FRENCH FRIGATE SHAKS #42 5-11 SEPT 97 BALKANS

- 24195 TCD
- 24196 (Reversed Antenna)
- 24197 (Reversed ANTENNA)
- 24198 Reseen w/o Trans. East 6/2000

✓

2 OF 2

1997


YEAR OF THE
TURTLE

24196

24196 Date : 02.12.97 01:52:43 LC : 0 IQ : 60
Lat1 : 23.760N Lon1 : 166.177W
165 540 673 32
03 00

24196 Date : 02.12.97 18:02:07 LC : 0 IQ : 60
Lat1 : 23.779N Lon1 : 166.194W
164 14 897 24
00 00

24196 Date : 03.12.97 01:50:22 LC : B IQ : 00
Lat1 : 23.781N Lon1 : 166.201W
164 1066 897 24
00 00

24196 Date : 03.12.97 17:46:36 LC : A IQ : 00
Lat1 : 23.771N Lon1 : 166.227W
164 1215 1194 18
00 00

24196 Date : 05.12.97 01:22:55 LC : 0 IQ : 50
Lat1 : 23.733N Lon1 : 166.157W
134 4139 673 26314
00 56

24196 Date : 06.12.97 01:10:56 LC : A IQ : 00
Lat1 : 23.838N Lon1 : 165.856W
164 420 62528 21226
03 16

24196 Date : 07.12.97 17:52:18 LC : Z IQ : 10
Lat1 : 25.939N Lon1 : 174.841W
162 194 1027 21
00 00

24196 Date : 09.12.97 06:25:27 LC : A IQ : 08
Lat1 : 23.567N Lon1 : 166.274W
166 36 76 272
00 00

24196 Date : 09.12.97 06:21:23 LC : A IQ : 60
Lat1 : 23.570N Lon1 : 166.269W
174 34949 57457 43710
03 52

24196 Date : 08.12.97 19:11:58 LC : A IQ : 00
Lat1 : 23.721N Lon1 : 166.116W
163 50 980 22
00 00

24196 Date : 08.12.97 17:35:28 LC : A IQ : 00
Lat1 : 23.709N Lon1 : 166.139W
162 49 980 22
00 33

NOTE INVERSE

24196 Date : 09.12.97 18:49:39 LC : A IQ : 00
Lat1 : 23.365N Lon1 : 166.205W
167 146 124 167
00 00

24196 Date : 09.12.97 17:14:49 LC : A IQ : 08
Lat1 : 23.398N Lon1 : 166.282W
166 21 124 167
00 00

24196 Date : 10.12.97 00:28:44 LC : B IQ : 00
Lat1 : 23.261N Lon1 : 166.113W
170 131 124 167
00 00

24196 Date : 09.12.97 18:53:16 LC : A IQ : 50
Lat1 : 23.369N Lon1 : 166.205W
167 78 124 167
00 00

24196 Date : 11.12.97 01:53:13 LC : B IQ : 00
Lat1 : 22.980N Lon1 : 166.058W
169 06 145 144
00 01

24196 Date : 11.12.97 00:16:20 LC : A IQ : 00
Lat1 : 22.944N Lon1 : 166.081W
169 168 145 144
00 01

24196 Date : 10.12.97 18:36:01 LC : B IQ : 00
Lat1 : 22.990N Lon1 : 166.096W
166 107 145 144
00 00

24196 Date : 10.12.97 18:29:50 LC : B IQ : 00
Lat1 : 22.991N Lon1 : 166.088W
166 93 145 144
00 00

24196 Date : 12.12.97 07:20:05 LC : A IQ : 08
Lat1 : 22.580N Lon1 : 165.731W
166 32 89 227
00 00

24196 Date : 12.12.97 05:16:15 LC : 0 IQ : 68
Lat1 : 22.605N Lon1 : 165.764W
166 15 89 227
00 01

24196 Date : 12.12.97 01:46:30 LC : A IQ : 00
Lat1 : 22.618N Lon1 : 165.798W
169 158 147 4237
00 00

24196 Date : 11.12.97 18:21:24 LC : B IQ : 00
Lat1 : 22.747N Lon1 : 165.861W
166 165 147 173
00 00

24196 Date : 13.12.97 05:29:23 LC : B IQ : 00
Lat1 : 22.205N Lon1 : 165.430W
00 1070 2141 246
00 60

24196 Date : 13.12.97 01:39:17 LC : B IQ : 00
Lat1 : 22.240N Lon1 : 165.519W
169 193 133 157
00 00

24196 Date : 12.12.97 19:52:44 LC : 2 IQ : 50
Lat1 : 22.325N Lon1 : 165.553W
168 13 133 157
00 01

24196 Date : 13.12.97 17:29:41 LC : B IQ : 00
Lat1 : 22.017N Lon1 : 165.384W
166 168 144 145
00 00

24196 Date : 13.12.97 19:40:39 LC : A IQ : 08
Lat1 : 21.898N Lon1 : 165.280W
167 63 144 145
00 00

24196 Date : 13.12.97 23:45:19 LC : B IQ : 00
Lat1 : 21.838N Lon1 : 165.210W
170 08 144 145
00 00

24196 Date : 14.12.97 01:22:38 LC : A IQ : 00
Lat1 : 20.741N Lon1 : 169.970W
168 34 144 145
00 00

24196 Date : 14.12.97 06:13:49 LC : 0 IQ : 58
Lat1 : 21.753N Lon1 : 165.201W
167 24 71 286
00 00

24196 Date : 14.12.97 06:55:37 LC : 0 IQ : 58
Lat1 : 21.700N Lon1 : 165.212W
167 07 71 286
00 01

24196 Date : 14.12.97 19:29:44 LC : A IQ : 00
Lat1 : 21.920N Lon1 : 166.943W Lat2 : 21.520N Lon2 : 165.156W
168 32880 106 16578
00 04

24196 Date : 16.12.97 06:29:38 LC : 1 IQ : 58
Lat1 : 21.404N Lon1 : 164.659W
168 11 95 219
00 01

24196 Date : 16.12.97 01:03:24 LC : A IQ : 08
Lat1 : 21.411N Lon1 : 164.768W
171 83 121 170
00 00

24196 Date : 15.12.97 18:22:33 LC : B IQ : 00
Lat1 : 21.412N Lon1 : 164.825W
167 136 121 170
00 00

66

24196

24196 Date : 15.12.97 13:47:06 LC : B IQ : 00
Lat1 : 21.428N Lon1 : 164.860W
167 1204 78 268
00 00

24196 Date : 17.12.97 05:04:14 LC : 0 IQ : 60
Lat1 : 21.301N Lon1 : 164.421W
168 908 92 225

24196 Date : 16.12.97 19:00:26 LC : B IQ : 00
Lat1 : 21.368N Lon1 : 164.421W
168 93 154 133
00 00

24196 Date : 16.12.97 13:34:14 LC : 0 IQ : 58
Lat1 : 21.395N Lon1 : 164.512W
168 16 95 219
00 00

24196 Date : 18.12.97 06:05:15 LC : 2 IQ : 50
Lat1 : 21.368N Lon1 : 163.895W
168 411 86 243
00 00

24196 Date : 18.12.97 18:39:44 LC : 1 IQ : 50
Lat1 : 21.392N Lon1 : 163.647W
170 77 117 158
00 00

24196 Date : 19.12.97 12:57:53 LC : Z IQ : 10
Lat1 : 16.775N Lon1 : 146.191W
169 05 81 259
00 01

24196 Date : 19.12.97 18:25:21 LC : B IQ : 00
Lat1 : 21.340N Lon1 : 163.080W
169 137 152 135
00 00

24196 Date : 20.12.97 00:19:45 LC : 1 IQ : 50
Lat1 : 21.262N Lon1 : 162.964W
172 19 152 167
00 00

24196 Date : 21.12.97 01:45:22 LC : A IQ : 08
Lat1 : 21.264N Lon1 : 162.366W
170 06 117 4271
00 00

24196 Date : 21.12.97 00:07:49 LC : 2 IQ : 58
Lat1 : 21.280N Lon1 : 162.450W
172 97 117 175
00 00

24196 Date : 20.12.97 18:11:14 LC : A IQ : 00
Lat1 : 21.319N Lon1 : 162.585W
169 140 117 175
00 00

24196 Date : 20.12.97 18:11:14 LC : A IQ : 00
Lat1 : 21.311N Lon1 : 162.570W
169 140 117 175
00 00

24196 Date : 21.12.97 18:01:02 LC : B IQ : 00
Lat1 : 21.232N Lon1 : 161.974W
169 28 120 172
00 02

24196 Date : 21.12.97 17:47:43 LC : A IQ : 00
Lat1 : 21.231N Lon1 : 161.987W
169 127 120 172
00 00

24196 Date : 21.12.97 23:58:01 LC : B IQ : 00
Lat1 : 21.260N Lon1 : 161.818W
171 151 120 172
00 01

24196 Date : 22.12.97 05:03:21 LC : 0 IQ : 68
Lat1 : 21.230N Lon1 : 161.706W
169 06 76 271
00 00

24196 Date : 22.12.97 01:35:52 LC : 3 IQ : 68
Lat1 : 21.257N Lon1 : 161.793W
172 118 120 172
00 00

24196 Date : 23.12.97 01:26:44 LC : B IQ : 00
Lat1 : 21.086N Lon1 : 161.325W
168 10 117 173
00 01

24196 Date : 23.12.97 06:45:28 LC : 0 IQ : 50
Lat1 : 21.116N Lon1 : 161.288W
167 06 66 310
00 01

24196 Date : 22.12.97 12:26:18 LC : A IQ : 08
Lat1 : 21.104N Lon1 : 161.564W
168 22 76 271
00 00

24196 Date : 22.12.97 17:24:31 LC : B IQ : 00
Lat1 : 21.068N Lon1 : 161.457W
168 179 117 173
00 01

24196 Date : 22.12.97 17:46:45 LC : A IQ : 00
Lat1 : 21.060N Lon1 : 161.449W
168 07 117 173
00 01

CONTINUED on page 102

24 PM Removed Antenna posterior

24197 Date : 09.09.97 17:10:17 LC : 2 IQ : 50
Lat1 : 23.786N Lon1 : 166.205W
169 00 00 00
00 00

24197 Date : 11.09.97 01:48:20 LC : B IQ : 00
Lat1 : 23.611N Lon1 : 166.471W
173 1303 353 60
00 00

24197 Date : 14.09.97 18:41:45 LC : B IQ : 00
Lat1 : 23.694N Lon1 : 166.150W
173 769 519 41
00 00

24197 Date : 12.09.97 17:46:42 LC : B IQ : 00
Lat1 : 23.570N Lon1 : 164.932W
173 963 408 52
00 00

24197 Date : 13.09.97 17:26:55 LC : B IQ : 00
Lat1 : 24.139N Lon1 : 166.734W
173 480 640 33
00 00

24197 Date : 15.09.97 13:41:54 LC : B IQ : 00
Lat1 : 23.435N Lon1 : 167.921W
173 942 340 62
00 00

24197 Date : 16.09.97 13:27:13 LC : B IQ : 00
Lat1 : 23.688N Lon1 : 165.841W
173 1482 1099 19
00 00

24197 Date : 17.09.97 00:41:59 LC : B IQ : 00
Lat1 : 23.573N Lon1 : 165.456W
174 1340 962 22
00 00

24197 Date : 17.09.97 17:34:23 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
165 39265 1116 19
00 00

24197 Date : 18.09.97 18:50:23 LC : B IQ : 00
Lat1 : 23.790N Lon1 : 166.396W
173 1513 1059 20
00 00

24197 Date : 19.09.97 00:20:20 LC : Z IQ : 10
Lat1 : 23.654N Lon1 : 165.548W
173 1560 1059 20
00 00

24197 Date : 19.09.97 18:29:41 LC : B IQ : 00
Lat1 : 23.754N Lon1 : 166.332W
172 1196 1060 20
00 00

24197 Date : 20.09.97 18:06:15 LC : A IQ : 00
Lat1 : 23.781N Lon1 : 166.088W
172 206 729 1276
00 02

24197 Date : 21.09.97 00:07:46 LC : B IQ : 00
Lat1 : 24.003N Lon1 : 166.028W
173 1504 729 29
00 00

24197 Date : 21.09.97 01:47:52 LC : B IQ : 00
Lat1 : 24.154N Lon1 : 166.858W
173 1261 729 29
00 01

24197 Date : 21.09.97 05:21:11 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
173 1390 722 29
00 00

24197 Date : 22.09.97 06:37:01 LC : Z IQ : 10
Lat1 : 14.818N Lon1 : 151.744E Lat2 : 23.686N Lon2 : 166
172 16 33131 567
00 48

24197 Date : 23.09.97 13:50:07 LC : 1 IQ : 57
Lat1 : 23.786N Lon1 : 166.203W
168 05 582 36
00 00

24197 Date : 23.09.97 17:02:01 LC : 2 IQ : 56
Lat1 : 23.788N Lon1 : 166.206W
168 05 69 59
00 00

24197 Date : 25.09.97 05:38:38 LC : B IQ : 00
Lat1 : 23.732N Lon1 : 165.974W
173 600 69 304
00 00

24197 Date : 25.09.97 17:57:54 LC : 3 IQ : 60
Lat1 : 23.679N Lon1 : 165.663W
172 42 134 155
00 00

24197 Date : 26.09.97 00:47:42 LC : 1 IQ : 58
Lat1 : 23.641N Lon1 : 165.475W
173 55 134 155
00 00

24197 Date : 26.09.97 17:36:23 LC : 0 IQ : 50
Lat1 : 23.309N Lon1 : 165.265W
171 14 209 98
00 01

24197 Date : 26.09.97 19:16:18 LC : B IQ : 00
Lat1 : 23.306N Lon1 : 165.217W
172 84 209 98
00 01

24197 Date : 27.09.97 00:34:09 LC : 1 IQ : 50
Lat1 : 23.162N Lon1 : 165.142W
174 06 209 98
00 01

24197 Date : 27.09.97 04:55:26 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
00 46 68 308
00 63

24197 Date : 27.09.97 17:15:23 LC : 3 IQ : 60
Lat1 : 22.807N Lon1 : 164.934W
172 60 201 102
00 00

24197 Date : 28.09.97 00:23:38 LC : A IQ : 08
Lat1 : 22.651N Lon1 : 164.827W
173 103 201 102
00 00

24197 Date : 27.09.97 18:55:32 LC : B IQ : 00
Lat1 : 22.793N Lon1 : 164.911W
173 77 201 102
00 00

24197 Date : 28.09.97 06:03:51 LC : 0 IQ : 68
Lat1 : 22.536N Lon1 : 164.752W
171 813 76 274
00 00

24197 Date : 29.09.97 18:13:52 LC : A IQ : 00
Lat1 : 22.230N Lon1 : 164.261W
173 88 158 130
00 00

24197 Date : 30.09.97 01:44:37 LC : 2 IQ : 58
Lat1 : 22.159N Lon1 : 164.107W
174 143 158 130
00 00

24197 Date : 30.09.97 00:03:44 LC : 2 IQ : 68
Lat1 : 22.178N Lon1 : 164.144W
174 140 158 130
00 00

24197 Date : 30.09.97 17:48:39 LC : A IQ : 00
Lat1 : 22.029N Lon1 : 163.798W
173 33007 154 32901
02 00

24197 Date : 30.09.97 23:53:54 LC : A IQ : 08
Lat1 : 21.948N Lon1 : 163.657W
174 48 155 133
00 00

24197 Date : 01.10.97 01:32:57 LC : A IQ : 08
Lat1 : 21.907N Lon1 : 163.637W
174 108 155 133
00 00

24197 Date : 01.10.97 23:42:54 LC : A IQ : 00
Lat1 : 21.625N Lon1 : 163.300W
173 64 170 122

24197 Date : 02.10.97 01:22:01 LC : 1 IQ : 58
Lat1 : 21.613N Lon1 : 163.296W
174 13 170 122
00 00

24197 Date : 02.10.97 12:15:24 LC : 0 IQ : 58
Lat1 : 21.554N Lon1 : 163.168W
172 08 84 250
00 01

24197 Date : 02.10.97 13:49:31 LC : B IQ : 00
Lat1 : 21.647N Lon1 : 163.114W
172 12 84 250
00 01

24197 Date : 02.10.97 17:05:16 LC : A IQ : 08
Lat1 : 21.568N Lon1 : 163.128W
172 135 182 115
00 00

24197 Date : 02.10.97 18:47:19 LC : A IQ : 08
Lat1 : 21.580N Lon1 : 163.126W
173 69 182 115
00 00

24197 Date : 03.10.97 13:49:04 LC : Z IQ : 10
Lat1 : 23.141N Lon1 : 169.865W Lat2 : 21.551N Lon2 : 163.[illegible]W
172 07 92 228
00 00

