UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM



SHIP SCHEDULING REVIEW

Report of Meeting

23 June 1998

National Science Foundation 4201 Wilson Boulevard, Room 730 Arlington, VA 22230



BROWN. MOANA WAVE is expected to be retired at the end of 1999. The NAVO Shallow Water Test Range request is withdrawn.

NEW HORIZON - Scripps - The Collier work has been funded but should be scheduled on WECOMA if possible. Goldfinger is double booked on WECOMA. In an effort to reduce transit time both of these cruise should be on WECOMA unless the Collier work conflicts with FOCI. In that case both should be on NEW HORIZON. An additional consideration is the need for Goldfinger to complete his work before the ALVIN/ATLANTIS program. SeaBeam has not been authorized for the Goldfinger cruise. If it is not possible to move the Collier and Goldfinger work to WECOMA and the two programs remain on the schedule the Chavez and Army Corp/SFSU cruises can be run out of San Francisco. The Goldfinger, Collins, and Torres (ATLANTIS) programs are intertwined. The scheduling of thse programs need to be coordinated. The funding of five days for Staudigel has been declined. Twenty three days of CalCOFI work should be added to the schedule. The NAVO OAOA work is flexible but should be scheduled as early as possible in the year. The Worcester/ONR 13 day work has been moved to REVELLE for 11 days.

POINT SUR - Moss Landing Marine Laboratory - The Bruland work has been funded. The NPS work remains pending. The spring NAVO cruise should move earlier if possible.

WECOMA - Oregon State University - See comments above in regards to Collier and Goldfinger. The ONR Nittrouer and Moum work has been funded, Ruttenberg declined. If possible the Webb recovery cruise should move to EWING for a joint Menke/Webb cruise. The NOAA portion of the Smith work needs to be resolved.

SPROUL - Scripps - The Jaffe NSF work has been declined while the Jaffe ONR work remains pending. The number of days for Pineda needs to be checked. The Melville K work remains pending. Pickering is SPAWAR funded not ONR.

URRACA - STRI - Glynn work of 15 days NSF time has been funded.

LAURENTIAN - University of Michigan - The Cuhel work has been funded and should be added to the schedule. All NSF Coop work is still being worked out.

GYRE - TAMU - The schedule remains as presented.

LONGHORN - University of Texas - The NOAA ECHOHAB work of Muller-Karger has not been funded.

PELICAN - LUMCON - Funding for two Bianchi cruises and two Houde cruises have been declined. The Thorsos cruise should be listed as ONR not Private. Briggs has been funded for 18 days not 20. The Graham OCE number is 9733441. Add 21 days of NOAA work for Vargo (ex ENDEAVOR and CAPE HATTERAS). Add 16 days of NRL work for Erskine (ex CAPE HATTERAS) two ship operations with SEWARD JOHNSON.

WEATHERBIRD II - BBSR - The WEATHERBIRD II schedule should stand as submitted.

CALANUS - University of Miami - The funding for Milne, McNeill and Saltzman have all been declined. No proposal was received for Szmant. The Zika work is funded. The OCE number for Fell is 984182.

BLUE FIN - Skidaway - Check the cruise for Verity. Is this carry-over work? Nelson's NSF work has been declined, the ONR work is still in question. The Paffenhofer 1998 proposal has been declined. NOAA's SEA GRANT cruise for Blanton is still pending.

SEA DIVER - HBOI- The ONR Phiney work has been funded. NURP programs could be added to this schedule.

CAPE HATTERAS - Duke/UNC - Is the Paffenhofer work carry-over? He has not been funded for 1999. The Matrai work should be transferred to OCEANUS, LINK or ENDEAVOR. Both the NOAA Vargo work and the NRL Erskine work should go to PELICAN to reduce transit time. The NAVO work off Virginia Beach should go to CAPE HENLOPEN. Boyd is still pending, Herbers is funded.

CAPE HENLOPEN - University of Delaware - The Wong cruise should be scheduled for May and October. The Boyd cruise is pending. The ONR Blough cruise is funded.

EDWIN LINK - HBOI - The funding for the Youngbluth cruise has been declined. See notes for CAPE HATTERAS above concerning Matrai. The OCE number for Cook is

9619707. There are two cruises for Gilligan the first has been funded and the second is pending.

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ENDEAVOR - University of Rhode Island - The Muller-Karger NOAA work has been declined. Vargo, should go to PELICAN and Sanford to SEWARD JOHNSON. Both Jones and Patterson have been declined. See note for CAPE HATTERAS above concerning Matrai. The GLOBEC work still needs to be sorted out.

