

DIGITAL DATA SET:

BAD DATA

MGG64995001

MGG64995002

SAI/BLM
EDS FORMATS

SCIENCE APPLICATIONS, INC.

SAI/BLM
EDS FORMATS



SCIENCE APPLICATIONS, LA JOLLA, CALIFORNIA
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INTRODUCTION

There are 19 files to be generated and submitted to EDS on part of SAI's contractual obligations for the BLM Southern California OCS Baseline Study. Of the 19 files, only one file, the STD, was based on existing EDS formats. It was felt that the other data generated by this program was sufficiently unique to warrant an entirely new format structure. In developing the new formats, however, we have followed the EDS format philosophy in that each file will contain a file header record (which describes the file), a station header record (which provides data on the sample location and data common to all samples taken at that location), a sample description record (which provides the detailed description of the particular samples - fauna, sediment, water) and finally the data analysis records. In order to facilitate application programming and file modifications the files were developed using a modular approach. That is, for example, all fauna sample description records, either benthic or intertidal, for trace metal or hydrocarbon analysis, have the "sample" format. In a like manner, all analysis data record formats are independent of the nature of the same, e.g., all trace metal analysis record formats (water column, fauna, sediment intertidal, subtidal) are the same.

An outline of this modular file and the file identification code is presented in Table I. Other identifier codes are presented adjacent to the applicable records. The file record formats are presented individually. Table 2 shows the record length for each file. While some records are much shorter than shown in Table 2, the length indicated will read the longest record in that file.

TABLE 1
FILE DESCRIPTION AND FILE IDENTIFIER CODES

FILE CODE	FILE IDENTIFIER & STAT. HEADER RECORD	SAMPLE DESC. RECORD	SAMPLE ANALYSIS RECORD(S)
111	Benthic	Fauna	Trace Metal
112	Benthic	Fauna	Hydrocarbon
121	Benthic	Sediment	Trace Metal
122	Benthic	Sediment	Hydrocarbon
123	Benthic	Sediment*	Microfauna
124	Benthic	Sediment*	Macrofauna
125	Benthic	Sediment	Sediment Chara.
131	Benthic	Water Column	POC, DOC
132	Benthic	Water Column	Trace Metal
133	Benthic	Water Column	Hydrocarbon
211	Intertidal	Fauna	Trace Metal
212	Intertidal	Fauna	Hydrocarbon
221	Intertidal	Sediment	Trace Metal
222	Intertidal	Sediment	Hydrocarbon
223	Intertidal	Sediment	Sediment Chara.
231	Intertidal	Biology	Rocky Intertidal
232	Intertidal	Biology	Sandy Beaches
300	(Modified EDS STD format)		

* The sediment sample description record was used for biological data to provide the additional data needed for interpretation.

TABLE 2

File Code	Record Length
111	180
112	180
121	130
122	130
123	130
124	130
125	130
131	130
132	130
133	130
211	180
212	180
221	130
222	130
223	130
231	120
232	120
300	120

FILE HEADER (BENTHIC)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File Type (see Table I)
I6	File identifier - date of file generation (year, month, day)
I2	Record Type (as denotes main file header)
A11	Vessel
A6	Cruise Number
A17	Inclusive cruise dates 'YY/MM/DD - YY/MM/DD'
A19	Principle Investigator
A20	Institution
A33	File Description
3b	

record length 120 bytes

STATION HEADER RECORD (BENTHIC)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	Field Type
I6	File Identifier
I2	Record Type (01 denotes station header record)
I5	Cast Number (AHF#)
I5	BLM Station Number
I3	Julian Day
I2	Year
I2	Time Zone
I4	Arrive time (HR, MIN)
I4	Leave time (HR, MIN)
3I2, 1A	Began sample Latitude (xx ^o , xx', o.xx', N/S)
I3, 2I2, 1A	Began sample longitude (xx ^o , xx', o.xx', E/W)
3I2, 1A	Began retrieval latitude
I3, 2I2, 1A	Began retrieval longitude
I3	Course (°)
I2	Speed (Knots)
I3	Marsden Square
I1	Quad
I2	1 Deg Square
I5	Bottom Depth (Sonic Depth Corrected)
I4	Time on bottom (HR, MIN)
I5	Max wire out
A3	Sampling Equipment (see table III)
I4	Air Temp °C (xxx.x) (Dry Bulb)
I4	Air Temp °C (xxx.x) (Wet Bulb)

STATION HEADER RECORD (BENTHIC) Cont.

