

CRUISE REPORT

Cruise Number: MF-02-11
NOAA Ship *Miller Freeman*

Area of Operation:

The Gulf of Alaska, Kodiak Alaska to Seward Alaska.

Itinerary:

Depart Kodiak 1100 hrs 25 Sept. 2002
Arrive Seward 1800 hrs 4 Oct. 2002

Participating Organizations:

NOAA Pacific Marine Environmental Laboratory
NOAA Alaska Fisheries Science Center / FOCI

Chief Scientist:

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Personnel:

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Steve Smith	PMEL
Carol Dewitt	PMEL
Dave Kachel	PMEL
Jeff Napp	AFSC
Andre Burkheister	AFSC

Objectives of Cruise:

1. To recover and deploy subsurface and surface oceanographic instrumentation moorings.
2. To complete CTD casts for mooring instrument calibrations and to further identify ocean structure and water movements in this area.
3. To deploy ocean current drifting buoys.
4. To complete MOCNESS tows near mooring site GB3.
5. To collect nutrient samples at certain mooring locations.

Summary of Operations:

CTD casts	37
Salinity Samples	37
Nutrient Samples	28
MOCNESS tows	4
Drifters deployed	10
Surface Moorings recovered	2
Surface Moorings deployed	2
Subsurface Moorings recovered	19
Subsurface Moorings deployed	13

Summary of Cruise:

Equipment was loaded and secured aboard the Miller Freeman in Kodiak Alaska on Sept. 23rd and 24th. The vessel departed Kodiak at approximately 1100 hours on Sept. 25th.

As per PMEL/FOCI policy a CTD cast was performed prior to each mooring recovery and following each mooring deployment. Many of these casts were performed at night conserving the daylight hours for mooring recovery work.

We arrived at the first mooring location (inshore Chiniak Bay) about 1 hour after departing the pier at Kodiak. The inshore Chiniak Bay mooring was recovered but due to equipment problems this mooring was not redeployed until the end of leg two on this cruise. We continued working offshore recovering Chiniak Bay mooring sites 2 and 3.

From the Chiniak area the ship steamed northeast to the Gore Point Line. ADCP Moorings GP32, GP34 and GP36 were recovered and redeployed. An Argos drifting buoy was deployed between station GP32 – GP34 and another was deployed between GP34 –GP36.

The ship steamed east to mooring GB13. This mooring was recovered and re-deployed. Next, moorings GB10, GB4 and GB5 were recovered. Following the recovery of GB5 an Argos drifter buoy was deployed. We steamed backed to site GB4 to deploy that mooring and released an Argos drifting buoy following this deployment. We steamed south to the FATE surface mooring location. This mooring was recovered and redeployed. Following the mooring deployment 3 drifter buoys were deployed, 2 Argos drifters and one experimental drifter using the Iridium satellite system.

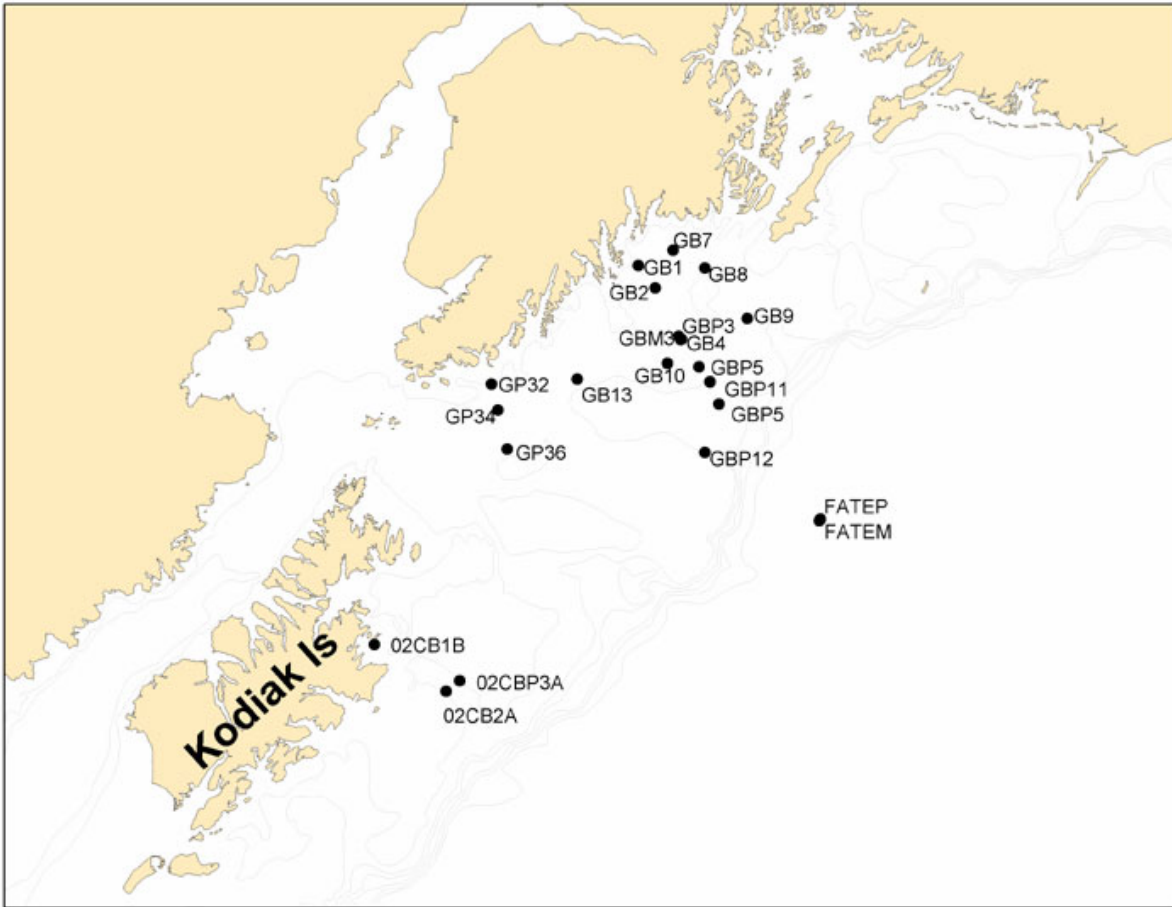
The ship remained near the FATE surface mooring while we observed the condition of the deployed buoy. The donut float showed less than normal freeboard and the buoy was not riding up and over the 5-6 foot waves, rather the waves were washing over the buoy. It appeared that the length of a spool of the deployed nylon was incorrectly marked so the mooring was deployed on too short of a line. In its present configuration this mooring would not survive the winter waves. The FATE surface mooring was recovered and redeployed with an additional 100 meters of 7/8th inch nylon placed below the release. This second deployment gained about 3-4 inches of freeboard on the buoy and the buoy rode up and over the wave as designed. We did not have a spare anchor for this second

deployment so the anchor for the FATE subsurface ADCP mooring was used and the FATE ADCP mooring was not deployed.

Following 2 days at the FATE location we steamed north to resume mooring operations on the GLOBEC line. Mooring GB12 was recovered and deployed as was mooring

GB11. Mooring GB5 was deployed and GBP3 was recovered. Next on the agenda was the recovery of the surface mooring GBM3. From here we moved to mooring GB2 for a recovery and deployment, followed by a drifter deployment. GB7 was recovered, GB1 was recovered and deployed and an Argos drifter was deployed. We returned to mooring location GB3 to conduct 2 night MOCNESS tows. Upon completion of these tows the surface mooring at site GB3 was deployed and we completed 2 daylight MOCNESS tows. Mooring GBP3 and GB3 were deployed and an Argos drifter was released before we left site GB3. Traveling northeast we recovered moorings GB9 and GB8 completing the mooring operations scheduled for this cruise. The ship steamed to Seward Alaska arriving at 1800 hrs on 4 Oct. The mooring personnel departed the ship and flew to Nome to board the Canadian vessel *Sir Wilfred Laurier*. Nancy Kachel and others boarded the Miller Freeman in Seward and began MF-02-11 leg 2.