OCEANUS - WHOI - The Moffett work needs to go later. Erskine is funded but should be listed as ONR not NRL. The Houghton, and Beardsley work is still pending. Madin, Collins, Chave and Ravizza have been declined. See note for CAPE HATTERAS above concerning Matrai. The GLOBEC work still needs to be sorted out. The Zafiriou program is funded.

SEWARD JOHNSON - .HBOI - The work of Limeburner, Wilson, Pawlik, Erskine and Thorsos are all funded. The Sanford work may be scheduled later than desired. NRL has a project for Richardson and ONR has an acoustics proposal for possible additional work in the AUTEC area.

ATLANTIS - WHOI - All scheduled cruises have an ALVIN component. The schedule as published needs to be paired down by about 30 days. It may be possible to shift Carson and Cowen to JASON and relieve pressure on ALVIN. These cruises are to be run on THOMPSON or REVELLE. Seyfried could possibly move to another vent site to save time on the Juan de Fuca. Garcia and Blackman will be delayed until 2000.

KNORR - WHOI - The funding for all programs on KNORR have been declined except for Smith and the NAVO GOMEX program. If Smith can use Hydro-sweep this cruise could go on EWING early in the year. NAVO will reevaluate the GOMEX work to determine if the SeaBeam component can be removed from this program thus opening it up for a smaller vessel. The Fairbanks/LDEO cruise is not on any schedule and may not be appropriate for any UNOLS vessel.

BROWN - NOAA - The NSF Weller cruise has not been funded. BROWN will sail with only NOAA programs. The ship expects to be able to do the TAO work in the fall of 1999.

EWING/MELVILLE/REVELLE and THOMPSON were considered as a group. Below is a listing by PI as assigned to each ship. The decisions were made to reduce transits where possible. The cruises are not necessarily listed in the appropriate sequence. The following programs were declined from this grouping of ships: Hart/Kurz (EWING), Coale (EWING), Weller (REVELLE), Fisher (THOMPSON).

EWING - Smith NSF 30; Webb NSF 3/ Menke NSF 15; Bangs NSF 43; Mutter NSF 19; Martinez NSF 41; Staudigal NSF 48; Harding NSF 19; Capone NSF 30; (Mutter NSF 10; Fulthorpe ODP 35 in 2000)

MELVILLE - Wilkes HITS NAVO 34; Wilkes Gravity NAVO 75; Talley ONR 58, Wilkes Gravity NAVO 75; Perkins NRL 11; Worcester ONR 17. (the gravity programs to be split as necessary for running ONR/NRL programs in acceptable time slots). Decision made to designate lead PI as Riser not Talley. (The Howe cruise on MELVILLE's schedule is the one listed as Worcester ONR 17. This is a separate cruise from the Worcester cruise that was originally on NEW HORIZON and was moved to REVELLE.)

REVELLE - Pinkel UC 5; Kastner UC 9; Spiess NSF 12; Goldfinger NSF 30; Van Geen NSF 34; Fornari NSF 41; Lonsdale NSF 28; Worcester ONR 11; Trehu NSF 14.

THOMPSON - Wilkes Columbia River NAVO 20; Bullock SE Bering Sea 26; UW 45; Stratoform NSF 19; Bullock Vents NOAA #1, 24; Bullock Vents NOAA #2, 23; Bullock Multi-Moorings NOAA, 32, Chadwick NSF, 5; Cowen/Carson NSF 20; Wilkes Columbia River NAVO 20; Bullock Bering Sea NOAA 36.

APPENDIX I

5/15/98 Hello schedulers:

The first of the two annual scheduling meetings is nearly upon us. The first meeting will be at NSF on 23 June. This will be a review of the preliminary 1999 schedules filed by the UNOLS operators. The Ship Scheduling Committee Chair and the co-Chair, the UNOLS Chairman, the UNOLS Executive Sectry, and representatives from the funding agencies (NSF, NOAA, ONR plus interested Science Program Managers) will be in attendance. It is anticipated that results of the NSF May panel will be available in preliminary form. These will provide a realistic idea of the number of science programs, their geographic location and the number of days we need to support in 1999. Schedules will be reviewed with the aim of assuring the overall science requirements are met consistent with the most cost effective operation of the fleet. A report of the meeting and its recommendations will be provided by email.