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I2	Wave Direction (WMO 0855)
I3	Wave Height (xx.x) Meters
I2	Wave period (xx) seconds
I2	Wind speed knots
I2	Wind direction (WMO 0877)
I1	Weather (WMO 4501)
I1	Visibility (WMO 4300)
I3	Barom. pressure (mb.)
I1	Cloud Type (WMO 0500)
I1	Cloud Amt. (WMO 2700)
I4	Weather time (HR, MIN)
6b	

record length 130 bytes

TABLE 3
WMO CODES

TABLE NO. 1
WIND/WAVE DIRECTION
WMO Codes 0877 and 0885 (modified)

Code	Code
00 (no waves, no motion)	22 215°-224°
01 5°-14°	23 225°-234°
02 15°-24°	24 235°-244°
03 25°-34°	25 245°-254°
04 35°-44°	26 255°-264°
05 45°-54°	27 265°-274°
06 55°-64°	28 275°-284°
07 65°-74°	29 285°-294°
08 75°-84°	30 295°-304°
09 85°-94°	31 305°-314°
10 95°-104°	32 315°-324°
11 105°-114°	33 325°-334°
12 115°-124°	34 335°-344°
13 125°-134°	35 345°-354°
14 135°-144°	36 355°-004°
15 145°-154°	49 Waves confused, direction indeterminate (waves equal to or less than 4-3/4 meters)
16 155°-164°	99 Waves confused, direction indeterminate (waves greater than 4-3/4 meters)
17 165°-174°	Winds variable, or all directions, or unknown
18 175°-184°	
19 185°-194°	
20 195°-204°	
21 205°-214°	

TABLE NO. 2
WEATHER
WMO Code 4501

Code	Description
0	Clear (no cloud at any level)
1	Partly cloudy (clouds scattered or broken)
2	Continuous layer(s) of cloud(s)
3	Sandstorm, dust storm, or blowing snow
4	Fog, thick dust, or haze
5	Drizzle
6	Rain
7	Snow, or rain and snow mixed
8	Shower(s)
9	Thunderstorm(s)

TABLE NO. 3
CLOUD TYPE
WMO Code 0500

Code	Description
0	Cirrus
1	Cirrocumulus
2	Cirrostratus
3	Alto cumulus
4	Altostratus
5	Nimbostratus
6	Stratocumulus
7	Stratus
8	Cumulus
9	Cumulonimbus
/	Cloud not visible owing to darkness, fog, dust storm, sandstorm, or other phenomena

TABLE NO. 4
CLOUD AMOUNT
WMO Code 2700

Code	Description
0	0
1	1 Oktas (eighth) or less, but not zero
2	2 Oktas
3	3 Oktas
4	4 Oktas
5	5 Oktas
6	6 Oktas
7	7 Oktas
8	8 Oktas
9	Sky obscured, or cloud amount cannot be estimated

TABLE NO. 5
VISIBILITY
WMO Code 4300

Code	Description
0	Less than 50 meters (less than 55 yards)
1	50-200 meters (approx. 55-220 yards)
2	200-500 meters (approx. 220-550 yards)
3	500-1,000 meters (approx. 550 yards-5/8 naut. mile)
4	1-2 km (approx. 5/8-1 naut. mile)
5	2-4 km (approx. 1-2 naut. miles)
6	4-10 km (approx. 2-6 naut. miles)
7	10-20 km (approx. 6-12 naut. miles)
8	20-50 km (approx. 12-30 naut. miles)
9	50 km or more (30 naut. miles or more)