The Benthos releases and or Benthos deck sets continue to be problematic. Difficulties in ranging on and releasing moorings were observed. In several cases an EdgeTech deck unit had to be substituted for the Benthos deck set to successfully communicate with the Benthos acoustic releases.



Time Table/Ship's MOA:

09/25/2002,20:32:50,Arrive area,arrive stn
 02cb1b,0,203249.0000,5743.1289,-
 15217.9639,98.3000,8.0000,171.8000,1017.2000,12.1000,13.600
 0,204.6000,10.1210,31.0390,,,

09/25/2002,20:40:54,CTD,ctd 001,4,204053.0000,5743.0923,-
 15217.1836,152.1000,0.6000,178.5000,1017.1000,11.9000,13.20
 00,214.3000,10.0530,31.1380,,1.4090,

09/25/2002,20:41:20,OTHER,last button was for when ctd 001
 was deployed, not at depth,0,204118.0000,5743.0903,-
 15217.1895,152.1000,0.5000,177.6000,1017.2000,11.9000,15.10
 00,207.6000,10.0570,31.1380,,,

09/25/2002,20:50:48,CTD,ctd 001 at
 depth,8,205047.0000,5743.1675,-
 15217.2363,358.9000,0.4000,196.7000,1017.4000,11.4000,20.20
 00,208.5000,10.1610,31.0240,0.0140,1.3710,

09/25/2002,21:13:18,Mring release,bouy #02cb1b
released,8,211317.0000,5743.5195,-
15217.4746,71.6000,0.5000,169.0000,1017.1000,12.1000,14.700
0,207.8000,10.0250,31.1010,,0.9400,

09/25/2002,21:35:48,Mring aboard,#02cb1b on
board,8,213546.0000,5743.3062,-
15217.3262,75.5000,1.1000,196.6000,1017.0000,11.4000,18.300
0,196.7000,10.0670,31.1210,0.0130,0.7100,

09/25/2002,21:56:00,OTHER,shutting down Moa to add eq50
corrected,0,215559.0000,5742.6753,-
15211.4268,125.9000,11.2000,94.1000,1017.0000,10.9000,17.20
00,183.5000,9.6940,31.3790,,,

09/25/2002,22:00:14,OTHER,test,4,220012.0000,5742.2095,-
15210.2393,126.6000,11.5000,115.8000,113.0000,1016.9000,10.
9000,21.2000,188.7000,9.8840,31.3010,,1.2200,

09/25/2002,22:02:06,Cntr Brd
Down,,6,220204.0000,5742.0073,-
15209.7168,124.8000,10.8000,116.3000,114.1000,1017.1000,10.
9000,18.4000,189.4000,9.9200,31.2840,,,

09/26/2002,00:15:00,CTD,ARRIVE AREA 02CB-
2A,0,1458.0000,5727.8027,-
15135.2031,118.9000,2.8000,114.4000,112.0000,1016.4000,10.3
000,10.5000,144.8000,9.5270,31.5410,,0.2960,

09/26/2002,00:27:28,CTD,CTD 002 AT DEPTH
,8,2727.0000,5727.8706,-
15135.3184,352.8000,0.3000,115.9000,114.0000,1016.2000,10.2
000,10.4000,111.5000,9.5760,31.5430,,0.1010,

09/26/2002,00:45:39,Mring release,02CB 2A
RELEASED,9,4537.0000,5727.7319,-
15135.1572,284.3000,0.5000,110.8000,109.0000,1016.0000,10.5
000,10.7000,105.3000,9.5400,31.5420,0.0290,0.2180,

09/26/2002,01:02:11,Mring aboard,02CB 2A
ABOARD,1,10209.0000,5727.6284,-
15134.8994,209.6000,0.8000,109.6000,107.1000,1015.7000,10.2
000,17.0000,110.5000,9.5440,31.5520,,0.1660,

09/26/2002,01:13:02,Leave area,LEFT AREA AT
0105,2,11301.0000,5728.4727,-
15132.7090,52.6000,11.1000,150.8000,147.1000,1015.3000,10.2
000,13.7000,114.8000,9.5130,31.6350,,0.1580,

09/26/2002,01:34:29,Arrive area,ARRIVE 02CBP-
3A,9,13428.0000,5730.8525,-15127.3242,,,,,,,,,,,,,

09/26/2002,01:46:45,CTD,CTD 003 AT
DEPTH,5,14644.0000,5731.0313,-
15127.3311,311.9000,0.9000,143.3000,140.1000,1014.9000,10.3
000,14.4000,100.0000,9.6130,31.2610,0.0780,0.0850,
09/26/2002,02:32:52,Mring release,02CBP 3A RELEASED UNKNOWN
EXACT TIME,2,23251.0000,5730.9829,-
15126.7061,64.6000,4.4000,143.4000,142.0000,1013.8000,10.50
00,16.8000,105.0000,9.5740,31.2550,0.0820,0.0400,
09/26/2002,03:17:19,Mring aboard,MOORING 02CBP 3A
ONBOARD,9,31717.0000,5730.1958,-
15126.9971,203.6000,1.4000,150.8000,147.1000,1013.2000,10.7
000,19.0000,93.5000,9.6060,31.2640,,,
09/26/2002,03:53:37,SUNSET,SUNSET CALCULATED 1952
LOCAL,7,35335.0000,5730.2852,-
15127.7861,292.9000,1.0000,148.5000,145.1000,1012.6000,10.9
000,18.4000,104.9000,9.5580,31.2980,,0.0030,
09/26/2002,10:49:46,Arrive area,ARRIVE 02GPP-36 FOR
CTD,6,104945.0000,5845.1118,-
15052.2598,347.1000,10.1000,177.1000,173.1000,1010.8000,10.
9000,23.7000,79.3000,9.5450,31.6980,,0.0000,
09/26/2002,11:08:45,CTD,CTD 004,5,110844.0000,5845.0317,-
15052.8545,247.6000,1.4000,177.0000,173.1000,1011.3000,10.7
000,16.1000,72.0000,9.5870,31.6930,,0.0000,
09/26/2002,11:16:36,Leave area,LEAVE AREA FOR CTD
004,6,111635.0000,5844.9219,-
15052.9834,208.3000,2.6000,181.2000,178.0000,1010.9000,10.7
000,15.0000,77.8000,9.5930,31.7050,,0.0000,
09/26/2002,12:34:25,Arrive area,ARRIVE AREA
02GP34,5,123423.0000,5857.9541,-
15056.0869,322.0000,4.7000,143.7000,142.0000,1009.5000,11.0
000,40.2000,63.1000,10.5970,31.5720,,,
09/26/2002,12:53:04,CTD,CTD 005 AT
DEPTH,4,125302.0000,5858.3203,-
15056.2139,334.4000,1.0000,151.5000,149.0000,1009.9000,11.0
000,34.7000,67.6000,10.6300,31.5550,,0.0000,
09/26/2002,13:02:10,Leave area,LEAVE CTD
005,0,130208.0000,5858.5850,-
15056.2031,334.7000,9.7000,153.2000,147.1000,1009.3000,11.0
000,34.7000,67.6000,10.5890,31.5480,,0.0010,
09/26/2002,13:59:39,Arrive area,ARRIVE 02GP-
32A,9,135937.0000,5905.7056,-
15059.3184,326.1000,4.0000,186.0000,182.0000,1008.8000,,39.
5000,63.2000,10.9290,31.5280,0.0210,,