24197 Date : 03.10.97 18:25:43 LC : B IQ : 00
Lat1 : 21.614N Lon1 : 162.894W
172 116 198 104
00 00

24197 Date : 04.10.97 11:50:48 LC : 0 IQ : 50
Lat1 : 21.393N Lon1 : 162.635W
171 07 88 235
00 01

24197 Date : 05.10.97 05:13:05 LC : 3 IQ : 60
Lat1 : 19.795N Lon1 : 169.876W
171 05 90 232
00 02

24197 Date : 05.10.97 17:40:44 LC : B IQ : 00
Lat1 : 21.707N Lon1 : 162.361W
172 90 172 41515
03 42

24197 Date : 06.10.97 00:35:44 LC : A IQ : 00
Lat1 : 21.393N Lon1 : 162.195W
173 175 8045 65144
03 63

FROM PAGE 24196

END

24196 Date : 07.03.98 23:26:40 LC : 0 IQ : 60
Lat1 : 19.740N Lon1 : 155.052W
166 1978 271 79
00 00

24196 Date : 08.03.98 06:16:25 LC : B IQ : 00
Lat1 : 19.729N Lon1 : 155.042W
165 240 228 90
00 00

24196 Date : 09.03.98 06:01:17 LC : B IQ : 00
Lat1 : 19.735N Lon1 : 155.029W
166 734 171 121
00 00

24196 Date : 09.03.98 13:26:29 LC : A IQ : 00
Lat1 : 19.732N Lon1 : 155.031W
158 83 171 121
00 01

24196 Date : 09.03.98 17:32:00 LC : 2 IQ : 68
Lat1 : 19.739N Lon1 : 155.030W
163 2340 390 55
00 00

24196 Date : 12.03.98 17:53:43 LC : 0 IQ : 60
Lat1 : 19.735N Lon1 : 155.081W
165 2377 415 20523
00 00

24196 Date : 13.03.98 00:08:24 LC : 1 IQ : 50
Lat1 : 19.727N Lon1 : 155.000W
166 1953 479 43
00 00

24196 Date : 13.03.98 23:56:30 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
166 174 1045 20
00 00

24196 Date : 14.03.98 01:35:30 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
166 69 1045 285
00 37

TO Page 98

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24195 From page 58

24195 Date : 13.11.97 12:54:35 LC : 0 IQ : 50
Lat1 : 16.855N Lon1 : 153.225W
160 06 90 196
00 01

24195 Date : 14.11.97 00:08:24 LC : B IQ : 00
Lat1 : 17.049N Lon1 : 153.138W
161 116 165 128
00 00

24195 Date : 14.11.97 18:02:26 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
160 196 233 121
01 24

24195 Date : 15.11.97 12:29:24 LC : Z IQ : 10
Lat1 : 15.525N Lon1 : 145.093W Lat2 : 17.856N Lon2 : 152.45W
159 22 8297 89
00 01

24195 Date : 15.11.97 17:41:19 LC : B IQ : 00
Lat1 : 17.653N Lon1 : 152.919W
160 100 233 89
00 01

24195 Date : 15.11.97 23:48:02 LC : 0 IQ : 56
Lat1 : 17.767N Lon1 : 152.895W

24195 Date : 17.11.97 23:27:00 LC : A IQ : 00
Lat1 : 18.543N Lon1 : 152.565W
161 07 161 131
00 02

24195 Date : 18.11.97 01:10:09 LC : B IQ : 00
Lat1 : 18.556N Lon1 : 152.525W
159 233 161 131
00 32

24195 Date : 19.11.97 00:59:00 LC : 1 IQ : 50
Lat1 : 18.956N Lon1 : 152.357W
160 32 176 118
00 00

24195 Date : 20.11.97 00:42:29 LC : B IQ : 00
Lat1 : 19.345N Lon1 : 152.323W
160 94 670 4128
02 04

24195 Date : 21.11.97 17:11:06 LC : 0 IQ : 60
Lat1 : 19.929N Lon1 : 152.036W
159 05 144 146
00 01

24195 Date : 20.11.97 11:38:25 LC : 1 IQ : 66
Lat1 : 19.582N Lon1 : 152.179W
159 06 228 1611
00 33

24195 Date : 21.11.97 00:34:52 LC : B IQ : 00
Lat1 : 19.777N Lon1 : 152.026W
160 210 152 136
00 00

24195 Date : 22.11.97 11:17:02 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
00 70 243 13406
00 22

24195 Date : 22.11.97 12:52:27 LC : B IQ : 00
Lat1 : 19.947N Lon1 : 151.375W
158 20 250 83
00 00

24195 Date : 23.11.97 12:47:29 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
158 07 328 63
00 01

24195 Date : 24.11.97 18:36:30 LC : A IQ : 00
Lat1 : 20.700N Lon1 : 151.829W
158 110 456 44
00 00

24195 Date : 25.11.97 05:52:32 LC : B IQ : 00
Lat1 : 20.873N Lon1 : 151.788W
158 257 195 108
00 00

24195 Date : 26.11.97 01:19:48 LC : 0 IQ : 50
Lat1 : 21.020N Lon1 : 152.069W
158 1520 178 119
00 00

24195 Date : 27.11.97 01:11:09 LC : B IQ : 00
Lat1 : 21.359N Lon1 : 152.220W
159 173 175 121
00 00

24195 Date : 27.11.97 05:29:22 LC : B IQ : 00
Lat1 : 21.696N Lon1 : 152.053W
00 2569 175 121
00 31

24195 Date : 27.11.97 12:04:16 LC : B IQ : 00
Lat1 : 21.479N Lon1 : 152.180W
00 2573 199 105
00 23

24195 Date : 28.11.97 00:59:56 LC : A IQ : 00
Lat1 : 21.653N Lon1 : 152.272W
159 47 177 113
00 00

78

24195 Date : 28.11.97 19:27:46 LC : B IQ : 00
Lat1 : 21.929N Lon1 : 152.578W
158 148 266 78
00 00

24195 Date : 28.11.97 23:07:41 LC : 0 IQ : 50
Lat1 : 21.864N Lon1 : 152.345W
Nb mes : 004 Nb mes>-120dB : 0
159 06 208 102
00 00

21.864N 152.345W

24195 Date : 30.11.97 00:36:49 LC : 1 IQ : 50
Lat1 : 20.724N Lon1 : 159.282W
157 1520 422 49
00 00

22.224N 159.282W

24195 Date : 30.11.97 13:05:43 LC : 0 IQ : 60
Lat1 : 22.379N Lon1 : 152.524W
156 3132 1361 14
00 00

STET
22.379N
152.524

24195 Date : 01.12.97 17:08:01 LC : A IQ : 00
Lat1 : 22.457N Lon1 : 152.573W
156 51 1810 11
00 00

24195 Date : 01.12.97 18:49:40 LC : 0 IQ : 50
Lat1 : 22.514N Lon1 : 152.600W
158 519 38706 227
02 36

24195 Date : 03.12.97 01:46:43 LC : A IQ : 00
Lat1 : 22.604N Lon1 : 153.211W
156 1886 235 89
00 00

24195 Date : 04.12.97 23:44:50 LC : 0 IQ : 50
Lat1 : 23.125N Lon1 : 153.681W
156 1815 274 75
00 16

24195 Date : 05.12.97 05:29:42 LC : 1 IQ : 50
Lat1 : 23.140N Lon1 : 153.762W
156 05 272 75
00 00

24195 Date : 05.12.97 07:04:20 LC : B IQ : 00
Lat1 : 23.086N Lon1 : 153.908W
156 93 1360 27
00 41

24195 Date : 05.12.97 13:51:37 LC : 0 IQ : 50
Lat1 : 23.195N Lon1 : 153.914W
155 06 629 31
00 00

24195 Date : 07.12.97 05:29:25 LC : 1 IQ : 58
Lat1 : 23.337N Lon1 : 154.377W
155 2773 375 43
00 00

24195 Date : 06.12.97 23:17:53 LC : 0 IQ : 58
Lat1 : 23.291N Lon1 : 154.299W
158 05 375 43
00 00

24195 Date : 06.12.97 19:27:56 LC : B IQ : 00
Lat1 : 23.290N Lon1 : 154.236W
155 200 1438 14
00 00

24195 Date : 06.12.97 18:17:06 LC : 1 IQ : 60
Lat1 : 23.299N Lon1 : 154.206W
156 1542 1438 14
00 00

24195 Date : 09.12.97 08:00:17 LC : B IQ : 00
Lat1 : 24.132N Lon1 : 155.093W
153 24 180 16719
00 01

24195 Date : 09.12.97 06:12:20 LC : Z IQ : 10
Lat1 : 23.399N Lon1 : 157.300W Lat2 : 23.763N Lon2 : 155.614W

24195 Date : 09.12.97 00:35:01 LC : B IQ : 00
Lat1 : 23.883N Lon1 : 155.224W
155 217 180 111
00 00

24195 Date : 08.12.97 19:01:21 LC : A IQ : 00
Lat1 : 23.939N Lon1 : 154.884W
154 54 325 64
00 00

24195 Date : 09.12.97 13:10:55 LC : 0 IQ : 50
Lat1 : 24.215N Lon1 : 155.175W
153 33 234 90
00 00

24195 Date : 09.12.97 08:00:17 LC : B IQ : 00
Lat1 : 24.132N Lon1 : 155.093W
153 24 180 16719
00 01

24195 Date : 11.12.97 07:35:22 LC : A IQ : 08
Lat1 : 24.506N Lon1 : 155.643W
152 69 16562 116
00 03

24195 Date : 11.12.97 01:57:37 LC : 0 IQ : 60
Lat1 : 15.509N Lon1 : 164.011E Lat2 : 24.587N Lon2 : 155.484W
152 11 178 116
00 00