It is time to get our proposed/tentative 1999 schedules published and into the system so they are available for review and discussion. The agencies feel it is important that the schedules be available to them relatively soon. Please email the schedules to "unols@gsosun1.gso.uri.edu". The UNOLS Office is prepared to post them on the OCEANIC BBS as soon as received. Multiple schedules are discouraged although options could be imbedded in the first cut. Jack Bash will post only one schedule on OCEANIC.

Other information is also required. We request the following: 1) All 831 ship time requests you hold that do not appear on the UNOLS Office summary should be sent to the UNOLS Office so that there is a single complete file for all 1999 programs.

- 2) Please submit your 1999 cost estimates, based on the proposed schedules, to the UNOLS office.
- 3) FAX (401) 874-6167 or mail a copy of your proposed 1999 cruise tracks to the UNOLS Office. (Not necessary for R/Vs that will operate locally or regionally.)
- 4) Update your 1998 schedules and post them to the UNOLS Office.

We, as a community, have been very responsive to NavOceano and NOAA agency shiptime requests in the past 2 years. The performance of the UNOLS ships/techs in collecting the required data has been superb and efficient. The UNOLS operators will once again be requested to run NavOceano and NOAA programs during 1999. Collectively we should factor these into our schedules. NOAA's requests have been submitted electronically (most under the name Bullock). NavOceano is now in the process of developing their requirements.

NOAA's RON BROWN (AGOR-26) will now be incorporated into the UNOLS scheduling process for 1999 following the signing of the formal cooperative agreement between UNOLS and NOAA last fall.

Finally, as you should all be aware, Robert Hinton has left his position at U.Washington and hence resigned his seat as co-Chair of SSC. Ken Johnson has polled the schedulers for selection a replacement. Ken will announce his appointment very soon.

I will attempt to talk to each of you before the June 23 meeting .

Regards, Don Moller

APPENDIX II

Attendees - June 23, 1998

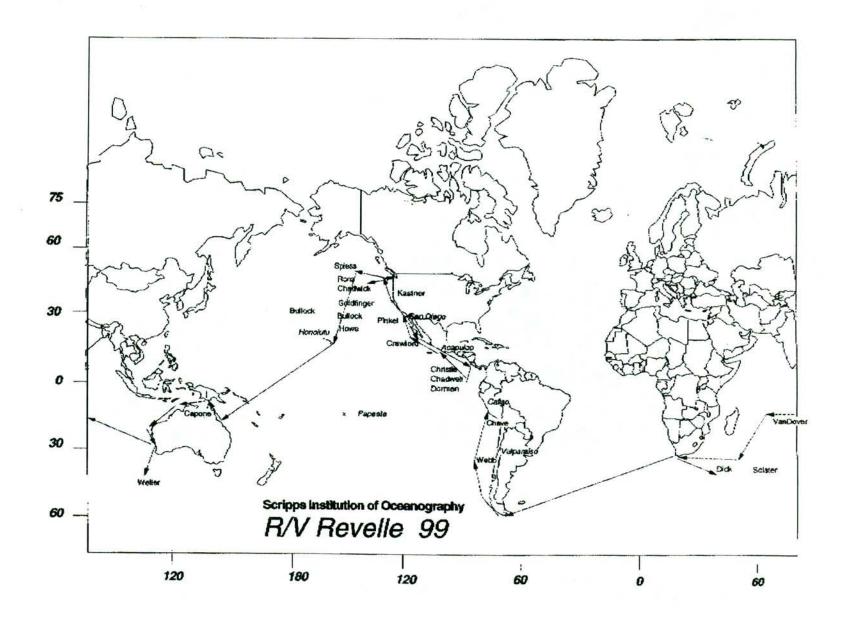
NAME	ORGANIZATION	PHONE	EMAIL
John Bash	UNOLS	401-874-6825	unols@gso.uri.edu
Michelle Bullock	NOAA/PMEL	206-526-4485	bullock@pmel.noaa.gov
Norm Cherkis	NRL	202-404-1103	cherkis@qur.nrl.navy.mil
Mary D'Andrea	UNOLS	401-874-6825	unols@gso.uri.edu
Dolly Dieter	NSF	703-306-1577	edieter@nsf.gov
Eric Itsweire	NSF	703-306-1583	eistweir@nsf.gov
Scott McKellar	NOAA	301-713-3435 x135	Scott.McKellar@noaa.gov
Sujata Millick	ONR	703-696-4530	millics@onr.navy.mil
Don Moller	WHOI	508-289-2277	dmoller@whoi.edu
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Connie Sancetta	NSF	703-306-1586	csancetta@nsf.gov
Alexander Shor	NSF	703-306-1585 x7239	ashor@nsf.gov
Andrew Silver	ONR	703-696-6999	silvera@onr.navy.mil
David Thurston	ONR	703-696-4251	thursto@onr.navy.mil
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Gordon Wilkes	NAVO	228-688-4376	wilkesg@navo.navy.mil

