166 15040060

TASADAY EXPEDITION

LEG 8

R/V T. WASHINGTON

File

INFORMAL REPORT AND INDEX OF

NAVIGATION, DEPTH, MAGNETIC AND SUBBOTTOM PROFILER DATA

Apra, Guam (27 December 1973)

to

Honolulu, Hawaii (16 Jan. 1974)

Chief Scientist, Leg 8 - R. Anderson Computer Tech - Dale V. Stuber

Post-Cruise Processing by - S. M. Smith, U. Albright G. Psaropulos, O. McConnell

Resident Marine Tech - W. Keith

Prepared by

Underway Data Processing Group

S.I.O. Geological Data Center

Scripps Institution of Oceanography

La Jolla, California

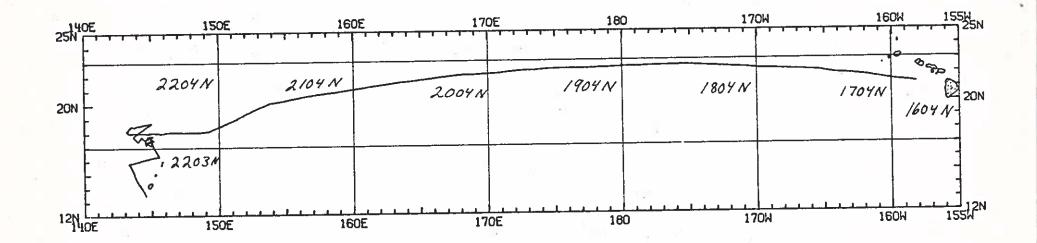
Preliminary Report and Index of Navigation, Depth, Magnetic and Subbottom Profiler Data

Contents:

- Index Chart gives track of cruise leg and boundaries of depth compilation
 plots (see below).
- Track Charts annotated with dates (day/month) and hour ticks. The scale (.3"/deg. long) is the same as the index charts of previous SIO cruises published as Report IMR TR-25.
- Profiles Depth and magnetic anomaly vs. distance. Dates (day/month) and positions of major course changes (greater than 30 degrees) are annotated. Sections of track having subbottom profiler (airgun) records have a solid black line along the bottom of the profile.

For information on the availability and reproduction costs of data in the following forms contact T.E. Chase, Curator, Geological Data Center, Scripps Institution of Oceanography, La Jolla, California 92037 (714-453-2000, ext. 1534):

- Navigation listing of times and positions of course and speed changes, fixes and drift velocity.
- 2. Depth compilation plots in fathoms (assumed sound velocity of $800 \, \mathrm{fm./sec.}$) at approximately 1 mile spacing, plotted at $4''/\mathrm{degree}$ with standard U.S. Navy Oceanographic Office BC series boundaries (see index chart).
- 3. Plots of magnetic anomaly profiles along track-map scale = 1.2"/degree; anomaly scale between 15°N and 15°S latitude = 500 gamma/inch; anomaly scale north of 15°N and south of 15°S = 1000 gamma/inch) from values retrieved at approximately 1 mile spacing and regional field removed using the 1965 IGRF.
- 4. Card Decks of navigation, depth and magnetics (for specific formats, contact S.M. Smith, Geological Data Center).
- 5. S.I.O. Sample Index list of beginning and end times and positions of all underway records as well as all other samples (geology, biology, physical oceanography, etc.) collected on the cruise leg.
- 6. Microfilm or Xerox copies of:
 - a. Echosounder records 12 and 3.5 kHz frequency
 - b. Subbottom profiler records (airgun)
 - c. Magnetometer records
 - d. Underway Data Log



