
<tr>
<td>19:</td>
<td>-- on --</td>
</tr>
<tr>
<td>20:</td>
<td>-- on --</td>
</tr>
<tr>
<td>21:</td>
<td>-- on --</td>
</tr>
</tbody>
</table>
Transmission targets:

56000 transmissions after 365 days

Normal interval between Argos transmissions: 40 secs
In Haulouts: ON (one tx every 1 min 20 secs) for first 5 hours
then cycling OFF for 3 hours, ON for 2 hours

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 dry, or above 6m
Do not separate '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 profiles: max 2000 dbar up to 4 dbar in 2 dbar bins.
Note: these values should now be given in cbar. They have been auto-converted from dbar because
CTD_HI_RES_PRESSURE is not specified

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
Fluorescence: Not collected.
Oxygen: Not collected.
Light level: Not collected.

Send the deepest upcast in each 6-hour period.
An upcast is collected if the depth exceeds:

<table>
<thead>
<tr>
<th>Depth</th>
<th>Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000m</td>
<td>1</td>
</tr>
<tr>
<td>400m</td>
<td>2</td>
</tr>
<tr>
<td>200m</td>
<td>3</td>
</tr>
<tr>
<td>100m</td>
<td>4</td>
</tr>
<tr>
<td>50m</td>
<td>5</td>
</tr>
<tr>
<td>30m</td>
<td>6</td>
</tr>
</tbody>
</table>

In addition, a replacement upcast is collected if the depth exceeds the depth of the current upcast
by 20%.

During profile, sample CTD sensor every 2 seconds when deeper than 500 m, every 1 seconds
when shallower than 500 m.
Each profile contains 16 cut points consisting of 8 fixed points, maximum depth, minimum
depth, 6 broken-stick points
A set of fixed point is selected according to depth:

<table>
<thead>
<tr>
<th>Depth</th>
<th>Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,12,14,16,18,20,24,30</td>
<td></td>
</tr>
<tr>
<td>10,14,20,26,30,36,40,50</td>
<td></td>
</tr>
<tr>
<td>10,20,30,40,50,60,70,75</td>
<td></td>
</tr>
<tr>
<td>10,20,30,40,50,60,75,100</td>
<td></td>
</tr>
<tr>
<td>10,20,30,50,75,100,125,150</td>
<td></td>
</tr>
<tr>
<td>10,20,30,50,75,100,150,200</td>
<td></td>
</tr>
<tr>
<td>10,20,30,50,100,150,200,300</td>
<td></td>
</tr>
<tr>
<td>10,20,50,100,150,200,300,400,500</td>
<td></td>
</tr>
<tr>
<td>10,20,50,100,200,300,400,500,700</td>
<td></td>
</tr>
<tr>
<td>20,50,100,200,300,500,700,1000</td>
<td></td>
</tr>
<tr>
<td>50,100,200,300,500,700,1000,1500</td>
<td></td>
</tr>
</tbody>
</table>
No GPS data

TRANSMISSION BUFFERS (in RAM):
Dives in groups of 3 (10.4167 days @ 10mins/dive): 500 = 2000 bytes
No ‘deep’ dives
Haulouts: 50 = 200 bytes
6-hour Summaries in groups of 3 (7.5 days): 10 = 40 bytes
No Timelines
Cruises: 50 = 200 bytes
No Diving periods
No Spot depths
No Dive duration histograms
No Max depth histograms
No Depth & Temperature histograms
CTD casts (7.5 days): 30 = 120 bytes
No GPS fixes
No Spot CTD’s
No Vemco VMT’s

TOTAL 2560 bytes (of about 21000 available)

MAIN BUFFERS (in 8 or 24 Mb Flash):
Dive in groups of 3 (10.4167 days @ 10mins/dive): 500 x 104 bytes = 52000 bytes
No ‘deep’ dives
Haulout: 50 x 32 bytes = 1600 bytes
6-hour summaries in groups of 3 (7.5 days): 10 x 88 bytes = 880 bytes
No Depth & Temperature histograms
No timelines
Cruise: 50 x 32 bytes = 1600 bytes
No diving periods
No spot depths
No emergence records
No Duration histograms
No Max depth histograms
CTD casts (7.5 days): 30 x 160 bytes = 4800 bytes
No GPS fixes
No spot CTD’s
No Vemco VMT’s

TOTAL 59 kb (from 8192 kb available)

PAGE CONTENTS:

PAGE 0 (Argos, 247 bits):
PTT NUMBER OVERHEAD (28-bit code)         [8 bits: 0 - 7]

PAGE NUMBER                                [3 bits: 8 - 10]

