AD-A110 891 OCEAN DATA SYSTEMS INC ROCKVILLE MD F/G 17/1
THE CAUSE OF SOUND SPEED PROFILE DIFFERENCES BETWEEN ICAPS AND --ETC(U)
MAY 80 J H LOCKLIN, B W SCAIFE N00014-79-C-0676
NL

UNCLASSIFIED

LEVEL III
#110890 Vol II
N00014-76-C-0676

[redacted]

ADA110891

DTIC
ELECTE
FEB 12 1982
H

The Ruth H. Hooker Technical Library
JUL 16 1980
Naval Research Laboratory

DTIC FILE COPY

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

82 02 11 004

OCEAN DATA SYSTEMS, INC.
6000 EXECUTIVE BLVD., ROCKVILLE, MARYLAND 20852 • 301/881-3031

Prepared for
Naval Ocean Research and Development Activity
NSTL Station, Mississippi

Prepared under
Contract No. N00014-79C-0676

THE CAUSE OF SOUND SPEED PROFILE DIFFERENCES BETWEEN ICAPS AND SIMAS

FINAL REPORT
Volume II of II
May 1, 1980

APPROVED FOR PUBLIC RELEASE
DISTRIBUTION UNLIMITED

Prepared by
John H. Locklin
Barry W. Scaife
OCEAN DATA SYSTEMS, INC.
Rockville, Maryland

TABLE OF CONTENTS

VOLUME I

SECTION		PAGE
	FOREWORD	i
	ABSTRACT	ii
	TABLE OF CONTENTS	iii
	LIST OF FIGURES	iv
	LIST OF TABLES	iv
1.0	INTRODUCTION	1-1
1.1	Background	1-1
1.2	Scope	1-1
1.3	Objective	1-2
1.4	References	1-3
2.0	TECHNICAL APPROACH	2-1
2.1	General Approach	2-1
2.2	Definition and Verification of Input Data	2-2
2.3	Isolation of Difference Category	2-2
2.3.1	*Merge Algorithm*	2-3
2.3.1.1	ICAPS Merge	2-3
2.3.1.2	SIMAS Merge	2-4
2.3.2	Historical Profiles	2-4
2.3.3	BT Profile Resolution	2-5
2.3.4	Salinity Variation	2-5
2.4	Tabulation of Results	2-6
3.0	RESULTS	3-1
3.1	Reconstruction and Verification of Input Data . .	3-1
3.2	Isolation of Cause	3-4
3.2.1	Merge Algorithm	3-5
3.2.2	Historical Profiles	3-6
3.2.3	Bathythermograph (BT) Data	3-9
3.2.4	Salinity	3-12
3.3	Case by Case Discussion	3-13
4.0	CONCLUDING REMARKS	4-1

VOLUME II

APPENDIX A: TASK INPUT DATA
B: ICAPS Generated SSP's (CDC Version)
C: SIMAS Generated SSP's (CDC Version)
D: ICAPS AND SIMAS Sound Speed Profile Generation Methodologies

DTIC COPY INSPECTED

Accession For
NTIS GRA&I
DTIC TAB
Unannounced
Justification
By
Distribution/
Availability Codes
Dist
A

APPENDIX A

TASK INPUT DATA

SECTION	CONTENTS
A1	ICAPS Historical Profile Data
A2	Detailed BT Data for ICAPS
A3	SIMAS Historical Profiles (reference 2)
A4	BT Data for SIMAS
A5	SIMAS Outputs
A6	Sound Speed Profiles (reference 2)
A7	Historical SSP Plots (reference 2)
A8	Generated SSP Plots (reference 2)

APPENDIX A

Section A1

ICAPS Historical Profile Data

Pac. (c.) ✓

① PACA2 Win

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 3300N LON17230W DATE 15 179
SLDM SLDF IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED

1C

RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	14.98	34.57
10.	14.98	34.57
20.	14.90	34.57
30.	14.87	34.56
50.	14.84	34.56
75.	14.68	34.53
100.	14.39	34.50
125.	13.98	34.47
150.	13.58	34.44
200.	12.73	34.39
250.	11.93	34.33
300.	11.10	34.27
400.	9.39	34.15
500.	7.44	34.05
600.	5.81	34.01
800.	4.18	34.15
1000.	3.45	34.30
1200.	3.07	34.41
1500.	2.62	34.51
2000.	1.95	34.60
2500.	1.66	34.63
3000.	1.56	34.68
4000.	1.50	34.67
5000.	1.55	34.68
5480.	1.57	34.68

XXXXXPROFILE COMPLETEDXXXXX

②

PACA8
Win

IF

water mass 1

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 4200N LON14330W DATE 15 179
SLDM SLDF IB1 0 IB2 0
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	5.74	32.71
10.	5.71	32.70
20.	5.70	32.70
30.	5.69	32.70
50.	5.68	32.70
75.	5.61	32.71
100.	5.43	32.78
125.	4.99	33.18
150.	4.76	33.50
→ 200.	4.44	33.75
250.	4.14	33.88
300.	3.96	33.88
400.	3.79	34.00
500.	3.67	34.10
600.	3.53	34.18
800.	3.20	34.30
1000.	2.89	34.38
1200.	2.62	34.44
1500.	2.30	34.51
2000.	1.94	34.58
2500.	1.72	34.63
3000.	1.59	34.65
4000.	1.50	34.67
4750.	1.43	34.68

XXXXXPROFILE COMPLETEDXXXXX

PAC. (f.)

PAC A8
Win

*** ENVIRONMENTAL PROFILE DATA ***
LAT 4230N LON14330W DATE 15 179
SLDM . SLDF . IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	9.84	33.40
10.	9.83	33.39
20.	9.81	33.39
30.	9.80	33.40
50.	9.82	33.40
75.	9.75	33.42
100.	9.64	33.51
125.	9.42	33.65
150.	9.21	33.82
→ 200.	8.81	33.97
250.	8.21	33.93
300.	7.48	33.97
400.	5.89	33.94
500.	4.82	33.97
600.	4.23	34.04
800.	3.66	34.21
1000.	3.19	34.32
1200.	2.84	34.41
1500.	2.42	34.49
2000.	1.97	34.59
2500.	1.73	34.63
3000.	1.57	34.66
4000.	1.49	34.67
4750.	1.43	34.68

*****PROFILE COMPLETED*****

Water mass 2

1F

PACA8
Sum

*** ENVIRONMENTAL PROFILE DATA ***
LAT 4200N LON14330W DATE 15 779
SLDM . SLDF . IB1 0 IB2 2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	12.79	32.65
10.	12.64	32.65
20.	12.07	32.66
30.	10.61	32.70
50.	7.53	32.79
75.	6.16	32.84
100.	5.64	32.91
125.	5.35	33.21
150.	5.20	33.54
→ 200.	4.80	33.77
250.	4.42	33.83
300.	4.17	33.88
400.	3.92	33.99
500.	3.77	34.09
600.	3.61	34.18
800.	3.23	34.29
1000.	2.90	34.38
1200.	2.63	34.44
1500.	2.29	34.50
2000.	1.93	34.58
2500.	1.72	34.63
3000.	1.58	34.68
4000.	1.51	34.68
4750.	1.46	34.69

*****PROFILE COMPLETED*****

water mass 1

IF

(2)

PAC A8
Sum

Water Mass 2

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 4200N LON14330W DATE 15 779
SLDM , SLDF , IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	16.04	33.16
10.	15.78	33.17
20.	14.93	33.20
30.	13.52	33.24
50.	10.35	33.38
75.	9.00	33.44
100.	8.61	33.51
125.	8.46	33.61
150.	8.53	33.79
→ 200.	8.28	33.96
250.	7.60	33.96
300.	6.83	33.85
400.	5.50	33.94
500.	4.65	33.99
600.	4.20	34.07
800.	3.59	34.23
1000.	3.13	34.34
1200.	2.78	34.41
1500.	2.39	34.49
2000.	1.96	34.59
2500.	1.72	34.63
3000.	1.57	34.66
4000.	1.50	34.67
4750.	1.45	34.68

XXXXXPROFILE COMPLETEDXXXXX

Attl. (a.)

2A

*** ENVIRONMENTAL PROFILE DATA ***
LAT 1300N LON 3800W DATE 15 179
SLDM . SLDF . IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	25.39	35.91
10.	25.38	35.90
20.	25.37	35.89
30.	25.35	35.89
50.	25.31	35.91
75.	24.62	36.08
100.	21.35	36.22
125.	18.15	36.02
150.	15.74	35.83
→ 200.	13.29	35.58
250.	11.61	35.32
300.	10.61	35.17
400.	9.32	34.98
500.	8.44	34.90
600.	7.54	34.83
800.	6.14	34.73
1000.	5.36	34.77
1200.	4.98	34.86
1500.	4.42	34.96
2000.	3.54	34.97
2500.	3.08	34.94
3000.	2.85	34.92
4000.	2.40	34.89
5000.	2.10	34.86
6000.	1.86	34.84

*****PROFILE COMPLETED*****

win

Water Mass 1

2A

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 1300N LON 3800W DATE 15 179
SLDM . SLDF . ID1 0 ID2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	24.51	36.54
10.	24.51	36.54
20.	24.51	36.55
30.	24.51	36.55
50.	24.45	36.59
75.	24.21	36.72
100.	23.31	36.86
125.	21.33	36.83
150.	19.47	36.68
200.	16.95	36.33
250.	15.22	36.03
300.	13.80	35.80
400.	11.72	35.47
500.	9.95	35.22
600.	8.40	35.01
800.	6.37	34.83
1000.	5.53	34.84
1200.	5.10	34.93
1500.	4.37	34.99
2000.	3.54	34.97
2500.	3.07	34.94
3000.	2.72	34.91
4000.	2.45	34.88
5000.	2.33	34.84
5600.	2.29	34.82

XXXXXXPROFILE COMPLETEDXXXXXX

win

Water Mass 2

Att. (e.)