APPENDIX III

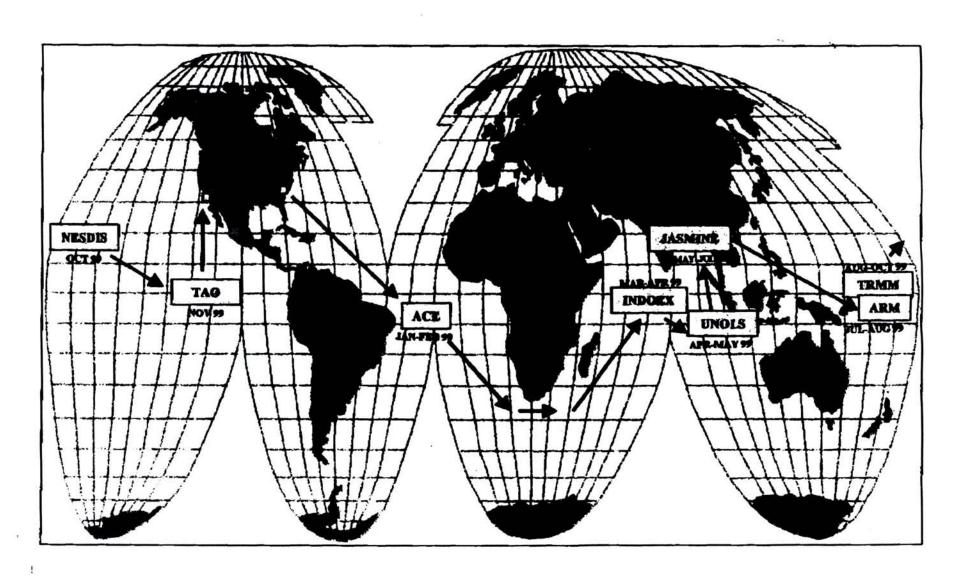
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R. REVELLE MELVILLE KNORR ATLANTIS EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR OCEANUS GYRE NEW HORIZON SEWARD JOHNSON NECOMA	128 173 191 202 96 131 111 1,031 147 0 163 31 60 124	\$ 2,163 2,816 3,163 3,192 1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 682	134 12 72 10 0 60 17 305 44	\$ 2,266 196 1,189 168 0 949 221 4,977 711	0 23 0 26 0 0 23 72 10	\$ 0 374 0 411 0 0 299 1,084 155	54 7 0 34 120 86 18 319	\$ 913 114 0 537 1,680 1,360 234 4,838 691	318 215 263 272 215 277 169 1,727 247	\$ 5,341 3,498 4,342 4,298 3,010 4,380 2,197 27,066 3,867	RAT 1 16,8 3 16,2 2 16,8 3 15,8 4 13,0 15,6
R. REVELLE MELVILLE KNORR ATLANTIS EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS 397RE NEW HORIZON SEWARD JOHNSON	128 173 191 202 95 131 111 1,031 147 37 0 163 31 60 124	2,163 2,815 3,153 3,192 1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 682	134 12 72 10 0 60 17 305 44	\$ 2,266 196 1,189 168 0 949 221 4,977 711	0 23 0 26 0 0 23 72 10	\$ 0 374 0 411 0 0 299 1,084 155	54 7 0 34 120 86 18 319	\$ 913 114 0 537 1,680 1,360 234 4,838 691	318 215 263 272 215 277 169 1,727 247	\$ 5,341 3,498 4,342 4,298 3,010 4,380 2,197 27,066 3,867	RAT 1 16,8 3 16,2 2 16,8 3 15,8 4 13,0 15,6
MELVILLE KNORR ATLANTIS EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS SYRE NEW HORIZON SEWARD JOHNSON WECOMA	173 191 202 96 131 111 1,031 147 37 0 163 31 60	2,815 3,153 3,192 1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 582	12 72 10 0 60 17 305 44	196 1,189 158 0 949 221 4,977 711	0 23 0 26 0 0 23 72 10	374 0 411 0 0 299 1,084 155	54 7 0 34 120 86 18 319	913 114 0 537 1,680 1,360 234 4,838 691	318 215 263 272 215 277 169 1,727 247	5,341 3,498 4,342 4,298 3,010 4,380 2,197 27,066 3,867	16,5 3 16,5 2 16,8 3 15,8 1 14,0 1 15,6
KNORR ATLANTIS EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS 33'RE NEW HORIZON EEWARD JOHNSON WECOMA	191 202 95 131 111 1,031 147 37 0 163 31 60	3,163 3,192 1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 682	12 72 10 0 60 17 305 44	196 1,189 158 0 949 221 4,977 711	23 0 26 0 0 23 72 10	374 0 411 0 0 299 1,084 155	7 0 34 120 86 18 319 46	114 0 537 1,680 1,360 234 4,838 691	216 263 272 216 277 169 1,727 247	3,498 4,342 4,298 3,010 4,380 2,197 27,066 3,867	16,5 16,6 16,8 16,8 14,0 15,8 13,0 15,6
ATLANTIS EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS GYRE NEW HORIZON SEWARD JOHNSON NECOMA	202 95 131 111 1,031 147 37 0 163 31 60 124	3,192 1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 682	72 10 0 60 17 305 44 22 0	1,189 158 0 949 221 4,977 711	0 26 0 0 23 72 10	0 411 0 0 299 1,084 155	0 34 120 86 18 319 46	0 537 1,680 1,360 234 4,838 691	263 272 215 277 169 1,727 247	4,342 4,298 3,010 4,380 2,197 27,066 3,867	16,8 15,8 14,0 15,8 13,0 15,8