09/26/2002,14:24:00,CTD,CTD 006 AT
DEPTH,0,142359.0000,5906.1396,-
15058.9727,27.6000,1.6000,168.2000,6.1000,1008.8000,10.6000
,35.9000,48.9000,10.8990,31.4180,0.0210,0.0010,
09/26/2002,16:08:06,Mring release,RELEASE
GP32,6,160804.0000,5906.2847,-
15059.6494,117.3000,0.8000,151.3000,147.1000,1008.4000,10.9
000,36.5000,65.5000,10.9460,31.3630,,0.0060,
09/26/2002,16:50:20,SUNRISE,SUNRISE CALCULATED 0800
LOCAL,0,165018.0000,5906.1851,-
15100.0879,330.8000,0.2000,157.3000,155.0000,1008.3000,11.0
000,31.6000,61.1000,11.4570,30.8170,,0.0420,
09/26/2002,17:16:52,Mring aboard,RECOVER GP
32,2,171650.0000,5906.1230,-
15100.2861,147.0000,0.5000,158.1000,155.1000,1008.4000,11.1
000,33.0000,64.2000,11.6040,30.2040,0.0160,0.0180,
09/26/2002,19:18:02,mooring deploy,DEPLOYED
GP32,2,191800.0000,5906.2939,-
15059.5176,52.5000,1.6000,150.7000,147.1000,1008.3000,11.50
00,6.1000,206.8000,11.6250,30.0040,,0.1790,
09/26/2002,20:12:02,CTD,CTD 007 AT
DEPTH,2,201201.0000,5905.6216,-
15100.7666,215.9000,2.6000,204.5000,201.3000,1008.5000,12.6
000,18.6000,271.6000,11.6530,30.1150,,0.5250,
09/26/2002,20:21:21,Leave area,DEPART STN GP32 AFTER
CTD,1,202119.0000,5905.3462,-
15101.1504,225.6000,2.6000,210.3000,207.9000,1008.5000,12.5
000,19.4000,275.2000,11.6500,30.1480,,1.2560,
09/26/2002,20:23:29,drifter deploy,37517 DRIFTER
DEPLOY,9,202328.0000,5905.2393,-
15101.2373,193.4000,6.0000,191.6000,189.2000,1008.4000,12.7
000,19.5000,263.5000,11.6580,30.1570,,,
09/26/2002,21:13:08,Arrive area,ARRIVE 02GP-
32A,8,211306.0000,5857.6587,-
15055.5889,196.9000,1.9000,147.2000,145.1000,1008.8000,12.4
000,13.9000,270.9000,10.8880,31.7230,,1.4060,
09/26/2002,21:14:57,Arrive area,LAST ARRIVE AREA WAS TO
02GP-34 NOT 02GP-32,7,211456.0000,5857.6250,-
15055.6104,218.3000,1.2000,147.8000,146.2000,1008.8000,12.4
000,13.0000,265.6000,10.8890,31.7170,0.0170,1.3900,
09/26/2002,21:48:02,Mring release,RELEASE 02GP-
34,2,214801.0000,5857.6460,-

15055.8652,3.4000,2.0000,145.8000,144.9000,1009.1000,11.900
0,9.0000,237.6000,10.7690,31.7080,0.0190,0.9450,
09/26/2002,21:48:22,OTHER, LAST RELEASE HAD NO
CONFORMATION,2,214821.0000,5857.6548,-
15055.8613,353.5000,1.9000,145.8000,144.0000,1009.1000,11.7
000,9.1000,236.6000,10.7750,31.7080,,0.7330,
09/26/2002,21:50:11,Mring release,RELEASE, MOORING ON
SURFACE,1,215010.0000,5857.6978,-
15055.8740,327.0000,1.5000,145.8000,144.9000,1009.2000,11.4
000,10.0000,248.5000,10.7540,31.7120,,,
09/26/2002,22:38:19,Mring aboard,MOORING GP34A ON
DECK,9,223818.0000,5857.0288,-
15057.1826,211.4000,1.7000,141.5000,140.6000,1009.1000,11.5
000,14.3000,195.0000,10.7980,31.7080,,1.1920,
09/27/2002,00:18:35,mooring deploy,DEPLOY MOORING
GP34B,5,1833.0000,5857.7764,-
15055.9951,171.4000,2.1000,143.9000,142.7000,1008.6000,11.5
000,18.0000,202.1000,10.5600,31.7260,,,
09/27/2002,00:41:45,CTD,CTD 08 AT DEPTH
,5,4143.0000,5858.1362,-
15056.9785,262.6000,1.4000,150.1000,148.3000,1009.1000,11.5
000,13.7000,204.4000,10.6020,31.7110,0.0250,0.4710,
09/27/2002,00:49:09,drifter deploy,DRIFTER 37519
DEPLOYED,9,4908.0000,5858.1030,-
15057.3887,231.0000,3.0000,156.2000,155.0000,1009.0000,11.6
000,15.9000,199.5000,10.6070,31.7140,,0.5530,
09/27/2002,00:50:39,Leave area,LEAVE AREA GP
34,9,5038.0000,5858.0449,-
15057.5273,235.6000,4.8000,161.0000,159.4000,1009.0000,11.9
000,14.6000,203.9000,10.5960,31.7090,0.0290,1.3390,
09/27/2002,02:08:21,Arrive area,02GPP-36A,B
ARRIVE,1,20819.0000,5845.6782,-
15052.2002,165.8000,8.9000,179.3000,177.0000,1008.6000,11.0
000,19.9000,199.9000,9.5390,31.7140,,0.7920,
09/27/2002,02:22:57,Mring release,MOORING 02GPP 36A
RELEASED,7,22255.0000,5845.1494,-
15052.0605,70.3000,1.2000,176.9000,175.8000,1008.8000,11.30
00,18.7000,206.1000,9.5830,31.7160,,0.7020,
09/27/2002,03:12:11,Mring aboard,MOORING 02GPP 36A
ABOARD,1,31210.0000,5844.8418,-
15051.9727,114.5000,1.7000,185.1000,182.5000,1008.8000,11.1
000,20.8000,213.1000,9.5840,31.7100,,0.0840,