24195 Date : 11.12.97 00:21:08 LC : Z IQ : 10
Lat1 : 24.653N Lon1 : 155.366W
153 09 178 116
00 01

78

24195

24195 Date : 10.12.97 18:37:53 LC : A IQ : 00
Lat1 : 24.563N Lon1 : 155.380W
152 47 214 97
00 00

24195 Date : 10.12.97 13:01:44 LC : B IQ : 00
Lat1 : 24.516N Lon1 : 155.139W
153 232 214 97
00 00

24195 Date : 12.12.97 00:03:21 LC : A IQ : 00
Lat1 : 24.463N Lon1 : 155.813W
152 28 228 91
00 02

24195 Date : 11.12.97 18:23:56 LC : B IQ : 00
Lat1 : 25.440N Lon1 : 155.084W
152 82 267 75
00 00

24195 Date : 11.12.97 12:45:40 LC : 0 IQ : 58
Lat1 : 24.529N Lon1 : 155.593W
152 29 267 75
00 00

24195 Date : 12.12.97 23:56:34 LC : 1 IQ : 56
Lat1 : 24.415N Lon1 : 156.010W
153 10 201 104
00 01

24195 Date : 12.12.97 19:53:22 LC : B IQ : 00
Lat1 : 24.395N Lon1 : 155.981W
152 212 309 67
00 00

24195 Date : 12.12.97 18:10:55 LC : 0 IQ : 50
Lat1 : 24.412N Lon1 : 155.915W
151 116 309 67
00 00

24195 Date : 14.12.97 06:57:34 LC : 3 IQ : 58
Lat1 : 24.361N Lon1 : 156.297W
152 06 166 7271
00 08

24195 Date : 14.12.97 05:14:57 LC : 2 IQ : 58
Lat1 : 24.360N Lon1 : 156.289W
152 05 166 103
00 01

24195 Date : 14.12.97 01:25:01 LC : 2 IQ : 58
Lat1 : 24.355N Lon1 : 156.255W
153 09 166 103
00 02

24195 Date : 13.12.97 23:44:33 LC : 2 IQ : 58
Lat1 : 24.352N Lon1 : 156.237W
153 05 191 65479
00 62

24195 Date : 13.12.97 17:20:39 LC : 0 IQ : 50
Lat1 : 24.389N Lon1 : 156.118W
151 82 182 108
00 00

24195

79

24195 Date : 14.12.97 13:55:44 LC : B IQ : 00
Lat1 : 24.382N Lon1 : 156.306W
151 229 16 733
00 00

24195 Date : 14.12.97 17:46:56 LC : A IQ : 08
Lat1 : 24.340N Lon1 : 156.335W
151 39 16 733
00 01

24195 Date : 14.12.97 19:28:38 LC : A IQ : 08
Lat1 : 24.313N Lon1 : 156.371W
152 07 16 733
00 01

24195 Date : 15.12.97 01:11:31 LC : A IQ : 08
Lat1 : 24.293N Lon1 : 156.504W
153 98 135 153
00 00

24195 Date : 15.12.97 05:56:06 LC : B IQ : 00
Lat1 : 24.315N Lon1 : 156.672W
151 252 135 153
00 00

24195 Date : 15.12.97 06:45:15 LC : 1 IQ : 56
Lat1 : 24.331N Lon1 : 156.641W
151 05 135 153
00 00

24195 Date : 16.12.97 11:53:51 LC : B IQ : 00
Lat1 : 24.281N Lon1 : 157.090W
152 60 141 146
00 00

24195 Date : 16.12.97 05:30:49 LC : 0 IQ : 58
Lat1 : 24.246N Lon1 : 156.974W
151 18 153 138
00 00

24195 Date : 16.12.97 01:01:27 LC : A IQ : 00
Lat1 : 24.337N Lon1 : 156.945W
153 276 153 138
00 00

24195 Date : 15.12.97 23:19:15 LC : B IQ : 00
Lat1 : 24.355N Lon1 : 156.783W
153 91 153 138
00 00

24195 Date : 15.12.97 19:15:24 LC : 1 IQ : 58
Lat1 : 24.348N Lon1 : 156.766W
152 30 180 114
00 00

24195 Date : 15.12.97 17:32:09 LC : B IQ : 00
Lat1 : 24.334N Lon1 : 156.719W
151 46 180 114
00 00

24195 Date : 15.12.97 12:03:46 LC : B IQ : 00
Lat1 : 24.343N Lon1 : 156.678W
151 234 180 114
00 00

24195 Date : 16.12.97 13:33:48 LC : 1 IQ : 58
Lat1 : 24.217N Lon1 : 157.123W
152 80 141 146
00 00

24195 Date : 16.12.97 11:53:51 LC : B IQ : 00
Lat1 : 24.281N Lon1 : 157.090W
152 60 141 146
00 00

24195 Date : 17.12.97 18:48:53 LC : 0 IQ : 50
Lat1 : 24.133N Lon1 : 157.736W
153 48 175 117
00 00

24195 Date : 17.12.97 17:36:21 LC : B IQ : 00
Lat1 : 24.119N Lon1 : 157.696W
152 268 175 117
00 00

24195 Date : 18.12.97 17:16:42 LC : A IQ : 00
Lat1 : 24.154N Lon1 : 157.864W
152 2093 143 141
00 01

24195 Date : 18.12.97 18:36:43 LC : 1 IQ : 50
Lat1 : 24.174N Lon1 : 157.890W
152 09 143 141
00 00

24195 Date : 19.12.97 00:31:25 LC : B IQ : 00
Lat1 : 24.201N Lon1 : 158.009W
154 249 122 144
00 00

24195 Date : 19.12.97 12:59:51 LC : 0 IQ : 50
Lat1 : 24.120N Lon1 : 158.084W
153 25 176 246
00 00

24195 Date : 19.12.97 18:26:22 LC : B IQ : 00
Lat1 : 24.058N Lon1 : 158.153W
153 213 176 118
00 00

24195 Date : 20.12.97 02:00:23 LC : B IQ : 00
Lat1 : 23.998N Lon1 : 158.317W
154 161 126 165
00 00

24195 Date : 20.12.97 07:23:29 LC : 0 IQ : 58
Lat1 : 23.962N Lon1 : 158.439W
153 38 126 165
00 01

24195 Date : 20.12.97 00:18:34 LC : 1 IQ : 50
Lat1 : 24.022N Lon1 : 158.294W
156 164 126 165
00 00

24195 Date : 20.12.97 19:54:38 LC : B IQ : 00
Lat1 : 23.940N Lon1 : 158.610W
154 266 156 8324
00 00

24195 Date : 21.12.97 00:04:40 LC : B IQ : 00
Lat1 : 23.889N Lon1 : 158.713W
155 270 155 136
00 00

24195 Date : 21.12.97 05:31:06 LC : 0 IQ : 50
Lat1 : 23.908N Lon1 : 158.726W
154 34 155 136
00 00

24195 Date : 21.12.97 17:46:17 LC : A IQ : 60
Lat1 : 23.858N Lon1 : 159.047W
154 05 200 104
00 00

24195 Date : 21.12.97 17:57:58 LC : 1 IQ : 50
Lat1 : 23.830N Lon1 : 159.006W
154 86 200 4200
00 00

24195 Date : 21.12.97 19:39:28 LC : 1 IQ : 58
Lat1 : 23.805N Lon1 : 159.036W
155 73 200 104
00 02

24195 Date : 21.12.97 23:57:39 LC : 2 IQ : 58
Lat1 : 23.762N Lon1 : 159.085W
156 28 160 130
00 00

24195 Date : 22.12.97 06:58:18 LC : A IQ : 08
Lat1 : 23.767N Lon1 : 159.133W
154 134 160 130
00 00

24195 Date : 23.12.97 01:27:21 LC : A IQ : 00
Lat1 : 23.605N Lon1 : 159.348W
155 112 145 145
00 00

24195 Date : 23.12.97 12:18:34 LC : A IQ : 08
Lat1 : 23.450N Lon1 : 159.460W
152 106 157 131
00 00

24195 Date : 23.12.97 23:36:41 LC : B IQ : 00
Lat1 : 23.190N Lon1 : 159.596W
157 184 109 188
00 00

24195 Date : 24.12.97 23:24:55 LC : A IQ : 00
Lat1 : 22.877N Lon1 : 159.920W
157 34 136 171
00 00

24195 Date : 25.12.97 11:56:46 LC : B IQ : 00
Lat1 : 22.718N Lon1 : 160.063W
153 09 141 148
00 01

24195 Date : 25.12.97 01:02:23 LC : 0 IQ : 48
Lat1 : 22.833N Lon1 : 159.926W
156 568 136 139
00 00

24195 Date : 25.12.97 11:56:46 LC : B IQ : 00
Lat1 : 22.718N Lon1 : 160.063W
153 09 141 148
00 01

24195 Date : 25.12.97 13:38:36 LC : B IQ : 00
Lat1 : 22.727N Lon1 : 160.127W
153 221 141 148
00 00

24195 Date : 25.12.97 17:56:52 LC : 0 IQ : 50
Lat1 : 22.693N Lon1 : 160.111W
153 80 141 148
00 00

24195 Date : 25.12.97 18:51:24 LC : A IQ : 00
Lat1 : 22.678N Lon1 : 160.123W
153 45 141 148
00 00

24195 Date : 26.12.97 07:50:41 LC : Z IQ : 10
Lat1 : 14.475N Lon1 : 164.912E
153 20 137 153
00 00

24195 Date : 26.12.97 13:24:02 LC : A IQ : 00
Lat1 : 22.492N Lon1 : 160.354W
153 142 146 143
00 01

24195 Date : 26.12.97 18:36:45 LC : A IQ : 00
Lat1 : 22.383N Lon1 : 160.253W
154 4206 146 183
00 08

24195 Date : 27.12.97 00:41:58 LC : A IQ : 08
Lat1 : 22.285N Lon1 : 160.175W
155 147 102 1244
02 03

CONTINUED

24198 Date : 10.09.97 18:26:58 LC : 2 IQ : 50
Lat1 : 23.778N Lon1 : 166.201W
191 00 00 00
00 00

24198 Date : 14.09.97 17:06:03 LC : B IQ : 00
Lat1 : 23.771N Lon1 : 166.213W
00 275 298 71
00 36

24198 Date : 14.09.97 18:39:00 LC : A IQ : 00
Lat1 : 23.772N Lon1 : 166.174W
182 21 1050 50318
03 63

24198 Date : 14.09.97 23:29:28 LC : B IQ : 00
Lat1 : 23.712N Lon1 : 166.213W
184 55 1314 8423
00 02

24198 Date : 15.09.97 01:09:32 LC : 1 IQ : 68
Lat1 : 23.633N Lon1 : 166.164W
184 49 298 71
00 00

24198 Date : 12.09.97 17:42:48 LC : A IQ : 00
Lat1 : 23.765N Lon1 : 166.083W
181 24 429 49
00 01

24198 Date : 13.09.97 04:59:54 LC : B IQ : 00
Lat1 : 23.723N Lon1 : 166.254W
00 1005 386 54
00 09

24198 Date : 13.09.97 17:22:22 LC : 2 IQ : 60
Lat1 : 23.786N Lon1 : 166.204W
181 48 479 44
00 00

24198 Date : 15.09.97 18:18:14 LC : 3 IQ : 60
Lat1 : 23.467N Lon1 : 165.800W
181 14 173 118
00 00

24198 Date : 16.09.97 05:27:48 LC : A IQ : 08
Lat1 : 23.385N Lon1 : 165.630W
180 12 113 183
00 00

24198 Date : 16.09.97 17:53:37 LC : B IQ : 00
Lat1 : 23.277N Lon1 : 165.304W
181 736 140 145
00 00

24198 Date : 17.09.97 05:02:02 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
180 1040 100 203
00 00

24198 Date : 17.09.97 17:33:08 LC : A IQ : 00
Lat1 : 23.160N Lon1 : 164.910W
180 4764 21515 8209
00 32

24198 Date : 17.09.97 19:13:58 LC : A IQ : 00
Lat1 : 23.134N Lon1 : 164.852W
180 94 137 148
00 00

24198 Date : 18.09.97 06:24:51 LC : A IQ : 08
Lat1 : 22.924N Lon1 : 164.625W
180 05 87 4335
00 01

24198 Date : 18.09.97 17:12:48 LC : 3 IQ : 60
Lat1 : 22.839N Lon1 : 164.588W
181 4121 104 194
00 00

24198 Date : 18.09.97 18:51:48 LC : A IQ : 08
Lat1 : 22.814N Lon1 : 164.580W
182 107 104 194
00 00

24198 Date : 19.09.97 00:22:47 LC : A IQ : 08
Lat1 : 22.734N Lon1 : 164.549W

24198 Date : 19.09.97 12:55:56 LC : 1 IQ : 50
Lat1 : 22.522N Lon1 : 164.502W
179 08 83 249
00 01

24198 Date : 20.09.97 05:46:47 LC : B IQ : 00
Lat1 : 22.309N Lon1 : 164.459W
180 555 90 232
00 00

24198 Date : 20.09.97 01:50:49 LC : A IQ : 08
Lat1 : 22.346N Lon1 : 164.360W
181 81 140 146
00 00

24198 Date : 20.09.97 00:14:26 LC : A IQ : 08
Lat1 : 22.381N Lon1 : 164.390W
182 53 140 146
00 00

24198 Date : 19.09.97 18:31:16 LC : A IQ : 08
Lat1 : 22.437N Lon1 : 164.470W
180 71 141 8850
02 33

24198 Date : 21.09.97 00:03:18 LC : A IQ : 00
Lat1 : 22.132N Lon1 : 163.971W
183 97 136 150
00 00

24198 Date : 21.09.97 01:41:19 LC : B IQ : 00
Lat1 : 22.107N Lon1 : 163.946W
182 132 136 150
00 01

24198 Date : 21.09.97 05:18:10 LC : 1 IQ : 68
Lat1 : 22.071N Lon1 : 163.876W
181 05 93 225
00 00

24198 Date : 20.09.97 18:09:56 LC : B IQ : 00
Lat1 : 22.217N Lon1 : 164.125W
180 90 136 150
00 00

24198 Date : 21.09.97 17:46:40 LC : 2 IQ : 66
Lat1 : 21.892N Lon1 : 163.642W
180 08 156 130
00 02

24198 Date : 21.09.97 23:52:42 LC : 2 IQ : 68
Lat1 : 21.874N Lon1 : 163.546W
182 63 156 130
00 00

24198 Date : 22.09.97 12:21:37 LC : B IQ : 00
Lat1 : 21.728N Lon1 : 163.404W
180 39 104 200
00 00

24198 Date : 22.09.97 17:24:22 LC : B IQ : 00
Lat1 : 21.702N Lon1 : 163.424W
180 112 179 114
00 00

24198 Date : 23.09.97 01:21:10 LC : 1 IQ : 56
Lat1 : 21.524N Lon1 : 163.155W
183 104 179 114
00 00

24198 Date : 23.09.97 17:04:19 LC : 2 IQ : 50
Lat1 : 21.268N Lon1 : 162.879W
180 65 170 120
00 00

24198 Date : 23.09.97 18:41:53 LC : B IQ : 00
Lat1 : 21.307N Lon1 : 162.780W
181 121 426 28792
00 00

24198 Date : 23.09.97 13:48:47 LC : 0 IQ : 60
Lat1 : 21.277N Lon1 : 162.925W
180 05 92 215
00 02

24198 Date : 24.09.97 01:10:24 LC : 1 IQ : 58
Lat1 : 21.113N Lon1 : 162.726W
183 69 170 120
00 00

24198 Date : 25.09.97 00:58:18 LC : 0 IQ : 58
Lat1 : 20.862N Lon1 : 162.524W
182 118 168 121
00 00

24198 Date : 25.09.97 05:27:22 LC : 0 IQ : 60
Lat1 : 20.869N Lon1 : 162.256W
181 05 83 253
00 00

24198 Date : 25.09.97 17:55:59 LC : B IQ : 00
Lat1 : 20.882N Lon1 : 161.881W
181 168 184 110
00 00

24198 Date : 26.09.97 05:05:15 LC : Z IQ : 10
Lat1 : 19.534N Lon1 : 169.103W
181 06 91 230
00 01

24198 Date : 26.09.97 17:37:39 LC : A IQ : 00
Lat1 : 21.031N Lon1 : 161.749W
181 40 156 131
00 00

24198 Date : 26.09.97 00:46:25 LC : A IQ : 00
Lat1 : 20.962N Lon1 : 161.941W
183 05 184 110
00 02

24198 Date : 27.09.97 00:37:00 LC : 1 IQ : 58
Lat1 : 21.058N Lon1 : 161.705W
181 48 149 12307
00 27

24198 Date : 27.09.97 06:28:27 LC : A IQ : 08
Lat1 : 21.146N Lon1 : 161.658W
180 16 82 254
00 01

24198 Date : 27.09.97 17:14:51 LC : 0 IQ : 58
Lat1 : 21.042N Lon1 : 161.649W
181 84 183 112
00 00

24198 Date : 28.09.97 06:03:07 LC : A IQ : 00
Lat1 : 21.035N Lon1 : 161.593W
180 05 97 217
00 00

24198 Date : 28.09.97 00:25:21 LC : B IQ : 00
Lat1 : 21.095N Lon1 : 161.623W
182 122 183 112
00 00

24198 Date : 29.09.97 18:11:30 LC : A IQ : 00
Lat1 : 20.853N Lon1 : 161.235W
180 72 185 111
00 00

24198 Date : 30.09.97 00:01:23 LC : B IQ : 00
Lat1 : 20.885N Lon1 : 161.138W
182 69 185 111
00 00

24198 Date : 30.09.97 12:33:10 LC : 0 IQ : 50
Lat1 : 20.840N Lon1 : 160.995W
180 16 90 221
00 07

24198 Date : 30.09.97 17:48:54 LC : B IQ : 00
Lat1 : 20.828N Lon1 : 160.942W
180 96 172 119
00 01

24198 Date : 30.09.97 23:53:59 LC : A IQ : 00
Lat1 : 20.846N Lon1 : 160.850W
181 43 172 119
00 00

24198 Date : 01.10.97 01:30:00 LC : 1 IQ : 68
Lat1 : 20.838N Lon1 : 160.813W
182 22 172 119
00 00

24198 Date : 01.10.97 12:24:58 LC : 0 IQ : 50
Lat1 : 20.838N Lon1 : 160.703W
180 08 92 228
00 01

24198 Date : 01.10.97 17:28:36 LC : 1 IQ : 56
Lat1 : 20.814N Lon1 : 160.628W
189 6473 1764 42131
01 43

24198 Date : 01.10.97 23:46:09 LC : B IQ : 00
Lat1 : 20.741N Lon1 : 160.606W
182 754 192 104
00 00

24198 Date : 03.10.97 01:14:37 LC : B IQ : 00
Lat1 : 20.732N Lon1 : 159.982W
181 28 181 113
01 33

24198 Date : 02.10.97 18:44:01 LC : B IQ : 00
Lat1 : 20.731N Lon1 : 160.201W
180 150 181 113
00 00

24198 Date : 03.10.97 13:42:13 LC : 0 IQ : 50
Lat1 : 20.782N Lon1 : 159.802W
180 21 79 264

24198 Date : 04.10.97 01:01:30 LC : 2 IQ : 66
Lat1 : 20.813N Lon1 : 159.656W
182 76 161 128
00 00

24198 Date : 04.10.97 13:29:09 LC : 0 IQ : 50
Lat1 : 20.927N Lon1 : 159.583W
180 14 76 269
00 01

24198 Date : 04.10.97 18:02:07 LC : A IQ : 00
Lat1 : 20.901N Lon1 : 159.448W
180 05 171 120
00 01

24198 Date : 05.10.97 00:49:31 LC : 0 IQ : 68
Lat1 : 20.986N Lon1 : 159.319W
181 119 171 120
00 00

24198 Date : 05.10.97 05:16:43 LC : 0 IQ : 58
Lat1 : 20.991N Lon1 : 159.130W
180 1033 80 260
00 00

24198 Date : 07.10.97 00:28:28 LC : 2 IQ : 60
Lat1 : 21.356N Lon1 : 158.532W
183 79 190 108
00 00

24198 Date : 05.10.97 17:41:25 LC : B IQ : 00
Lat1 : 21.024N Lon1 : 159.023W
181 89 272 72
00 00

24198 Date : 06.10.97 00:36:14 LC : A IQ : 00
Lat1 : 21.130N Lon1 : 158.953W
183 117 276 33521
00 36

24198 Date : 08.10.97 00:13:21 LC : A IQ : 00
Lat1 : 21.413N Lon1 : 158.226W
182 220 160 252
01 00

24198 Date : 08.10.97 05:44:26 LC : B IQ : 00
Lat1 : 21.477N Lon1 : 158.202W
182 100 218 3666
01 05

24198 Date : 11.10.97 23:33:22 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
180 122 326 65
00 01

24198 Date : 12.10.97 01:15:45 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
180 180 326 32833
01 01

24198 Date : 10.10.97 17:30:38 LC : B IQ : 00
Lat1 : 22.240N Lon1 : 158.091W
178 295 1055 20
00 02

24198 Date : 13.10.97 05:37:03 LC : A IQ : 00
Lat1 : 21.257N Lon1 : 157.616W
178 11 151 140
00 02

24198 Date : 13.10.97 18:00:40 LC : B IQ : 00
Lat1 : 21.200N Lon1 : 157.480W
179 280 167 124
00 10

24198 Date : 15.10.97 13:12:37 LC : B IQ : 00
Lat1 : 21.114N Lon1 : 156.919W
176 204 149 171

24198 Date : 16.10.97 17:02:22 LC : Z IQ : 10
Lat1 : 20.813N Lon1 : 155.286W
178 06 919 23
00 01

24198 Date : 17.10.97 00:18:08 LC : B IQ : 00
Lat1 : 21.044N Lon1 : 156.777W
182 73 919 23
00 00

24198 Date : 17.10.97 18:17:17 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
177 06 392 54
00 00

24198 Date : 18.10.97 00:06:37 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
180 491 392 54
03 33

24198 Date : 19.10.97 17:34:35 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
178 668 301 71
00 01

24198 Date : 20.10.97 12:12:52 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
177 1473 842 25
00 00

24198 Date : 21.10.97 12:10:12 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
177 320 1227 17
00 00

24198 Date : 21.10.97 13:41:33 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
177 321 1231 273
03 00

24198 Date : 23.10.97 13:25:34 LC : B IQ : 00
Lat1 : 20.936N Lon1 : 156.470W
176 119 595 35
00 00

24198 Date : 22.10.97 13:39:47 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
174 97 675 31
00 05

24198 Date : 25.10.97 00:33:29 LC : B IQ : 00
Lat1 : 20.887N Lon1 : 156.522W Lat2 : 21.625N Lon2 : 158.758W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : 041s NOPC : 1
Calcul freq : 401 650139.4 Hz Altitude : 0 m
178 872 210 101
00 06

Plot on Blow-up of Molokai-A320

24198 Date : 26.10.97 05:49:39 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
175 328 764 27
00 01

24198 Date : 26.10.97 12:50:39 LC : B IQ : 00
Lat1 : 20.968N Lon1 : 156.736W
175 73 764 523 ?
00 00

24198 Date : 03.11.97 00:27:22 LC : B IQ : 00
Lat1 : 20.965N Lon1 : 158.189W
175 1087 109 195
00 00

24198 Date : 04.11.97 00:19:36 LC : A IQ : 00
Lat1 : 20.907N Lon1 : 156.466W
175 07 238 26211
00 49

24198 Date : 05.11.97 12:44:51 LC : B IQ : 00
Lat1 : 20.873N Lon1 : 156.156W
172 118 555 36
00 00

24198 Date : 11.11.97 13:17:09 LC : B IQ : 00
Lat1 : 20.967N Lon1 : 156.227W
173 187 2377 4123
01 09

24198 Date : 11.11.97 17:28:43 LC : B IQ : 00
Lat1 : 21.248N Lon1 : 156.604W
175 414 113 185
00 02

24198 Date : 14.11.97 01:52:15 LC : B IQ : 00
Lat1 : 20.917N Lon1 : 156.464W
176 835 95 220
00 20

Denise
Need larger or even blow-up of this area

24198 Date : 14.11.97 05:33:28 LC : 1 IQ : 60
Lat1 : 20.898N Lon1 : 156.474W
175 72 318 63
03 59

3 MAPS for 24198

24198 Date : 14.11.97 12:42:17 LC : B IQ : 00
Lat1 : 20.907N Lon1 : 156.526W
174 157 318 63
02 03

24198 Date : 12.11.97 17:05:09 LC : A IQ : 60
Lat1 : 21.769N Lon1 : 160.318W
174 11 105 4289
02 34

24198 Date : 15.11.97 17:40:47 LC : B IQ : 00
Lat1 : 20.887N Lon1 : 156.441W
175 183 110 191
00 01

24198 Date : 15.11.97 12:31:43 LC : A IQ : 00
Lat1 : 20.885N Lon1 : 156.459W
174 38 305 65
00 00

24198 Date : 15.11.97 23:45:53 LC : B IQ : 00
Lat1 : 20.877N Lon1 : 156.239W
176 747 110 191
00 00

24198 Date : 16.11.97 01:26:11 LC : B IQ : 00
Lat1 : 20.837N Lon1 : 156.620W
176 766 110 191
00 00

24198 Date : 17.11.97 12:11:17 LC : A IQ : 00
Lat1 : 20.896N Lon1 : 156.474W
176 110 327 60
00 01

24198 Date : 17.11.97 13:50:42 LC : A IQ : 08
Lat1 : 20.894N Lon1 : 156.481W
176 91 327 60
00 00

24198 Date : 18.11.97 01:06:46 LC : B IQ : 00
Lat1 : 20.907N Lon1 : 156.473W
177 676 75 282
00 01

24198 Date : 18.11.97 23:14:17 LC : B IQ : 00
Lat1 : 20.956N Lon1 : 156.452W
178 510 91 233
00 00

24198 Date : 19.11.97 13:30:23 LC : 1 IQ : 50
Lat1 : 20.896N Lon1 : 156.482W
176 150 301 65
00 00

24198 Date : 20.11.97 00:43:45 LC : B IQ : 00
Lat1 : 20.867N Lon1 : 156.585W
177 748 85 253
00 31

24198 Date : 21.11.97 13:08:11 LC : A IQ : 00
Lat1 : 20.923N Lon1 : 156.584W
174 59 450 43
00 01

24198 Date : 21.11.97 17:08:29 LC : B IQ : 00
Lat1 : 20.908N Lon1 : 156.468W
00 264 110 189
00 63

24198 Date : 21.11.97 00:37:25 LC : Z IQ : 10
Lat1 : 20.770N Lon1 : 156.947W
177 843 107 195
00 00

24198 Date : 20.11.97 13:18:58 LC : 3 IQ : 60
Lat1 : 20.901N Lon1 : 156.478W
175 121 258 77
00 01

24198 Date : 20.11.97 17:30:51 LC : B IQ : 00
Lat1 : 20.819N Lon1 : 156.458W
176 245 107 195
00 00

24198 Date : 22.11.97 12:58:56 LC : B IQ : 00
Lat1 : 20.896N Lon1 : 156.456W
175 102 179 115
00 01

24198 Date : 23.11.97 05:34:27 LC : B IQ : 00
Lat1 : 20.883N Lon1 : 156.469W
175 58 217 94
00 00

24198 Date : 23.11.97 12:47:20 LC : B IQ : 00
Lat1 : 20.964N Lon1 : 156.416W
174 128 217 94
00 00

24198 Date : 12.12.97 12:38:26 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
169 1055 358 10296
00 32

24198 Date : 13.12.97 19:41:51 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
171 145 77 274
00 00

24198 Date : 18.12.97 13:15:37 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
168 153 256

24198 Date : 29.12.97 12:54:04 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 1016 262 76
00 00

24198 Date : 04.01.98 00:54:32 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 05 109 194
00 01

24198 Date : 04.01.98 13:28:09 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 1159 197 104
00 00

24198 Date : 07.01.98 12:54:37 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 : ??????? Lon2 : ????????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -133 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
171 10257 33156 38732
03 32

TO PAGE 94

94

Date: Sun, 14 Sep 1997 13:33:11 -1000 (HST)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
To: Mike Salmon <salmon@acc.fau.edu>, Ken Lohmann <klohmann@email.unc.edu>
Cc: Larry Taylor <taylor@HBOI.edu>,
Hawaii Preparatory Academy <mrice@hpa.edu>,
Jeanette Wyneken <JWYNEKEN@ACC.FAU.EDU>,
Bill5 Irwin <wpirwin@email.unc.edu>
Subject: Turtle Coil Drives and coil

Deployed

I regret that we do not have much success to report. I returned late Thursday from the French Frigate Shoals' trip. This message will be relatively brief, but I will follow-up soon with more thoughts. The bottom line of what I will say, however, is that most everything needs to go back to the drawing board.