EWING T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS GYRE NEW HORIZON SEWARD JOHNSON WECOMA	96 131 111 1,031 147 37 0 163 31 60 124	1,330 2,071 1,443 16,167 2,310 333 0 1,581 223 682	10 0 60 17 305 44 22 0	158 0 949 221 4,977 711	26 0 0 23 72 10	411 0 0 299 1,084 155	34 120 86 18 319 46	1,680 1,360 234 4,838 691	272 215 277 169 1,727 247	4,298 3,010 4,380 2,197 27,066 3,867	15,8 14,0 15,8 13,0 15,6
T.G. THOMPSON MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS GYRE NEW HORIZON SEWARD JOHNSON NECOMA	131 111 1,031 147 37 0 163 31 60 124	2,071 1,443 16,167 2,310 333 0 1,581 223 682	0 60 17 305 44 22 0	0 949 221 4,977 711	0 0 23 72 10	0 0 299 1,084 155	120 86 18 319 46	1,680 1,360 234 4,838 691	215 277 169 1,727 247	3,010 4,380 2,197 27,066 3,867	14,0 15,8 13,0
MOANA WAVE CLASS I/II AVE: (7) EDWIN LINK ENDEAVOR DCEANUS GYRE NEW HORIZON DEWARD JOHNSON NECOMA	37 0 163 31 60 124	1,443 16,167 2,310 333 0 1,581 223 682	60 17 305 44 22 0	949 221 4,977 711	0 23 72 10	0 299 1,084 155	86 18 319 46	1,360 234 4,838 691	277 169 1,727 247	4,380 2,197 27,066 3,867	15,6 15,6
DWIN LINK ENDEAVOR DEANUS SYRE LEW HORIZON EWARD JOHNSON	1,031 147 37 0 163 31 60 124	16,167 2,310 333 0 1,581 223 682	17 305 44 22 0 48	221 4,977 711	23 72 10	1,084 155	18 319 46	4,838 691	169 1,727 247	2,197 27,066 3,867	13,6
EDWIN LINK ENDEAVOR DOCEANUS GYRE NEW HORIZON DEWARD JOHNSON VECOMA	37 0 163 31 60 124	2,310 333 0 1,581 223 682	305 44 22 0 48	4,977 711	72 10 32	1,084 155	319 46	4,838 691	1,727 247	27,066 3,867	15,6
EDWIN LINK ENDEAVOR DCEANUS GYRE NEW HORIZON SEWARD JOHNSON VECOMA	37 0 163 31 60	333 0 1,581 223 682	22 0 48	711 198 0	10	155	46	691	247	3,867	
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SEWARD JOHNSON VECOMA	60 124	682	4.3		22	213	0	0	233	2,260	-1-
SEWARD JOHNSON VECOMA	124			310	0	0	76	544	150	1,077	7,1
VECOMA		1,178	96	931	0	0	62	602	218	2,116	
	/01	696	32	304	47	447	78	741	281	2,670	
	485	4,593	65	647	91	905	0	0	226	2,248	9,9
AVE: (7)	69	656	306	2,856	350	3,426	307	2,706	1,448	13,581	9,37
	03	000]	44	408	50	489	44	387	207	1,940	9,28
PELICAN	62	222					e to a toes and control of the contr				3,20
ONGHORN	6	233	37	139	23	86	122	458	244	240	
POINT SUR	121	24	- 6	24	2	8	44	176	58	916	3,7
CAPE HATTERAS	111	768	30	191	0	0	41	260	192	232	4,00
ALPHA HELIX	139	1,522	66	489	17	126	11	82	205	1,219	6,34
I. SPROUL	66	373	- 0	0	21	230	12	131	172	1,520	7,4
APE HENLOPEN	106		17	98	7	40	76	436	166	1,883	10,94
VEATHERBIRD II	134	566	67	361	0	0	22	116	195	947	5,73
EA DIVER	18	1,074	0	0	o'	0	1	8	136	1,022	5,24
LASS IV - TOTAL	762	5,459	71	337	36	171	8	38	133	1,082	8,01
AVE: (9)	85	607	294	1,629	106	661	337	1,704	1,499	9,453	4,76
	33	181	12	73	37	189	167	1,050	6,30		
LUE FIN (b)									10/	1,080	6,24
AURENTIAN	76	213	0	0	13	36	6	17			
ARNES	140	616	0	0	0	0	10	17	95	266	2,80
ALANUS	73	109	17	26	6	9	24	44	150	660	4,40
RRACA	0	0	0	0	0	0	0	36	120	180	1,50
	16	70	0	0	0	0	112	0	166	400	2,41
CLASS IV TOTAL	304	1,008	17	26	19	45		526	127	596	4,69
AVE: (5)	61	202	3	5	4	9	152	623	492	1,702	3,45
						<u>-</u>	30	125	132	420	3,16
	2,582	27,227	922	9,488	E47	5.040					
AVE: (28)			722	5,400	547	5,216	1,115	9,871	5,166	51,802	10,02