DIAGNOSTICS in format 0:
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 ) OK
(recommended sell-by 5 days 11 hours, actual:  5 days is OK)
Number of records: raw 2 bits in units of 1 (range: 0 to 3 )
Reason for end: -- not transmitted --
Group number: -- not transmitted --
Max depth: -- not transmitted --
Dive duration: odlog 2/5 in units of 16 s (range: 0 to 7608 s)
Mean speed: -- not transmitted --
Profile data (4 depths/times, 0 speeds):
Depth profile: Lookup with 128 bins: <2.5,2.5-5,5-
7.5, 7.5-10, 10-12.5, 12.5-15,15-17.5, 17.5-20,20-22.5, 22.5-25,25-27.5,27.5-30,30-32.5,32.5-35,
35-40,40-45,45-50,50-55,55-60,60-65,65-70,70-75,75-80,80-85,85-90,90-95,95-100,100-
105,105-110,110-115,115-120,120-125,125-130,130-135,135-140,140-145,145-150,150-
155,155-160,160-165,165-170,170-175,175-180,180-185,185-190,190-195,195-200,200-
600,600-625,625-650,650-675,675-700,700-725,725-750,750-775,775-800,800-825,825-
850,850-875,875-900,900-925,925-950,950-975,975-1000,1000-1025,1025-1050,1050-
1075,1075-1100,1100-1125,1125-1150,1150-1175,1175-1200,1200-1225,1225-1250,1250-
1275,1275-1300,1300-1325,1325-1350,1350-1375,1375-1400,1400-1425,1425-1450,1450-
1475,1475-1500,1500-1550,1550-1600,1600-1650,1650-1700,1700-1750,1750-1800,1800-
1850,1850-1900,1900-1950,1950-2000,2000-2050,2050-2100,2100-2150, >2150 in units of 0.1
m (range: 0 to 2150 m)
Profile times: raw 6 bits in units of 15.873 permille
(range: 0 to 1000 permille)
Speed profile: -- not transmitted --
Residual: -- not transmitted --
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: raw 6 bits in units of 15.873 permille (range: 0 to 1000 permille)
-------------[229 bits: 18 - 246]
Available bits used exactly
=== End of page 0 ===

PAGE 1 (Argos, 247 bits):
PTT NUMBER OVERHEAD (28-bit code)
-------------[8 bits: 0 - 7]
PAGE NUMBER
-------------[3 bits: 8 - 10]
DIAGNOSTICS in format 1:
TX number: wraparound 11 bits in units of 32 (range: 0 to 65504 )
-------------[11 bits: 11 - 21]
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 ) OK
(recommended sell-by 5 days 11 hours, actual:  5 days is OK)
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: 22 - 47]
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

4 hours is OK

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: 48 - 72]

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 12 hours @ 6 hours= 30

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:
SD max dive depth: odlog 2/4 in units of 5 m (range: 0 to 1177.5 m)

Avg dive duration: odlog 2/5 in units of 16 s (range: 0 to 7608 s)
SD dive duration: odlog 1/4 in units of 60 s (range: 0 to 2790 s)
Max dive duration: odlog 2/5 in units of 16 s (range: 0 to 7608 s)

Avg surface duration: -- not transmitted --
SD surface duration: -- not transmitted --
Max surface duration: -- not transmitted --
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 surface duration: -- not transmitted --
SD surface duration: -- not transmitted --
Max surface duration: -- not transmitted --
Avg speed in dive: -- not transmitted --
Number of dives: -- not transmitted --

Avg SST: -- not transmitted --

-----------[174 bits: 73 - 246]

Available bits used exactly

=== End of page 1 ===

PAGE 2 (Argos, 247 bits):

PTT NUMBER OVERHEAD (28-bit code)

-----------[8 bits: 0 - 7]

PAGE NUMBER

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

CTD PROFILE in format 0:

End time: max 7 days @ 10 mins = 1008

tx as raw 10 bits in units of 1 (range: 0 to 1023) OK
(recommended sell-by 6 days 23 hours, actual: 6 days 18 hours is OK)

CTD cast number: -- not transmitted --

Note: these old-style dbar pressures are internally converted to cbar

Min pressure: -- not transmitted --
Max pressure: raw 10 bits in units of 2 dbar (range: 4 to 2050 dbar)
Min temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267°C in steps of 0.001°C)
Max temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267°C in steps of 0.001°C)

Min pressure: -- not transmitted --
Max pressure: raw 10 bits in units of 2 dbar (range: 4 to 2050 dbar)
Min temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267°C in steps of 0.001°C)
Max temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267°C in steps of 0.001°C)

Min salinity: raw 13 bits in units of 1 mPSU (range: 28900 to 37091 mPSU)
Max salinity: raw 13 bits in units of 1 mPSU (range: 28900 to 37091 mPSU)

Number of samples: -- not transmitted --

8 profile points 0 to 7 (from total of 16 cut points):

Temperature:

Points 0 to 7 are at fixed pressure
8 x Temperature: raw 10 bits in units of 0.977517 permille (range: 0 to 1000 permille)

Temperature residual: -- not transmitted --

Salinity:

Points 0 to 7 are at fixed pressure
8 x Salinity: raw 10 bits in units of 0.977517 permille (range: 0 to 1000 permille)

Salinity residual: -- not transmitted --

Temperature bounds: -- not transmitted --
Conductivity bounds: -- not transmitted --
Salinity bounds: -- not transmitted --
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --

-----------[236 bits: 11 - 246]

Available bits used exactly

=== End of page 2 ===
PAGE 3 (Argos, 247 bits):