The coil driver and the head coil were too large. Nevertheless we proceeded to attach one to the first turtle we encountered. The satellite transmitter went on first in my proven manner of attachment. The CD was then attached immediately behind it (as planned) and a custom build foam faring we made was inserted between the two to reduce drag.

Splices as per Larry's instructions had already been made at the campsite to provide the proper length of wire from CD to head coil. Bridging the gap from anterior of carapace to head was judged, on the scene, to not be a major problem (in spite of all the worry and thought we gave it earlier). A straight bridge with a little slack (not spiraled around the neck) was deemed best.

The large size of the head coil, and the unexpected nipple projecting from the posterior of the coil where the wire came out, made it impossible to affix to the head with resin and cloth and allow ample curing time. The movement of the neck/head twisting and turning, and butting the inside of my container box, in spite of the turtle's body being restained for periods, caused jarring of the coil and breakage of the resin/cloth bond each time we tried. Frankly, our conclusion was that likely nothing short of general anesthesia would keep the neck/head motionless long enough to bond the coil to the head. This might be possible in a vet clinic, but it isn't in the remote field situation I work under here in Hawaii. One might say that epoxy mastic or other two-part fast-curing putty could/should be used to attach the coil to the head. This wasn't attempted because of the heat-release danger of such substances to the head area where the scales are small and thin and the brain/salt glands and optic structures are in proximity.

After about 45 minutes of futile attempts to attach the coil to the head, we abandoned and I simply resined it overhanging about 75% from the fore-margin of the carapace. We felt this alternative was better than nothing, which would have involved cutting off the CD and faring. The 10-day "on" delay was set. We saw the turtle ashore again the following night, all items securely attached. As of today, the turtle is still within FFS.

As I said, I will give you more opinions, where things went wrong, and maybe how we can correct for the future. To plan for the future we need to examine the past to ensure the same errors aren't made.

I mentioned that the CD was too large. The size, and the drag imposed by the shape, were ever so obvious when we released the turtle. The swirl of water off the back of the TDC upright cyclinder was substantial. It was for this reason that I made the decision not to use the other three CD's

24198 from page 93

24198 Date : 31.01.98 13:31:34 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????
186 81 224 91
00 00

24198 Date : 01.02.98 13:18:49 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????
170 102 256

even just with the coil attached overhanding the anterior carapace. The large size of the CD's is of special frustration to me since many months ago I had submitted a wood replica of the ST14 satellite transmitter indicating that that was the size it should be in order for it to sit as unobtrusively as possible behind the transmitter.

We had at least nine turtles ashore during our five nights of isolated campout on East Island. Numerous photos were taken which I will share. Three other turtles were deployed with just tranmsitters, since I had set aside four total for our project.

I'm sure we all think it unlikely that the magnetic field strength would be strong enough from the anterior carapace to the head (variable but likely averaging 20 cm distance. Unless the turtle keeps its head tucked in a bit when migrating, thereby making the distance about 10-15 cm.

George

24198 Date : 02.02.98 13:08:00 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????? Lat2 ???????
168 08 193 106
00 02
24198 Date : 07.02.98 07:13:23 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
169 57 435 47
00 00
24198 Date : 08.02.98 13:43:57 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
172 29582 14561 53048
03 51
24198 Date : 09.02.98 00:58:24 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
170 05 700 29
00 00
24198 Date : 10.02.98 13:22:32 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 176 206 96
00 00
24198 Date : 11.02.98 13:12:32 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 183 206 98
00 00
24198 Date : 12.02.98 18:45:01 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
171 321 446 46
00 00
24198 Date : 28.02.98 13:25:22 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
170 07 222 89
00 00

Date: Fri, 19 Sep 1997 19:02:09 -0400 (GMT+4:00)
From: Ken Lohmann <klohmann@gibbs.oit.unc.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
"Salmon, Michael" <SALMON@ACC.FAU.EDU>,
"Irwin, Bill" <wpirwin@email.unc.edu>,
"Taylor, Larry" <Taylor@HBOI.edu>
Subject: Re: Turtle Project

Hi George,

With regard to devising a coil to attach to the carapace, I suspect it could be done. It is hard to talk specifics without knowing the distance between the coil and the target area. The guiding principles are: (1) the bigger the coil, the more current is needed to produce a field of a given magnitude (or the more loops of wire must be added to the coil); (2) the greater the distance between the coil and the target site, the larger the current must be.

A potential drawback would be that the field lines would go in opposite directions "inside" and "outside" the coil. Thus, unless the coil is large enough so that the entire head (when looking down from above) is "inside" the coil, then different parts of the head will see different orientations of the field. This is not necessarily a fatal flaw; after all, we accepted a somewhat similar arrangement in our first attempt, at least with regard to what the nose and brain experience. But if the front edge of the coil did not extend very far out over the head, then the problem might be more severe than before (for example, the front and back halves of the brain might encounter markedly different fields). I suppose that a "shell coil" might be a reasonable way to go if we shift strategies slightly and try to disorient the turtles, rather than simulating magnetic features found at other locations.

The coil driver (battery) could also be a problem if it needs to be smaller than the present version; increasing the size of the coil and the distance between the coil and head would both probably necessitate more power, and possibly a larger driver (Larry would know much more about this than I do).

I may not be envisioning the same thing that you have in mind, though. Were you thinking of something that only protrudes a few inches from the shell, or something that hangs out much farther?

Regards,

Ken

>Ken- Thanks for your message. Other people have responded to me, and
>will get back to them, copied to every, soon. What I wanted to ask you
>just now was your thoughts on being able to generate a current from a
>relatively small diameter coil (maybe just a bit larger than what we just
>used- i.e. ca 13cm diameter) that might affect the receptors when
>attached to and somewhat overhanging the anterior of the carapace?
>Frankly, I think that anything and everything attached to the head itself
>is doomed for a variety of reasons-- even if we can get it to hold still
>long enough to "stick." After Marc and I watch the motion of those front
>flippers, I have a serious suspicion that a front flipper anterior edge can
>rub the top of the head when the head is twisted/rotated. Perhaps a
>little like a dog scratching its ear!

>Your thoughts shared with all of us please. How much current would one
>need though a carapace-mounted coil? And could minaturization of the CD
>be done and still accomplish this output? Best regards, George

Date: Thu, 9 Oct 1997 17:29:36 -0400 (GMT+4:00)
From: Ken Lohmann <klohmann@gibbs.oit.unc.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
"Salmon, Michael" <SALMON@ACC.FAU.EDU>
Subject: Re: 24195

Hi George --

Thanks for the fax. The track is certainly intriguing. I agree that it is hard to conclude very much from a single animal; on the other hand, the track certainly appears to differ from those of this year's "controls", as well as your previous tracks from other years. Of course, it isn't a given that the coil is responsible, but the next week or so will be very interesting nevertheless.

With regard to whether we are simulating a north or south displacement, it depends as always on the mystery of where the receptors are. An exciting consideration, however, is that the unexpected placement of the coil may have in effect reversed our original plan and simulated a displacement to the north rather than to the south. I am hedging because a lot depends on how far the field extends out over the front of the head, but the reasoning is as follows. The original plan was to have the field lines directed upward through the center of the head, which would reduce the vertical field component (which is downward in the northern hemisphere) and theoretically simulate a displacement to the south. However, if the critical receptors are outside the perimeter of the coil (which seems likely with the coil on the shell), then the field polarity is opposite and the vertical component would be strengthened. This would simulate a displacement to the north -- in which case the southward orientation would suddenly make a great deal of sense.

None of this would explain, however, why the turtle would keep going south after the coil shut off. I suppose it is possible that the turtle doesn't check in on the magnetic coordinates all that often, but going on for a week seems like stretching it! I guess another possibility is that the coil didn't shut off as expected, although I imagine the battery will give out shortly if that is the case. Or maybe the turtle decided that it didn't want to be seen with a funny-looking coil on its shell and is heading south to hide in embarrassment. Any other ideas??

Best regards, Ken

Date: Tue, 30 Dec 1997 11:54:54 -1000 (HST)
From: Denise Ellis <dellis@honlab.nmfs.hawaii.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Forwarded mail....

George- FYI- Both 95 and 96 have hit Kauai, (95's on the West shore, North of Polihale State Park (near Makaha point) and 96 is on the South shore near Poipu) as of 12/27.
-D