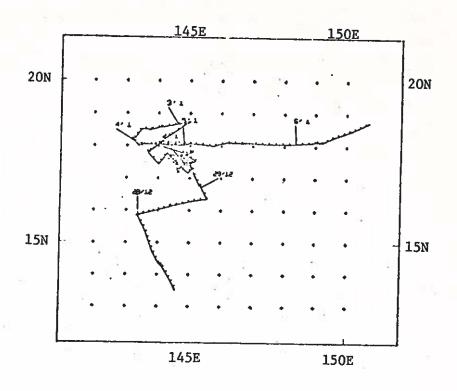
TASADAY EXPEDITION

LEG 8

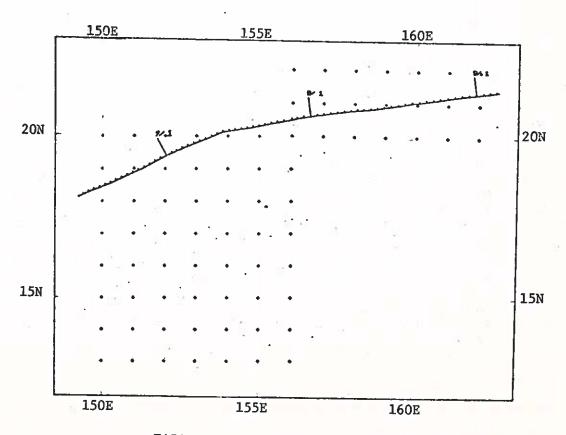
R/V T.WASHINGTON
CHIEF SCIENTIST - R.ANDERSON
Guam - Hawaii (27 Dec. 1973 - 16 Jan. 1974)

TOTAL MILEAGE

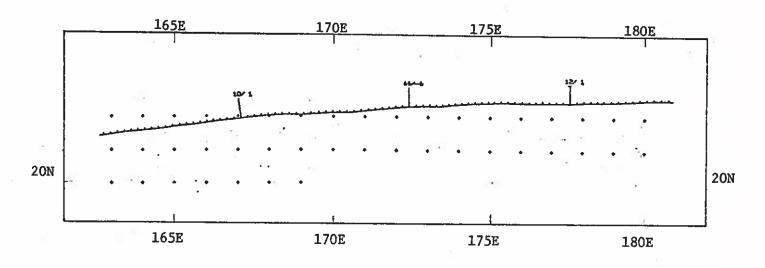
- 1) Cruise 4370 miles
- 2) Magnetics 4145 miles
- 3) Bathymetry 4260 miles
- 4) Seismic Reflection 3768 miles