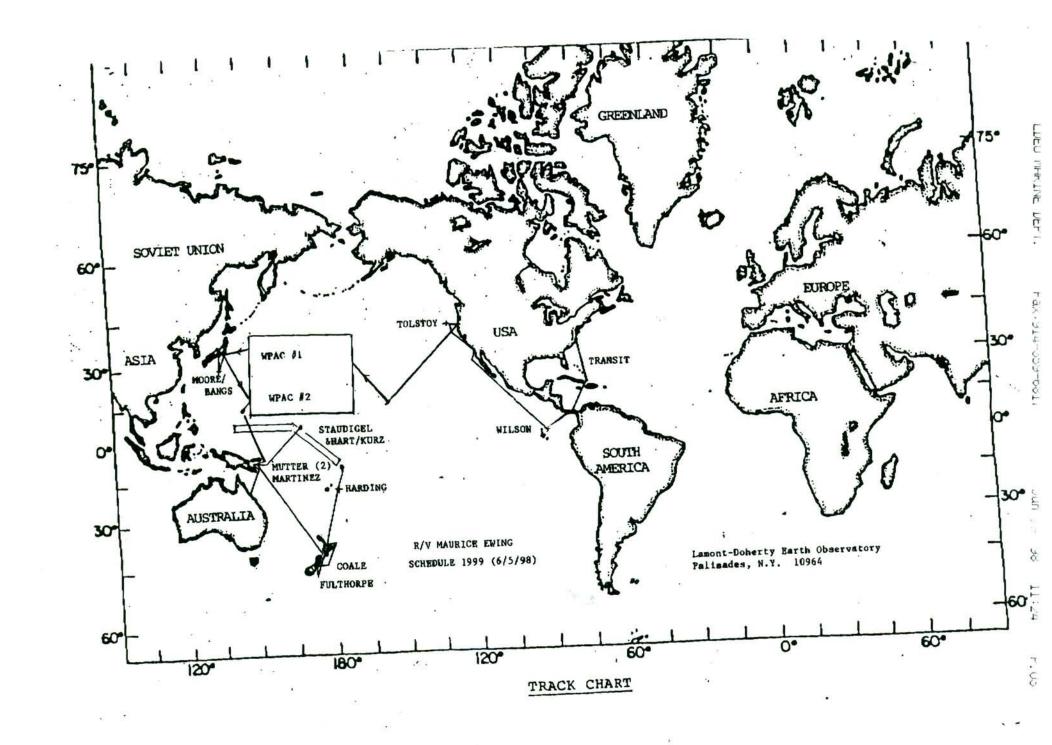
DAY 181 91 186 283 287 31 102 1,160	\$ 2,987 1,502 3,034 4,103 4,477 494 1,173	DAY 0 234 63 0 78	0 3,861 869 0	DAY 0 0 0 0 70	0	DAY	OTHER \$ 231	DAY 196	TOTAL \$ 3,218	DAILY RATE
DAY 181 91 186 283 287 31 102 1,160	\$ 2,987 1,602 3,034 4,103 4,477 494	0 234 53 0 78	\$ 0 3,861 869 0	0	0 0	14	231		\$	RATE
181 91 185 283 287 31 102 1,160	2,987 1,502 3,034 4,103 4,477 494	0 234 53 0 78	0 3,861 869 0	0	0	14	231			
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102 1,160		69	1,217	0	0	0		365	5,694	15,600
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179	1,593	0	0	72	641					8,900
204	2,142	6	63	12	126					10,500
0	0	0	0	0	0					0
74	636	73	628	0	0	54	465			8,602
	999 1,150	62	494	22	209	0	0			9,500
	746	44	462	86	892					10,500
731	7,005	175	1,647	191	1,868	264	A			9,094
104	1,001	25	235	27	267	38	310	194	1,768	8,143
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						46	180	67	268	4,000
						44	286	193	1,266	6,503
			-			11	81	240	1,768	7,325
						18	191	135	1,434	10,622
				0	0	12	69	134	772	5,761
							0	185	1,018	6,603
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3,015	30,823	1,033	13,000	8/4	0,311	35.	1,,,,,,,,		1	
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	166 82 179 204 0 74 COS21 71 731	1,160 17,770 166 2,539 82 738 179 1,583 204 2,142 0 0 0 74 636 COS21 1999 1,150 71 746 731 7,005 104 1,001 111 444 0 0 0 64 416 65 476 86 1,020 117 674 122 671 120 980 26 119 720 4,780 80 531 111 195 200 880 78 126 0 0 16 68 404 1,268 81 254	1,160 17,770 424 166 2,539 61 82 738 0 179 1,593 0 204 2,142 6 0 0 0 0 74 638 73 