*** ENVIRONMENTAL PROFILE DATA ***
LAT 4730N LON 1730W DATE 15 179
SLDM . SLDF . IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	12.42	35.70
10.	12.39	35.69
20.	12.38	35.69
30.	12.38	35.69
50.	12.32	35.69
75.	12.30	35.68
100.	12.27	35.68
125.	12.22	35.68
150.	12.16	35.67
200.	12.03	35.66
250.	11.85	35.63
300.	11.68	35.60
400.	11.33	35.57
500.	11.02	35.54
600.	10.62	35.51
800.	9.71	35.52
1000.	8.83	35.58
1200.	7.81	35.50
1500.	5.28	35.14
2000.	3.73	34.09
2500.	3.20	34.07
3000.	2.79	34.04
4000.	2.54	34.03
4620.	2.39	34.02

xxxxxxPROFILE COMPLETEDxxxxxx

2E

*** ENVIRONMENTAL PROFILE DATA ***
LAT 4730N LON 1730W DATE 15 779
SLDM . SLDF . ID1 0 ID2 4
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	17.49	35.66
10.	17.16	35.65
20.	16.81	35.65
30.	16.09	35.65
50.	14.36	35.65
75.	13.08	35.65
100.	12.47	35.64
125.	12.21	35.63
150.	12.01	35.62
200.	11.75	35.60
250.	11.59	35.58
300.	11.43	35.57
400.	11.12	35.54
500.	10.80	35.51
600.	10.41	35.49
800.	9.67	35.56
1000.	8.75	35.58
1200.	7.50	35.47
1500.	5.07	35.13
2000.	3.65	34.96
2500.	3.20	34.95
3000.	2.88	34.94
4000.	2.57	34.91
4620.	2.39	34.89

*****PROFILE COMPLETED*****

all. (h.) ✓ RH

*** ENVIRONMENTAL PROFILE DATA ***
LAT 393CN LON 6830W DATE 15 179
SLDM ( ). SLDF ( ). IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	3.32	32.41
10.	3.38	32.46
20.	3.47	32.51
30.	3.63	32.59
50.	4.12	32.79
75.	5.02	33.22
100.	6.05	33.68
125.	6.80	34.06
150.	7.17	34.31
→ 200.	7.31	34.59
250.	6.89	34.77
300.	6.40	34.90
400.	5.29	34.88
500.	4.81	34.91
600.	4.59	34.93
800.	4.23	34.95
1000.	4.05	34.95
1200.	3.88	34.95
1500.	3.70	34.95
2000.	3.41	34.95
2500.	3.09	34.95
3000.	2.80	34.92

*****PROFILE COMPLETED*****

win

Water Mass 1

24

win

*** ENVIRONMENTAL PROFILE DATA ***
LAT 3930N LON 6830W DAT 15 179
SLDM . SLDF . IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED

RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	10.20	34.35
10.	10.21	34.37
20.	10.48	34.47
30.	10.81	34.57
50.	11.41	34.81
75.	12.09	35.08
100.	12.45	35.28
125.	12.48	35.37
150.	12.28	35.42
→ 200.	11.26	35.36
250.	10.02	35.24
300.	8.82	35.14
400.	6.87	35.02
500.	5.69	34.98
600.	5.04	34.97
800.	4.46	34.97
1000.	4.18	34.96
1200.	3.99	34.96
1500.	3.77	34.95
2000.	3.42	34.95
2500.	3.02	34.94
3000.	2.73	34.93

*****PROFILE COMPLETED*****

Water Mass 2

A1-12

2H

win

Water Mass 3

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 3930N LON 6830W DATE 15 179
SLDM SLDF IB1 0 IB2
NO DT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

	DEP (M)	TEMP (C)	SAL PPT
	0.	20.54	36.36
	10.	20.56	36.36
	20.	20.59	36.36
	30.	20.60	36.38
	50.	20.57	36.39
	75.	20.38	36.39
	100.	20.13	36.42
	125.	19.86	36.43
	150.	19.62	36.43
→	200.	18.76	36.39
	250.	17.11	36.21
···→	300.	15.87	36.09
	400.	14.28	35.92
	500.	13.15	35.78
	600.	11.36	35.54
	800.	8.14	35.18
	1000.	5.76	35.01
	1200.	4.57	34.97
	1500.	4.07	34.95
	2000.	3.70	34.96
	2500.	3.39	34.95
	3000.	2.97	34.94

XXXXXPROFILE COMPLETEDXXXXX

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 3930N LON 6830W DATE 15 179
SLDM , SLDF , IB1 0 IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	20.12	36.48
10.	20.13	36.48
20.	20.13	36.48
30.	20.10	36.48
50.	20.00	36.49
75.	19.90	36.50
100.	19.76	36.50
125.	19.61	36.52
150.	19.43	36.53
→ 200.	18.92	36.53
250.	18.49	36.52
--→ 300.	18.18	36.50
400.	17.52	36.42
500.	16.58	36.25
600.	15.04	35.99
800.	10.83	35.41
1000.	7.08	35.08
1200.	5.23	35.00
1500.	4.27	34.98
2000.	3.77	34.96
2500.	3.48	34.96
3000.	3.01	34.95

XXXXXPROFILE COMPLETEDXXXXX

RH

Wm Watermas 4

MED/IND (a)

✓

①

XXX ENVIRONMENTAL PROFILE DATA XXX
LAT 3730N LON 173GE DATE 15 779
SLDM SLDF IB1 @ IB2
NO BT INPUT - HISTORICAL DATA USED
RETRIEVED DATA

DEP (M)	TEMP (C)	SAL PPT
0.	25.05	38.68
10.	24.46	38.60
20.	22.85	38.63
30.	20.45	38.56
50.	17.46	38.55
75.	16.03	38.65
100.	15.44	38.78
125.	15.20	38.77
150.	15.04	38.81
200.	14.85	38.85
250.	14.68	38.86
300.	14.53	38.86
400.	14.28	38.84
500.	14.09	38.82
600.	13.94	38.79
800.	13.78	38.76
1000.	13.70	38.74
1200.	13.66	38.72
1500.	13.68	38.71
2000.	13.67	38.69
2500.	13.67	38.68
3000.	13.71	38.65

XXXXXPROFILE COMPLETEDXXXXX

W A

Med 5 Sum

APPENDIX A

Section A2

Detailed BT Data for ICAPS
(plots reproduced from reference 2)

	T
0	17.13
14	17.23
98	17.20
143	17.13
150	17.00
156	16.17
158	16.03
211	14.85
253	14.21
275	13.79
288	13.40
345	12.35
353	12.28
367	11.93
401	11.40
411	11.10
417	11.08
426	10.75
437	10.58
442	10.39
449	10.29
476	9.87

33°N
172.5°W
FEB

use all

1C

A2-2

use all

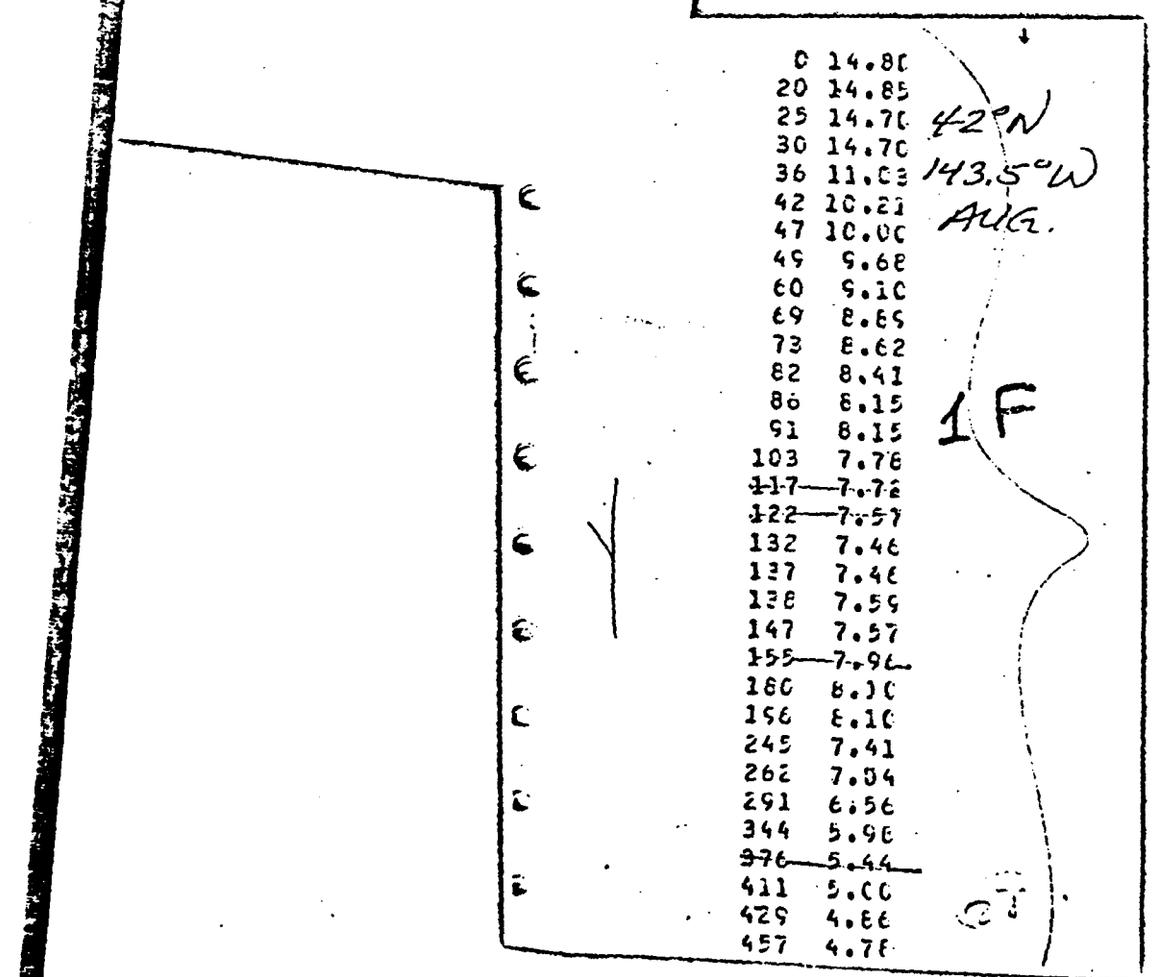
0	12.30
93	12.37
109	12.32
117	12.07
126	11.15
131	11.01
134	10.77
155	10.35
169	10.31
177	10.06
194	9.88
202	9.66
220	9.46
234	9.12
304	8.27
387	6.98
425	6.24
437	6.08
445	6.13
456	5.82
497	5.43

42°N
143.5°W
FEB

J

1F

(2)


0 14.80
20 14.85
25 14.70
30 14.70
36 11.03
42 10.21
47 10.00
49 9.68
60 9.10
69 8.85
73 8.62
82 8.41
86 8.15
91 8.15
103 7.78
~~117 7.72~~
~~122 7.57~~
132 7.46
137 7.48
138 7.59
147 7.57
~~155 7.96~~
160 8.10
196 8.10
245 7.41
262 7.04
291 6.56
344 5.98
~~376 5.44~~
411 5.00
429 4.86
457 4.78
42°N
143.5°W
AUG.
1 F

N. ATL
FEB

13°N
38°W
FEB

H:PR

2A

0 25.62
26 25.62
27 25.50
39 25.45
48 25.21
79 24.81
88 24.55
90 23.81
95 23.23
98 22.33
105 21.72
109 21.57
116 20.61
119 19.49
121 19.24
127 18.99
133 18.28
137 17.98
143 17.66
146 17.58
149 17.32
154 17.07
158 16.67
167 16.31
170 15.86
175 15.76
185 15.40
186 15.25
197 14.65
201 14.60
203 14.39
209 14.19
210 14.04
216 13.69
224 13.64
227 13.43
239 13.33
242 13.16
249 13.13
250 13.01
262 12.98
272 12.63
300 12.15
305 12.05
308 11.87
313 11.82
317 11.64
330 11.41
336 11.16
338 10.95
351 10.87
358 10.53
360 10.50
365 10.34
395 10.32
401 10.13
416 10.05
425 9.84
451 9.58
455 9.42