FILE HEADER (INTERTIDAL)

FORMAT

FIELD DESCRIPTION

I3

File Type (See Table I)

I6

File identifier -
date of file generation
(Year, month, day)

I2

Record Type
(00 denotes main file header)

A3

Sampling Season
(FAL, WIN, SPR, SUM)
sampling year (i.e. 1976)

A19

Principle Investigator

87b

record length 120 bytes

STATION HEADER RECORD (INTERTIDAL)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (01 denotes station header record)
A3	Sampling season
I4	Year
I3	Beach location code (See Table 3)
11A	Beach location abbreviation (See Table 3)
3I2, 1A	Latitude (xx ^o , xx', .xx', N)
I3, 2I2, 1A	Longitude (xxx ^o , xx', .xx', W)
73b	

record length 120 bytes

TABLE 4

ROCKY BEACHES

<u>Site Name</u>	<u>Site Abbreviations</u>	<u>Site Code</u>
Catalina Island	CAT	101
Santa Barbara Island	SBI	102
Palos Verdes	LA	103
San Clemente Island	SCI	104
Corona Del Mar	CDM	105
San Diego	SD	106
Coal Oil Point	COP	107
San Miguel Island	MIG	108
Santa Cruz Island	CRU	109
San Nicolas Island	SNI	110

SANDY BEACHES

Coal Oil Point	C.O. Pt.	201
Corona Del Mar	Cor. D.M.	202
Mugu Lagoon	Mugu L.	203
Outer Cabrillo	O. Cabr.	204
Point Dume	P. Dume	205
Point Loma	P. Loma	206
Point Magu	P. Magu	207
Salt Creek	Salt Ck.	208
San Clemente	S. Clem.	209
San Miguel	S. Migu.	210
San Nicholas	S. Nich.	211
Santa Catalina, Twin Harbor	Cat. Har.	212
Santa Catalina, Isthmus	Cat. Ist.	213
Santa Cruz	S. Cruz	214
Santa Margarita	S. Marg.	215
Scripps	Scripps	216
Torrance	Torran.	217

SAMPLE DESCRIPTION RECORD - FAUNA

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (02 denotes sample description record)
I15	Species Code (VIM)
A55	Genus and species
I3	Tissue type code (See Table 4)
A10	Type of tissue used in analysis
I3	Number of individuals used in analysis
A1	Sex (M, F, Blank)
I6	Average length of individual (mm)
F8.4	Wet Weight of sample (gm)
F8.4	Dry Weight of sample (gm)
I2	Replicate number (0 denotes no reps)
56A	Comments regarding sample
2b	

record length 180 bytes

TABLE 5
TISSUE TYPES

- 01 = Muscle
- 02 = Liver
- 03 = Digestive gland
- 04 = Gonad
- 05 = Gills
- 06 = Kidney
- 07 = Spleen
- 08 = Heart
- 09 = Brain
- 10 = Blood
- 11 = Stomach contents
- 99 = Other tissue

SAMPLE DESCRIPTION RECORD - SEDIMENT

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (02 denotes sample description record)
I2	Sample internal top cm (oo) (denotes entire core)
I2	Sample internal bottom cm (oo) (denotes entire core)
F8.4	Sample mean phi value
I3	% sand
I3	% silt
I3	% clay
48A	Comments regarding sample
40b	

record length 120 bytes

SAMPLE DESCRIPTION RECORD - WATER COLUMN

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (02 denotes sample description record)
I5	Sample depth meters
F8.4	Sample size (liters)
A1	Particulate ('p') or dissolved ('d')
I2	Filter type code (Table 6)
F8.4	Total suspended load µg/Liter
F8.4	Particulate on filter milligram
I1	Leachate 1 = yes 0 = no
I1	Filter sample 1 = yes 0 = no
I1	Acid fraction 1 = yes 0 = no
I1	Refractory fraction 1 = yes 0 = no
53A	Comments
20b	