09/27/2002,04:00:11,SUNSET,SUNSET CALCULATED 1947
LOCAL,1,40010.0000,5846.0508,-
15050.6445,217.0000,1.3000,179.4000,177.1000,1009.1000,11.1
000,20.5000,204.9000,9.7070,31.7150,,0.0070,
09/27/2002,04:36:20,mooring deploy,GP-36
DEPLOYED,0,43618.0000,5845.0049,-
15051.9932,203.2000,1.2000,183.0000,181.4000,1009.2000,11.3
000,25.1000,229.3000,9.5500,31.7140,0.0340,0.0000,
09/27/2002,04:54:11,CTD,CTD 009 AT
DEPTH,1,45410.0000,5844.8950,-
15052.3984,340.2000,0.7000,182.2000,180.3000,1009.5000,11.2
000,21.6000,
09/27/2002,05:21:12,OTHER,TEST,2,52111.0000,5846.8003,-
15048.3584,50.9000,10.8000,179.8000,178.1000,1009.8000,12.3
000,23.8000,217.8000,10.2150,31.6840,,0.0010,
09/27/2002,08:08:49,Arrive area,ARRIVE STN 02GBP13 FOR CTD
AN TO AWAIT DAYLIGHT HOURS,9,80848.0000,5906.5073,-
15004.8340,227.3000,5.7000,162.2000,161.5000,1010.4000,11.3
000,21.5000,228.3000,10.9750,31.1680,,0.0000,
09/27/2002,09:28:20,CTD,CTD 009
DEPLOYED,0,92818.0000,5906.3784,-
15005.8652,207.4000,1.4000,170.9000,169.3000,1010.6000,11.4
000,21.9000,228.9000,10.9570,31.1730,0.0220,0.0030,
09/27/2002,09:29:03,OTHER,LAST CTD WAS CTD 10, NOT
09,3,92902.0000,5906.3813,-
15005.8760,176.7000,1.4000,170.6000,169.3000,1010.5000,11.2
000,20.8000,231.6000,10.9580,31.1690,,0.0000,
09/27/2002,15:49:30,Mring release,GB13
RELEASED,0,154929.0000,5906.5649,-
15004.8975,175.7000,2.7000,162.9000,161.5000,1010.3000,11.0
000,16.1000,223.4000,11.2880,30.4740,0.0100,0.0070,
09/27/2002,15:58:53,SUNRISE,OBSERVED,3,155851.0000,5906.240
2,-
15005.0283,156.5000,2.8000,172.5000,170.4000,1010.2000,11.0
000,14.5000,223.4000,11.2660,30.5180,,0.0170,
09/27/2002,16:17:18,Mring aboard,GB13
ABOARD,8,161717.0000,5906.0156,-
15005.3848,191.8000,1.1000,182.9000,181.4000,1010.3000,,13.
2000,219.8000,11.2500,30.5500,0.0100,0.0430,
09/27/2002,17:35:08,mooring deploy,GB13
DEPLOYED,8,173507.0000,5906.3857,-
15004.9805,193.6000,2.5000,168.3000,166.1000,1010.1000,11.0
000,14.3000,230.5000,11.2340,30.6350,,0.3630,

09/27/2002,17:51:46,CTD,CTD 011 AT
DEPTH,6,175145.0000,5906.1147,-
15005.5908,310.3000,0.9000,179.4000,177.0000,1010.2000,11.0
000,13.2000,226.5000,11.2560,30.5630,,0.3210,

09/27/2002,20:37:42,Arrive area,ARRIVE AT STATION FOR
MOORING GB10,2,203740.0000,5909.6006,-
14907.3135,82.5000,12.4000,169.2000,167.1000,1010.5000,11.4
000,11.9000,210.0000,10.5170,31.5580,,1.2770,

09/27/2002,20:54:53,CTD,CTD 12 AT
DEPTH,3,205452.0000,5909.7178,-
14906.8467,16.4000,1.7000,168.9000,167.1000,1010.5000,,11.2
000,193.3000,10.5410,31.5650,,,

09/27/2002,21:54:27,Mring release,MOORING RELEASE
GB10,7,215426.0000,5909.6152,-
14907.5547,128.5000,3.1000,169.9000,168.2000,1010.0000,11.3
000,15.7000,219.4000,10.5680,31.5560,0.0280,0.3650,

09/27/2002,22:25:22,Mring aboard,MOORING GB10 ON
DECK,2,222521.0000,5909.4272,-
14907.3535,150.0000,1.2000,168.8000,166.1000,1009.8000,11.0
000,15.6000,220.6000,10.5690,31.5560,0.0350,1.0980,

09/27/2002,22:25:34,Leave area,DEPART GB10 RECOVERY
SITE,4,222533.0000,5909.4233,-
14907.3486,145.7000,1.8000,,,,,,,,,

09/27/2002,23:23:22,Arrive area,ARRIVE AT STATION FOR
MOORING GB4,2,232321.0000,5907.6582,-
14847.9121,91.9000,11.2000,145.8000,143.9000,1009.7000,11.0
000,19.4000,230.6000,10.7900,31.8420,0.0250,0.8990,

09/27/2002,23:57:02,CTD,CTD 013 AT
DEPTH,2,235701.0000,5906.8696,-
14847.1055,264.8000,1.3000,148.0000,146.2000,1009.3000,10.7
000,20.9000,233.8000,11.2780,31.9770,,0.4610,

09/28/2002,00:33:02,Mring release,02GB 4
RELEASED,2,3300.0000,5907.8262,-
14847.2197,110.4000,0.5000,145.1000,143.9000,1009.0000,10.7
000,15.8000,240.2000,10.9340,31.8660,,0.8550,

09/28/2002,01:50:10,Mring aboard,02GB 4
ABOARD,0,15009.0000,5907.4150,-
14848.4395,179.2000,0.7000,144.9000,143.9000,1008.6000,11.0
000,11.1000,239.5000,10.9150,31.8820,,0.8260,

09/28/2002,02:25:43,Arrive area,ARRIVE
02GBP5,3,22541.0000,5902.8154,-
14841.4834,140.4000,8.4000,192.8000,191.3000,1008.4000,10.7
000,16.2000,245.2000,11.4680,32.1180,,0.2880,

09/28/2002,02:32:15,Mring release,RELEASE 02GBP-
5,5,23214.0000,5902.6563,-
14841.5195,344.2000,2.0000,196.1000,193.6000,1008.6000,10.5
000,12.2000,257.2000,11.4000,32.0930,,0.2310,

09/28/2002,03:03:53,Mring aboard,MOORING 02GBP-5A
ABOARD,3,30351.0000,5902.4429,-
14841.9678,332.2000,1.2000,197.0000,194.7000,1008.7000,10.4
000,14.2000,242.8000,11.2140,32.0320,,0.0720,

09/28/2002,03:26:58,CTD,CTD 014 AT
DEPTH,8,32656.0000,5902.4922,-
14841.8184,142.5000,1.6000,194.8000,193.5000,1008.7000,10.4
000,12.8000,248.7000,11.2210,32.0430,,0.0200,

09/28/2002,03:35:04,SUNSET,OBSERVE TABULATED
SUNSET,4,33503.0000,5902.4146,-
14841.9590,239.5000,0.7000,195.6000,193.6000,1008.7000,10.5
000,11.9000,251.1000,11.2440,32.0430,,0.0100,

09/28/2002,03:38:35,drifter deploy,DRIFTER
37477,5,33834.0000,5902.3833,-
14842.0449,212.7000,1.1000,194.3000,192.4000,1008.6000,10.3
000,12.8000,247.0000,11.2410,32.0480,0.0310,0.0080,

09/28/2002,06:05:51,mooring deploy,GB4
DEPLOYED,1,60550.0000,5907.7163,-
14847.1787,29.7000,1.1000,144.3000,143.8000,1008.7000,11.10
00,9.7000,233.8000,11.1920,31.9680,,0.0000,

09/28/2002,07:20:23,CTD,CTD 015 AT
DEPTH,3,72022.0000,5907.9888,-
14846.7764,43.3000,1.1000,142.6000,141.7000,1008.8000,11.10
00,11.2000,228.9000,11.0890,31.9330,0.0310,0.0010,

09/28/2002,07:28:20,drifter deploy,DRIFTER 37515
RELEASED,0,72819.0000,5908.0454,-
14846.7441,267.1000,3.4000,142.6000,140.6000,1008.8000,11.3
000,12.7000,249.5000,11.0890,31.9400,0.0310,,

09/28/2002,07:39:42,Leave area,DEPART STN
GB4,2,73941.0000,5906.6577,-
14845.1611,144.2000,11.7000,152.9000,151.6000,1008.5000,11.
1000,14.3000,225.5000,11.3680,32.0110,,0.0010,