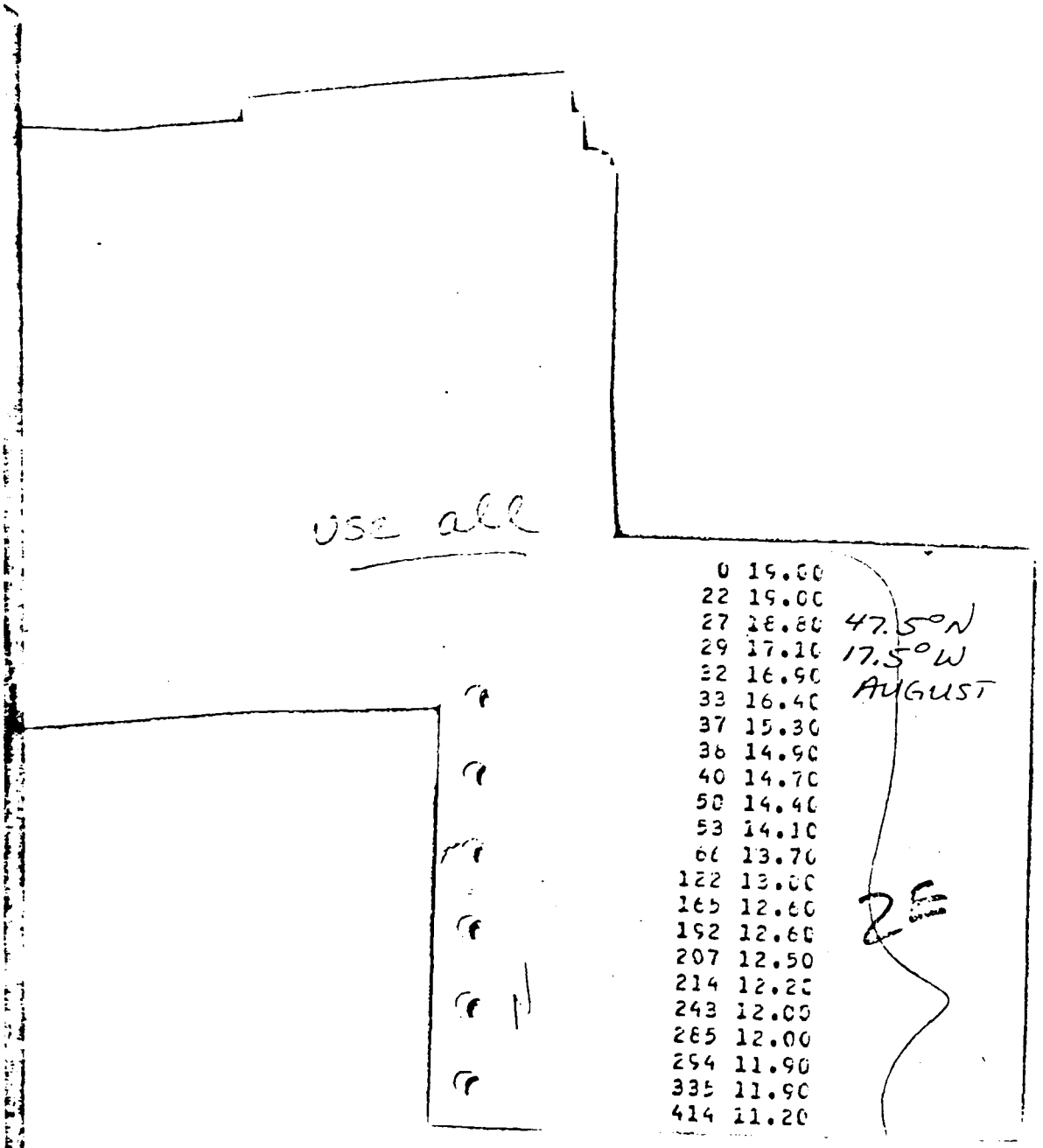
use only the
unfolded

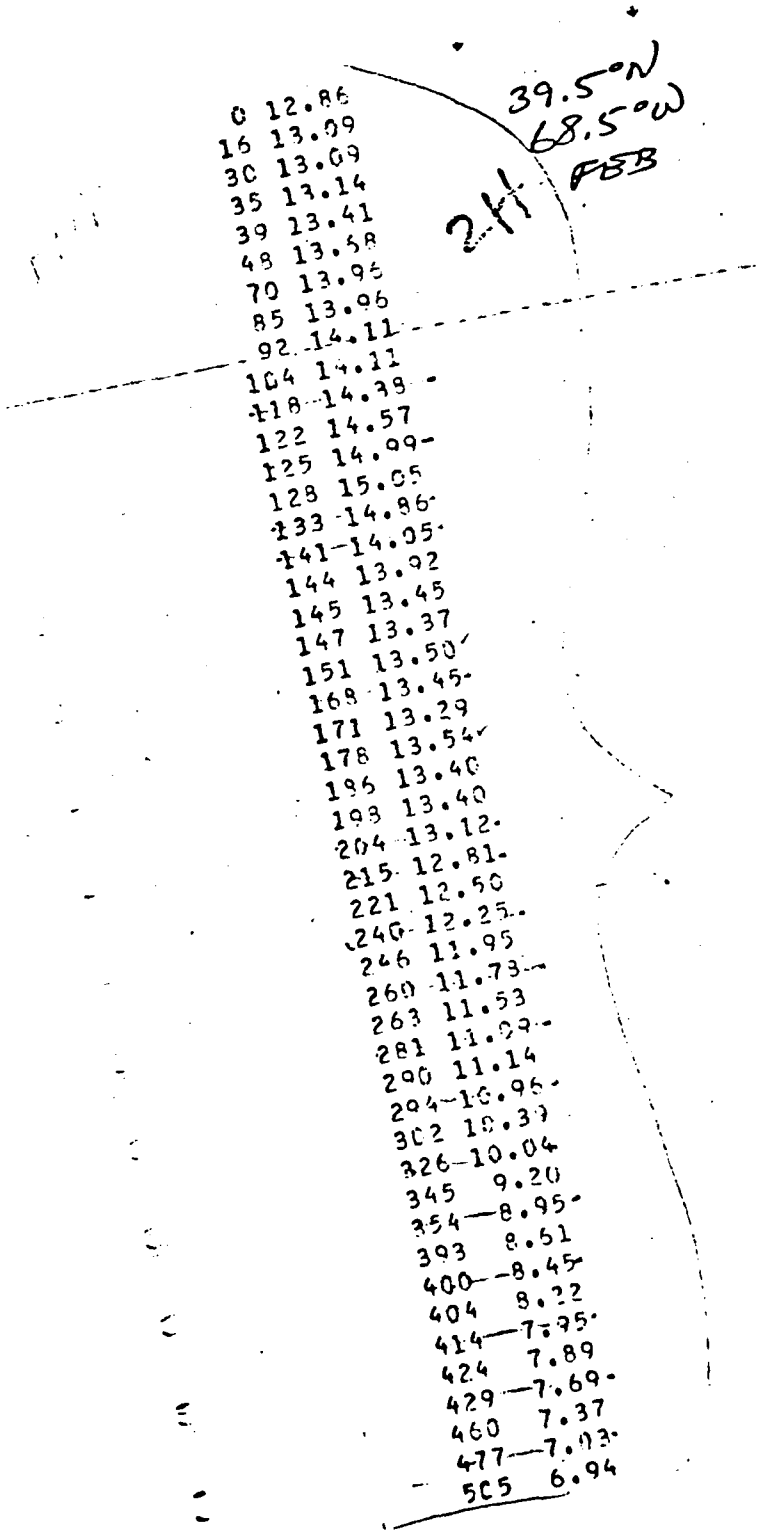
(16)

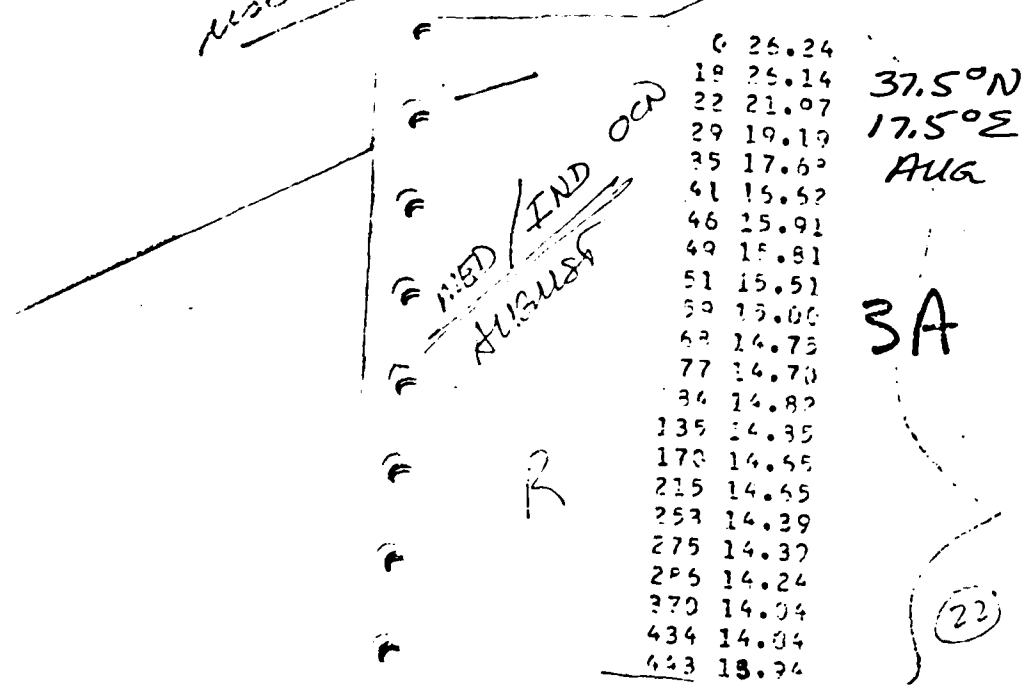
0	10.93
2	11.19
8	11.40
268	11.29
325	11.04
372	10.99
399	10.75
425	10.75
473	10.52
493	10.55

47.5°N
17.5°W
FOB

2E


use all
0 19.00
22 19.00
27 18.80
29 17.10
32 16.90
33 16.40
37 15.30
36 14.90
40 14.70
50 14.40
53 14.10
66 13.70
122 13.00
165 12.60
192 12.60
207 12.50
214 12.20
243 12.00
285 12.00
294 11.90
335 11.90
414 11.20
47.5°N
17.5°W
AUGUST
2E