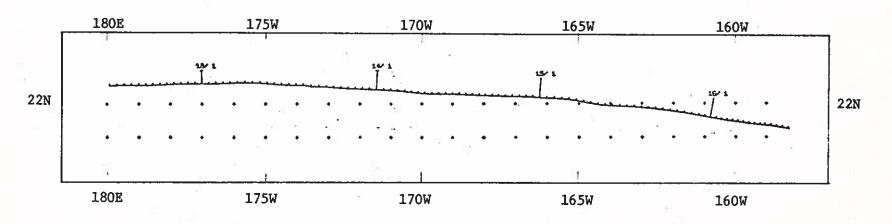
TASADAY LEG 8 TRACK PLOT 1 of 4



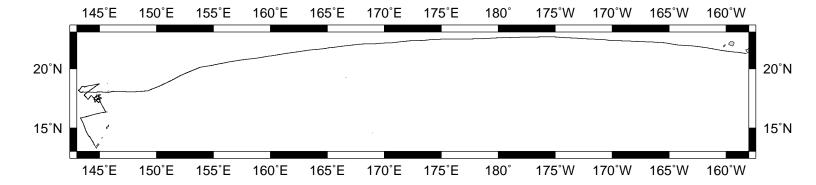
TASADAY LEG 8 TRACK PLOT 2 of 4



TASADAY LEG 8 TRACK PLOT 3 of 4



TASADAY LEG 8 TRACK PLOT 4 of 4



Cruise: TSDY08WT

Begin date (dd/mm/yyyy): 27/12/1973 End date: 16/01/1974

Data collected (# points): twtt: 4495 tcor: 4495 mtot: 4272 manm: 4272

File: TSDY08WT.gmtd

Cruise level information ______ cruise-id::TSDY08WT cruise-name::TASADAY LEG 8 cruise-narrative:: Measurements of acoustic properties in the Sulu Sea. (the water temperature is unique as it is very warm to a depth of 2.5km) Next, acoustic absorption in the philippine Sea will be studied. science-themes::Geological Oceanography, Marine Geophysics scientific-party-equipment::2 METER HEAT PROBE, ROCK DREDGE, TRIP GRAVITY CORE (WITH PISTON CORE), PISTON CORE, GRAVITY CORE, AIRGUN cruise-start-date::1973-12-27 cruise-start-port::APRA,GUAM latitude-start::13.505 longitude-start::144.56999 cruise-end-date::1974-01-16 cruise-end-port::HONOLULU latitude-end::21.243 longitude-end::201.7716 _____ latitude-minimum::13.50500 longitude-minimum::143.14381 latitude-maximum::22.62850 longitude-maximum::201.77160 data-corrected-for-ship-draft::YES data-corrected-for-tides::NO data-types::depth_sec magnetic_field magnetic_anomaly subbottom_3.5 seismic_reflection pi-city-state-zip::Palisade, NY 10964 pi-email::anderson@ldeo.columbia.edu pi-fax:: pi-institution::Lamont Doherty Earth Observatory, Columbia University pi-name::Anderson, Roger N. pi-phone::858-365-8335

pi-street-address::4D Technology, Lamon-Doherty Earth Observatory

pi-title::Senior Scholar and Adjunct Professor Earth and Environmental Sciences

SIO Log weekly reports
Tasaday Expedition Leg 08

Thomas Washington, Weekly Report Tasaday Leg 8. Completed detailed heat flow, dredging, gravity. magnetic, bathymetric and seismic reflection survey of Mariana Trough at 17-18 deg. north, 143-145 deg. east. 14 heat flow, 6 dredge, 2 piston core stations occupied. Heat flow values range from 0.0 H.F.U. to 10.6 with low measurements widespread regionally and high values concentrated in N-S ridge and trough and E-W trough at exact center of basin mapped earlier on Scan, Leg 4. Highest heat flow measured in central valley. Such a distribution requires an extremely recent origin for the center of the basin. Heat flow thus verifies extension nature of Mariana marginal basin. Gravity profile across basin showed the whole feature to have plus 20 to plus 40 mgal free-air anomaly. Piston core on flank recovered 500 cm of brown Quaternary clay with pumice chunks. Dredges of central basin returned fresh gray porphyritic basalt with large plagioclase and olivine phenocrysts. Manganese-coated pumice nodules and slab were also recovered. Dredge of E-W rift returned extensively altered basalt and diabase. Proceeding to E-W geophysical survey of basin at 18 deg., 30 min. north and 19 deg. north. Anticipate completion of station work by 6 Jan. Anderson.

Thomas Washington, Weekly report Tasaday Leg 8. Station and survey work completed Mariana Trough. Total of 22 heat flow, 11 dredge and 3 piston core stations occupied. E-W profiles at 18 deg 30 min north and 18 deg north produced similar results to those in south, all basin cold except for central ridge-trough complex. Dredges of central ridge produced fresh basalt, pumice. 3 dredges of third arc returned still more pumice. Gray meter down for 3 days with counter problems. Working fine for trench profile starting at 145 deg east. Reflection records at 13 knots outstanding but down to the last set of belts for Rix. All underway geophysical systems operational on great circle run to Hono. Last 2 dredges within 12 hours when swivel broke both times at less than 9999 lbs tension. Anderson