A stop-over only

98 from p. 73

24196 Date : 15.03.98 23:32:49 LC : A IQ : 00
Lat1 : 19.746N Lon1 : 155.014W
165 1946 510 42
00 00

24196 Date : 16.03.98 01:15:36 LC : B IQ : 00
Lat1 : 19.725N Lon1 : 155.018W
166 100 510 42
00 00

24196 Date : 17.03.98 01:04:28 LC : B IQ : 00
Lat1 : 19.729N Lon1 : 155.002W
164 367 824 26
00 00

24196 Date : 17.03.98 07:43:26 LC : B IQ : 00
Lat1 : 19.712N Lon1 : 155.000W
156 1654 647 32
00 00

24196 Date : 18.03.98 05:07:33 LC : B IQ : 00
Lat1 : 19.720N Lon1 : 155.013W
163 142 723 29
00 00

24196 Date : 19.03.98 07:14:42 LC : B IQ : 00
Lat1 : 19.741N Lon1 : 154.984W
158 29 1377 15
00 00

24196 Date : 21.03.98 00:17:50 LC : A IQ : 00
Lat1 : 19.742N Lon1 : 154.935W
165 2426 1409 15
00 00

24196 Date : 30.03.98 19:16:56 LC : 0 IQ : 50
Lat1 : 19.736N Lon1 : 155.012W
163 561 693 31
00 00

24196 Date : 02.04.98 18:39:02 LC : A IQ : 00
Lat1 : 19.737N Lon1 : 155.026W
162 165 1439 15
00 00

24196 Date : 09.04.98 00:10:20 LC : 3 IQ : 60
Lat1 : 19.739N Lon1 : 155.024W
165 2604 34293 561
00 00

24196 Date : 09.04.98 01:50:39 LC : 0 IQ : 58
Lat1 : 19.728N Lon1 : 155.011W
164 2858 9461 145
00 02

24196 Date : 09.04.98 18:45:21 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ????????
164 2440 533 40
00 00

24196 Date : 10.04.98 17:28:32 LC : A IQ : 00
Lat1 : 19.737N Lon1 : 155.057W
161 150 743 29
00 00

24196 Date : 11.04.98 05:53:49 LC : B IQ : 00
Lat1 : 19.733N Lon1 : 155.037W
00 1646 779 27
00 06

24196 Date : 11.04.98 12:22:59 LC : B IQ : 00
Lat1 : 19.729N Lon1 : 155.023W
160 117 779 27
00 00

24196 Date : 12.04.98 18:13:32 LC : A IQ : 00
Lat1 : 19.740N Lon1 : 155.027W
159 204 695 31
00 01

24196 Date : 12.04.98 23:32:08 LC : B IQ : 00
Lat1 : 19.730N Lon1 : 155.023W
164 2386 3255 31
00 00

24196 Date : 14.04.98 19:24:46 LC : Z IQ : 10
Lat1 : 23.483N Lon1 : 168.787W
163 423 1078 20
00 00

24196 Date : 16.04.98 19:00:56 LC : 0 IQ : 50
Lat1 : 19.746N Lon1 : 155.054W
163 3013 674 32
00 00

24196 Date : 17.04.98 18:53:33 LC : 2 IQ : 60
164 2502 395 50 Lat2 : 19.739N Lon2 : 155.039W
00 00

24196 Date : 21.04.98 17:57:21 LC : 0 IQ : 50
Lat1 : 19.732N Lon1 : 155.070W
163 3082 826 26
00 00

24196 Date : 22.04.98 01:14:57 LC : B IQ : 00
Lat1 : 19.745N Lon1 : 155.068W
164 13184 9757 602
00 07

24196 Date : 24.04.98 00:45:47 LC : 0 IQ : 60
Lat1 : 19.754N Lon1 : 154.948W
165 2658 1023 21
00 00

24196 Date : 24.04.98 17:26:01 LC : B IQ : 00
Lat1 : 19.737N Lon1 : 155.048W
163 640 859 25
00 00

24196 Date : 26.04.98 18:20:11 LC : A IQ : 00
Lat1 : 19.648N Lon1 : 154.966W
163 2964 427 50
00 00

24196 Date : 27.04.98 05:53:04 LC : B IQ : 00
Lat1 : 19.727N Lon1 : 155.022W
00 2070 249 86
02 63

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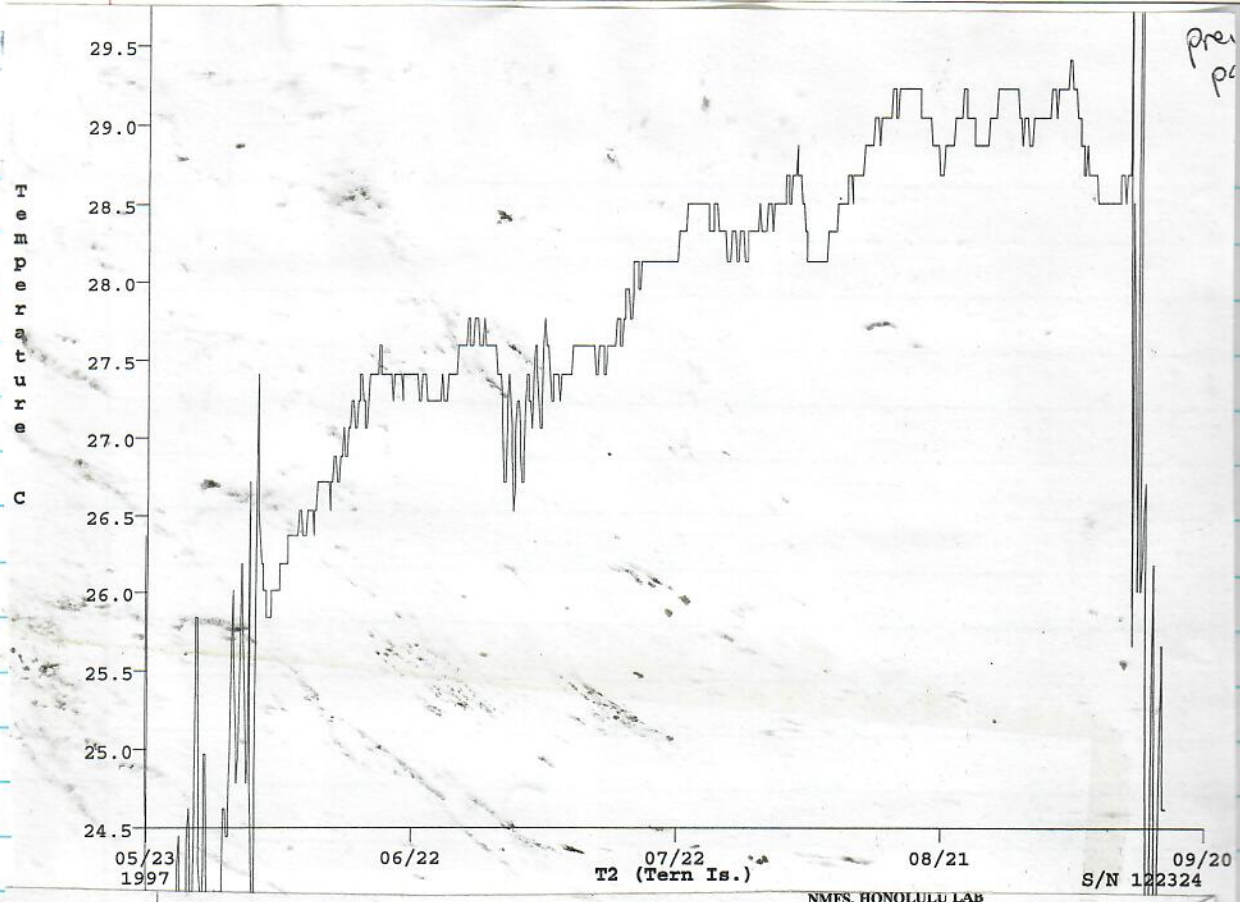
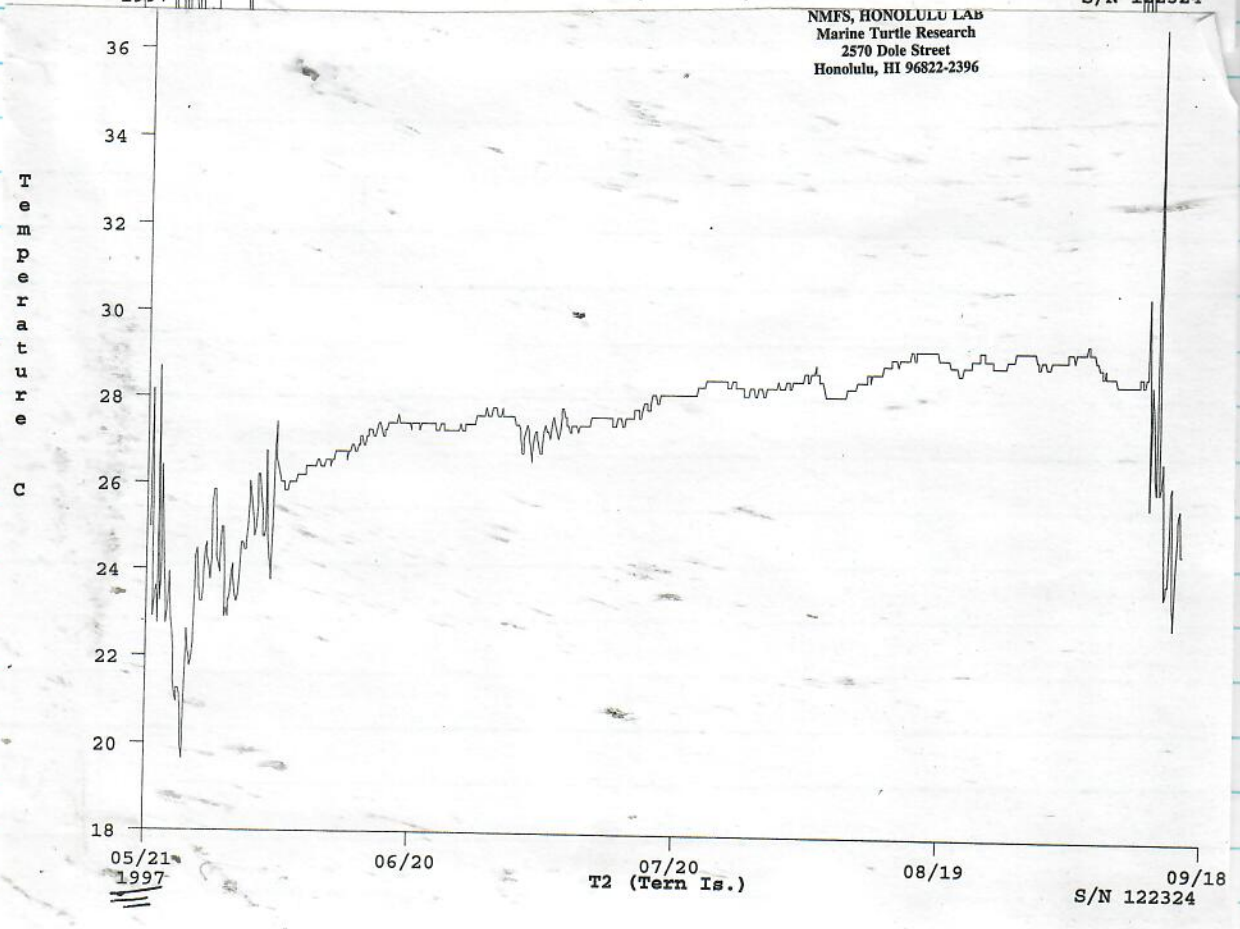
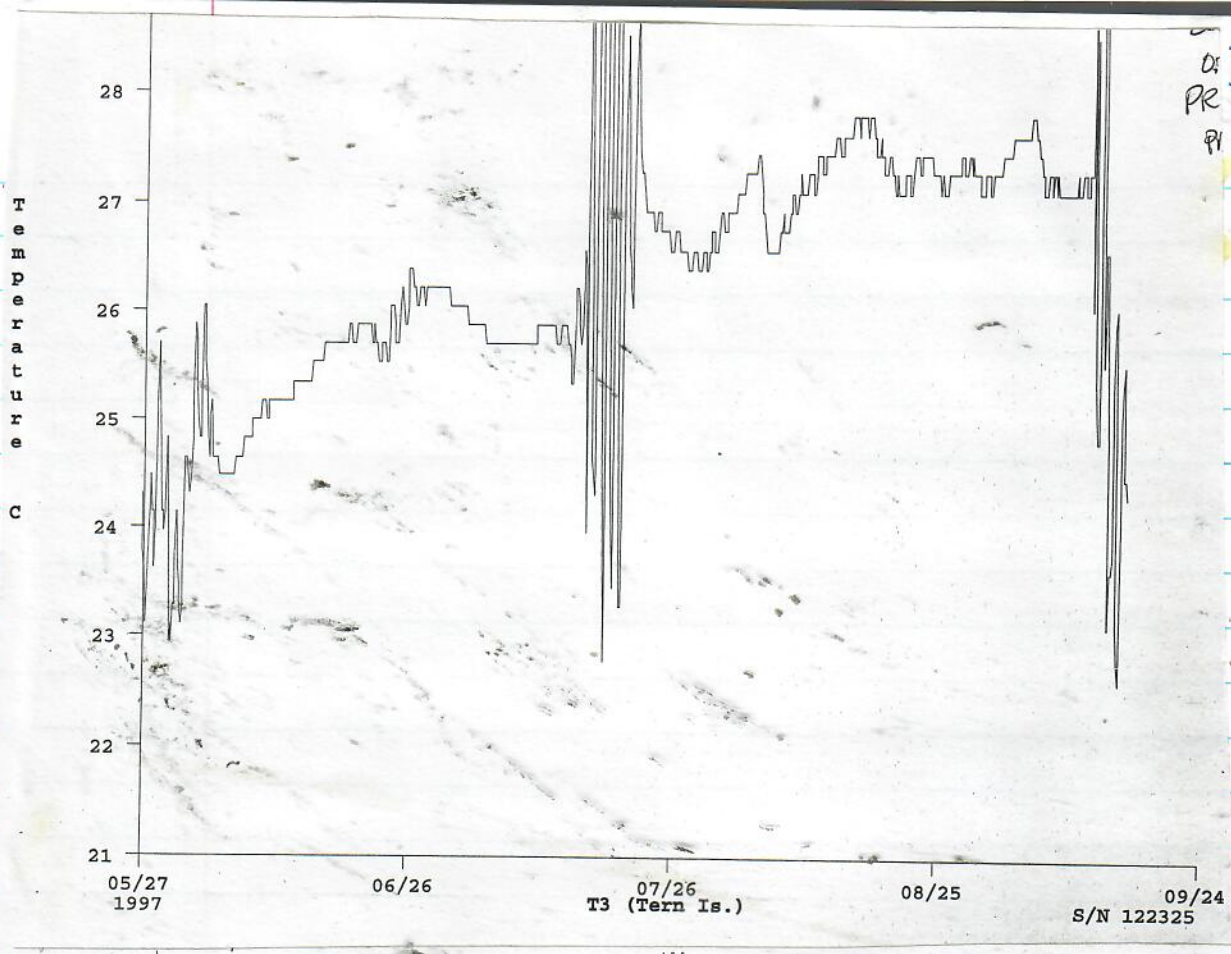
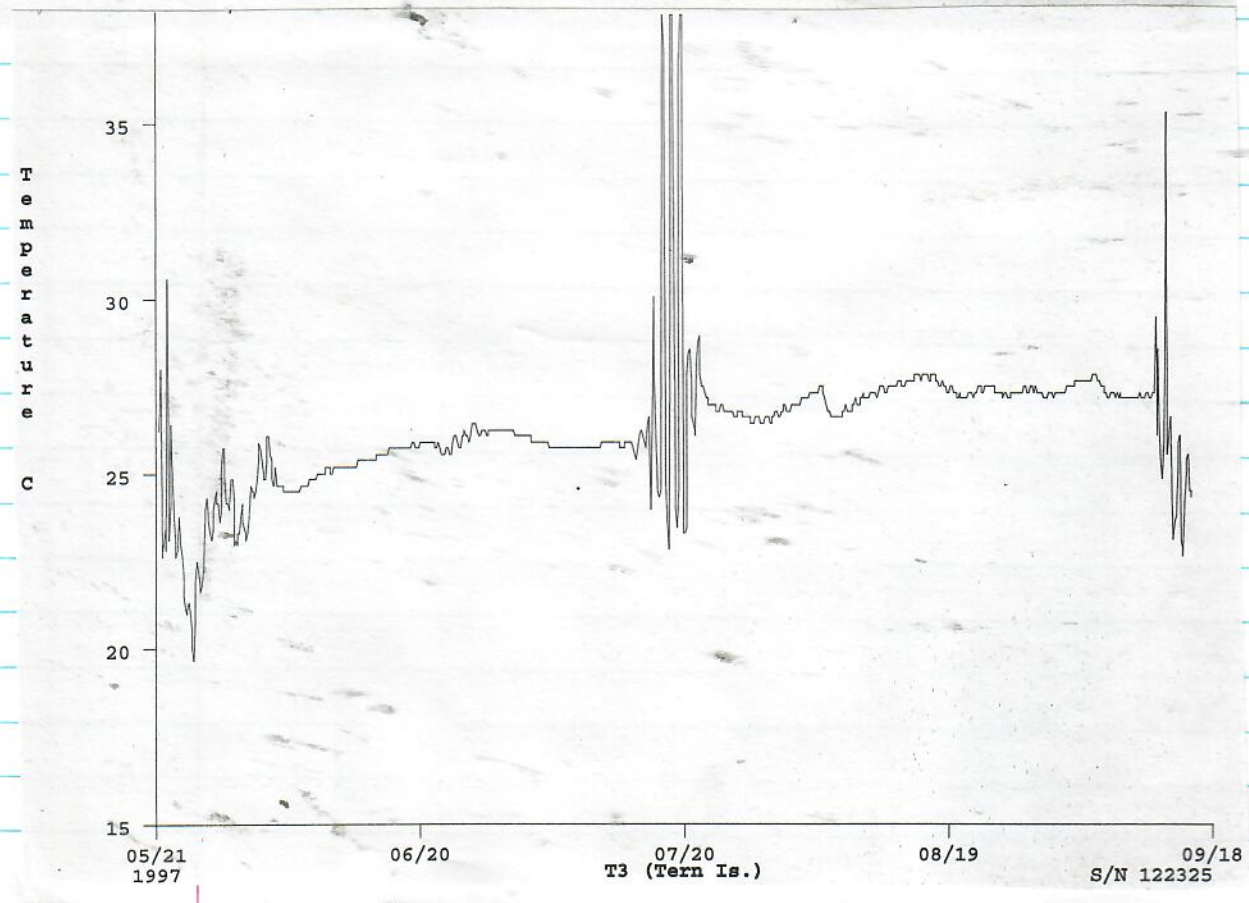


NMFS, HONOLULU LAB
Marine Turtle Research
2570 Dole Street
Honolulu, HI 96822-2396




Temperature C
28
27
26
25
24
23
22
21
05/27
1997
06/26
07/26
08/25
09/24
T3 (Tern Is.)
S/N 122325


Temperature C
35
30
25
20
15
05/21
1997
06/20
07/20
08/19
09/18
T3 (Tern Is.)
S/N 122325

102

24196 CONTINUED FROM p. 67

24196 Date : 23.12.97 23:36:00 LC : A IQ : 08
Lat1 : 21.166N Lon1 : 160.962W
171 82 117 4287
00 00

24196 Date : 24.12.97 01:11:15 LC : 0 IQ : 68
Lat1 : 21.179N Lon1 : 160.927W
171 05 117 175
00 01

24196 Date : 23.12.97 12:19:24 LC : 1 IQ : 50
Lat1 : 21.142N Lon1 : 161.154W
167 40 66 4400
00 07

24196 Date : 23.12.97 17:05:34 LC : 2 IQ : 58
Lat1 : 21.150N Lon1 : 161.064W
167 39 117 175
00 00

24196 Date : 23.12.97 19:13:31 LC : B IQ : 00
Lat1 : 21.162N Lon1 : 161.090W
169 102 117 175
00 00

24196 Date : 24.12.97 06:31:39 LC : 1 IQ : 58
Lat1 : 21.219N Lon1 : 160.827W
168 08 64 310
00 00

24196 Date : 24.12.97 05:54:17 LC : 0 IQ : 58
Lat1 : 21.227N Lon1 : 160.843W
168 07 64 310
00 01

24196 Date : 24.12.97 18:59:42 LC : B IQ : 00
Lat1 : 21.340N Lon1 : 160.450W
170 91 124 163
00 00

24196 Date : 25.12.97 01:05:32 LC : 2 IQ : 60
Lat1 : 21.384N Lon1 : 160.439W
169 30 124 163
00 00

24196 Date : 25.12.97 17:59:31 LC : A IQ : 00
Lat1 : 21.567N Lon1 : 160.012W
167 131 53350 206
00 01

24196 Date : 26.12.97 00:49:46 LC : Z IQ : 10
Lat1 : 21.568N Lon1 : 160.724W
169 19 100 204
00 00

24196 Date : 26.12.97 07:45:43 LC : 0 IQ : 50
Lat1 : 21.819N Lon1 : 159.989W
167 08 52 390
00 01

24196

24196 Date : 26.12.97 13:26:07 LC : 0 IQ : 58
Lat1 : 21.864N Lon1 : 159.836W
167 09 60 37126
00 00

24196 Date : 26.12.97 18:37:46 LC : 1 IQ : 58
Lat1 : 21.927N Lon1 : 159.772W
168 63 97 210
00 01

24196 Date : 27.12.97 18:26:06 LC : B IQ : 00
Lat1 : 21.929N Lon1 : 159.636W
165 65 414 52
00 00

24196 Date : 28.12.97 18:11:04 LC : A IQ : 60
Lat1 : 21.852N Lon1 : 159.451W
166 07 439 49
00 01

24196 Date : 28.12.97 18:35:22 LC : 0 IQ : 50
Lat1 : 21.806N Lon1 : 159.537W
166 665 439 49
00 00

24196 Date : 28.12.97 19:52:53 LC : A IQ : 08
Lat1 : 21.880N Lon1 : 159.516W
166 888 439 49
00 00

24196 Date : 29.12.97 00:17:10 LC : A IQ : 08
Lat1 : 21.875N Lon1 : 159.495W
168 72 439 49
00 32

24196 Date : 29.12.97 05:28:38 LC : B IQ : 00
Lat1 : 21.866N Lon1 : 159.464W
166 62 223 90
00 00

24196 Date : 29.12.97 19:38:23 LC : 2 IQ : 60
Lat1 : 21.869N Lon1 : 159.454W
167 64 188 114

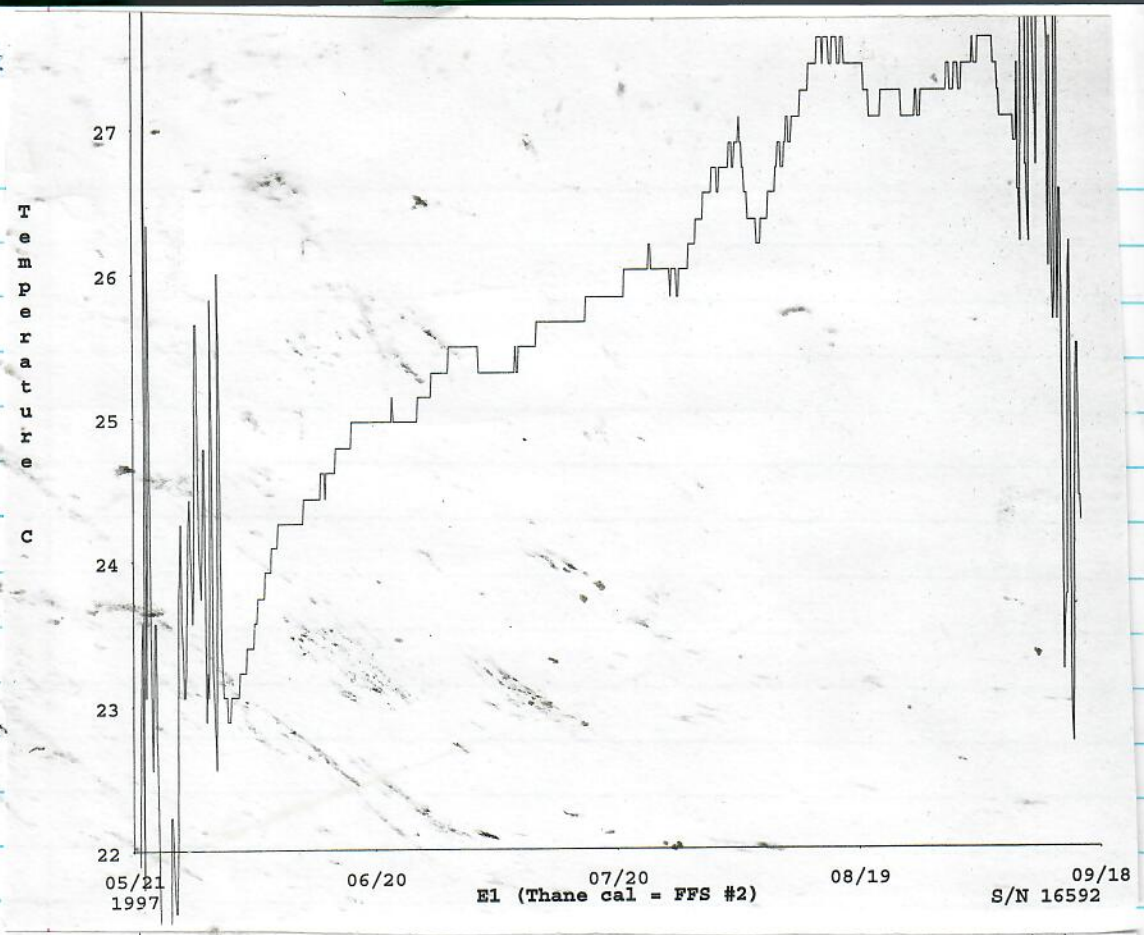
24196 Date : 29.12.97 18:08:34 LC : B IQ : 00
Lat1 : 21.863N Lon1 : 159.451W
166 29 188 114
00 00