39.5°N
68.5°W
FEB
24
0 12.86
16 13.09
30 13.09
35 13.14
39 13.41
48 13.58
70 13.96
85 13.96
92 14.11
104 14.11
118 14.38
122 14.57
125 14.99
128 15.05
133 14.86
141 14.05
144 13.92
145 13.45
147 13.37
151 13.50
168 13.45
171 13.29
178 13.54
196 13.40
198 13.40
204 13.12
215 12.81
221 12.50
240 12.25
246 11.95
260 11.78
263 11.53
281 11.22
290 11.14
294 10.96
302 10.39
326 10.04
345 9.20
354 8.95
393 8.51
400 8.45
404 8.22
414 7.95
424 7.89
429 7.69
460 7.37
477 7.03
505 6.94

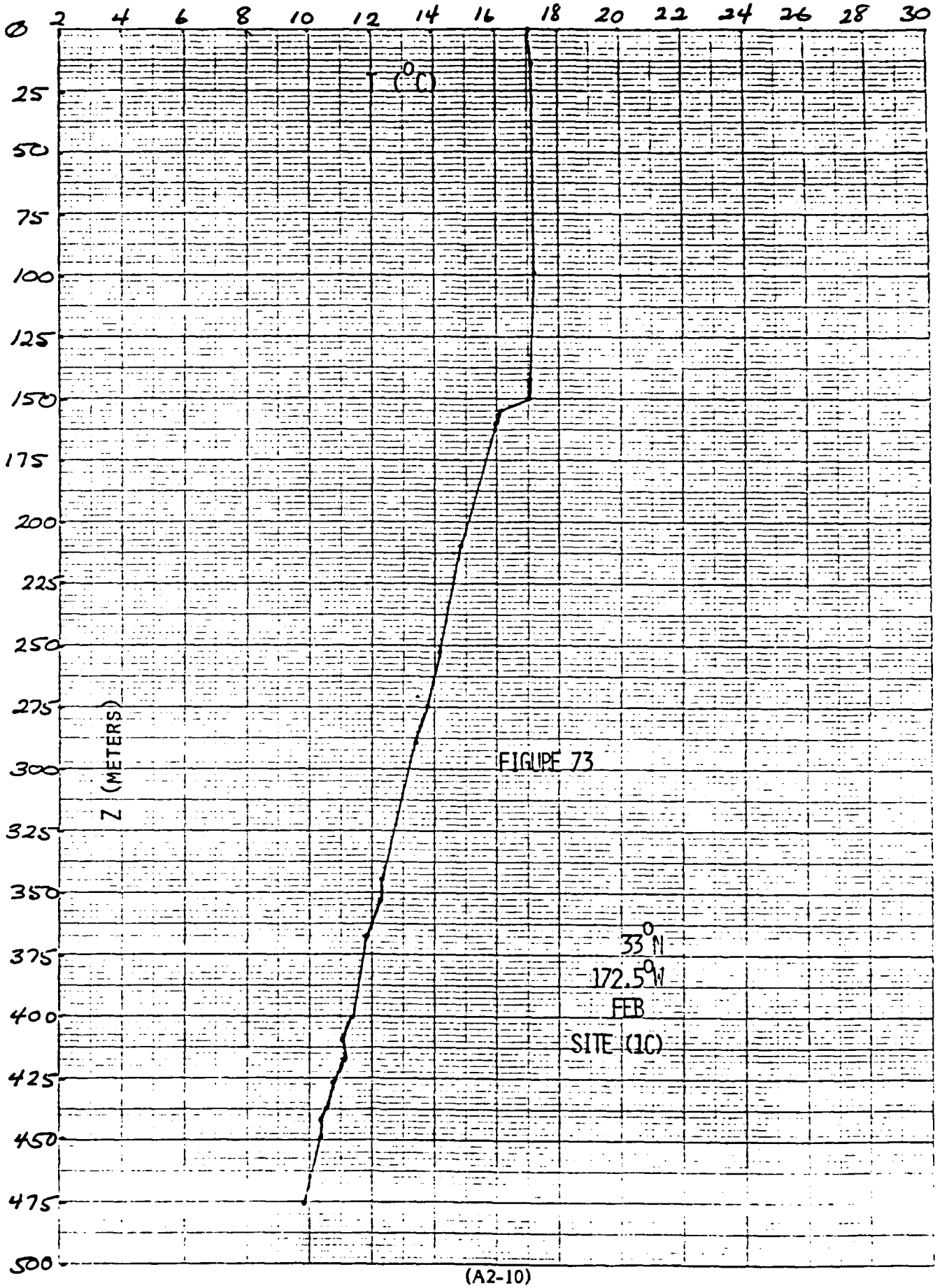


0	26.24
18	25.14
22	21.07
29	19.19
35	17.69
41	15.52
46	15.91
49	15.81
51	15.51
59	15.00
68	14.75
77	14.70
86	14.82
135	14.35
170	14.55
215	14.55
253	14.39
275	14.39
295	14.24
370	14.04
434	14.04
443	13.94

37.5°N
17.5°E
AUG

3A

(22)


0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
T (°C)
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
Z (METERS)
FIGURE 73
33°N
172.5°W
FEB
SITE (1C)

(A2-10)

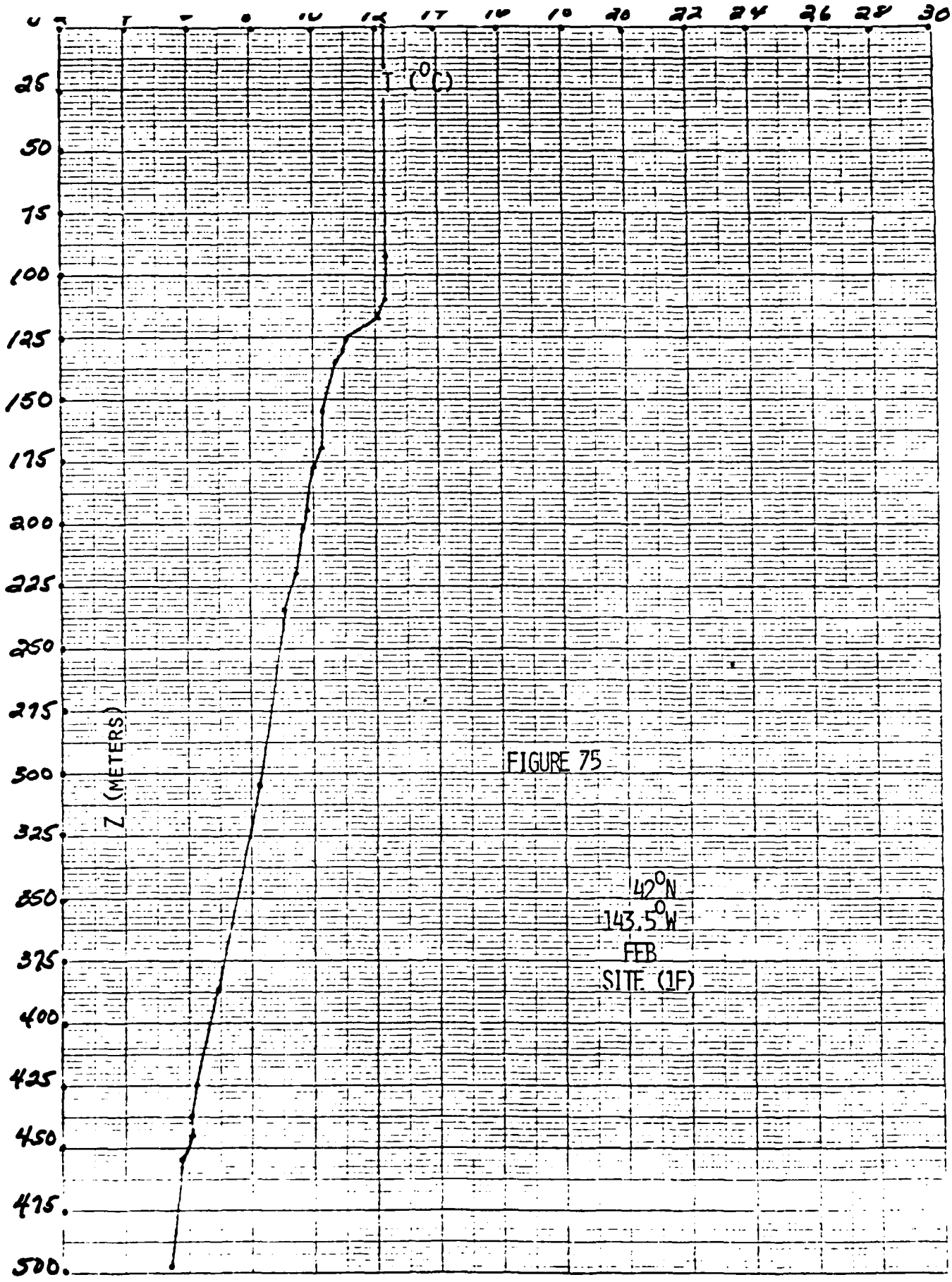

T (°C)
Z (METERS)
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
42°N
143.5°W
FEB
SITE (1F)