} for trace metals only

record length 120 bytes

SAMPLE DESCRIPTION RECORD - INTERTIDAL BIOLOGY

FORMAT

FIELD DESCRIPTION

I3	File type
I6	File identifier
I2	Record type (02 denotes sample description record)
I5	Transect identification
I5	Quadrat identification
F8.2	Quadrat size (m ²)
F8.2	Tidal height (m)
F8.2	Depth of sand sampled (cm)
I3	Disturbance indicator code (See Table 5)
8A	Disturbance type (see Table 5)
24A	Comments
40b	

record length 120 bytes

TABLE 6
DISTURBED CODES

	<u>CODE</u>	<u>ABB.</u>
Sandy beaches		
Disturbed	101	SA-DIS
Undisturbed	102	SA-UNDIS
Rocky		
Disturbed	201	RK-DIS
Undisturbed	202	RK-UNDIS
Tide Pools		
Disturbed	301	TP-DIS
Undisturbed	302	TP-UNDIS
Subtidal		
Disturbed	401	SB-DIS
Undisturbed	402	SB-UNDIS

SAMPLE ANALYSIS RECORD - TRACE METALS

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3.	File type
I6	File identifier
I2	Record type (03 denotes analysis record #1)
I2	Sample type code (Table 6)
I2	Units code (Table 7)
I2	Analysis method/equipment code (Table 8)
F8.4	% water
F8.4	% Ash
F8.4	Sample size (wt. weight milligrams)
F8.4	Ba conc.
F8.4	Cd
F8.4	Cr
F8.4	Cu
F8.4	Ni
F8.4	Pb
F8.4	V
F8.4	Zn
F8.4	Al
F8.4	Fe
9b	

record length 130 bytes

Note: Repeat this data record for each different type of analysis method used, i.e., NAA, flameless AA, Isotope Dillution Mass Spec. etc.

TABLE 7
SAMPLE TYPE CODE

01	Sediment
02	Fauna
03	Water column - particulate
04	Water column - dissolved

TABLE 8

UNITS CODE

012	ppm dry weight
02	µg/g dry weight
03	ppm wet weight
04	µg/g wet weight
05	nano gram/liter
06	µg/liter

TABLE 9
TRACE METAL ANALYSIS CODE

01	NAA
02	Flameless AA
03	Isotope dillution ma'ss' spectrometry
04	
05	
06	

SAMPLE ANALYSIS RECORD - HYDROCARBONS #1

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (03 denotes sample analysis record #1)
I2	Sample type code (Table 6)
I2	Units code (Table 7)
I2	GC type (Table 9)
I2	Column type (Table 10)
F8.4	Volume (liters)
F8.4	Dry weight (gms)
F8.4	Total hydrocarbons
F8.4	Resolved alaphatics
F8.4	Unresolved alaphatics
F8.4	Resolved aromatics
F8.4	Unresolved aromatics
F8.4	Iso/normal C
F8.4	Odd C/Even C
F8.4	Pristane/C ₁₇
F8.4	Phytane/C ₁₈
F8.4	Pristane/Phytane
F8.4	Normal/branched
7b	

record length 130 bytes

SAMPLE ANALYSIS RECORD - HYDROCARBONS #2

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (04 denotes sample analysis record #2)
I2	Sample type code
I2	Units code
I2	GC type code
I2	Column type code
F8.4	N ^{C17}
F8.4	Pristane
F8.4	N ^{C18}
F8.4	Phytane
F8.4	N ^{C24}
F8.4	N ^{C32}
F8.4	Naphalene
F8.4	1-Phenyldoderane
F8.4	1, 3, 5 - Triphenyl-Benzene
F8.4	Perylene
21b	

record length 120 bytes

TABLE 10
GC TYPE CODE

01	BECKMAN GC-55
02	Hp 5F31
03	Hp 5830A
04	ANTEK300

GC COLUMN

01	SCOT - 50'OV101
02	
03	

SAMPLE ANALYSIS RECORD - BENTHIC MICROFAUNA #1

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (03)
I20	Species code
A55	Genus, species name
I7	Number living
I7	Number dead
F8.4	Ratio
16b	

record length 120 bytes

repeat record for each specie found in sample

SAMPLE ANALYSIS RECORD - BENTHIC MACROFAUNA #1
(coarse sort)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (03)
I2	Major group code (see Table 11)
12A	Major group
I6	Number of individuals
F8.4	% total number of individuals
F8.4	Wet weight (grams)
F8.4	% total weight
65b	

record length 120 bytes

Repeat for the five major groups

TABLE 11

<u>CODE</u>	<u>GROUP</u>
01	Polychaetes
02	Mollusks
03	Crustaceans
04	Echinoderms
05	Other groups