MGD77 file information	
4TSDY08WTMGD77 5533320030711SCRIPPS INSTITUTION OF OCEANOGRAPHY	01
USA R/V THOMAS WASHINGTON1SHIP ANDERSON R.	02
TASADAY LEG 8	03
19731227APRA,GUAM 19740116HONOLULU	04
SATNAV, AUTOLOG GYRO + EMLOG LINEAR INTERP. BETWEEN ADJACENT FIXES	05
3.5-12KHZ/GIFFT RECORDERS/WIDE BEAM ANAL.RECORDS,CARDS,35MMFILM(3.5KHZ)	06
VARIAN MFD PROTON PRECESSION MOD 4970 ANAL.RECORDS, CARDS	07
ASKANIA GSS2,ANSCHUTZ ELECT. GYRO TABLE	80
20TO300CU.IN.AIRGUN,10-300HZ,EDO PSR RECANAL.RECORDS,35MM MICROFILM	09
A(I1,A8,I3,I4,3I2,F5.3,F8.5,F9.5,I1,F6.4,F6.1,I2,I1,3F6.1,I1,F5.1,F6.0,	10
F7.1,F6.1,F5.1,A5,A6,I1)	11
0501SECONDSWEEP14630005 MINUTE INTERVAL	12
05006 031GRF 1965 LIN. INTERP.POINTS WITHIN ONE DEGREE SQUARE	13
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	15
	16
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	24

TASADAY EXPEDITION	LEG 08	SAMPLE INDEX	

LISTED 12 FEBRUARY 1974

144 342E S TSDYORWT
158 133W S TSDY08WT
TSDYORWT
TSDYONWT
TSDYORWT
T S D Y O 8 W T
TSDYORWT
TSDYO8WT
TSDYOBWT

*** NOTE *** TIME ZONES AND MINUTES OF LATITUDE AND LONGITUDE ARE LISTED IN TENTHS (E.G. 10.6 IS LISTED AS 106)

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0	*** LOG BOOKS ***	4		
3	TIME DATE TIME TZ		DISP CODE LAT. LONG	
•	130 271273 1600 16 174	LBUW B UNDERWAY WATCH LOG	GDC 13 321N 144 332 GDC 21 145N 158 133	ZE S TSDY08WT 3W S TSDY08WT
6	*** NAVIGATION PLO	TS ***		
0	TIME DATE TIME TZ GMT D.M.Y. LOC LOC	SAMP C CODE SAMPLE IDENT.	DISP CODE LAT. LUNG	CRUISE LEG-SHIP
49	101 271273 1306 311273	NVBP B BRIDGE PLOT 08-01 NVBP E BRIDGE PLOT 08-01	GDC 13 303N 144 347 GDC 17 420N 144 539	ZE S TSDYORWT 9E S TSDYORWT
•		NVBP B BRIDGE PLOT 08-02 NVBP E BRIDGE PLOT 08-02	GDC 17 420N 144 539 GDC 18 41N 145 59	9E S TSDYORWT 4E S TSDYORWT
4	1254 5 174 1041 12 174	NVBP B BRIDGE PLOT 08-03 NVBP E BRIDGE PLOT 08-03	GDC 18 41N 145 594 GDC 22 323N 179 59	4E S TSDYORWT 8E S TSDYORWT
φ	1041 12 174 40 16 174	NV8P B BRIDGE PLOT 08-04 NVBP E BRIDGE PLOT 08-04	GDC 22 323N 179 591 GDC 21 332N 160 40	8E S TSDYORWI 2W S TSDYORWI
a	40 16 174 1500 16 174	NVBP B BRIDGE PLOT 08-05 NVBP E BRIDGE PLOT 08-05	GDC 21 332N 160 400 GDC 21 145N 158 133	2W S TSDYORWI 3W S TSDYORWI
9	1500 16 174 1700 16 174	NVRP B BRIDGE PLOT 08-06 NVBP E BRIDGE PLOT 08-06	GDC 21 145N 158 133 GDC 21 145N 158 133	3W S TSDYO8W1 3W S TSDYO8W1
9	2228 261273 2200 291273	NVCP B COMPUTER PLOT 08-01 NVCP E COMPUTER PLOT 08-01	GDC 13 303N 144 34 GDC 17 181N 145 3	2E S TSDYO8WI
ò		NVCP B COMPUTER PLOT 08-02 NVCP E COMPUTER PLOT 08-02		
9	332 311273 352 311273	NVCP B COMPUTER PLOT 08-03 NVCP E COMPUTER PLOT 08-03	GDC 17 275N 145 19 GDC 17 273N 145 1	9E S TSDYORWI 8E S TSDYORWI
9	500 311273 1328 5 174	NVCP B COMPUTER PLOT 08-04 NVCP E COMPUTER PLOT 08-04	GDC 17 276N 145 19 GDC 18 55N 146 69	9E S TSDYOAWI 5E S TSDYOAWI
3	1328 5 174 530 7 174	NVCP B COMPUTER PLOT 08-05 NVCP E COMPUTER PLOT 08-05	GDC 18 55N 146 69 GDC 19 476N 153	SE S TSDYORWT SE S TSDYORWT
5	545 7 174 1600 8 174			OE S TSDYORWT 7E S TSDYOBWT
	1615 8 174	NVCP B COMPUTER PLOT 08-07	GDC 21 41% 160 8	