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 PROFILE in format 1:

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

CTD cast number: -- not transmitted --

Note: these old-style dbar pressures are internally converted to cbar

Min pressure: -- not transmitted --
Max pressure: -- not transmitted --
Min temperature: -- not transmitted --
Max temperature: -- not transmitted --
Min salinity: -- not transmitted --
Max salinity: -- not transmitted --
Number of samples: -- not transmitted --

8 profile points 8 to 15 (from total of 16 cut points):

Temperature:
  Min pressure is sent separately
  Max pressure is sent separately
  6 broken stick pressure bins: raw 10 bits in
  units of 1 bin (range: 0 to 1023 bin)

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

Temperature residual: -- not transmitted --

Salinity:
  Pressure already transmitted
  8 x Salinity: raw 10 bits in units of 0.977517
  permille (range: 0 to 1000 permille)

Salinity residual: -- not transmitted --

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)
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --
-------------[234 bits: 13 - 246]

Available bits used exactly

=== End of page 3 ===

PAGE 4 (Argos, 247 bits):

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

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

CTD PROFILE 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 ) OK
          (recommended sell-by 3 days 5 hours, actual: 3 days
OK)

CTD cast number: -- not transmitted --

Note: these old-style dbar pressures are internally converted to cbar
Min pressure: -- not transmitted --
Max pressure: raw 10 bits in units of 2 dbar (range: 4 to 2050 dbar)
Min temperature: raw 15 bits in units of 0.001 °C (range: 2.5 to 35.267 °C in steps of 0.001 °C)
Max temperature: raw 15 bits in units of 0.001 °C (range: 2.5 to 35.267 °C in steps of 0.001 °C)
Min salinity: raw 13 bits in units of 1 mPSU (range: 28900 to 37091 mPSU)
Max salinity: raw 13 bits in units of 1 mPSU (range: 28900 to 37091 mPSU)
Number of samples: -- not transmitted --

8 profile points 0 to 7 (from total of 16 cut points):
Temperature:
Points 0 to 7 are at fixed pressure
8 x Temperature: raw 10 bits in units of
0.977517 permille (range: 0 to 1000 permille)
Temperature residual: -- not transmitted --
Salinity:
Points 0 to 7 are at fixed pressure
8 x Salinity: raw 10 bits in units of 0.977517 permille (range: 0 to 1000 permille)
Temperature bounds: -- not transmitted --
Conductivity bounds: -- not transmitted --
Salinity bounds: -- not transmitted --
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --

---[235 bits: 11 - 245]
UNUSED
---[1 bits: 246 - 246]

--- End of page 4 ---
units of 1 bin (range: 0 to 1023 bin) 8 x Temperature: raw 10 bits in units of
0.977517 permille (range: 0 to 1000 permille) Temperature residual: -- not transmitted --
Salinity: Pressure already transmitted
Salinity: raw 10 bits in units of 0.977517
permille (range: 0 to 1000 permille)
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)
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --
----------[233 bits: 13 - 245]

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

=== End of page 5 ===

PAGE 6 (special diagnostics page sent every 60 transmissions)
PTT NUMBER OVERHEAD (28-bit code)
----------[8 bits: 0 - 7]

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

TX number: wraparound 18 bits in units of 1 (range: 0 to 262143 )
Current state: raw 3 bits in units of 1 (range: 0 to 7 )
Tag time (mm:ss): raw 12 bits in units of 1 secs (range: 0 to 4095 secs)
ADC offset: raw 12 bits in units of 1 A/D units (range: 0 to 4095 A/D units)
Tag hours: wraparound 16 bits in units of 1 hours (range: 0 to 65535 hours)
Aborted tx: wraparound 18 bits in units of 1 (range: 0 to 262143 )
Wet/dry status: raw 2 bits in units of 1 (range: 0 to 3 )
Wet/dry fail count: wraparound 8 bits in units of 1 (range: 0 to 255 )
Body number: raw 16 bits in units of 1 (range: 0 to 65535 )
Max depth ever: raw 15 bits in units of 0.1 m (range: 0 to 3276.7 m)
Latest reset hour: raw 16 bits in units of 1 hours (range: 0 to 65535 hours)
Number of resets: wraparound 8 bits in units of 1 (range: 0 to 255 )
Wettest (min wet/dry): raw 8 bits in units of 1 (range: 0 to 255 )
Driest (max wet/dry): raw 8 bits in units of 1 (range: 0 to 255 )
Number of depth spikes: wraparound 16 bits in units of 1 (range: 0 to 65535 )
Number of CTD samples: wraparound 22 bits in units of 1 (range: 0 to 4.1943e+06 )
----------[198 bits: 11 - 208]

UNUSED
----------[38 bits: 209 - 246]

=== End of page 6 ===
### Deployment

<table>
<thead>
<tr>
<th>Comment</th>
<th>Seal tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment site:</td>
<td>Drescher</td>
</tr>
<tr>
<td>Previous deployment:</td>
<td></td>
</tr>
</tbody>
</table>

| Tag deployed | 2014-02-14T09:20 | -72.8381 | -19.1495 |