SAMPLE ANALYSIS RECORD - BENTHIC MACROFAUNA #2
(fine sort summary)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (04)
I2	Major group code (Table 11)
I2A	Major group
I6	# individuals
I6	Number species
F8.4	Wet weight (gms)
F8.4	% total number of individuals
F8.4	% total number of species
F8.4	% total wet weight
51b	

record length 120 bytes

Repeat for the five major groups

SAMPLE ANALYSIS RECORD - BENTHIC MACROFAUNA #3
(fine sort)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (05)
I2	Group code
I15	Species code
55A	Genus and Species Name
I6	Number of individuals
31b	

record length 120 bytes

Repeat for a species found in sample

SAMPLE ANALYSIS RECORD - SEDIMENT CHARACTERISTICS #1
(sorting)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3 125 Benthic 223 Intertidal	File type
I6	File identifier
I2	Record type (03)
I1	Sort code } 0 = fine } 1 = coarse
F8.4	Mean phi
F8.4	Sorting
F8.4	Skewness
F8.4	Kurtosis
F8.4	90th decile phi
F8.4	80th decile phi
F8.4	70th decile phi
F8.4	60th decile phi
F8.4	50th decile phi
F8.4	40th decile phi
F8.4	30th decile phi
F8.4	20th decile phi
F8.4	10th decile phi
14b	

record length 130 bytes

-Repeat for fine and coarse sort

SAMPLE ANALYSIS RECORD - SEDIMENT CHARACTERISTICS #2
(clay minerology)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (04)
F8.4	Kaolinite/Illite
F8.4	Chlorite/Illite
F8.4	Expandable/Illite
F8.4	Chlorite/Expandable
F8.4	% Illite
F8.4	% Chlorite
F8.4	% Expandable
F8.4	% Kaolinite
45b	

record length 120 bytes

SAMPLE ANALYSIS RECORD - SEDIMENT CHARACTERISTICS #3
(organic carbon)

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (05)
F8.4	% total carbon
F8.4	% total inorganic carbon
F8.4	% total organic carbon.
85b	

record length 120 bytes

SAMPLE ANALYSIS RECORD - POC, DOC #1

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (03)
I12	Sample number
F8.4	POC $\mu\text{g/liter}$
F8.4	Standard deviation, σ sample number $\mu\text{g/liter}$
F8.4	DOC $\mu\text{g/liter}$
F8.4	Standard deviation, σ $\mu\text{g/liter}$
65b	

record length 120 bytes

SAMPLE ANALYSIS RECORD - ROCKY INTERTIDAL #1

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identifier
I2	Record type (03)
I10	Species code
55A	Genus species name
F8.4	% cover
F8.4	Number of individuals
F8.4	Wet weight (grams)
F8.4	Dry weight (grams)
F8.4	Ash free weight (grams)
4b	

record length 120 bytes

Repeat for all species in sample

SAMPLE ANALYSIS RECORD - SANDY BEACHES #1

<u>FORMAT</u>	<u>FIELD DESCRIPTION</u>
I3	File type
I6	File identification
I2	Record type (03)
I10	Species code
55A	Genus species name
2A	Phyla code (see Table 12)
I6	Living individuals
I6	Dead individuals
30b	

record length 120 bytes

Repeat for all species in sample

TABLE 12

PHYLA ABBREVIATION CODE

Crustacean	CR
Echinodermata	EC
Insecta	IN
Mollusca	MO
Pisces	PY
Plants & Algae	PL
Vermes	GE