09/28/2002,12:36:31,Arrive area,ARRIVE 02FTM-
1,1,123629.0000,5816.7344,-
14742.3428,137.6000,8.7000,92.4000,87.6000,1010.5000,10.900
0,19.9000,287.8000,10.4070,31.8470,, ,

09/28/2002,13:48:24,CTD,CTD 016 AT DEPTH, 2291 METERS WIRE
OUT,4,134822.0000,5816.4609,-

14743.0508,238.1000,1.0000,352.4000,376.6000,1010.6000,10.7
000,16.4000,270.9000,10.4780,31.8350,0.0330,0.0000,
09/28/2002,15:51:50,SUNRISE,SUNRISE CALCULATED 0751
LOCAL,0,155148.0000,5815.6211,-
14740.6250,66.6000,0.8000,0.0000,172.6000,1010.9000,10.9000
,19.8000,279.0000,10.4080,31.8470,,0.0170,
09/28/2002,16:30:42,Mring release,FTM SURFACE
RELEASED,2,163040.0000,5815.2397,-
14740.5195,241.8000,0.9000,171.5000,165.0000,1011.2000,11.0
000,18.9000,279.3000,10.3750,31.8550,,0.0810,
09/28/2002,20:26:23,Mring aboard,FTM
ABOARD,3,202621.0000,5813.4370,-
14751.2725,209.1000,2.1000,225.8000,8.2000,1013.7000,11.400
0,21.5000,267.1000,10.4460,31.8440,0.0330,1.2230,
09/29/2002,03:33:30,SUNSET,SUNSET AS
OBSERVED,0,33329.0000,5815.4990,-
14740.8516,48.7000,0.6000,130.9000,153.0000,1015.7000,11.30
00,16.1000,265.7000,10.3730,31.8770,,0.0150,
09/29/2002,03:57:31,mooring deploy,ANCHOR DROPPED FTM
SURFACE MRG,1,35730.0000,5815.6538,-
14741.2139,277.8000,2.0000,106.1000,116.1000,1015.7000,11.3
000,25.0000,277.9000,10.2990,31.8950,,,
09/29/2002,15:54:57,SUNRISE,SUNRISE OBSERVED 0753
LOCAL,7,155456.0000,5815.3218,-
14741.1846,7.9000,2.6000,150.2000,6.1000,1019.6000,10.6000,
17.1000,262.7000,9.3560,32.0540,0.0190,0.0200,
09/29/2002,16:24:29,Mring release,RELEASE FTP-
1,9,162427.0000,5814.7847,-
14741.3027,130.2000,3.8000,178.4000,6.1000,1019.5000,10.600
0,15.9000,256.9000,9.7580,32.0350,,0.1340,
09/29/2002,19:39:13,Mring aboard,MOORING
ABOARD,3,193912.0000,5812.1157,-
14745.4932,233.8000,1.8000,238.9000,6.1000,1020.7000,11.000
0,14.0000,243.0000,10.1130,31.9350,,,
09/29/2002,23:52:40,Mring release,MOORING 02 FTM 1A
RELEASED ,0,235239.0000,5815.4375,-
14741.2324,75.4000,1.4000,0.0000,6.1000,1020.7000,10.9000,9
.8000,259.3000,9.6770,31.9970,,0.3430,
09/30/2002,02:46:10,Mring aboard,SURFACE FATE MRG ON
DECK,0,24608.0000,5814.5215,-
14739.1689,56.6000,1.7000,159.3000,6.1000,1020.2000,10.7000
,8.7000,242.1000,9.8340,31.9740,,0.0170,

09/30/2002,03:26:04,SUNSET,SUNSET AS
CALCULATED,4,32603.0000,5814.4678,-
14738.5850,90.5000,0.4000,128.0000,6.1000,1020.4000,10.6000
,12.7000,231.4000,9.9130,31.9620,0.0330,0.0020,
09/30/2002,08:24:23,mooring deploy,DEPLOY MOORING
02FTM1B,3,82422.0000,5815.6123,-
14741.2139,292.3000,1.6000,0.0000,6.1000,1019.5000,10.5000,
14.0000,198.0000,9.3850,32.0300,,,
09/30/2002,09:42:01,CTD,CTD 017 @
DEPTH,1,94200.0000,5815.9365,-
14740.2891,29.0000,0.8000,,6.1000,1018.8000,10.7000,7.6000,
189.7000,9.4100,32.0100,,,
09/30/2002,10:17:11,drifter deploy,DEPLOY DRIFTER
37476,1,101709.0000,5816.5000,-
14741.0537,281.5000,2.7000,0.0000,6.1000,1018.5000,10.5000,
8.9000,178.7000,9.3640,32.0170,,0.0020,
09/30/2002,10:30:18,drifter deploy,DEPLOY DRIFTER
37522,8,103017.0000,5817.1670,-
14742.8135,294.4000,1.4000,21.0000,6.1000,1018.4000,10.2000
,8.1000,179.5000,9.3160,32.0410,,0.0000,
09/30/2002,10:42:54,drifter deploy,DEPLOY DRIFTER
90000,4,104253.0000,5817.7305,-
14744.4258,283.6000,2.1000,23.5000,6.1000,1018.3000,10.3000
,8.7000,176.1000,9.2770,32.0630,0.0270,0.0000,
09/30/2002,10:43:25,Leave area,LEAVE THE SURFACE MOORING
SITE WE SPENT TWO DAYS WORKING AT,5,104324.0000,5817.7344,-
14744.4512,290.3000,2.2000,23.0000,6.1000,1018.3000,10.2000
,9.1000,177.6000,9.2780,32.0630,,0.0000,
230.7000,9.6130,31.7160,,,
09/30/2002,14:07:20,Arrive area,ARRIVE 02GBP-
12,0,140719.0000,5840.0527,-
14848.2686,314.2000,12.4000,190.3000,188.0000,1015.4000,9.7
000,10.7000,189.7000,9.8390,31.8620,,0.0010,
09/30/2002,14:26:04,CTD,CTD 018 AT
DEPTH,4,142603.0000,5840.9692,-
14850.2168,221.9000,0.4000,205.9000,204.5000,1015.0000,9.70
00,7.4000,171.7000,9.8160,31.8560,0.0190,0.0000,
09/30/2002,16:25:49,Mring release,GB12
RELEASED,9,162548.0000,5841.9722,-
14851.2451,38.4000,2.4000,208.6000,206.8000,1013.7000,9.300
0,7.8000,121.3000,10.0600,31.8690,0.0170,0.0200,

09/30/2002,16:33:10,SUNRISE,SUNRISE CALCULATED 0759
LOCAL,0,163309.0000,5842.0464,-
14850.8389,79.5000,1.8000,210.4000,207.8000,1013.7000,9.100
0,9.7000,117.8000,10.0740,31.8810,,0.0240,

09/30/2002,16:51:15,Mring aboard,GB12
ABOARD,5,165114.0000,5842.1484,-
14850.2090,195.1000,0.7000,218.4000,216.6000,1013.5000,8.90
00,11.8000,103.6000,10.0780,31.8910,,0.0320,

09/30/2002,18:26:58,mooring deploy,GB12
DEPLOYED,8,182657.0000,5841.0024,-
14850.9326,79.0000,1.1000,200.6000,198.0000,1012.3000,9.100
0,17.0000,96.4000,9.8710,31.8590,,0.0980,