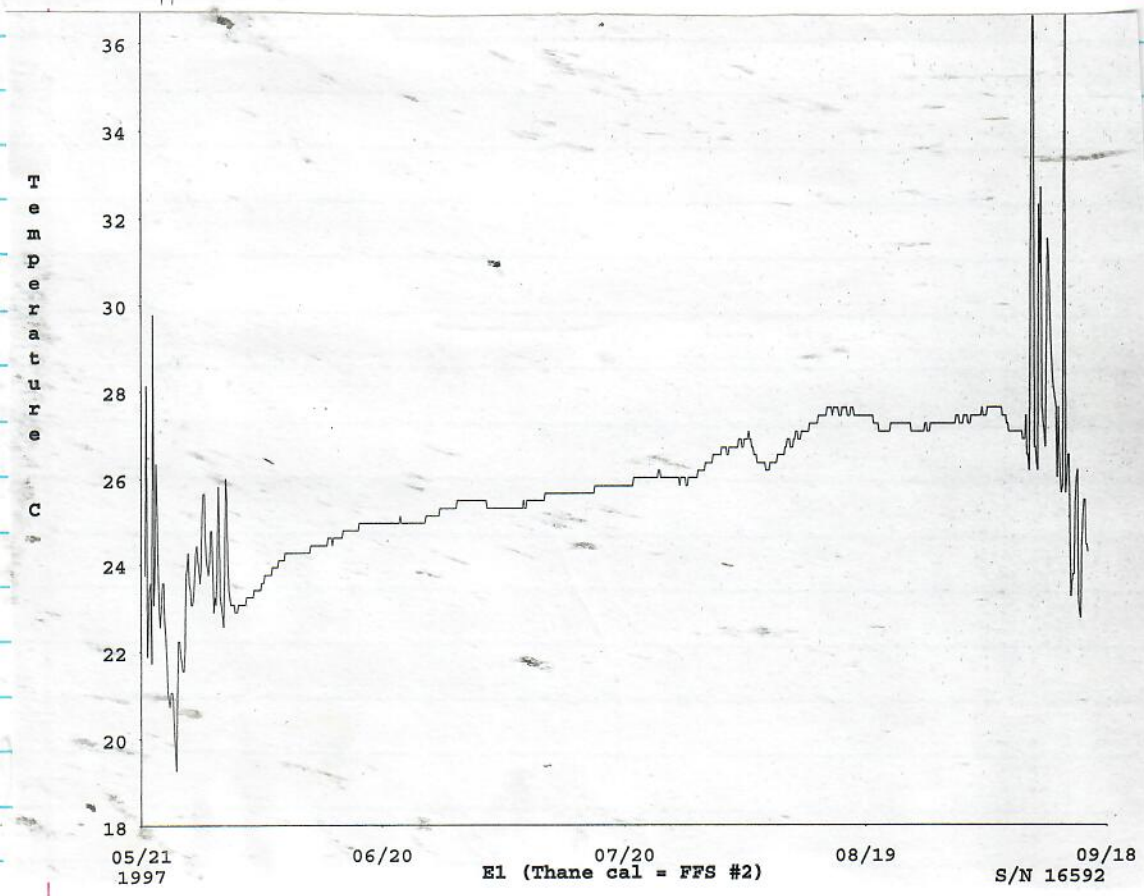
24196 Date : 29.12.97 17:58:46 LC : A IQ : 00
Lat1 : 21.999N Lon1 : 159.762W
166 18 188 114
00 00

24196 Date : 29.12.97 12:51:29 LC : B IQ : 00
Lat1 : 21.887N Lon1 : 159.464W
165 93 223 90
00 00

page pt 116

24196 Date : 30.12.97 19:30:29 LC : A IQ : 00
Lat1 : 21.922N Lon1 : 159.319W
165 432 307 70
00 00


Temperature C
27
26
25
24
23
22
05/21
1997
06/20
07/20
08/19
09/18
E1 (Thane cal = FFS #2)
S/N 16592


Temperature C
36
34
32
30
28
26
24
22
20
18
05/21
1997
06/20
07/20
08/19
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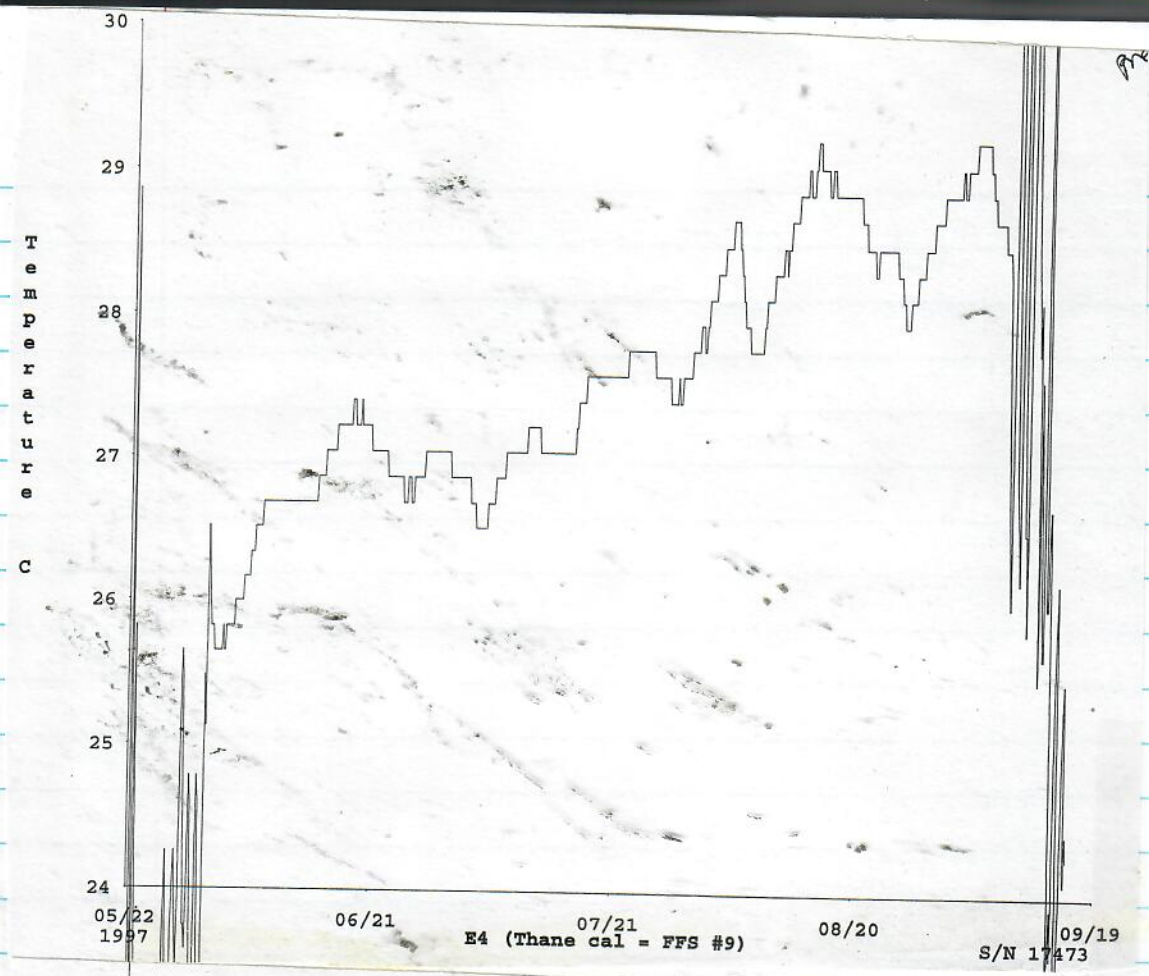
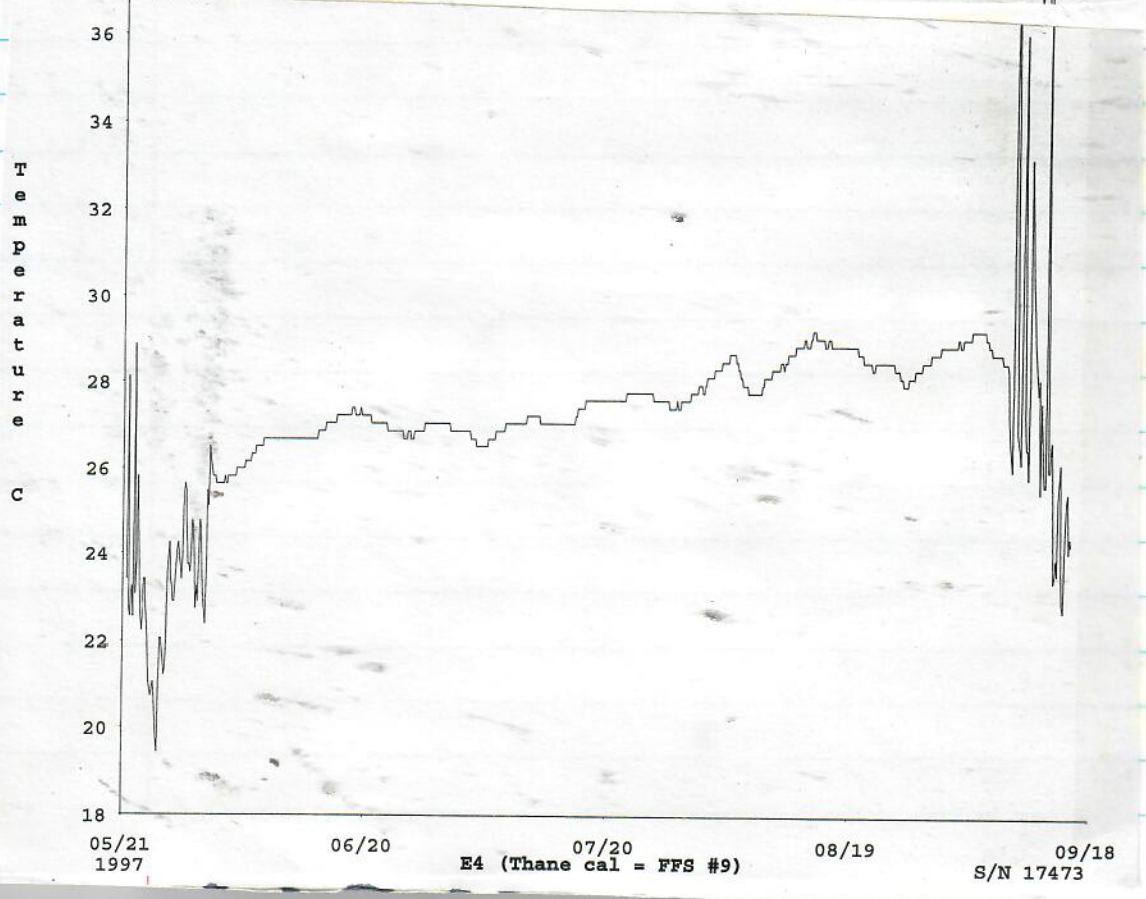
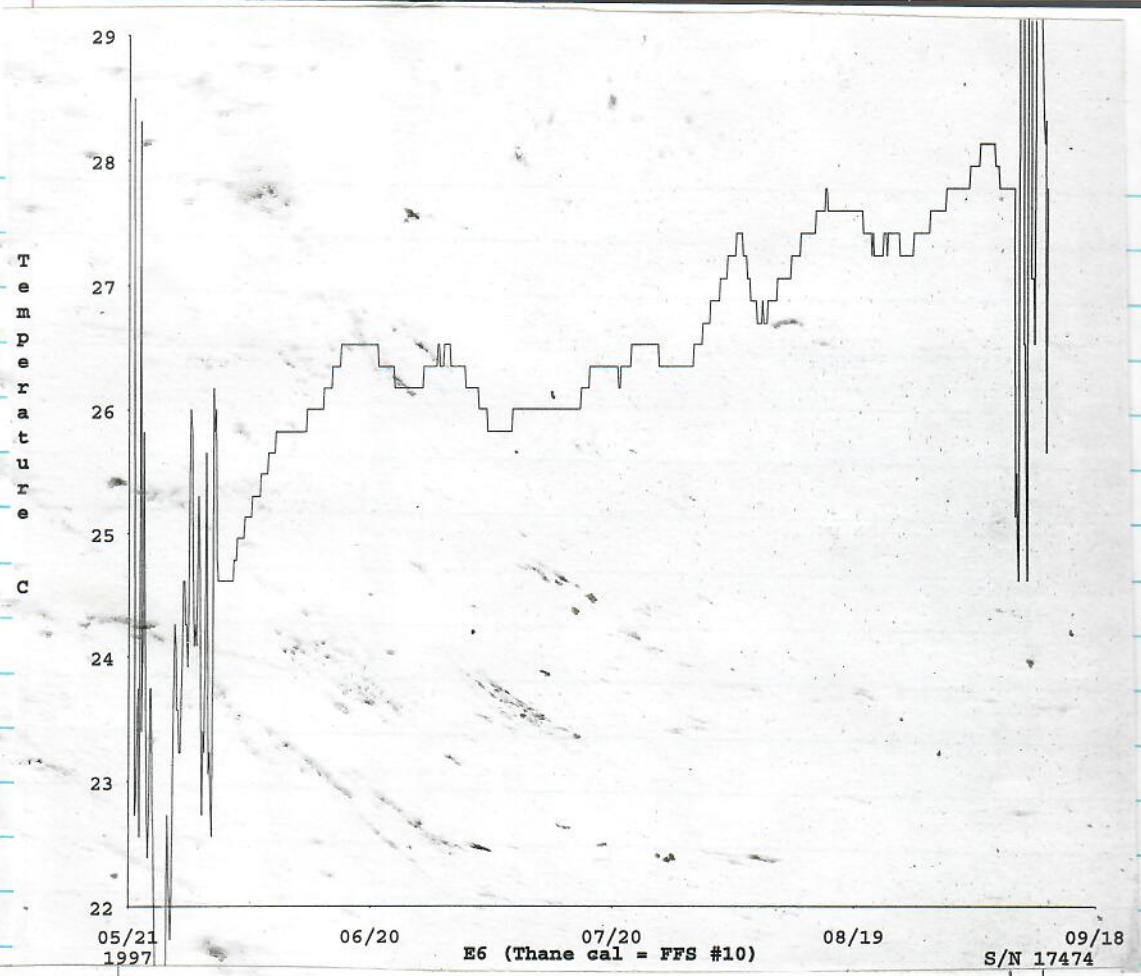
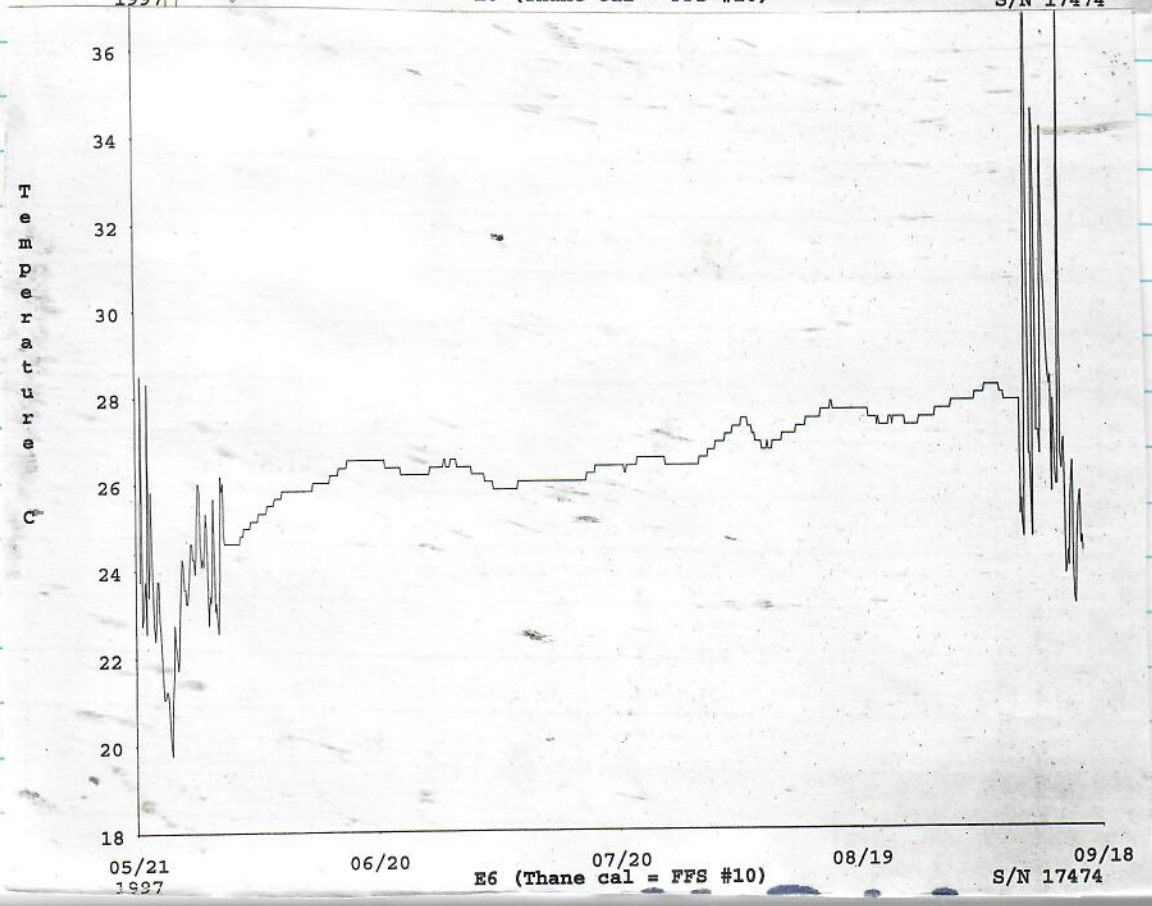
S/N 16592


30
29
28
27
26
25
24
Temperature C
05/22
1997
06/21
07/21
08/20
09/19
E4 (Thane cal = FFS #9)
S/N 17473


36
34
32
30
28
26
24
22
20
18
Temperature C
05/21
1997
06/20
07/20
08/19
09/18
E4 (Thane cal = FFS #9)
S/N 17473


Temperature C
29
28
27
26
25
24
23
22
05/21
1997
06/20
07/20
08/19
09/18
E6 (Thane cal = FFS #10)
S/N 17474


Temperature C
36
34
32
30
28
26
24
22
20
18
05/21
1997
06/20
07/20
08/19
09/18
E6 (Thane cal = FFS #10)
S/N 17474

Date: Mon, 17 Nov 1997 17:26:16 -0500
From: Larry Taylor <Taylor@HBOI.edu>
To: "'George H. Balazs'" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: RE: TCD Unit 2 of 4 (note Unit 1 is on 24195)

Re Turtle

George, I'm glad you made the tests. When a unit reaches me, I will also do end-of-life tests and check the coil current output. Also, I am going to let one of my volunteers start on re-packaging the driver to shrink the size. We will make the design scaleable for when increased battery capacity is needed and still achieve a more desirable form factor. The volunteers labor is free and they love working on projects like this (they just can't be rushed).