NVCP E COMPUTER PLOT 08-07 GOC 22 192N 173 129E S TSDYORWT

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1058	12 174		NVCP A	3	COMPI COMPI	JTER PLO UTER PLO	T 08-08 T 08-08	GDC GDC	22 22	190N 325N	173 179	188E 563W	S S	TSDYORWT TSDYORWT	
1145 945	12 174 13 174		NVCP I	3	COMP	UTER PLO UTER PLO	T 08-09 T 08-09	GDC GDC	22	330N 355N	179 174	456W 474W	S S	TSDYO8WT TSDYO8WT	
945 1045	13 174 14 174					UTER PLO UTER PLO	T 08-10 T 08-10	GDC GDC	22 22	355N 176N	174 159	474vi 40W	\$ \$	TWROYGZT TWROYGZT	
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_	15 174 16 174		NVCP	8 E	COMP	UTER PLO UTER PLO	08-12 07 08-12	GDC GDC	21 21	559N 145N	163	586W 133W	S S	TSDY08WT TSDY08WT	
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							R-01 R-01	GDC GDC	13	321N 583N	144 143	332E 520E	S S	TSDY08WT TSDY08WT	
923 1248	281273 311273	è	DPRT DPRT	8 E	GD R GDR	12KHZ 12KHZ	R-02 R-02	GDC GDC	15 17	583N 421N	143 144	519E 537E	S S	TSDYO8WT TSDYO8WT	
	311273 2 174		DPRT DPRT	B E	GUR GDR	12KHZ 12KHZ	R-03 R-03	GDC GDC	17 18	420N 383N	144 144	539E 492E	\$ \$	TSDYORWT TSDYORWT	
	2 174 5 174	5	DPRT DPRT	В Е	GDR GDR	12KHZ 12KHZ	R-04 R-04	GDC GDC	18 18	383N 56N	144 146	492E 538E	S	TSDYORWT TSDYORWT	
	5 174 8 174		DPRT DPRT	S UJ	GDR GDR	12KHZ 12KHZ	R-05 R-05	GDC GDC	18	56N 583N	146 159	5592 274E	S S	TSDYORWT TSDYORWT	
1229	8 174 11 174		DPRT	E	GUR	12KHZ	R-06	GDC	22	259N	,175	265	2	TSDYCAWT	
1229 1143	11 174 14 174		DPRT DPRT	8 E	GDR GDR	12KHZ 12KHZ	R-07 R-07	GDC GDC	22 22	259N 174N	175 168	26E 513W	S S	TSDY08WT TSDY08WT	
	14 174 16 174					12KHZ 12KHZ	R-08 R-08	600 600	22	174N 145N	168 158	507W 133W	S S	TSDYOAWT TSDYOAWT	
	271273 281273					3.5KHZ 3.5KHZ	R-01 R-01	GD0	13	358N 560N	144 143	314E 497E	S S	TSDYORWT TSDYO8WT	
	281273 311273					3.5KHZ 3.5KHZ	R-02	GD0 GD0	15	583N 429N	143 144	519Ē 516Ē	S S	TSDYORWT TSDYORWT	
	311273 3 174	74				3.5KHZ 3.5KHZ	R-03 R-03	GD(17	427N 342N	144 144	530E 43E	S S	TSDYO8WT TSDYO8WT	