09/30/2002,18:43:09,CTD,CTD 019
DEPLOYED,9,184308.0000,5840.8945,-
14850.6445,269.1000,0.8000,201.3000,199.1000,1012.5000,10.1
000,15.6000,94.2000,9.9120,31.8620,,0.0590,

09/30/2002,20:12:15,Arrive area,ARRIVE STATION 02GBP
11AB,5,201214.0000,5855.0928,-
14838.0059,9.8000,13.0000,260.1000,257.5000,1011.4000,10.20
00,16.0000,109.7000,10.7760,31.7940,,0.0870,

09/30/2002,20:42:20,CTD,CTD 020 AT
DEPTH,0,204219.0000,5855.4482,-
14837.4297,25.6000,0.3000,255.6000,250.8000,1011.4000,10.90
00,15.1000,97.2000,10.8280,31.7730,,0.1470,

09/30/2002,20:51:21,Mring release,GBP11
RELEASE,1,205119.0000,5855.4019,-
14837.3418,198.3000,0.4000,256.4000,253.1000,1011.2000,9.80
00,14.0000,99.2000,10.8190,31.7790,,0.1250,

09/30/2002,21:36:53,Mring aboard,GBP11 ON
DECK,3,213652.0000,5855.5093,-
14836.1973,39.1000,1.8000,251.5000,248.7000,1010.4000,10.10
00,12.1000,106.5000,10.8150,31.7740,,0.0980,

09/30/2002,23:01:18,mooring deploy,02GBP11
DEPLOYED,8,230116.0000,5855.2842,-
14837.1807,102.8000,1.8000,256.1000,253.2000,1009.1000,10.1
000,14.0000,100.3000,10.7580,31.8250,,0.2120,

09/30/2002,23:24:19,CTD,CTD 021 AT
DEPTH,9,232418.0000,5855.3784,-
14837.0605,24.9000,1.0000,255.6000,253.1000,1008.7000,10.20
00,10.2000,103.9000,10.7760,31.8180,,0.2020,

09/30/2002,23:39:03,Leave area,DEPART STN
GP11,3,233902.0000,5856.0542,-

14837.5947,341.6000,12.0000,255.2000,252.0000,1008.2000,10.
2000,13.0000,88.1000,10.7130,31.8040,,0.1880,
10/01/2002,00:15:23,Arrive area,ARRIVE STN GBP5 FOR
DEPLOYMENT,3,1521.0000,5902.5679,-
14843.9717,337.7000,7.3000,183.2000,180.3000,1008.0000,10.5
000,10.4000,109.9000,11.0540,32.1020,,0.0950,
10/01/2002,01:10:44,mooring deploy,GBP-5
DEPLOYED,4,11042.0000,5902.5781,-
14841.6563,94.8000,1.6000,195.0000,192.5000,1006.8000,10.10
00,13.8000,59.0000,10.8600,32.0120,0.0330,0.0470,
10/01/2002,01:27:58,CTD,CTD 022 AT
DEPTH,8,12757.0000,5902.2886,-
14841.5225,273.8000,1.0000,200.9000,199.1000,1006.5000,10.5
000,15.3000,101.0000,10.8560,31.9990,,0.0790,
10/01/2002,03:04:26,Arrive area,ARRIVE 02GBP-
3A,B,6,30425.0000,5916.9419,-
14857.9111,25.4000,1.0000,,184.7000,1005.0000,10.0000,16.10
00,62.7000,10.4410,30.8970,,,
10/01/2002,03:19:38,Mring release,RELEASE 02GBP-
3,8,31936.0000,5916.9321,-
14858.0850,62.5000,2.3000,186.7000,184.7000,1004.5000,10.20
00,17.1000,52.7000,10.4500,30.9380,,0.0040,
10/01/2002,03:29:33,SUNSET,TABULATED
SUNSET,3,32932.0000,5917.0376,-
14857.5254,61.1000,1.0000,184.2000,182.5000,1004.3000,10.20
00,18.5000,52.7000,10.4420,30.8450,,0.0030,
10/01/2002,04:28:58,CTD,CTD 023 AT
DEPTH,8,42857.0000,5917.9609,-
14859.0840,195.3000,0.5000,185.5000,182.5000,1003.3000,11.5
000,22.2000,66.8000,10.4460,30.8180,0.0540,0.0000,
10/01/2002,04:32:31,Mring release,RELEASE GBM-
3,1,43230.0000,5917.9487,-
14859.0400,135.0000,0.1000,185.7000,183.6000,1002.8000,10.4
000,23.7000,61.7000,10.4480,30.8110,,0.0000,
10/01/2002,06:29:37,Mring aboard,GBM-3
ABOARD,7,62935.0000,5919.2822,-
14856.7373,349.7000,1.2000,182.7000,180.3000,999.9000,9.700
0,24.6000,21.7000,10.3700,31.5280,,0.0000,
10/01/2002,08:46:07,Arrive area,02GB2 FOR
CTD,7,84605.0000,5933.5283,-
14911.7344,317.0000,7.3000,211.9000,210.1000,997.9000,9.200
0,32.8000,346.2000,11.2180,30.0170,0.0330,0.0000,

10/01/2002,09:06:52,CTD,CTD 024 @
DEPTH,2,90650.0000,5933.6504,-
14912.2803,283.9000,0.0000,214.0000,212.3000,998.1000,9.200
0,32.1000,339.9000,11.4120,30.0460,0.0270,0.0000,
10/01/2002,09:29:49,Leave area,DEPART STN
02GB2,9,92948.0000,5934.6489,-
14913.3047,332.6000,8.0000,212.9000,210.2000,997.8000,9.500
0,26.0000,338.0000,11.3500,29.7660,,,
10/01/2002,10:27:52,Arrive area,ARRIVE STN
GB1,2,102750.0000,5940.9497,-
14921.1104,322.5000,8.9000,236.4000,234.3000,998.0000,9.200
0,21.9000,336.2000,10.9500,28.0570,0.0160,0.0000,
10/01/2002,10:46:34,CTD,CTD 025 @
DEPTH,4,104633.0000,5941.1162,-
14921.8467,236.2000,1.2000,226.8000,224.5000,998.3000,9.800
0,15.7000,299.7000,10.9700,27.6080,,0.0000,
10/01/2002,11:10:19,Leave area,DEPART STN
GB1,9,111018.0000,5940.5938,-
14922.6377,215.1000,1.7000,207.3000,205.6000,998.0000,9.300
0,13.8000,309.4000,10.9540,27.7000,,0.0000,
10/01/2002,15:35:27,Arrive area,ARRIVE
GB2,7,153525.0000,5934.8862,-
14913.8994,133.2000,2.8000,215.3000,212.3000,996.9000,10.90
00,14.0000,266.7000,11.0050,30.3430,,0.0000,
10/01/2002,15:56:39,Mring release,GB2
RELEASED,9,155638.0000,5934.1924,-
14911.8926,287.0000,1.4000,211.8000,209.0000,997.0000,11.00
00,21.4000,265.0000,10.9990,30.5660,,0.0090,
10/01/2002,17:02:18,Mring aboard,GB2
ABOARD,8,170216.0000,5934.3960,-
14914.6631,245.9000,0.8000,218.3000,215.6000,997.1000,11.30
00,28.3000,258.9000,10.9600,30.6770,,0.1740,
10/01/2002,19:36:06,mooring deploy,GB2
DEPLOYED,6,193604.0000,5934.1011,-
14912.6934,314.5000,1.8000,,212.3000,998.1000,,30.6000,250.
7000,10.9550,30.8050,,0.9090,
10/01/2002,20:00:24,CTD,CTD 26 @
DEPTH,4,200023.0000,5934.2466,-
14911.8076,350.5000,0.7000,211.6000,210.1000,998.4000,11.40
00,30.0000,253.2000,10.9720,30.6600,,1.0290,
10/01/2002,20:10:24,Leave area,DEPART STN
GB2,4,201023.0000,5934.2202,-