FIGURE 75

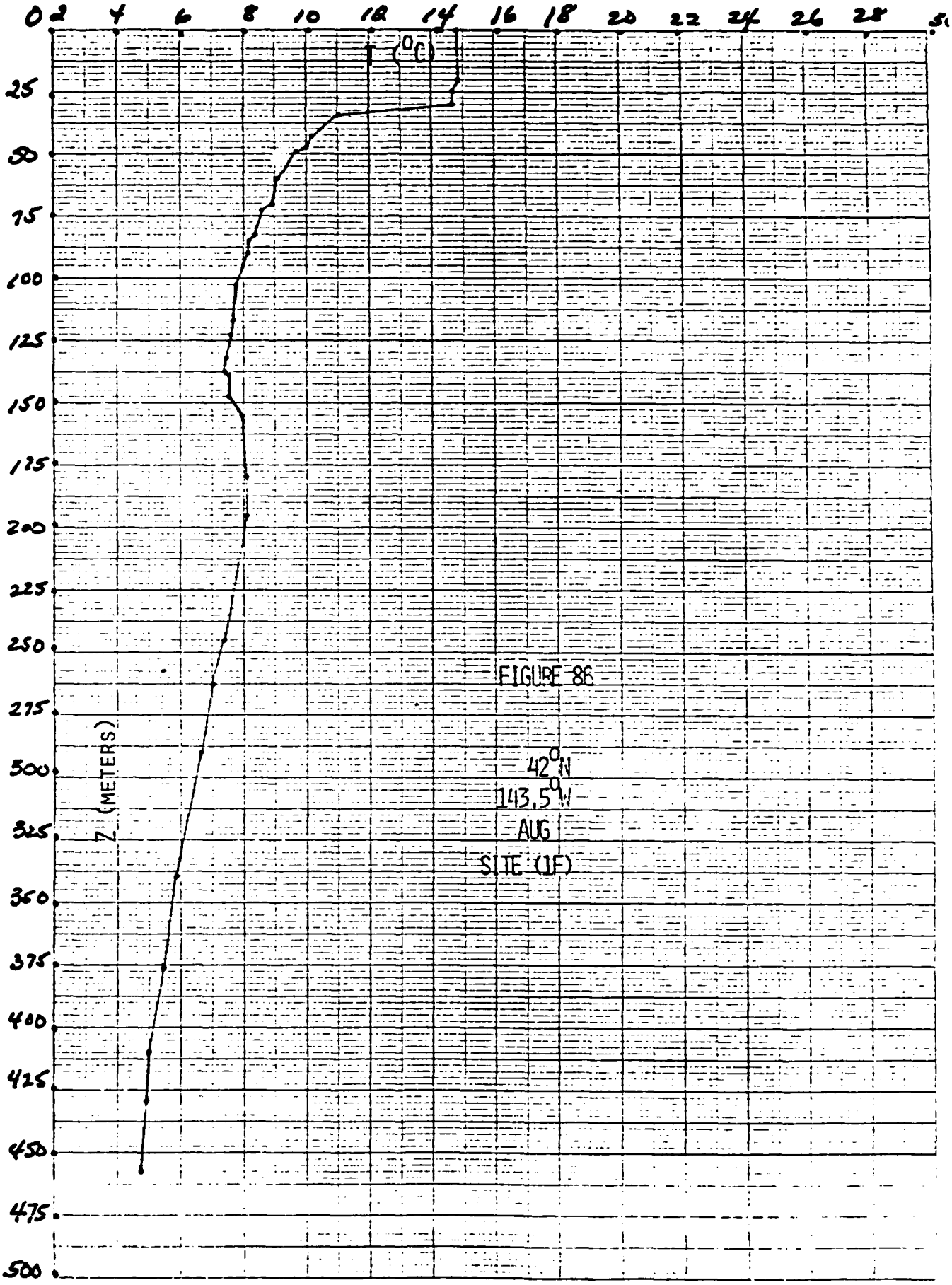
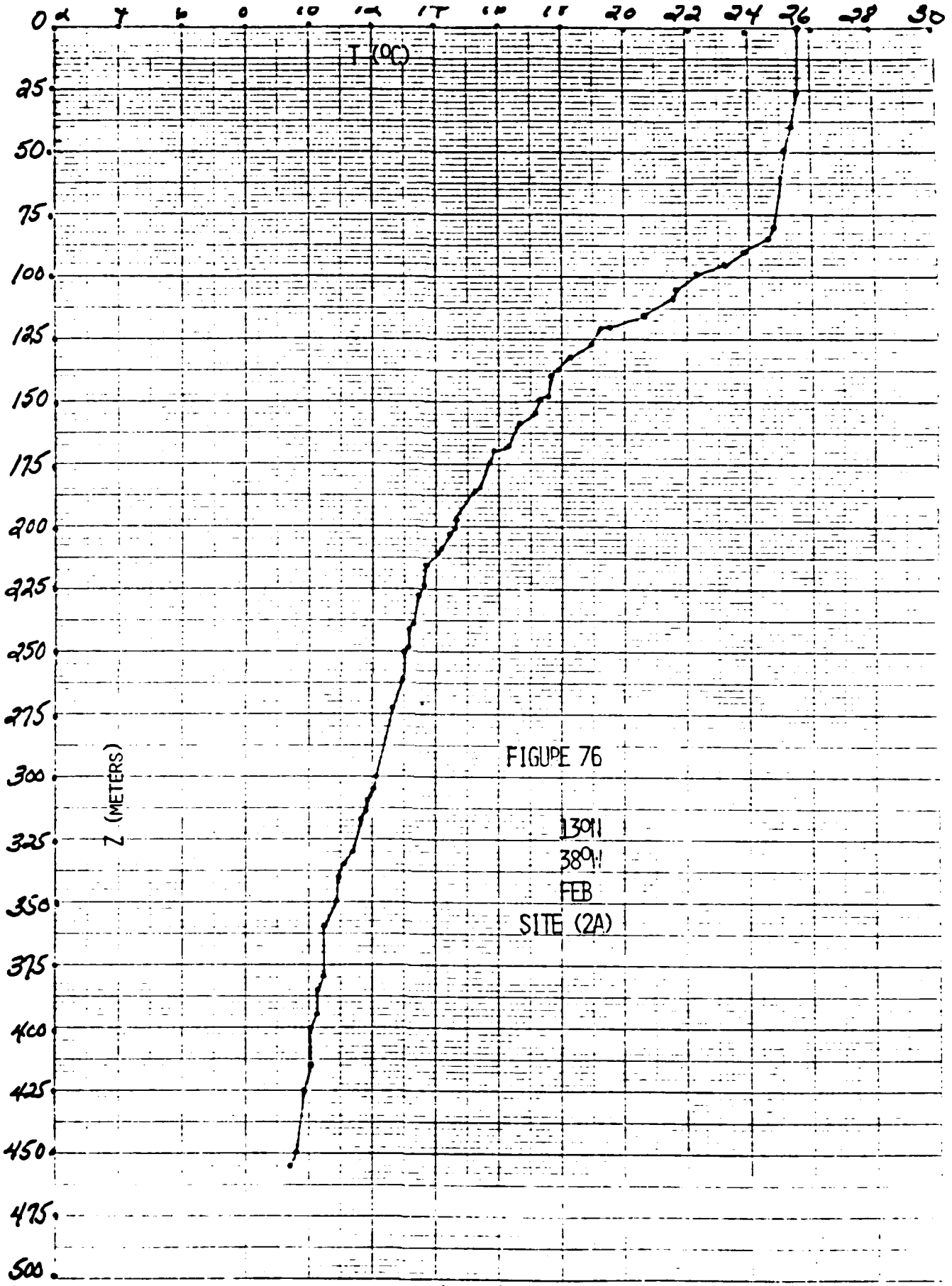

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28
(°C)
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
Z (METERS)
42°N
143.5°W
AUG
SITE (1F)

FIGURE 86


T (°C)
Z (METERS)
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
FIGUPE 76
1391
389
FEB
SITE (2A)

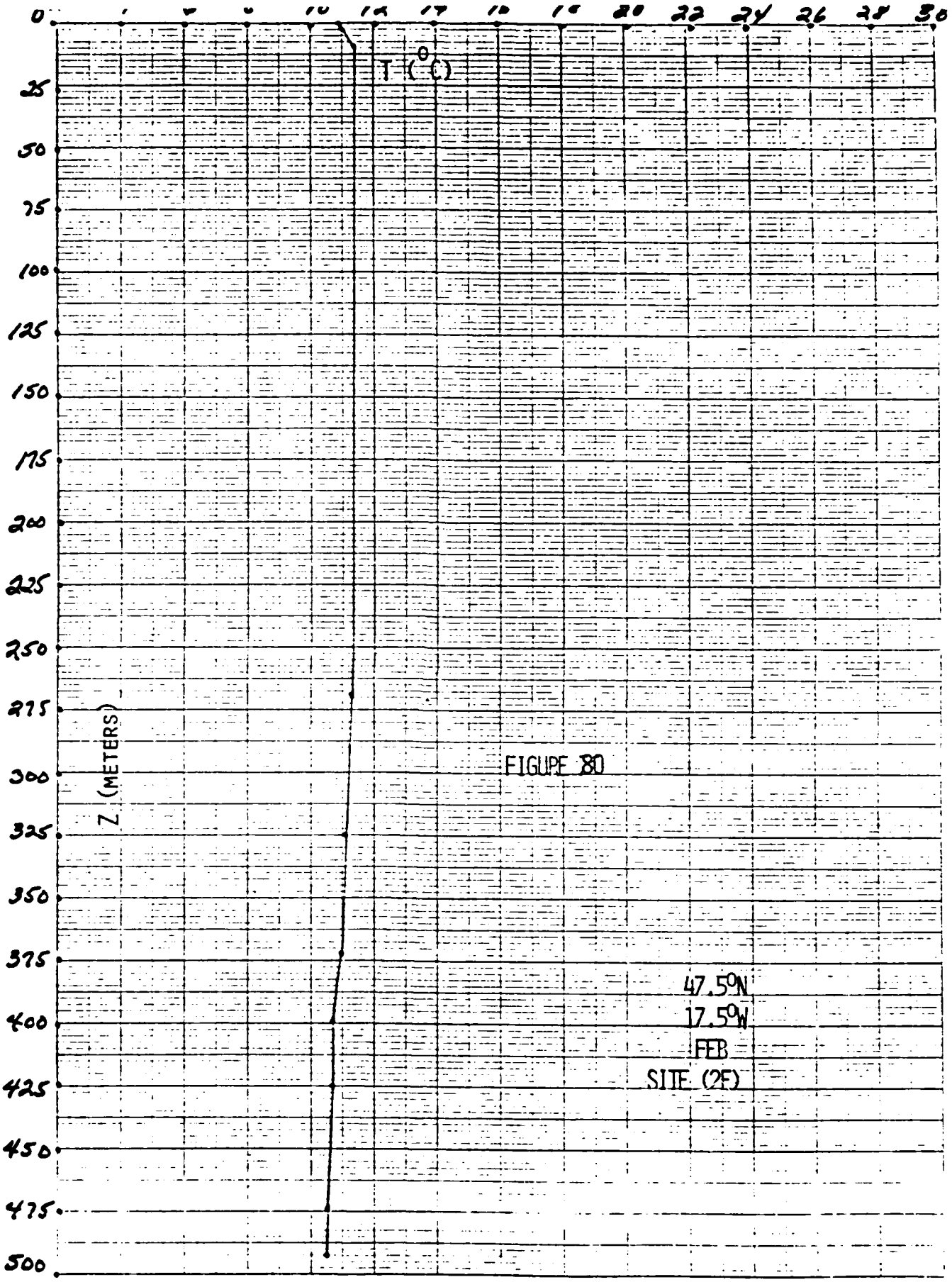

T (°C)
Z (METERS)
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
47.5°N
17.5°W
FEB
SITE (2F)