T JME GMT		CODE SAMP	LE IDENT.	DISP CODE LAT.	LUNG	CRUISE LEG SHIP
539 455	•	DPR3 B GDR 3 DPR3 E GDR 3	.5KHZ R-04 .5KHZ R-04	GDC 18 347N GDC 19 452N	144 38E S 152 539E S	TSDY08WT TSDY08WT
550 741	7 174 9 174	DPR3 B GDR 3 DPR3 E GDR 3	.5KHZ R-05	GDC 19 490N GDC 21 330N	153 39E S 163 344E S	TSDYO8WT TSDYO8WT
	9 174 10 174	OPR3 B GDR 3 DPR3 E GDR 3	.5KHZ R-06	GDC 21 338N GDC 22 67N	163 439E S 170 21E S	TSDY08WT TSDY08WT
1352 1638	10 174 13 174	DPR3 B GDR 3 DPR3 E GDR 3	.5KHZ R-07	GDC 22 68N GDC 22 305N	170 104E S 173 101W S	TSDYORWT TSDYORWT
1650 1605	13 174 16 174	DPR3 B GDR 3 DPR3 E GDR 3	.5KHZ R-08	GDC 22 304N GDC 21 145N	173 72W S 158 133W S	TSDYORWT TSDYORWT
* * * G f	RAVIMETRIC RECOR	RDS***				9
	DATE TIME TZ D.M.Y. LOC LOC		LE IDENT.	DISP CODE LAT.	LONG.	CRUISE LEG-SHIP
30 0	271273 16 174	GVR -B GRAVI GVR E GRAVI	TY R-01 TY R-01	MIT 13 303N MIT 21 344N	144 342E S 160 475W S	TSDYO8WT . TSDYO8WT
***	MAGNETAMETER: **	*				
309 719	271273 12 174	MGR B MAGNE	TICS R-01 R-01	GDC 13 485N GDC 22 299N	144 247E S 179 138E S	TSDYORWT TSDYORWT
731 1605	12 174 16 174	MGR B MAGNE MGR E MAGNE	TICS R-02 ETICS R-02	GDC 22 300N GDC 21 145N	179 165E S 158 133W S	TSDYORWT TSDYORWT
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TIME	DATE TIME TZ D.M.Y. LDC LOC	SAMP CODE SAMP	PLE IDENT.	DISP CODE LAT.	LONG.	CRUISE LEG SHIP
3 05 855	271273 16 174	SPR5 B AIRGU SPR5 E AIRGU	UN-R5 R-01 UN-R5 R-01	GDC 13 482N GDC 21 220N	144 249E S 159 120W S	TSDYO8WT TSDYO8WT
305 855	271273 16 174	SPR2 B AIRGU SPR2 E AIRGU	JN-R2 R-01 JN-R2 R-01	GDC 13 482N GDC 21 220N	144 249E S 159 120W S	TSDYO8WT TSDYO8WT