I have also been thinking about the problem of the turtle not leaving before the delay cycle expired. If we could get a tiny GPS receiver, we could inhibit initiation of the cycle delay until the turtle moved away from the nesting point by an amount that would indicate an intent to migrate (?? miles). While trying to make this decision, the GPS receiver could be polled to conserve power. I'll do some investigating and get back to you.

Larry Taylor
Electronics Engineer
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5600 U.S. Hwy 1 North
Ft. Pierce, FL 34946
561-465-2400 ext. 258
FAX 561-464-9094
E-mail: taylor@hboi.edu

Date: Sat, 22 Nov 1997 08:29:18 -1000 (HST)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
To: michael salmon <salmon@acc.fau.edu>
Subject: Re: 24195

Re Turtle

Mike- Interesting. Thanks for writing with your "best case senario" in our defense. Unfortunately, I myself can't buy it as you've worked it. Or at least feel there is a substantial counter-case that would far more convincing to the public, managers and even some other scientists.

The story isn't over. I'm waiting to see the final outcome of the 24195 track. She's carrying a lot of crap on her back. If she's hits the California coast, dead or alive, and is found, you can field the calls from CNN. Aloha, George

PS but, of course, I know they will all be dialing ME not you.

****
****

On Fri, 21 Nov 1997, michael salmon wrote:

> George:
>
> Thanks for the latest on 24195. The overall pattern looks interesting,
> albeit I see no evidence of any magnetic influence WE imposed! As you
> indicated, this lady seems to have headed too far South...otherwise, she
> might have made it.
>
> The bird literature has reports of occasional individuals that also "get
> lost", sometimes due to external causes (blown off course during storms) and
> sometimes from unknown (internal?) causes. I don't think what we see here
> is unusual, in the sense that complex processes are to be expected to result
> in occasional errors.
>
> Meantime, do you think this lady will ever get home?!
>
> The package with the power supply and coil arrived intact. When time
> permits, let me know ALL the ways you'd like to see the total package
> improved (i.e., copy to me any messages you've sent to Larry). Ken and I
> will be coming up with a smaller, more "user-friendly" coil. I'm hoping we
> can considerably reduce the size of (and modify the shape of) the power supply
>
> Mike

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Re Turtle

Date: Tue, 25 Nov 1997 20:25:16 -1000
From: mrice@hpa.edu
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Turtle coil question (fwd)

George,

Thanks for sending the agenda. I am looking forward to the presentations. I tried to submit the abstract today via the net-- I hope it gets through.

Ken has some interesting thoughts about the coil impacting the course of 24195. The mystery continues as the 11/25 position looks a little further east that the previous one. Mike's scenario does not play very well with me. A 1/12 occurrence is hard for me to swallow- the others made such accurate transits to their foraging sites that I just can't imagine a mistake like Mike proposes. (Of course it is possible) I keep wanting to think that 1) the material load has had some impact on her behavior and 2) there was a change in magnetic field in the vacinity of her brain- however short this alteration might have been, it could have temporarily locked in a given (altered) course. Once she was off course (for whatever reason) she may not be able to reestablish a correct course- she has lost her way! To me it certainly has the effect of wetting ones appetite to see if the whole experiment can be carried out with greater control and precision.

Isn't speculation fun.... especially when I really don't know what I am talking about.

Aloha,
Marc

****
* Marc R. Rice *
* Assistant Headmaster *
* Hawaii Preparatory Academy *
* Director, Cooperative Sea Turtle Research Program *
* fax: 808 881 4003 *
* 65-1692 Kohala Mt. Road *
* Kamuela, Hawaii 96743 *
****

For now I want to say I'm bewildered and respectfully ask for clarification as to why only $3000 was spent, when larger expenditures were available to use to build smaller units more in line with what I originally specified? Or, hasn't the bill been paid yet for Larry's work? Awhile back I asked Larry what the limiting factor was in making the units smaller (after receiving the units he ended up making). His answer was one thing, and one thing alone. Cost. About 2.5 times increase in price for each one, over the price of what he ended up building (which was = $$ each?). We simply can't move ahead until we've properly analyzed what happened in the past. At least I can't.

The track map for 24195 is being updated today and will be relayed to you and Ken shortly. As of this morning, she was still out there, the track is not "finished" hence why I haven't had anything yet to say to you-all as to where were at and where we're going. The two remaining units are in the final stage of the test. Please be patient. George

****

On Mon, 15 Dec 1997, michael salmon wrote:

> George:
>
> What's the latest on 24195?
>
> We need to do some thinking about the project. Thus far, we've spent $3000
> of the total allocated, and (not for lack of trying!) haven't got much to
> show for it. I'd like to get the remaining units returned and modified
> according to your original specifications so that we get exactly what we
> want. That will also include a significant reduction in the size of the coils
>
> But all that assumes you are willing to try again. Are you, in spite of
> 24195? And if the answer is yes, can we possibly make more than one trip to
> FFS to increase our chances of success? Can Ken and/or I join you there?
>
> Mike

Date: Tue, 25 Nov 1997 07:27:27 -1000 (HST)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
To: Ken Lohmann <klohmann@gibbs.oit.unc.edu>
Cc: "Salmon, Michael" <SALMON@ACC.FAU.EDU>
Subject: Re: 24195

Ken- Yes, what you said below would be perfectly fine with me for you to tell him.

Unofficially, as of this morning, the turtle is veering more east and if this continues it will never make the Hawaiian Islands. I'm a bit sick over this. Not so much that we may have influenced it by magnetic field. That's not my problem at all. What I'm ill about is the SIZE and SHAPE of the damned gear I glued to it's back. I have bad feelings for Harbor branch and Larry for making the contraption this size, when a model of what size I said it should be was supplied to them months and months early. Why was all of this ignored?

Sorry, I needed to vent the above. George
****
****

On Tue, 25 Nov 1997, Ken Lohmann wrote:

> Hi George and Mike:
>
> Just received the fax of the turtle's path. How very strange! I
> don't have any good explanation for why a turtle would follow this kind of
> path, unless the coil turned on as expected but not off. I just e-mailed a
> note to Larry Taylor asking if this was possible. If not, then I'm
> mystified. On the surface of it, a logical conclusion would be that the
> field did have some effect after all -- but then again, maybe we just had
> the bad luck to get an oddball turtle that would have taken this strange
> course anyway!
>
> One question for you two. Paolo Luschi e-mailed me again last week
> and wanted to know if we had anything new to report on this turtle. I
> haven't replied yet. I don't want to be secretive or to mislead anyone,
> but I can appreciate that we may now need to give some thought to exactly
> what we say, and about what info gets out before we've thought everything
> through (and seen how this initial experiment ends). For now, since I need
> to tell Paolo something, is it okay with you two if I just tell him that
> the turtle seems to have altered course and veered to the northeast, but
> that we'll have to wait for a complete path? I can also emphasize that we
> don't yet know what, if anything, this all means; it might be a magnetic
> effect or it might be a coincidence.
>
> Regards, Ken

Date: Mon, 15 Dec 1997 13:31:56 -0500
From: michael salmon <salmon@acc.fau.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: NG project

George:

So sorry to hear about your mother! Respond when time/conditions permit!

Larry and I have apparently had all kinds of communication problems. I knew nothing about the price constraints, nor was I informed that for more money he could build exactly what you wanted. I was ALWAYS under the impression that he was following your directions...until I learned from you otherwise!

This will not happen again!

Mike

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24195 CONTINUED FROM PAGE 82

24195 Date : 27.12.97 05:52:46 LC : 1 IQ : 58
Lat1 : 22.204N Lon1 : 160.109W
154 13 102 205
00 01

24195 Date : 27.12.97 07:34:04 LC : 0 IQ : 58
Lat1 : 22.180N Lon1 : 160.096W
154 31 102 205
00 00

24195 Date : 28.12.97 00:28:31 LC : B IQ : 00
Lat1 : 22.110N Lon1 : 159.671W
156 587 128 162
00 01

24195 Date : 27.12.97 13:11:20 LC : Z IQ : 10
Lat1 : 22.131N Lon1 : 159.973W
154 07 94 219
00 01

24195 Date : 27.12.97 17:17:37 LC : A IQ : 08
Lat1 : 22.121N Lon1 : 159.850W
154 50 94 219
00 02

24195 Date : 28.12.97 07:24:05 LC : A IQ : 00
Lat1 : 22.120N Lon1 : 159.735W
155 56 128 162
00 00

24195 Date : 29.12.97 02:01:46 LC : 1 IQ : 50
Lat1 : 22.135N Lon1 : 159.737W
156 258 139 151
00 00

24195 Date : 29.12.97 07:12:58 LC : B IQ : 00
Lat1 : 22.126N Lon1 : 159.781W
155 157 139 151
00 00

24195 Date : 30.12.97 01:51:21 LC : B IQ : 00
Lat1 : 22.140N Lon1 : 159.747W
155 231 125 170
00 01

24195 Date : 30.12.97 00:09:23 LC : B IQ : 00
Lat1 : 22.135N Lon1 : 159.661W
155 11 93 8362
01 00

24195 Date : 30.12.97 06:59:51 LC : 1 IQ : 50
Lat1 : 22.147N Lon1 : 159.742W
154 52 125 170
00 04

24196 (from page 99)

24196 Date : 29.04.98 23:39:00 LC : B IQ : 00
Lat1 : 19.730N Lon1 : 155.038W
164 2634 148 20543
03 09

24196 Date : 04.05.98 00:37:37 LC : A IQ : 00
Lat1 : 19.756N Lon1 : 155.047W
164 941 861 25
00 00

24196 Date : 05.05.98 13:00:19 LC : B IQ : 00
Lat1 : 19.738N Lon1 : 155.028W
156 1080 524 40
00 01

24196 Date : 06.05.98 18:12:14 LC : 0 IQ : 50
Lat1 : 19.737N Lon1 : 155.030W
164 2850 797 27
00 00

24196 Date : 06.05.98 19:55:52 LC : B IQ : 00
Lat1 : 19.736N Lon1 : 155.028W
164 2996 797 27
00 00

24196 Date : 10.05.98 18:11:14 LC : 0 IQ : 60
Lat1 : 19.730N Lon1 : 155.022W
164 2990 393 54
00 00

24196 Date : 08.05.98 17:18:46 LC : 0 IQ : 60
Lat1 : 19.722N Lon1 : 155.087W
163 2483 793 27
00 00

24196 Date : 12.05.98 17:22:10 LC : A IQ : 00
Lat1 : 19.628N Lon1 : 154.880W
163 2957 416 51
00 00

24196 Date : 13.05.98 00:38:12 LC : B IQ : 00
Lat1 : 20.677N Lon1 : 150.822W (Lat2 : 19.736N Lon2 : 155.015W)
165 1079 416 51
00 00

24196 Date : 16.05.98 19:33:27 LC : 2 IQ : 50
Lat1 : 19.734N Lon1 : 155.025W
165 3070 2714 2361
00 08

24196 Date : 21.05.98 13:24:57 LC : B IQ : 00
Lat1 : 19.739N Lon1 : 155.019W
157 991 621 34
00 00

24196 Date : 21.05.98 17:33:35 LC : B IQ : 00
Lat1 : 19.793N Lon1 : 154.946W
162 891 797 27
00 00

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24196

from page 120

24196 Date : 15.01.98 18:38:34 LC : B IQ : 00
Lat1 : 21.690N Lon1 : 158.009W
163 177 283 75
00 00

24196 Date : 15.01.98 19:29:56 LC : B IQ : 00
Lat1 : 21.709N Lon1 : 158.025W
164 297 283 75
00 00

24196 Date : 15.01.98 00:35:48 LC : B IQ : 00
Lat1 : 21.688N Lon1 : 157.946W
165 398 235 91
00 00

24196 Date : 17.01.98 05:33:32 LC : B IQ : 00
Lat1 : 21.706N Lon1 : 157.964W
00 2814 615 32
00 07

24196 Date : 18.01.98 17:31:24 LC : A IQ : 00
Lat1 : 21.660N Lon1 : 157.899W
163 21 236 90
00 00

24196 Date : 18.01.98 23:46:46 LC : B IQ : 00
Lat1 : 21.614N Lon1 : 157.832W
164 953 236 90
00 01

24196 Date : 19.01.98 18:47:22 LC : B IQ : 00
Lat1 : 21.735N Lon1 : 158.010W
163 652 375 57
00 00

24196 Date : 19.01.98 23:37:57 LC : B IQ : 00
Lat1 : 21.519N Lon1 : 157.793W
165 113 375 57
00 01

24196 Date : 20.01.98 18:27:38 LC : B IO : 00
Lat1 : 21.440N Lon1 : 157.783W
163 169 218 98
00 00

24196 Date : 20.01.98 05:55:16 LC : A IQ : 00
Lat1 : 25.064N Lon1 : 141.898W
165 155 143 149
00 00

Need LAT2 LON2 IGNORE

24196 Date : 20.01.98 01:20:14 LC : B IQ : 00
Lat1 : 21.494N Lon1 : 157.818W
165 197 375 57
00 00

24196 Date : 21.01.98 07:25:25 LC : B IQ : 00
Lat1 : 21.427N Lon1 : 157.729W
164 197 172 123
00 00

24196 Date : 21.01.98 23:17:41 LC : B IQ : 00
Lat1 : 21.325N Lon1 : 157.652W
00 782 228 94
00 05

24196 Date : 22.01.98 05:17:08 LC : 1 IQ : 50
Lat1 : 21.287N Lon1 : 157.483W
167 27 154 131
00 01

24196 Date : 22.01.98 07:12:16 LC : 1 IQ : 58
Lat1 : 21.290N Lon1 : 157.417W Lat2 : 16.524N Lon2 : 178.219W
167 23 154 131
00 00

24196 Date : 22.01.98 19:43:59 LC : A IQ : 00
Lat1 : 21.214N Lon1 : 157.065W Lat2 : 26.384N Lon2 : 179.940W
168 88 16508 167
00 00

24196 Date : 22.01.98 18:05:26 LC : B IQ : 00
Lat1 : 21.257N Lon1 : 157.098W
167 128 124 167
00 00

24196 Date : 23.01.98 17:20:25 LC : 0 IQ : 50
Lat1 : 21.181N Lon1 : 156.944W
166 09 483 44
00 00

NOT MOVING?

24196 Date : 25.01.98 00:24:15 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????
168 842 327 321
00 00

24196 Date : 25.01.98 19:02:21 LC : B IQ : 00
Lat1 : 21.155N Lon1 : 156.751W
167 2068 631 34
00 00

24196 Date : 25.01.98 06:29:10 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ???????
167 1562 310 66
00 00

24196 Date : 26.01.98 00:17:45 LC : B IQ : 00
Lat1 : 21.018N Lon1 : 156.769W
167 315 631 34
00 02

24196 Date : 28.01.98 23:39:03 LC : A IQ : 08
Lat1 : 21.107N Lon1 : 156.784W
168 977 397 54
00 01

24196 Date : 28.01.98 17:14:18 LC : A IQ : 00
Lat1 : 21.045N Lon1 : 156.846W
166 50 178 16388
03 27

24196 Date : 29.01.98 01:18:55 LC : B IQ : 00
Lat1 : 21.051N Lon1 : 156.812W
168 323 397 54
00 00

24196 Date : 27.01.98 00:06:32 LC : B IQ : 00
Lat1 : 21.128N Lon1 : 156.725W

24196 Date : 27.01.98 12:36:28 LC : A IQ : 00
Lat1 : 21.116N Lon1 : 156.726W
166 20 238 87
00 00

More 1-27-98 on page 28

To Page 28

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Reduce

Date: Mon, 15 Sep 1997 10:09:25 -0400
From: Larry Taylor <Taylor@HBOI.edu>
To: "'George H. Balazs'" <gbalazs@honlab.nmfs.hawaii.edu>
Cc: 'Michael Salmon' <SALMON@ACC.FAU.EDU>, Frank Caimi <Caimi@HBOI.edu>
Subject: Turtle Coil field results.

George,

We share your disappointment and do concur with your decisions that you made in the field. I was concerned with the 'splicing' operation because we know that something that is elementary when tried in the lab can be elevated to nearly impossible when tried under field conditions.