FIGURE 80

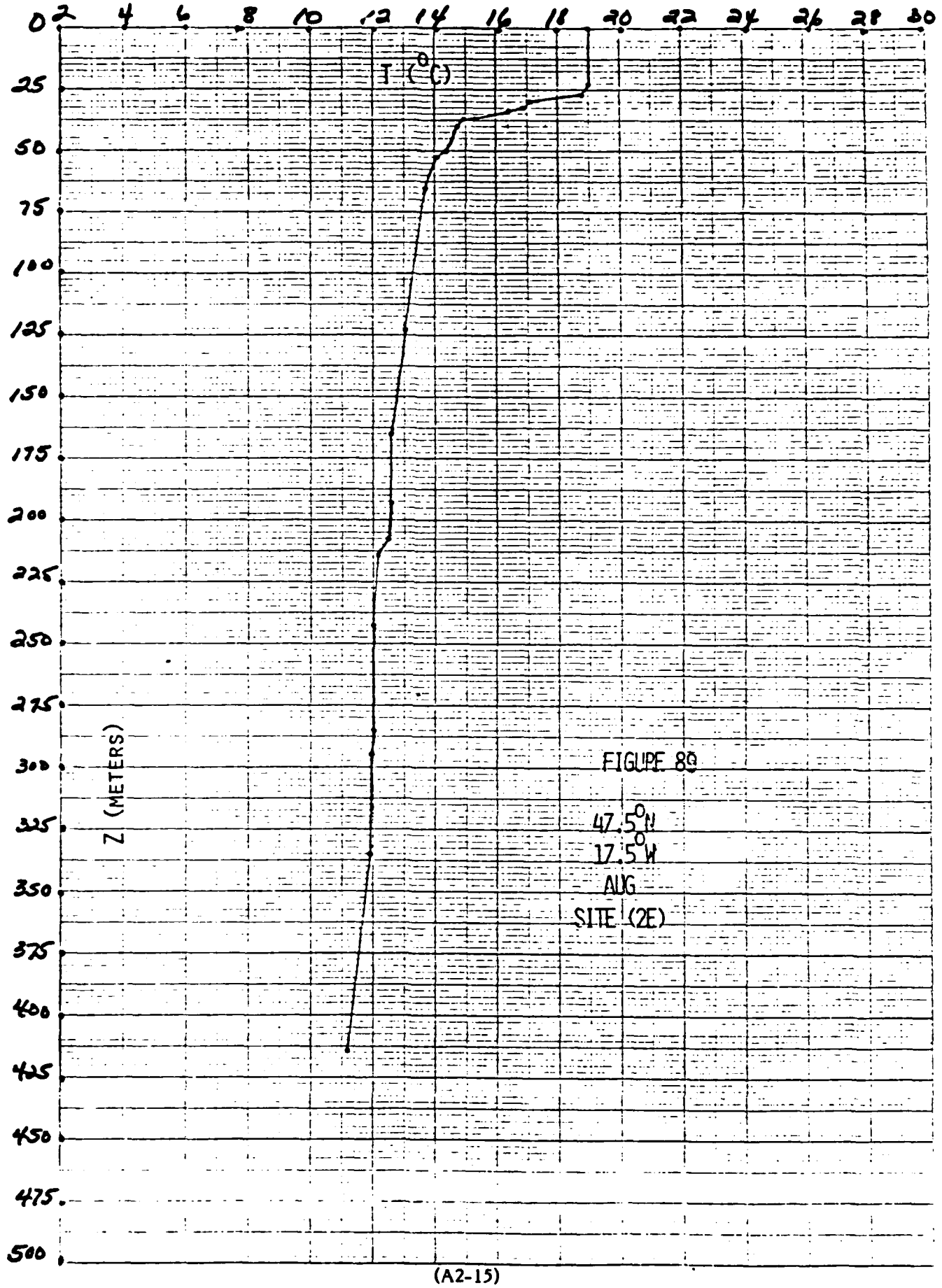
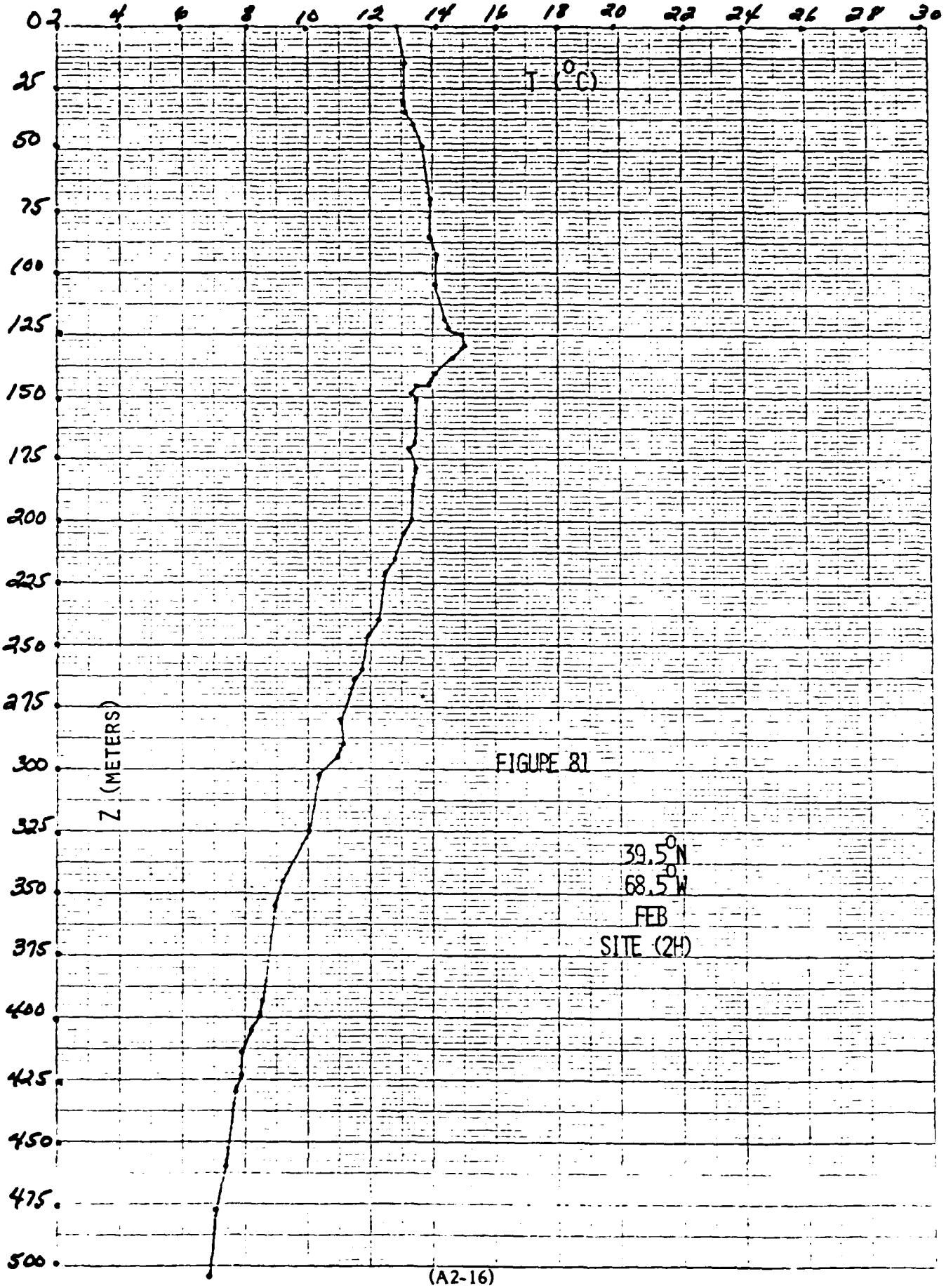

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
T (°C)
25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500
Z (METERS)
47.5°N
17.5°W
AUG
SITE (2E)

FIGURE 8Q


0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
T (°C)
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
500
Z (METERS)
39.5°N
68.5°W
FEB
SITE (2H)

FIGUPE 81

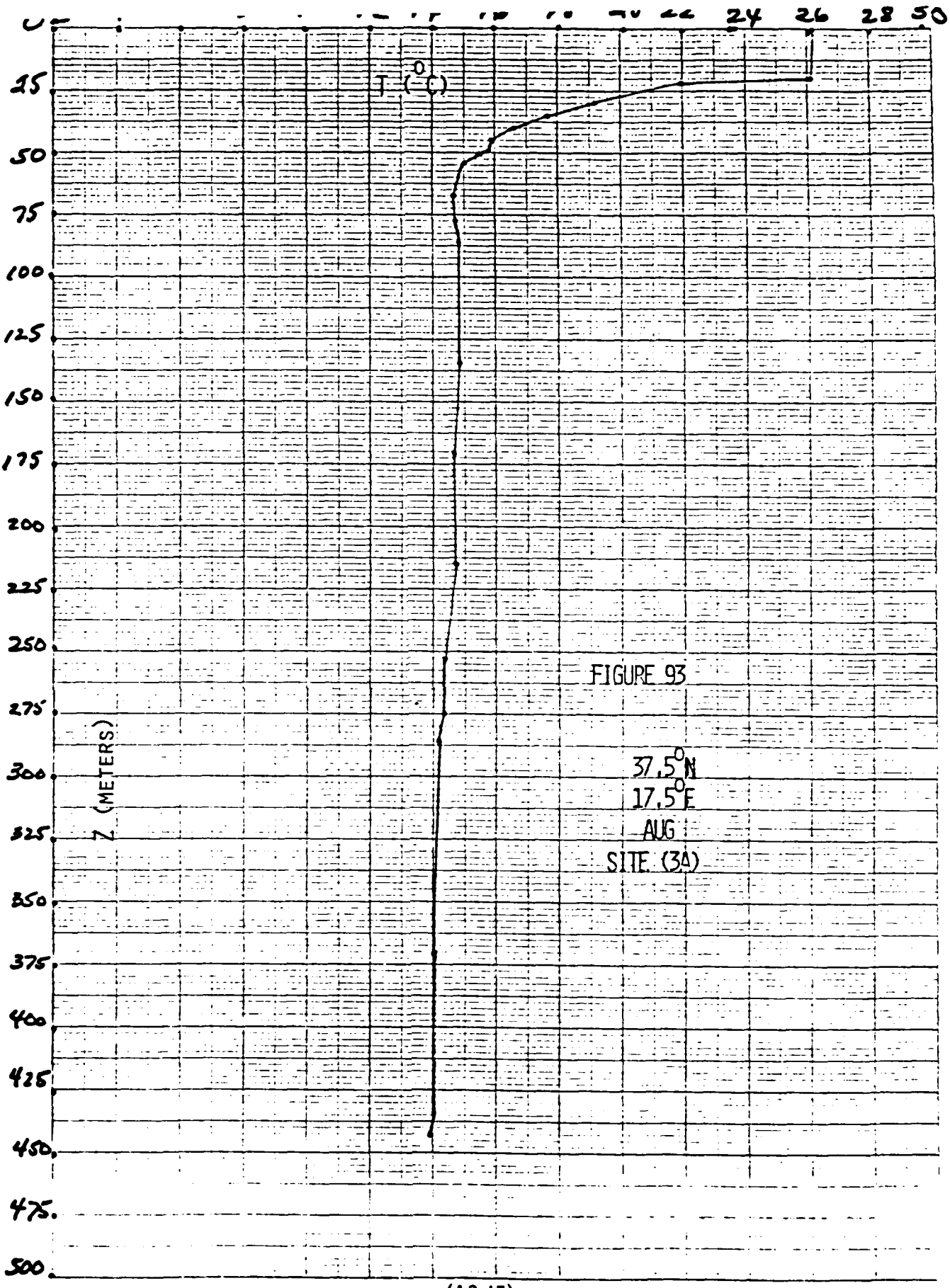


FIGURE 93

37.5°N
17.5°E
AUG
SITE (3A)

