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<tr>
<th>Eventlabel</th>
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<tr>
<td>Campaign</td>
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<tr>
<td>Species</td>
<td>Weddell seal (<em>Leptonychotes weddellii</em>)</td>
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<tr>
<td>Age</td>
<td>Adult</td>
</tr>
<tr>
<td>Sex</td>
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<tr>
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<td></td>
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<td>Length</td>
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<tr>
<td>Girth</td>
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<td>Weight [estimated]</td>
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<tr>
<td>Weight [calculated]</td>
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<tr>
<td>Weight [measured]</td>
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</tr>
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<td>ARGOS PTT ID</td>
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<tr>
<td>Transmitter type</td>
<td>SMRU series 9000 SRDL CTD satellite tag with 0.5 Watt WildCat RF unit, D</td>
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<td>Manufacturer</td>
<td>SMRU</td>
</tr>
<tr>
<td>PTT Serial Number</td>
<td>13305</td>
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<tr>
<td>PTT Software Setting protocol</td>
<td>Software specification for CTD_HOR_15A deployment (Weddell CTD 6 month)</td>
</tr>
</tbody>
</table>

Valid for dates in years 2015 to 2018

Transmitting via ARGOS

Argos page transmission sequences:

```
Until day 1464: 0 1 2 3 0 2 3 0 4 5 4 5
An additional diagnostics page (6) is sent every 60 transmissions
```

Argos airtest for up to 17 hours:

Transmission interval is chosen randomly between 48 and 72 seconds

Satellite availability (UTC):

```
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 --
```
Transmission targets:

54000 transmissions after 200 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 3-hour period.
  An upcast is collected if the depth exceeds:
    800m in hour 1
    200m in hour 2
    30m in hour 3
  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:
  10,12,14,16,18,20,24,30
  10,14,20,26,30,36,40,50
  10,20,30,40,50,60,70,75
  10,20,30,40,50,60,75,100
  10,20,30,50,75,100,125,150
  10,20,30,50,75,100,150,200
  10,20,50,100,150,200,300,400
  10,20,50,100,150,200,300,400,500
  10,20,50,100,200,300,500,700
  20,50,100,200,300,500,700,1000
  50,100,200,300,500,700,1000,1500

No GPS data

TRANSMISSION BUFFERS (in RAM):
Dives in groups of 3 (4.1667 days @ 15 dives/hour): 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 Emergence records
No Dive duration histograms
No Max depth histograms
No Depth & Temperature histograms
CTD casts (3.75 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 24 Mb Flash):
Dive in groups of 3 (4.1667 days @ 15 dives/day): 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 (3.75 days): 30 x 168 bytes = 5040 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:

Max depth ever: 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-
360,360-370,370-380,380-390,390-400,400-425,425-450,450-475,475-500,500-525,525-550,550-
575,575-600,600-625,625-650,650-675,675-700,700-725,725-750,750-775,775-800,800-825,825-
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)
-----------[7 bits: 11 - 17]
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: olog 2/5 in units of 16 s (range: 0 to 7608 s)
Mean speed: -- not transmitted --
Profile data (4 depths/times, 0 speeds):
  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: olog 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 4 hours 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
  tx as raw 12 bits in units of 1 (range: 0 to 4095) OK
(recommended sell-by 5 days 11 hours, actual: 5 days 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
   tx as raw 5 bits in units of 1  (range: 0 to 31 ) OK
(recommended sell-by 7 days 11 hours, actual:  7 days is OK)

Number of records: raw 1 bits in units of 1  (range: 0 to 1 )
Cruising time: -- not transmitted --
Haulout time: -- not transmitted --
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: odlg 2/4 in units of 5 m (range: 0 to 1177.5 m)
   SD dive duration: odlg 2/5 in units of 16 s (range: 0 to 7608 s)
   Max dive duration: odlg 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: odlg 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 --
   Avg speed in dive: -- not transmitted --
   Number of dives: -- not transmitted --
Avg SST: -- not transmitted --
-----------[174 bits: 73 - 246]
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)

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 = -2.5 to 30.267 °C in steps of 0.001 °C)
Max temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267 = -2.5 to 30.267 °C in steps of 0.001 °C)

cf. Valid temperatures: -2.5 to 30.2 degC
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)

cf. Valid salinity: 28.9 to 37.1
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 DOxy: -- not transmitted --
  Max DOxy: -- not transmitted --
  Min fluoro: -- not transmitted --
  Max fluoro: -- not transmitted --
  Min Light: -- not transmitted --
  Max Light: -- not transmitted --
------------------------[236 bits: 11 - 246]

Available bits used exactly

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

Temperature residual: -- not transmitted --
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 DOxY: -- not transmitted --
Max DOxY: -- not transmitted --
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --

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 2 days 6 hours @ 10 mins = 324
  tx as raw 9 bits in units of 1 (range: 0 to 511 ) OK
  (recommended sell-by 2 days 5 hours, actual: 2 days 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 = -2.5 to 30.267 °C in steps of 0.001 °C)
Max temperature: raw 15 bits in units of 0.001 (range: 2.5 to 35.267 = -2.5 to 30.267 °C in steps of 0.001 °C)

cf. Valid temperatures: -2.5 to 30.2 degC

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)

cf. Valid salinity: 28.9 to 37.1

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 DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --

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

UNUSED

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

=== End of page 4 ===

PAGE 5 (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 3:

End time: max 2 days 6 hours @ 10 mins= 324
tx as raw 9 bits in units of 1 (range: 0 to 511 ) OK
(recommended sell-by 2 days 5 hours, actual: 2 days 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)

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

Temperature residual: -- not transmitted --

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 DOxy: -- not transmitted --
Max DOxy: -- not transmitted --
Min fluoro: -- not transmitted --
Max fluoro: -- not transmitted --
Min Light: -- not transmitted --
Max Light: -- not transmitted --

----------[233 bits: 13 - 245]
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]

Deployment
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Deployment site: Drescher Inlet  
Previous deployment: none |
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-72.832  
-19.178 |
| **Tag retrieved** | 2016-01-23T15:41:30  
-72.832  
-19.178 |
| **First transmission** | 2016-01-23T15:41:30  
-72.832  
-19.178 |
| **Last transmission** | 2016-04-06T18:19:18  
-72.847  
-18.974 |