Here are some ideas for evaluation:
1) Review the dimensions of the unpotted coil that I sent you. My judgement is that the coil met the specifications but that the potting did not. The schedule forced us to mold the coil in one step rather than in multiple steps which would have yielded minimum profile. Also, we have ideas for a flexible silicone mold which would yield more desirable results.
2) Advise further as to the problem with the molded "tail" section (strain relief). It seems from your observations that this feature must go.
3) Since the design of the of the driver/timer electronics is complete, repackaging in a smaller housing is now feasable. A sketch will be in the documentation package to be shipped on Friday, 9/15/97.

Larry Taylor
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E-mail: taylor@hboi.edu

Reduce

Date: Thu, 2 Oct 1997 20:12:47 -0400 (GMT+4:00)
From: Ken Lohmann <klohmann@gibbs.oit.unc.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
"Salmon, Michael" <SALMON@ACC.FAU.EDU>
Subject: Re: Turtle Project

Hi George --

A ballpark figure on the coil field should be around 60 -100 mG at the target distance (meaning the center of the turtle's head), but higher right at the coil (probably more like 150 mG). Remember that the field will drop off quickly as you move the probe away from the coil. By the way, is the magnetometer you have for DC fields or only for AC? We need a DC magnetometer to measure the field we are creating; one designed to pick up AC fields may give a spurious measurement. Good luck -- I'll be interested to hear what you measure.

Regards,

Ken

>>
>>Ken and Mike--
>>
>>One of you advised me after the fact to buy an elecromagnetic field
>>tester to check that a magnetic field was actaually being generated.
>>Or, maybe it was Larry (in fact I believe it was). Anyway, I've done
>>that now, SPER Scientific that measures 0 - 199.9milliGauss. What should
>>the field read from the coil when turned on? I want tock to Larry.
>>Aloha, George
>>

Date: Mon, 6 Oct 1997 22:11:42 -0400 (GMT+4:00)
From: Ken Lohmann <klohmann@gibbs.oit.unc.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
"Salmon, Michael" <SALMON@ACC.FAU.EDU>
Subject: Re: 24195

Hi George --

That sounds intriguing. The fax number here is (919) 962-1625.

I'm in the process of checking on low-cost DC magnetometers. The only ones I know of that handle the range you'll need are pretty expensive (about 3K) but I'm hoping there is something new on the market. I haven't gone hunting for a few years so I'm not up to date on what is now available. Before giving up on the EMF tester you have, you can hold it next to a compass needle (or a small bar magnet) and see if you get any change in reading from it. If not, you can probably return it to the company for a refund. It sounds like borrowing Mike's is also an option, but it would be ideal if we could find something battery-operated and palm-sized that could easily be used in the field as well as in the lab. I'll let you know what I track down (if anything).

Thanks for sending on the photos. I think you did a good job of improvising with the shell attachment!

Regards, Ken

>Hmmmm. The coil driver was "on" for the last 5-day cycle during the early
>part of the turtle 24195's departure from FFS. The very southerly heading
>she followed during this time appears remarkable. But just how remarkable
>I will need to cross check. Certainly far-more of a southery heading than
>the other two turtles that left last month before 24195. The positions
>for the 24195 after the coil driver shut down (permanently, presumably)
>will be mapped by my people early this this week.
>
>Give me please a current fax number (for Mike and Ken) and I'll fire the
>up-to-date map to you as soon as it's completed. This could be
>exciting. But then maybe I'm just doing some wishful thinking. Geo.

Date: Tue, 20 Jan 1998 11:17:10 -0500 (EST) 1/20/98
From: michael salmon <salmon@fau.edu>
To: gbalazs@honlab.nmfs.hawaii.edu
Cc: klohmann@email.unc.edu
Subject: Visit with Larry Taylor

George and Ken:

I'm having lunch with Larry Taylor tomorrow, and seek your advice on how to handle things.

Our situation is thus. We contracted for 4 coils and 4 power supplies. They were constructed late (past deadline) and of the wrong dimensions. As a consequence, only one could be used and at that, in a jury-rigged format.

Payment was supposed to be $4000. I put down a deposit of $3000 in July. A bill has just arrived for the rest. I'm not inclined to pay it until the remaining three units are housed as we specified. Do you agree?!

(1) George, I assume that you and Larry had agreed on dimensions, and thus the responsibility for failing to provide an appropriate package for the power supply is soley his. Correct?!

(2) Were WE at fault with regard to the coils, or was it Harbor Branch According the Larry (in an earlier email), the coils were the correct size but enlarged by the potting material. If so, then that's OUR mistake and we should correct it. Please clarify!!

Let me know how you think the matter should be handled. Thanks!

Mike

From page 103

24196 Date : 30.12.97 12:41:32 LC : B IQ : 00
Lat1 : 21.930N Lon1 : 159.377W
164 181 190 109
00 01

24196 Date : 30.12.97 17:54:17 LC : B IQ : 00
Lat1 : 21.944N Lon1 : 159.355W
164 175 307 70
00 00

24196 Date : 30.12.97 17:47:24 LC : B IQ : 00
Lat1 : 21.932N Lon1 : 159.365W
164 552 307 70
00 00

24196 Date : 31.12.97 17:28:29 LC : B IQ : 00
Lat1 : 22.090N Lon1 : 159.307W
163 176 191 2160
00 00

24196 Date : 01.01.98 01:21:56 LC : B IQ : 00
Lat1 : 22.169N Lon1 : 159.280W
164 09 191 112
00 00

24196 Date : 01.01.98 23:38:39 LC : 0 IQ : 50
Lat1 : 22.202N Lon1 : 159.393W
165 1009 282 76
00 00

24196 Date : 03.01.98 06:08:37 LC : B IQ : 00
Lat1 : 22.211N Lon1 : 159.488W
165 804 310 67
00 01

24196 Date : 03.01.98 07:48:17 LC : B IQ : 00
Lat1 : 22.208N Lon1 : 159.509W
164 74 310 67
00 00

24196 Date : 03.01.98 17:59:07 LC : B IQ : 00
Lat1 : 22.240N Lon1 : 159.506W
164 433 325 66
00 00

24196 Date : 04.01.98 13:26:18 LC : B IQ : 00
Lat1 : 22.226N Lon1 : 159.430W
165 839 314 65
00 00

24196 Date : 04.01.98 17:38:18 LC : 0 IQ : 50
Lat1 : 22.229N Lon1 : 159.466W
164 06 1768 12
00 00

24196 Date : 05.01.98 18:15:02 LC : B IQ : 00
Lat1 : 22.231N Lon1 : 159.384W
164 05 755 28
00 01

24196 Date : 06.01.98 00:30:43 LC : 2 IQ : 60
Lat1 : 22.199N Lon1 : 159.328W
167 33 755 28
00 00

NOT MOVING?

24196 Date : 07.01.98 00:20:06 LC : 0 IQ : 50
Lat1 : 22.212N Lon1 : 159.342W
164 12 319 67
00 01

24196 Date : 08.01.98 01:54:58 LC : A IQ : 00
Lat1 : 22.226N Lon1 : 159.312W
165 07 884 24
00 00

24196 Date : 09.01.98 00:01:39 LC : 0 IQ : 50
Lat1 : 22.207N Lon1 : 159.263W
165 349 734 29
00 00

24196 Date : 09.01.98 17:35:35 LC : 0 IQ : 60
Lat1 : 22.206N Lon1 : 159.396W
163 1759 533 40
00 00

24196 Date : 09.01.98 23:50:41 LC : A IQ : 00
Lat1 : 22.212N Lon1 : 159.328W
164 24 533 40
00 00

24196 Date : 10.01.98 23:33:05 LC : B IQ : 00
Lat1 : 22.415N Lon1 : 158.875W
169 34 157 129
00 00

24196 Date : 10.01.98 01:30:05 LC : 2 IQ : 66
Lat1 : 22.242N Lon1 : 159.286W
166 141 533 40
00 01

4 DAYS LATER, STILL NOT MOVING?

24196 Date : 11.01.98 01:17:24 LC : 2 IQ : 60
Lat1 : 22.411N Lon1 : 158.834W
166 163 157 129
00 00

24196 Date : 11.01.98 06:08:35 LC : A IQ : 08
Lat1 : 22.344N Lon1 : 158.736W
164 141 87 236
00 01

MOVING NOW?

24196 Date : 12.01.98 01:07:21 LC : 2 IQ : 58
Lat1 : 21.982N Lon1 : 158.583W
166 64 114 181
00 00

24196 Date : 11.01.98 18:40:14 LC : B IQ : 00
Lat1 : 22.108N Lon1 : 158.619W
164 26 114 181
00 00

TO PAGE 120

---------- Forwarded message ----------
Date: Tue, 7 Oct 1997 10:36:21 -0700
From: Brenda Burger <brenda@telonics.com>
To: 'GEORGE BALAZS' <GBALAZS@honlab.nmfs.hawaii.edu>
Subject: ST-14 ANTENNA INFORMATION

Hi George,

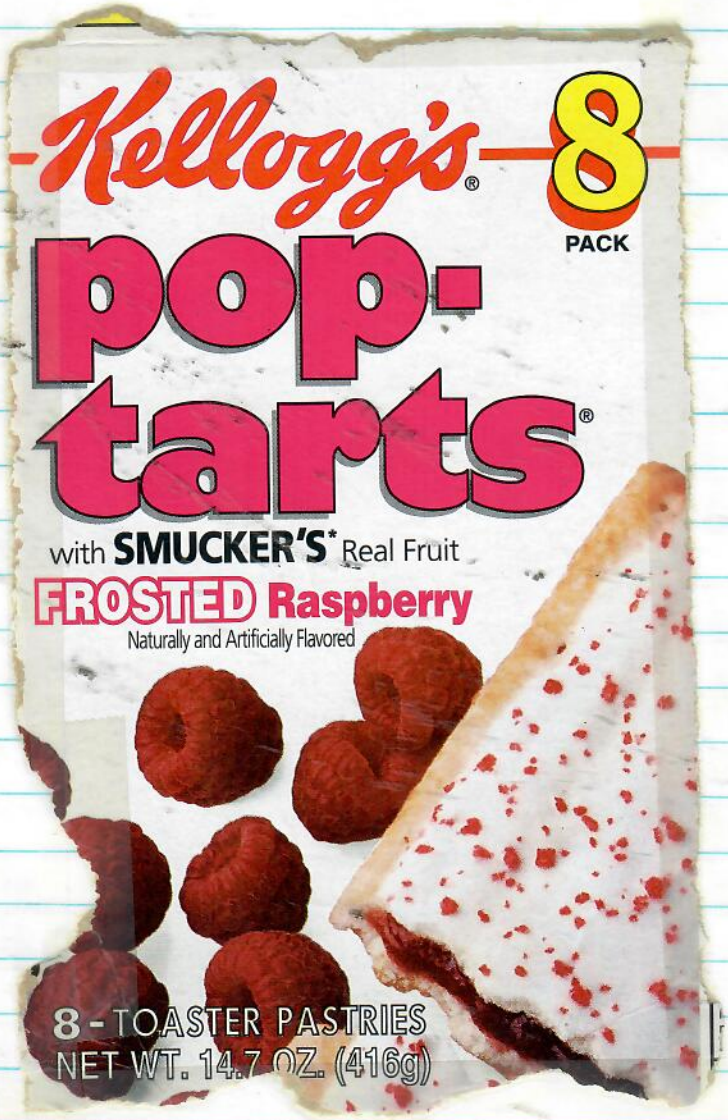
We can added additional layers of shrink sleeving. By doing this, though, it would required a larger diameter of tygon tubing. This could possibly mean the transmitter would become a little larger to accommodate this change. It is really hard to say as this change would be considered a redesign. In the process, we would need to locate the larger tygon tubing as we do not stock all sizes. We would then see how it fits on the PTT. We would not do this at this point, as we are not completely sure this would solve the breakage/abrasion problem you are experiencing. We really want to work with you on this as we know it is a continuing difficulty in your studies. Stan and I feel that we need to have the discussion on antenna design in a different forum than that of e-mail. We could have a more compressive discussion at, for example, the next Turtle Conference. Or alternatively, if your schedule permits, you could travel to Telonics. If you have any other ideas, please let me know as we would like to pursue redesign or other possible avenues with you.

In answer to your question about the anchoring of the tygon tubing; it is anchored in four places with a wire wrapped softly around the tube. It is mounted to the base plate and bonded to the transmitter. We feel this is a secure design, but would appreciate your comments.

You mentioned that Barbara Schroeder retrieved a PTT with missing tygon. This would be considered a very unusual situation. We cannot even speculate what might have occurred as numerous PTTs have been returned to Telonics all of which had the tygon intact. It would be most appreciated and useful if Barbara could return this PTT so would could examine it further.

Telonics is no longer using the CompuServe address that you used for Stan. Stan's e-mail address is stan@telonics.com.

I look forward to hearing from you soon and hope to make headway with your concerns regarding the antenna.


Kellogg's
8
PACK
pop-tarts
with SMUCKER'S* Real Fruit
FROSTED Raspberry
Naturally and Artificially Flavored
8 - TOASTER PASTRIES
NET WT. 14.7 OZ. (416g)

24196 (from page 117)

24196 Date : 11.01.98 13:49:41 LC : B IQ : 00
Lat1 : 22.216N Lon1 : 158.641W
163 266 87 236
00 00

24196 Date : 12.01.98 12:00:41 LC : B IQ : 00
Lat1 : 21.854N Lon1 : 158.502W
163 06 95 220
00 01

24196 Date : 12.01.98 05:54:47 LC : 1 IQ : 58
Lat1 : 21.929N Lon1 : 158.531W
164 144 95 220 ← moving?
00 00

24196 Date : 12.01.98 18:27:29 LC : A IQ : 00
Lat1 : 21.791N Lon1 : 158.336W
164 163 150 136
00 00

24196 Date : 13.01.98 00:55:44 LC : B IQ : 00
Lat1 : 21.715N Lon1 : 158.120W
168 148 150 136
00 00

24196 Date : 13.01.98 13:26:39 LC : 0 IQ : 50
Lat1 : 21.698N Lon1 : 158.084W
163 2619 75 281
00 00

24196 Date : 13.01.98 17:42:04 LC : A IQ : 00
Lat1 : 21.705N Lon1 : 158.007W
163 106 523 40
00 00

24196 Date : 13.01.98 18:11:34 LC : A IQ : 50
Lat1 : 21.705N Lon1 : 158.021W
163 26 523 40
00 00

24196 Date : 13.01.98 19:51:20 LC : B IQ : 00
Lat1 : 21.712N Lon1 : 157.962W
164 503 523 40
00 00

24196 Date : 14.01.98 13:17:08 LC : A IQ : 00
Lat1 : 21.954N Lon1 : 158.393W
163 339 176 118
00 00

24196 Date : 14.01.98 18:04:10 LC : A IQ : 00
Lat1 : 21.718N Lon1 : 157.954W
163 535 235 219
00 08

24196 Date : 14.01.98 19:43:48 LC : 2 IQ : 50
Lat1 : 21.702N Lon1 : 157.953W
164 199 235 91
00 00

24196 Date : 15.01.98 17:51:03 LC : 0 IQ : 60
Lat1 : 21.695N Lon1 : 157.991W
163 607 283 75
00 00

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BAS #1490

1997 FFS

Friday 12 Sept Redeye for FFS book

Date: Sun, 20 Jul 97 23:09:18 -0700
From: chuck_monnett@mail.fws.gov
To: gbalazs@honlab.nmfs.hawaii.edu
Subject: Re[2]: Sept. Flight

Roger, Roger!

Reply Separator

Subject: Re: Sept. Flight
Author: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu> at ~internet
Date: 7/17/97 9:19 AM

Thanks for your message. You won't believe this (maybe) but this morning I was to finalize it all. Which I did. I will phone them to you right now (message left on your voicemail). Note I have already spoken (this morning) with the pilot and the dates are satisfactory for him. Go to Tern September 5 Friday. Return from Tern September 11 Thursday. I hope that matches well with your and Marc's needs. The flight back onthe 5th will be all yours, as will the flight on the 11th Honolulu to Tern. Note however, as I mentioned earlier, that I anticipate being "full" outgoing on the 5th, but will do my very best to leave some weight allowance for perishables for the Tern kitchen. Aloha, George

On Tue, 15 Jul 1997 chuck_monnett@mail.fws.gov wrote:

> Mark is trying to coordinate travel to FFS for some folks using a new flight we will be adding around 8/27 and the backhaul on your first flight, in early Sept. The most critical passenger will be C. Brady, a NASA space shuttle astronaut and someone that folks around here seem to consider a VIP. Chuck is going to FFS to deliver and install a satellite telephone system at the station. This will be a free system with free air time using an old NASA satellite that is currently supporting only the NSF antarctic program at McMurdo.
>
> We need to get Chuck to FFS or we don't get the phone. So, we need to schedule Chuck's time (he is a busy guy) at FFS and would greatly appreciate it if you would lock in the dates of your flights. Please, please, please. We will even let you use the phone, if it works....and I personally will always say only the nicest things about green turtles. Thank you George. --Chuck

centigram	(cg)	0.154 grains
decigram	(dg)	1.543 grains

nectometer

Date: Wed, 17 Dec 1997 05:39:55 +0400
From: "Jeanne A. Mortimer" <jmort@seychelles.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Dimensions of the necessary plywood pen

TURTLE CONTAINER DIMENSIONS

[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

Here is the other....
Jeanne

> From: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
> To: Jeanne Mortimer <jmort@seychelles.net>
> Subject: Dimensions of the necessary plywood pen
> Date: Monday, October 27, 1997 5:09
>
>
> Jeanne- We can assemble on the island for easier shipping. 3/8 or 1/2" plywood, 33" wide, 50" long and 24" high. The corners should (must!) be 4"x4" (4 by 4's each 24" long). This will be fine, unless your hawksbills are consistently larger than 100cm SCL.
>
> Please let me know you've received this important message. Note I'm off to the Gainesville meeting on Tuesday. I will sincerely miss being able to work with you there. Aloha, George
>

****


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9.5X7.5
$4.50