C. DATA FORMAT STD

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

Four (4) record types, text record (1), master record (2), and detail record (3), detail record (4), differentiated by byte 10.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

3. ATTRIBUTES AS EXPRESSED IN PL-1 ALGOL COBOL
 FORTRAN _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:

NAME AND PHONE NUMBER _____

ADDRESS _____

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

<p>5. RECORDING MODE</p> <p><input type="checkbox"/> BCD <input type="checkbox"/> BINARY</p> <p><input type="checkbox"/> ASCII <input type="checkbox"/> EBCDIC</p> <p><input type="checkbox"/> _____</p> <hr/> <p>6. NUMBER OF TRACKS (CHANNELS)</p> <p><input type="checkbox"/> SEVEN</p> <p><input type="checkbox"/> NINE</p> <p><input type="checkbox"/> _____</p> <hr/> <p>7. PARITY</p> <p><input type="checkbox"/> ODD</p> <p><input type="checkbox"/> EVEN</p> <hr/> <p>8. DENSITY</p> <p><input type="checkbox"/> 200 BPI <input type="checkbox"/> 1600 BPI</p> <p><input type="checkbox"/> 556 BPI</p> <p><input type="checkbox"/> 800 BPI</p> <p><input type="checkbox"/> _____</p>	<p>9. LENGTH OF INTER-RECORD GAP (IF KNOWN) <input type="checkbox"/> 3/4 INCH</p> <hr/> <p>10. END OF FILE MARK <input type="checkbox"/> OCTAL 17</p> <p><input type="checkbox"/> _____</p> <hr/> <p>11. PASTE OR TYPE LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND VOLUME LABEL SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER)</p> <hr/> <p>12. PHYSICAL BLOCK LENGTH IN BYTES</p> <hr/> <p>13. LENGTH OF BYTES IN BITS</p>
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RECORD FORMAT DESCRIPTION STD

RECORD NAME TEXT RECORD (OPTIONAL)

14. FIELD NAME	15. POSITION FROM 1 MEASURED IN BYTES (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING	
		NUMBER	UNITS			
File Type	1	3	Bytes	A3	Always '022'	
File Identification	4	6	Bytes	A6		
Record Type	10	1	Bytes	I1		Always '1'
Cast Number	11	5	Bytes	A5		Analogous to NODC Station Number
Text	16	100	Bytes	100A1		Additional pertinent information
Sequence Number	116	5	Bytes	I5		Ascending numeric, used for sorting
MASTER RECORD (REQUIRED THRU BYTES 59)						
File Type	1	3	Bytes	A3	Always '022'	
File Identification	4	6	Bytes	A6		
Record Type	10	1	Bytes	I1	Always '2'	
Cast Number	11	5	Bytes	A5	Analogous to NODC Station Number	
Latitude					'N' or 'S'	
Degrees	16	2	Bytes	I2		
Minutes	18	2	Bytes	I2		
Hundredths of Minutes	20	2	Bytes	I2		
Hemisphere	22	1	Bytes	A1		
Longitude						'E' or 'W'
Degrees	23	3	Bytes	I3		
Minutes	26	2	Bytes	I2		
Hundredths of Minutes	28	2	Bytes	I2		
Hemisphere	30	1	Bytes	A1		
Cruise Identification	31	10	Bytes	10A1	Originator Cruise Identification	
Number of Scans	41	5	Bytes	I5	Number of scans in a 'station' (There are five scans per record type '3')	
Year	46	2	Bytes	I2	Last two digits of year } GMT	
Month	48	2	Bytes	I2		
Day	50	2	Bytes	I2		
Hour	52	2	Bytes	I2		
Minutes	54	2	Bytes	I2		
Depth Interval Indicator	56	1	Bytes	I1	'0' equals unequally spaced depths '1' equals equal spaced depths	
Depth Interval	57	3	Bytes	I3	When above equals '1', the depth interval, to tenths of meters reported.	
Barometric pressure	60	5	Bytes	I5	Millibars to tenths	