APPENDIX A

Section A3

SIMAS Historical Profiles (reference 2)

24 FEB1C

0	00	4955	50	250	00	4958	00	300	00	4956	00	500	00	4944	00
1000	00	4920	00	1250	00	4905	00	1500	00	4890	00	1750	00	4876	00
2000	00	4886	00	2250	00	4859	00	2500	00	4855	00	2750	00	4854	00
3000	00	4856	00	3250	00	4857	00	3500	00	4859	00	4000	00	4864	00
4500	00	4869	00	5000	00	4874	00	6000	00	4885	00	7000	00	4899	00
9000	00	4930	00	12000	00	4979	00	15000	00	5031	00	18558	80	5095	00

24 FEB1F

0	00	4878	00	300	00	4880	50	600	00	4886	00	750	00	4880	00
1000	00	4870	00	1250	00	4859	00	1500	00	4852	00	1750	00	4848	00
2000	00	4846	00	2250	00	4846	00	2500	00	4847	00	2750	00	4849	00
3000	00	4851	00	3250	00	4853	00	3500	00	4855	00	4000	00	4860	00
4500	00	4864	00	5000	00	4871	00	6000	00	4883	00	7000	00	4899	00
9000	00	4930	00	12000	00	4979	00	15000	00	5031	00	15999	80	5049	00

25 AUG1F

0	00	4864	00	35	00	4864	10	150	00	4916	00	350	00	4889	00
500	00	4885	00	1000	00	4869	00	1250	00	4859	00	1500	00	4852	00
1750	00	4848	00	2000	00	4846	00	2250	00	4846	00	2500	00	4847	00
2750	00	4849	00	3000	00	4851	00	3250	00	4853	00	3500	00	4855	00
4000	00	4863	00	4500	00	4864	00	5000	00	4871	00	6000	00	4883	00
7000	00	4899	00	9000	00	4930	00	12000	00	4979	00	15000	00	5031	00
10003	00	5049	10												

28 FEB2A

0	00	5024	00	100	00	5025	00	200	00	5010	00	300	00	4952	00
500	00	4929	00	750	00	4920	00	1000	00	4915	00	1250	00	4910	00
1500	00	4905	00	1750	00	4890	00	2000	00	4892	00	2250	00	4886	00
2500	00	4879	00	2750	00	4876	00	3000	00	4877	00	3250	00	4879	00
3500	00	4888	00	4000	00	4885	00	4500	00	4901	00	5000	00	4898	00
6000	00	4909	00	7000	00	4920	00	9000	00	4949	00	12000	00	4995	00
15000	00	5044	00	17032	20	5077	00								

22 FEB2E

0	00	4911	00	500	00	4919	00	750	00	4922	00	1000	00	4928	00
1250	00	4928	00	1500	00	4926	00	1750	00	4928	00	2000	00	4925	00
2250	00	4923	00	2500	00	4920	00	2750	00	4917	00	3000	00	4914	00
3250	00	4910	00	3500	00	4906	00	4000	00	4902	00	4500	00	4902	00
5000	00	4923	00	6000	00	4909	00	7000	00	4920	00	9000	00	4949	00
12000	00	4995	00	15151	30	5046	50								

23 AUG2E

0	00	4972	00	100	00	4974	00	250	00	4940	00	500	00	4928	00
1000	00	4927	00	1250	00	4928	00	1500	00	4928	00	1750	00	4926	00
2000	00	4925	00	2250	00	4923	00	2500	00	4920	00	2750	00	4917	00
3000	00	4914	00	3250	00	4910	00	3500	00	4906	00	4000	00	4902	00
4500	00	4902	00	5000	00	4903	00	6000	00	4909	00	7000	00	4920	00
9000	00	4949	00	12000	00	4995	00	15155	40	5046	50				

23 FEB2H

0	00	4855	00	150	00	4861	00	300	00	4880	00	550	00	4914	00
700	00	4910	00	1000	00	4884	00	1250	00	4868	00	1500	00	4862	00
1750	00	4858	00	2000	00	4856	00	2250	00	4858	00	2500	00	4860	00
2750	00	4862	00	3000	00	4864	00	3250	00	4867	00	3500	00	4870	00
4000	00	4876	00	4500	00	4884	00	5000	00	4891	00	6000	00	4906	00
7000	00	4920	00	9000	00	4949	00	10105	90	4966	00				

12 AUG3C

0	00	5058	50	30	00	5057	00	50	00	5034	00	100	00	5010	00
200	00	4990	00	350	00	4977	50	600	00	4975	00	1500	00	4977	00
3000	00	4997	00	4200	00	5018	00	7200	00	5066	00	9614	50	5107	00

APPENDIX A

Section A4

BT Data for SIMAS

IS BT DATA IN METRIC UNITS? YES OR NO YES

****ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)****
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	17.13
****	98.	17.20
****	152.	17.
****	156.	16.17
****	476.	9.87
****		

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	17.1
2	98.0	17.2
3	152.0	17.0
4	156.0	16.2
5	476.0	9.9

DO YOU WISH TO EDIT BT DATA? YES OR NO NO

Feb. I & adjust OK

IS BT DATA IN METRIC UNITS? YES OR NO YES

ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	12.3
****	109.	12.32
****	117.	12.07
****	126.	11.15
****	134.	10.77
****	497.	5.43
****		

If ADT

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	12.3
2	109.0	12.3
3	117.0	12.1
4	126.0	11.1
5	134.0	10.8
6	497.0	5.4

DO YOU WISH TO EDIT BT DATA? YES OR NO NO

IS BT DATA IN METRIC UNITS? YES OR NO YES

****ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)****
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	14.8
****	30.	14.7
****	36.	11.03
****	55.	9.1
****	113.	7.6
****	147.	7.57
****	155.	7.96
****	196.	8.1
****	344.	5.98
****	457.	4.78
****		

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	14.8
2	30.0	14.7
3	36.0	11.0
4	55.0	9.1
5	113.0	7.6
6	147.0	7.6
7	155.0	8.0
8	196.0	8.1
9	344.0	6.0
10	457.0	4.8

DO YOU WISH TO EDIT BT DATA? YES OR NO NO

IS BT DATA IN METRIC UNITS? YES OR NO YES

$$$$ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)$$$$
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
$$$$	0.	25.61
$$$$	26	\ 6\6. , 25.61
$$$$	87.	24.6
$$$$	98.	22.33
$$$$	137.	17.98
$$$$	216.	13.69
$$$$	345.	10.8
$$$$	455.	9.42
$$$$		

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	25.6
2	26.0	25.6
3	87.0	24.6
4	98.0	22.3
5	137.0	18.0
6	216.0	13.7
7	345.0	10.8
8	455.0	9.4

DO YOU WISH TO EDIT BT DATA? YES OR NO NO

It a Feela

ADT

OK.

IS BT DATA IN METRIC UNITS? YES OR NO YES

****ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)****
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	10.93
****	8.	11.40
****	372.	10.99
****	493.	10.55
****		

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	10.9
2	8.0	11.4
3	372.0	11.0
4	493.0	10.6

DO YOU WISH TO EDIT BT DATA? YES OR NO NO

Ile File Merge

IS BT DATA IN METRIC UNITS? YES OR NO YES

IIe ACG
Merge

ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)
(HIT EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
***	0.	19.
***	22.	19.
***	27.	18.8
***	29.	17.1
***	37.	15.3
***	53.	14.1
***	122.	13.9
***	414.	11.4
***		

OPERATOR INPUT DATA FOR BT

NO.	DEPTH	TEMP
1	0.0	19.0
2	22.0	19.0
3	27.0	18.8
4	29.0	17.1
5	37.0	15.3
6	53.0	14.1
7	122.0	13.9
8	414.0	11.4

DO YOU WISH TO EDIT BT DATA? YES OR NO

IS BT DATA IN METRIC UNITS? YES OR NO YES

****ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)****
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	12.86
****	35.	13.14
****	48.	13.68
****	118.	14.2
****	133.	14.86
****	147.	13.37
****	198.	13.40
****	221.	12.5
****	290.	11.14
****	347.	9.
****	395.	8.6
****	407.	7.9
****	477.	7.03

IH Feb
AD Test
Redo

****EDIT BT DATA****

NO.	DEPTH	TEMP
1	0.0	12.9
2	35.0	13.1
3	48.0	13.7
4	118.0	14.2
5	133.0	14.9
6	147.0	13.4
7	198.0	13.4
8	221.0	12.5
9	290.0	11.1
10	347.0	9.0
11	395.0	8.6
12	407.0	7.9
13	477.0	7.0

TYPES OF CORRECTION
1 = DELETE ENTRY
2 = CHANGE ENTRY
3 = INSERT NEW ENTRY AT LINE INDICATED

****ENTER LINE NOS. 01-25 FOR CHANGES****
****ENTER EXTRA (CR) FOR END OF EDIT****

ENTER LINE NUMBER (XX)

A49

With Feb ADDUS.