COST 1999 1,160 52 71 746 44 731 7,005 175 104 1,001 25 111 444 80 0 0 0 0 0 64 416 85 65 476 143 96 1,020 0 117 674 63 122 671 63 120 960 0 25 119 23 720 4,780 398 80 531 44 111 196 36 200 880 78 125 0 0 0 0 0 16 68 0 176 0 18 0 19 0 0 0 16 68 0 19 0 0 16 68 0 10 0 0 16 68 0 178 125 0 18 0 19 0 19 0 10 0 10 0 11 0 11 0 11 0 11	1,160 17,770 424 8,887 166 2,539 61 984 82 738 0 0 0 179 1,593 0 0 0 204 2,142 6 63 0 0 0 0 0 0 74 636 73 628 COS21 999 1,160 52 494 71 746 44 462 731 7,005 175 1,647 104 1,001 25 235 111 444 80 320 0 0 0 0 0 0 64 416 85 563 66 476 143 1,047 96 1,020 0 0 0 117 674 6 29 122 671 63 347 120 960 0 0 0 25 119 23 109 720 4,780 399 2,405 80 531 44 267 111 196 35 61 200 880 0 0 0 78 125 0 0 0 15 68 0 0 0 78 126 0 0 0 16 68 0 0 0 78 126 0 0 0 16 68 0 0 0 78 126 0 0 0 16 68 0 0 0 78 126 19 35 61 3,015 30,823 1,033 13,000	1,180 17,770 424 8,887 267 166 2,539 61 984 38 82 738 0 0 0 72 204 2,142 6 6 63 12 0 0 0 0 0 0 0 0 74 636 73 628 0 0 COST 999 1,160 62 494 22 71 746 44 462 85 731 7,005 175 1,647 191 104 1,001 25 235 27 111 444 80 320 22 0 0 0 0 0 0 0 22 64 416 85 563 0 0 22 65 476 143 1,047 21 96 1,020 0 0 0 0 2 117 674 5 29 0 0 122 671 63 347 0 0 122 671 63 347 0 0 120 960 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1,160	1,160 17,770 424 8,887 267 3,908 148 166 2,539 61 984 38 558 21 82 738 0 0 0 0 0 136 179 1,583 0 0 0 72 641 19 204 2,142 6 63 12 128 0 0 0 55 74 636 73 628 0 0 0 65 64 63 12 128 0 0 64 65 62 494 22 209 0 65 64 44 442 22 209 0 64 64 44 442 22 85 892 0 0 64 731 7,005 175 1,647 191 1,868 264 10 10 22 88 46 46 41 80 320 22	1,160	1,160 17,770	1,160