RECORD FORMAT DESCRIPTION STD

MASTER RECORD

RECORD NAME

16. FIELD NAME	15. FIELD CODE FORM - 1 AL ALPHABETIC IN BYTES (e.g., 115, 1150)	16. LENGTH		17. ATTRIBUTES	18. UNIT AND SIGNIFIC
		NUMBER	UNITS		
Wet bulb temperature	65	4	Bytes	I4	Degrees C to tenths
Dry bulb temperature	69	4	Bytes	I4	Degrees C to tenths
Wind direction	73	2	Bytes	I2	Tens of degrees WMO Codes 0855 and 0877
Wind speed	75	2	Bytes	I2	Whole knots
Weather Code	77	1	Bytes	I1	WMO 4501
Sea State Code	78	1	Bytes	I1	WMO 3700
Visibility Code	79	1	Bytes	I1	WMO 4300
Cloud Type Code	80	1	Bytes	A1	WMO 0500
Cloud Amount Code	81	1	Bytes	I1	WMO 2700
Instrument Information	82	20	Bytes	20A1	Type and Serial Number
Location Name	102	6	Bytes	A6	OCSEP Internal Location Code
Depth to bottom	108	5	Bytes	I5	To whole meters
Maximum depth of cast	113	4	Bytes	I4	To whole meters
Blank	117	4	Bytes	4X	
DETAIL RECORD (REQUIRED)					
File Type	1	3	Bytes	A3	Always '022'
File Identification	4	6	Bytes	A6	
Record Type	10	1	Bytes	I1	Always '3'
Cast Number	11	5	Bytes	A5	Analogous to NOBC Station Number
Depth	16	5	Bytes	I5	Meters to tenths
Temperature	21	5	Bytes	I5	Degrees C to thousandths
Salinity	26	5	Bytes	I5	P.P.T. to thousandths
Sigma-t	31	4	Bytes	I4	To hundredths
Scan Condition Code	35	1	Bytes	A1	Code describing how data arrived at
SCAN DATA	36	4(20)	Bytes	(3I5, I4, A1)	Repetition of above
Sequence Number	116	5	Bytes	I5	Ascending numeric, used for sorting
Blanks are used when significance of field indicated exceeds what is measured.					

SCAN DATA

RECORD FORMAT DESCRIPTION STD
 MASTER RECORD CONTINUED

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM 1 MEASURED IN BYTES	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		SUMMARY	UNITS		
	DETAIL RECORD (REQUIRED)				
File Type	1	3	Bytes	A3	Always '022'
File Identification	4	6	Bytes	A6	
Record Type	10	2	Bytes	A1	Always '4'
Cast Number	11	5	Bytes	A5	Analogous to NOAA Station Number
Depth	16	5	Bytes	I5	Meters to tenths
Dissolved Oxygen	21	5	Bytes	I5	ml/l to thousandths
Transmissivity	26	5	Bytes	I5	% to thousandths
Scan Condition Code	31	4	Bytes	I4	Code describing how data arrived at
SCAN DATA Sequence Number	36	1	Bytes	A1	
	36	4(20)	Bytes	(315, I4, A1)	Repetition of above
	116	5	Bytes	I5	Ascending numeric, used for sorting

SCAN DATA

Blanks are used when significance of field indicated exceeds what is measured.

TABLE 11

Direction

In tens of degrees from which waves and/or winds are coming.

Code		Code	
00	Calm (no waves - no motion)	22	215°-224°
01	5°- 14°	23	225°-234°
02	15°- 24°	24	235°-244°
03	25°- 34°	25	245°-254°
04	35°- 44°	26	255°-264°
05	45°- 54°	27	265°-274°
06	55°- 64°	28	275°-284°
07	65°- 74°	29	285°-294°
08	75°- 84°	30	295°-304°
09	85°- 94°	31	305°-314°
10	95°-104°	32	315°-324°
11	105°-114°	33	325°-334°
12	115°-124°	34	335°-344°
13	125°-134°	35	345°-354°
14	135°-144°	36	355°- 4°
15	145°-154°		
16	155°-164°	40	Waves confused, direction indeterminate (waves equal to or less than 4 3/4 meters)
17	165°-174°		
18	175°-184°		
19	185°-194°		
20	195°-204°		
21	205°-214°	99	Waves confused, direction indeterminate (waves greater than 4 3/4 meters) Winds variable, or all directions or unknown.