14911.9727,237.1000,2.2000,211.4000,209.0000,998.5000,11.40
00,31.0000,257.6000,10.9830,30.5820,,1.0750,
10/01/2002,20:15:53,drifter deploy,DRIFTER DEPLOYED
#37475,3,201551.0000,5934.4268,-
14912.2900,340.5000,1.5000,211.7000,210.1000,999.4000,11.10
00,30.0000,250.2000,10.9990,30.4930,0.0270,1.1180,
10/01/2002,23:54:57,Arrive area,ARRIVE STN
GB7,7,235456.0000,5945.6675,-
14859.1846,85.7000,6.7000,210.2000,207.8000,1001.5000,11.80
00,13.6000,283.0000,10.9780,27.3520,0.0190,0.7140,
10/02/2002,00:24:13,CTD,CTD 026 AT DEPTH AT
0016,3,2412.0000,5945.8750,-
14900.3789,235.8000,2.4000,,202.4000,1001.7000,11.8000,11.4
000,294.1000,11.0000,26.8160,,,
10/02/2002,00:41:25,Mring release,RELEASE
GB7A,5,4124.0000,5945.8818,-
14858.5010,357.8000,1.7000,192.5000,190.3000,1002.3000,11.8
000,15.1000,281.6000,10.9730,27.9960,,0.4180,
10/02/2002,01:14:21,Mring aboard,MOORING ON DECK
GB7A,1,11419.0000,5945.9082,-
14900.4170,251.7000,2.8000,204.2000,203.5000,1002.6000,12.3
000,11.8000,285.4000,10.9860,27.6470,,,
10/02/2002,01:14:31,Leave area,LEAVE AREA
GB7,1,11429.0000,5945.9072,-
14900.4326,254.7000,2.9000,204.1000,202.4000,1002.5000,12.3
000,12.4000,291.6000,10.9860,27.6180,,0.9240,
10/02/2002,02:23:59,Arrive area,ARRIVE GB-
1A,9,22358.0000,5941.6948,-
14921.4971,346.0000,1.5000,239.7000,237.6000,1004.2000,11.9
000,8.2000,335.1000,10.8080,24.7830,,0.5110,
10/02/2002,02:28:04,Mring release,RELEASE GB-
1A,4,22803.0000,5941.7695,-
14921.5664,347.9000,1.7000,241.2000,238.8000,1004.3000,11.8
000,13.1000,333.6000,10.8060,24.7870,,0.4740,
10/02/2002,03:21:26,Mring aboard,GB-1A
ABD,6,32125.0000,5940.5454,-
14924.3340,251.8000,2.0000,208.8000,205.7000,1005.0000,11.9
000,2.0000,257.1000,10.8000,24.9450,,0.0240,
10/02/2002,03:26:20,SUNSET,OBSERVED
SUNSET,0,32619.0000,5940.7446,-
14924.2998,45.7000,7.7000,203.0000,200.2000,1005.0000,12.40
00,6.2000,303.3000,10.7590,24.7860,,0.0170,

10/02/2002,05:22:37,mooring deploy,GB1
DEPLOYED,7,52236.0000,5941.6616,-
14921.4902,217.5000,1.8000,240.5000,237.6000,1006.9000,12.4
000,17.4000,338.1000,10.6050,24.9470,,0.0000,
10/02/2002,05:42:31,CTD,CTD 028 AT
DEPTH,1,54230.0000,5941.1577,-
14921.7471,198.1000,0.5000,231.1000,229.9000,1007.6000,11.8
000,9.7000,324.7000,10.5900,24.9940,,0.0000,
10/02/2002,06:08:44,drifter deploy,DRIFTER 37474
DEPLOYED,4,60843.0000,5940.3311,-
14922.0078,172.9000,2.3000,213.5000,210.2000,1008.1000,12.8
000,9.4000,324.9000,10.5910,25.0850,0.0210,0.0000,
10/02/2002,06:24:21,Leave area,DEPART GB1
AREA,1,62420.0000,5938.8467,-
14921.8369,207.2000,3.4000,227.7000,224.5000,1008.3000,12.3
000,16.5000,10/02/2002,08:30:10,Arrive area,ARRIVE STATION
02 GBM 3A, B,0,83009.0000,5918.3965,-
14856.5986,139.5000,12.3000,177.4000,176.0000,1010.8000,,25
.5000,282.6000,10.4940,31.9820,,0.0000,
10/02/2002,09:42:03,Moch in ,MOCH 001 IN
WATER,3,94202.0000,5918.2085,-
14856.7861,236.4000,2.1000,179.3000,176.0000,1011.9000,11.5
000,21.4000,273.0000,10.4900,31.9560,,0.0000,
10/02/2002,09:52:17,Moch net trip,MOCH 001 AT
DEPTH,7,95216.0000,5918.1504,-
14857.3584,240.6000,2.5000,185.6000,183.6000,1012.2000,11.6
000,20.6000,263.7000,10.4780,31.9340,,0.0010,
10/02/2002,10:26:55,OTHER,MOCH 001 ABORTED DUE TO WINCH
PROBLEMS,5,102654.0000,5917.8945,-
14859.4307,312.6000,1.7000,184.0000,180.3000,1012.6000,,20.
6000,267.2000,10.4030,31.8830,,,
10/02/2002,12:27:42,Moch in ,MOC 002
DEPLOYED,2,122741.0000,5918.4111,-
14856.0049,252.4000,1.7000,170.5000,169.3000,1014.1000,11.5
000,17.9000,294.2000,10.4730,31.9200,,,
10/02/2002,12:37:51,Moch net trip,MOC 002 AT
DEPTH,1,123750.0000,5918.3950,-
14856.5176,255.8000,1.5000,176.5000,173.7000,1014.2000,11.5
000,21.2000,285.3000,10.4370,31.9060,0.0220,0.0000,
10/02/2002,12:38:32,Moch net trip,MOC 002 NET
2,2,123831.0000,5918.3936,-
14856.5586,236.0000,3.0000,175.9000,174.7000,1014.2000,11.5
000,19.8000,278.0000,10.4370,31.8990,,0.0010,