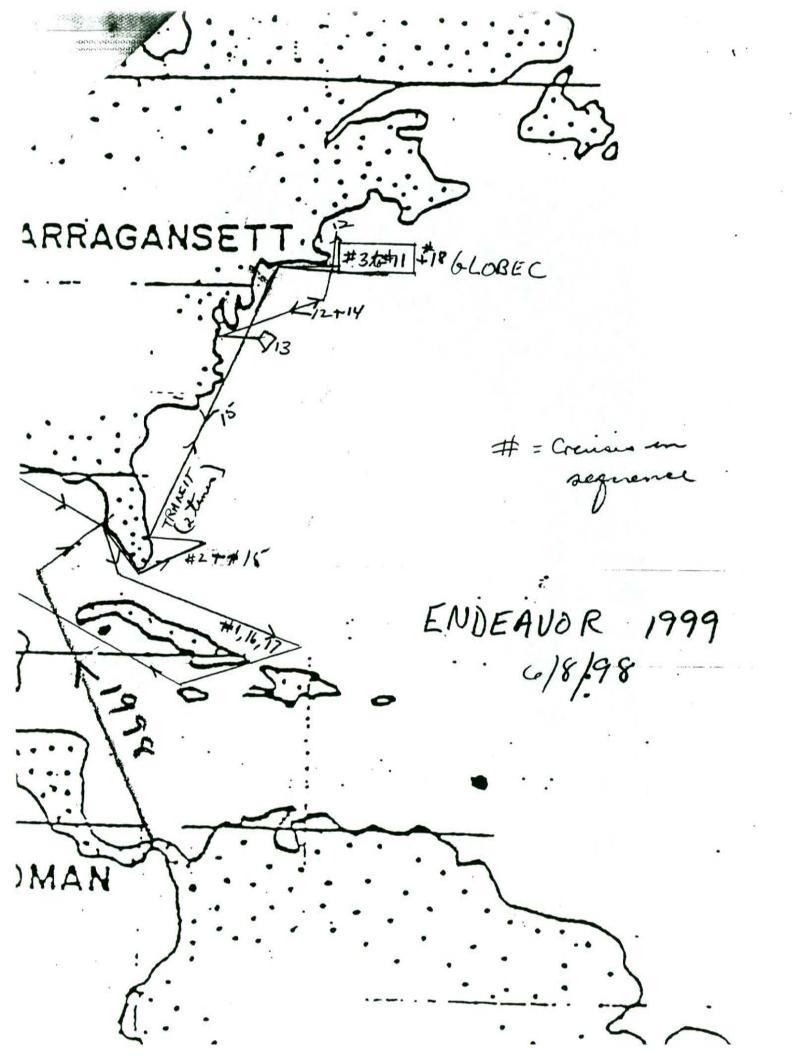
APPENDIX IV



TENTATIVE CY99 RONALD H. BROWN CRUISE TRACK







Mourper 1999 (proposed 6/10/98)