Table 8 is a combination of WMO Codes 0885 and 0877.

TABLE 12

Sea State

WMO Code 3700 for Recording Sea State

Description	Height (+)		Code
	Feet*	Meters	
Calm-glassy	0	0	0
Calm-rippled	0 - 1/3	0 - 0.1	1
Smooth-wavelet	1/3 - 1 2/3	0.1 - 0.5	2
Slight	1 2/3 - 4	0.5 - 1.25	3
Moderate	4 - 8	1.25 - 2.5	4
Rough	8 - 13	2.5 - 4	5
Very rough	13 - 20	4 - 6	6
High	20 - 30	6 - 9	7
Very high	30 - 45	9 - 14	8
Phenomenal	> 45	> 14	9

(+) The average wave height as obtained from the larger well-formed waves of the wave system being observed.

* The exact bounding height is to be assigned for the lower code figure, e.g., a height of 4 meters is coded as 5.

TABLE 13

Present Weather

WMO Code 4501 for Recording Present Weather

Code
Figure

- 0 Clear (no cloud at any level)
 - 1 Partly cloudy (scattered or broken)
 - 2 Continuous layer(s) of cloud(s)
 - 3 Sandstorm, duststorm, or blowing snow
 - 4 Fog, thick dust or haze
 - 5 Drizzle
 - 6 Rain
 - 7 Snow, or rain and snow mixed
 - 8 Showers(s)
 - 9 Thunderstorm(s)
-

TABLE 14

Cloud Type (Genus)

WMO Code 0500 for Recording Cloud Type (Genus)

Code

0	Cirrus	Ci
1	Cirrocumulus	Cc
2	Cirrostratus	Cs
3	Alto cumulus	Ac
4	Altostratus	As
5	Nimbostratus	Ns
6	Stratocumulus	Sc
7	Stratus	St
8	Cumulus	Cu
9	Cumulonimbus	Cb

x Cloud not visible owing to darkness, fog, duststorm,
sandstorm, or other analogous phenomena.

TABLE 15

Cloud Amount

WMO Code 2700 for Recording Cloud Amount

Code		
0	0	0
1	1 okta or less, but not 0	1/10 or less, but not 0
2	2 oktas	2/10 - 3/10
3	3 oktas	4/10
4	4 oktas	5/10
5	5 oktas	6/10
6	6 oktas	7/10 - 8/10
7	7 oktas or more, but not 8 oktas	9/10 or more, but not 10/10
8	8 oktas	10/10
9	Sky obscured, or cloud amount cannot be estimated	

TABLE 16

Visibility

WMO Code 4300 for Recording Visibility at Surface

Code

0	Less than 50 meters	(less than 55 yards)
1	50-200 meters	(approx. 55-220 yards)
2	200-500 meters	(approx. 220-550 yards)
3	500-1,000 meters	(approx. 550 yards - 5/8 n.m.)
4	1-2 km	(approx. 5/8-1 n.m.)
5	2-4 km	(approx. 1-2 n.m.)
6	4-10 km	(approx. 2-6 n.m.)
7	10-20 km	(approx. 6-12 n.m.)
8	20-50 km	(approx. 12-30 n.m.)
9	50 km or more	(30 n.m. or more)

STD - Scan Condition Code

- 0 - Processed prior to code
 - 1 - From raw data
 - 2 - Linear interpolation
 - 3 - Vertical extrapolation, i.e., if data start at 7 meters, the values from 7 meter depth are to be used at all depths listed above 7 meters
 - 4 - Averaged
 - 9 - Temperature, salinity, and sigma-t not given
-