10/02/2002,13:06:48,Moch out ,MOC 002 OUT OF
WATER,8,130647.0000,5918.3252,-
14858.2051,281.3000,1.5000,188.2000,186.8000,1014.5000,11.5
000,18.9000,293.1000,10.3490,31.8690,0.0220,,
10/02/2002,14:17:36,Moch in ,MOC 003
DEPLOYED,6,141735.0000,5918.2822,-
14857.7842,278.9000,1.9000,185.9000,184.7000,1015.5000,11.3
000,10.4000,309.9000,10.3870,31.8570,,0.0000,
10/02/2002,14:21:27,Moch net trip,MOC 003 NET
2,7,142126.0000,5918.2871,-
14857.9941,258.3000,1.9000,187.6000,186.9000,1015.5000,11.4
000,10.8000,313.8000,10.4070,31.8840,,,
10/02/2002,14:40:41,Moch out ,MOCNESS OUT OF THE
WATER,1,144040.0000,5918.3428,-
14859.1084,266.6000,1.9000,186.8000,185.8000,1015.8000,11.4
000,8.0000,333.8000,10.3570,31.8600,,0.0020,
10/02/2002,16:13:09,SUNRISE,SUNRISE 0806 LOCAL
TIME,9,161308.0000,5918.2031,-
14902.9404,225.4000,2.4000,177.9000,175.8000,1016.6000,11.6
000,16.7000,346.0000,10.1810,31.8250,0.0210,0.0200,
10/02/2002,19:22:40,mooring deploy,GBM-3 SURFACE MOORING
DEPLOYED,0,192239.0000,5918.0010,-
14858.2031,70.8000,1.7000,186.2000,184.8000,1019.2000,11.20
00,10.1000,340.7000,10.0790,31.9230,,0.9270,
10/02/2002,20:33:16,Moch in ,MOCH 004
IN,6,203315.0000,5917.5640,-
14859.2275,349.6000,1.8000,180.3000,177.1000,1019.7000,,14.
0000,347.9000,10.1580,31.9520,,,
10/02/2002,20:41:49,OTHER,ABORT TOW DUE TO INSTRUMENT
PROBS,9,204148.0000,5917.8184,-
14859.3877,318.2000,2.2000,183.6000,180.3000,1019.8000,11.6
000,12.8000,346.3000,10.1260,31.9450,0.0180,,
10/02/2002,21:16:25,Moch in ,MOC004 IN @
SURFACE,5,211624.0000,5918.0459,-
14859.6514,358.7000,2.0000,184.5000,182.5000,1020.3000,11.6
000,14.2000,358.0000,10.2030,31.9390,,1.0310,
10/02/2002,21:26:33,OTHER,MOC004 @
DEPTH,3,212632.0000,5918.3071,-
14859.9248,347.9000,1.8000,185.8000,183.6000,1020.4000,11.6
000,13.8000,356.2000,10.3540,31.9500,,1.0410,
10/02/2002,21:27:09,Moch net trip,NET
2,9,212708.0000,5918.3218,-

14859.9443,325.4000,1.6000,185.0000,183.7000,1020.4000,11.6
000,11.9000,1.4000,10.3660,31.9520,,1.0390,
10/02/2002,21:50:59,Moch out ,MOCH
OUT,9,215057.0000,5918.9312,-
14900.5635,311.9000,2.2000,184.9000,182.6000,1020.7000,11.6
000,9.1000,347.3000,10.4420,31.8860,,,
10/02/2002,22:39:23,Moch in ,MOCH 005
IN,3,223922.0000,5917.2905,-
14858.9053,320.7000,1.5000,180.4000,178.2000,1021.1000,11.9
000,9.3000,340.3000,10.1900,31.9560,,1.0260,
10/02/2002,22:45:21,Moch net trip,AT DEPTH NET
2,1,224519.0000,5917.4570,-
14859.0557,310.0000,1.9000,180.8000,178.2000,1021.1000,11.9
000,10.0000,346.8000,10.1860,31.9500,,1.0250,
10/02/2002,23:05:35,Moch out ,MOCH
OUT,5,230534.0000,5917.9473,-
14859.6025,336.9000,1.8000,,182.5000,1021.2000,,10.5000,336
.1000,10.4620,31.9380,,,
10/03/2002,01:57:49,mooring deploy,DEPLOY
GB3P,9,15748.0000,5917.0098,-
14857.6348,330.9000,1.3000,183.0000,180.4000,1022.3000,11.4
000,7.6000,259.2000,10.1670,31.9220,0.0240,0.4820,
10/03/2002,03:23:09,SUNSET,TABULATED
SUNSET,9,32308.0000,5917.5898,-
14856.9746,282.0000,1.6000,,182.5000,1022.5000,,4.6000,232.
7000,10.1850,31.8980,,,
10/03/2002,03:53:21,mooring deploy,GB3-B
DEPLOYED,1,35320.0000,5917.5615,-
14857.4170,102.8000,2.3000,183.9000,181.5000,1022.5000,10.7
000,5.2000,216.1000,10.1450,31.9280,,,
10/03/2002,04:10:20,CTD,CTD 029 AT
DEPTH,0,41019.0000,5917.4868,-
14857.0879,201.8000,0.0000,183.6000,182.5000,1022.8000,10.7
000,4.0000,219.1000,10.1830,31.9030,,,
10/03/2002,04:23:46,drifter deploy,DEPLOY
#37523,6,42345.0000,5917.5542,-
14856.8994,,,183.9000,,,,,,,,,
10/03/2002,04:23:51,OTHER,,1,42350.0000,5917.5571,-
14856.8936,58.9000,3.2000,184.7000,181.5000,1022.7000,11.10
00,6.4000,240.8000,10.1820,31.8680,,0.0000,
10/03/2002,08:08:44,Arrive area,ARRIVE STN
02GB9,4,80843.0000,5922.1851,-

14814.0117,31.0000,2.7000,175.0000,173.7000,1024.1000,10.90
00,7.6000,266.1000,10.7570,31.4300,,0.0000,
10/03/2002,11:10:52,CTD,CTD 030 AT
DEPTH,2,111051.0000,5921.5703,-
14813.3418,101.4000,0.0000,170.6000,169.3000,1024.6000,10.7
000,5.0000,270.0000,10.6990,31.4840,,0.0000,
10/03/2002,15:50:47,Mring release,GB9
RELEASED,7,155046.0000,5921.8960,-
14815.3984,291.3000,0.9000,170.3000,169.3000,1024.8000,10.4
000,1.3000,31.2000,10.7270,31.3170,0.0180,0.0030,
10/03/2002,16:06:33,SUNRISE,SUNRISE OBSERVED0806
LOCAL,3,160632.0000,5921.9868,-
14815.2266,91.0000,1.3000,172.7000,171.5000,1024.6000,10.50
00,5.9000,57.1000,10.6980,31.2780,,,
10/03/2002,16:17:23,Mring release,GB9 RE-RELEASED (1st
didn't work),3,161721.0000,5921.9966,-
14814.9141,20.6000,0.0000,172.3000,170.4000,1024.6000,10.50
00,5.2000,67.6000,10.7070,31.2790,,0.0280,
10/03/2002,16:31:13,Mring aboard,GB9
ABOARD,3,163112.0000,5921.9170,-
14814.4434,116.4000,1.3000,171.8000,170.4000,1024.6000,10.5
000,6.1000,61.4000,10.7820,31.3350,,,
10/03/2002,16:36:36,Leave area,DEPART
GB9,6,163635.0000,5922.2676,-
14814.5898,323.3000,12.3000,,172.5000,1024.5000,,5.3000,63.
8000,10.7880,31.3320,,,
10/03/2002,18:12:16,Arrive area,ARRIVE
GB9,6,181215.0000,5939.0762,-
14839.4453,358.6000,0.7000,178.4000,176.0000,1024.8000,9.80
00,14.3000,56.3000,10.8020,31.3210,,0.2680,
10/03/2002,18:21:09,CTD,CTD 031 AT
DEPTH,9,182108.0000,5939.1958,-
14839.4736,347.4000,1.1000,180.0000,177.0000,1024.8000,9.80
00,13.5000,52.1000,10.8220,31.3170,,0.2930,
10/03/2002,18:50:39,Mring release,GB8
RELEASED,9,185038.0000,5939.3403,-
14839.2549,11.5000,0.0000,181.7000,180.3000,1025.1000,9.800
0,14.1000,43.2000,10.8300,31.3630,,0.5840,
10/03/2002,19:05:56,Mring aboard,GB8
ABOARD,6,190555.0000,5939.8071,-
14838.8770,308.9000,4.7000,,184.8000,1025.1000,,13.4000,56.
6000,10.8130,31.3350,,,

337.4000,10.5340,25.0350,,0.0010,