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	940 1100	27 27	1273 12 73			D D	R R	B E	TSDY TSDY	11D 11D		3705 3385	GCR 14 GCR 14	168N 178N	144 144	69E 52E	S S	TSDYORWT TSDYORWT
	110 225	28 28	1273 1273	3		D D	R R	8	TSDY TSDY	120 120		3100 2667	GCR 15 GCR 15	503N 502N	143 143	197E 188E	S S	TSDYORWT TSDYORWT
	1300 1534	29 29	1273 1273		÷	D D	R R	8	TSDY TSDY	13D 13D		4777 3743	GCR 17 GCR 17	256N 254N	144 144	485E 496E	S S	TSDYOSWT TSDYOST
	920 1200	30 30	1273 1273	# 11 ²		D D	R R	В Е	TSDY TSDY	14D 14D		3955 3442	GCR 17 GCR 17	262N 273N	144	340Ê 339E	S S	TSDYO8WT TSDYO8WT
•	1413 1625	31:	1273 1273			В В	Ŕ R		TSDY TSDY	15D 15D		4100 3252						TSDY08WT TSDY08WT
	721 934	I I	174 174			B D	R	В Е	TSDY TS'DY	16D 16D		4085 3366	GCR 17 GCR 17	397N 409N	144	419E 405E	\$ \$	TSDYO8WT TSDYO8WT
٠	1301 1550	-1	174 174			D D	R R	В	TS DY TS DY	170 170		3865 3353	GCR 17 GCR 17	409N 419N	144	438E 433E	S S	TSDYO8WT TSDYO8WT
	1637 1916	3	174 174			D D	R R	3) EI	TSDY	18D 180		2219 1688	GCR 18 GCR 18	127N 121N	143	1115 96E	S S	TSDYORWT TSDYORWT
	2208 115		174 174			D D			TSDY TSDY	190 190	NO	2250 1965	GCR 18 GCR 18	107N 106N	143 143	104E JOOE	S S	TSDYO8WT TSDYO8WT
	707 930		174 174	9		D D			TSDY TSDY	20D 20D		3750 2798	GCR 18 GCR 18					TSDYOSWT TSDYOSWT
	2248 42		174 174	31		D D			TS DY TSDY	210 210		4500 4310	GCR 18 GCR 18					TSDY08WT TSDY08WT

TIME	DATE TIME D.M.Y. LOC		SAMPLE IDENT.		DISP	LAT.	LONG.	CRUISE LEG-SHIP
740	281273	HF2M	TSDY-38HF	3932	HFP 15	580N	143 497E	S TSDYORWT
1413	281273	HF 2M	TSDY-39HF	4536	HEP 16	74N	144 230E	S TSDYO8WT
132	291273	HF2M	TSDY-40HF	3350	HFP 16	461N	145 183E	S TSDYOBWT
558	291273	HF 2M	TSDY-41HF	3547	HEP 16	557N	145 129E	S TSDYO8WT
2109	291273	HE 2 M	TSDY-42HF	3950	HEP 17	183N	145 32E	S TSDYOSWT
242	301273	HF 2M	TSDY-43HF	3440	HEP 17	94N	144 554E	S TSDYORWT
16.00	301273	HF2M	TSDY-44HF	3600	HEP 17	106N	144 359E	S TSDYOBWT
1923	301273	HF 2H	TSDY-45Hr	4119	HEP 17	184N	144 417E	S TSDYO8WT
422	311273	HF2M	TSDY-46HF	3838	HEP 17	274N	145 185	S TSDYO8WT
146	311273	HF 2M	TSDY-47HF	3800	HFP 17	313N	145 101E	S TSDYOBWT
2021	311273	HF2M	TSDY-48HF	3404	HFP 17	490N	145 575	S TSDYORWT
229	1 174	HF 2M	TSDY-49HF	4133	HEP 17	371N	144 455E	S TSDYORWT
425	2 174	HF2M	TSDY-50HF	4420	HEP 17	493N	143 397E	S TSDYORWT
832	2 174	HE 2M	TSDY-51HF	3619	HFP 18	4914	144 9E	S TSUYOSWT
1249	2 174	HF2M	TSDY-52HF	4256	HFP 18	193N	144 212E	S TSDYORWT
1 806	2 174	HF 2M	TSDY-53HF	4283	HEP 18	385N	144 494E	S TSDYORWT
2319	2 174	HESM	TSDY-54HF	4534	HEP 18	398N	144 364E	S TSDYORWT
321	·3 174	HF 2M	TSDY-55 HF	4272	HFP 13	341N	144 43E	S TSHYORWT
849	3 174	HF2M	TSDY-56HF	4215	HFP 18	293N	143 422E	S TSDYORWT
1354		HF2M	TSDY-57HF	4123	HEP 18	25N	143 536E	S TSDYOBWT
417		HF2M	TSDY-58HF	3838	HFP 18	3 9N	144 5938	S TSDYO8WT
541	6 174	HF 2M	TSDY-59HF	5619	HFP 18	87N	149 29E	S TSDYO8WT