IS BT DATA IN METRIC UNITS? YES OR NO YES

****ENTER NEW BT DATA (ESTIMATE TO ONE DECIMAL PLACE)****
(AN EXTRA (CR) TERMINATES ENTRIES)

	DEPTH	TEMP
****	0.	26.24
****	18.	26.14
****	22.	21.97
****	41.	16.62
****	59.	15.
****	64.	14.7
****	135.	14.85
****	443.	14\4\3.94
****		

ADJ OK

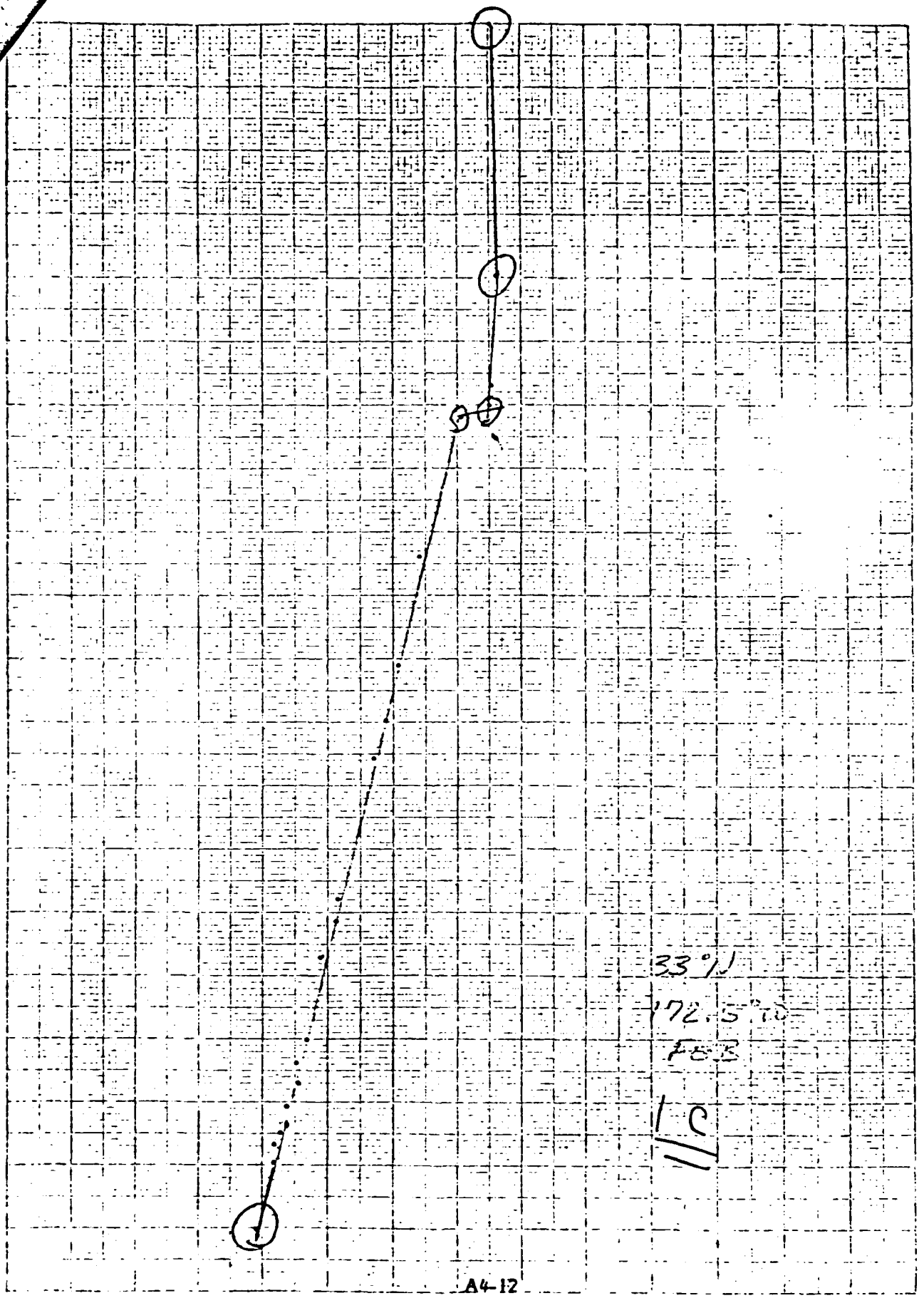
OPERATOR INPUT DATA FOR BT

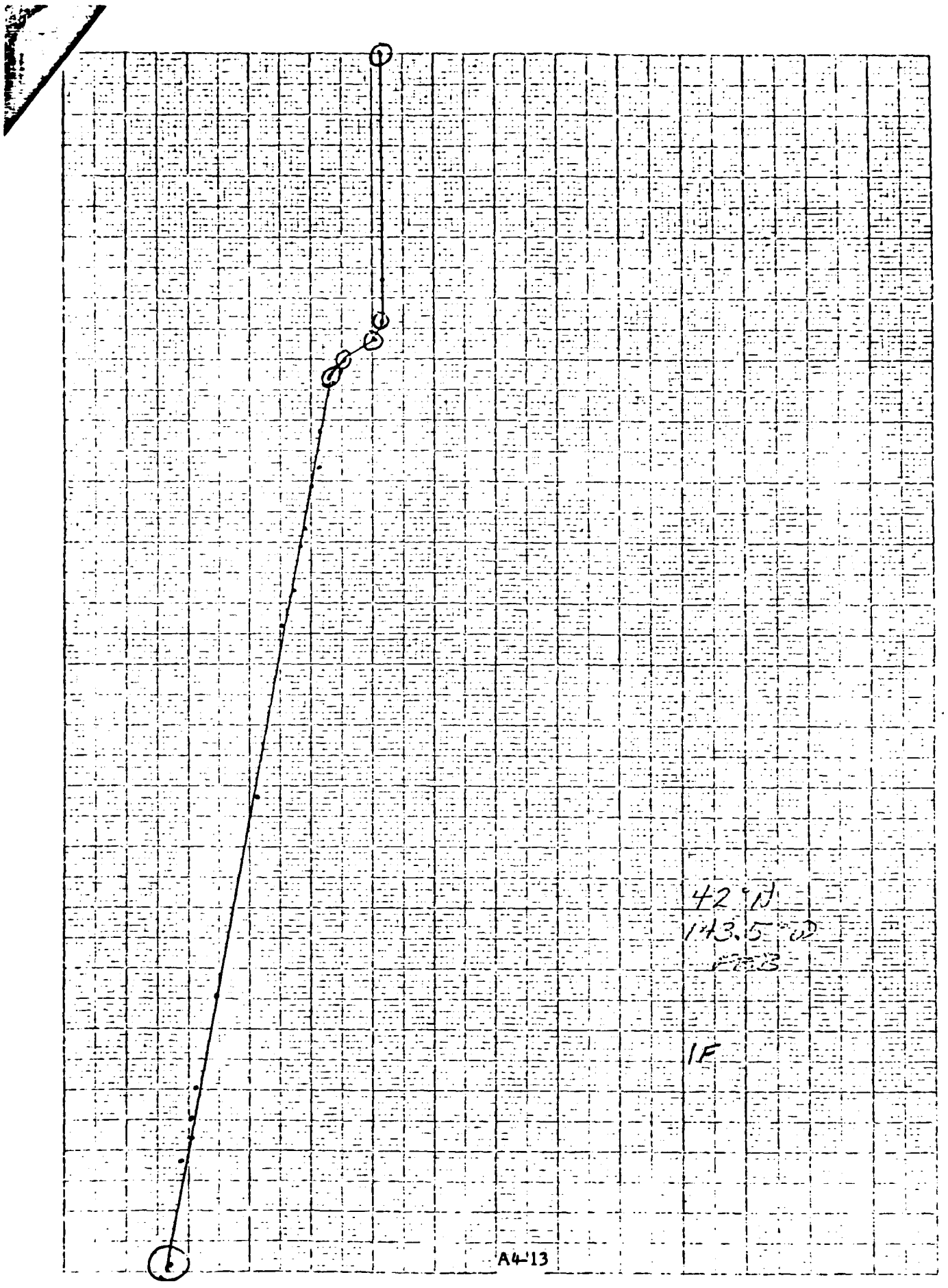
NO.	DEPTH	TEMP
1	0.0	26.2
2	18.0	26.1
3	22.0	22.0
4	41.0	16.6
5	59.0	15.0
6	64.0	14.7
7	135.0	14.9
8	443.0	13.9

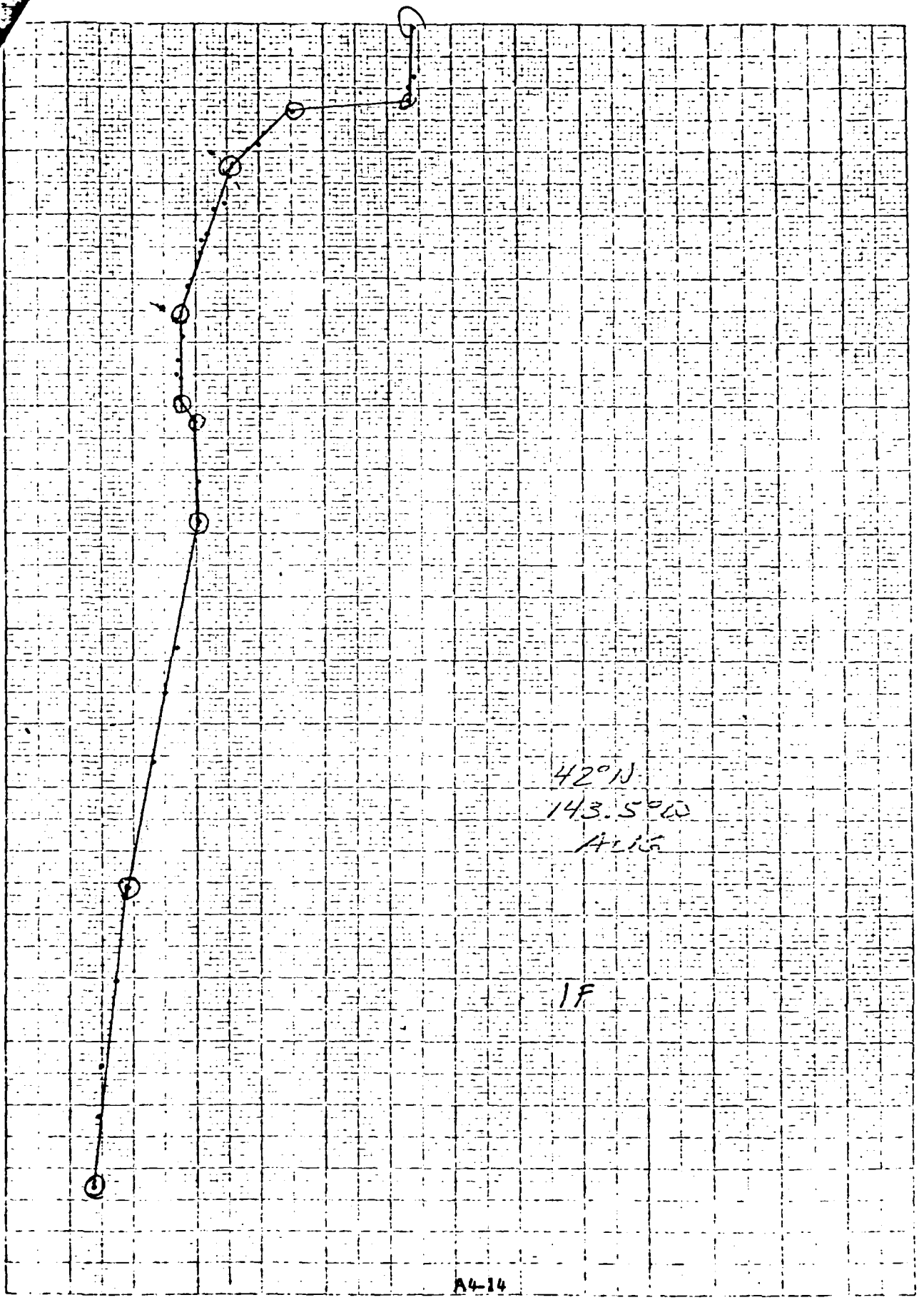
III a Aug.
ADTOK

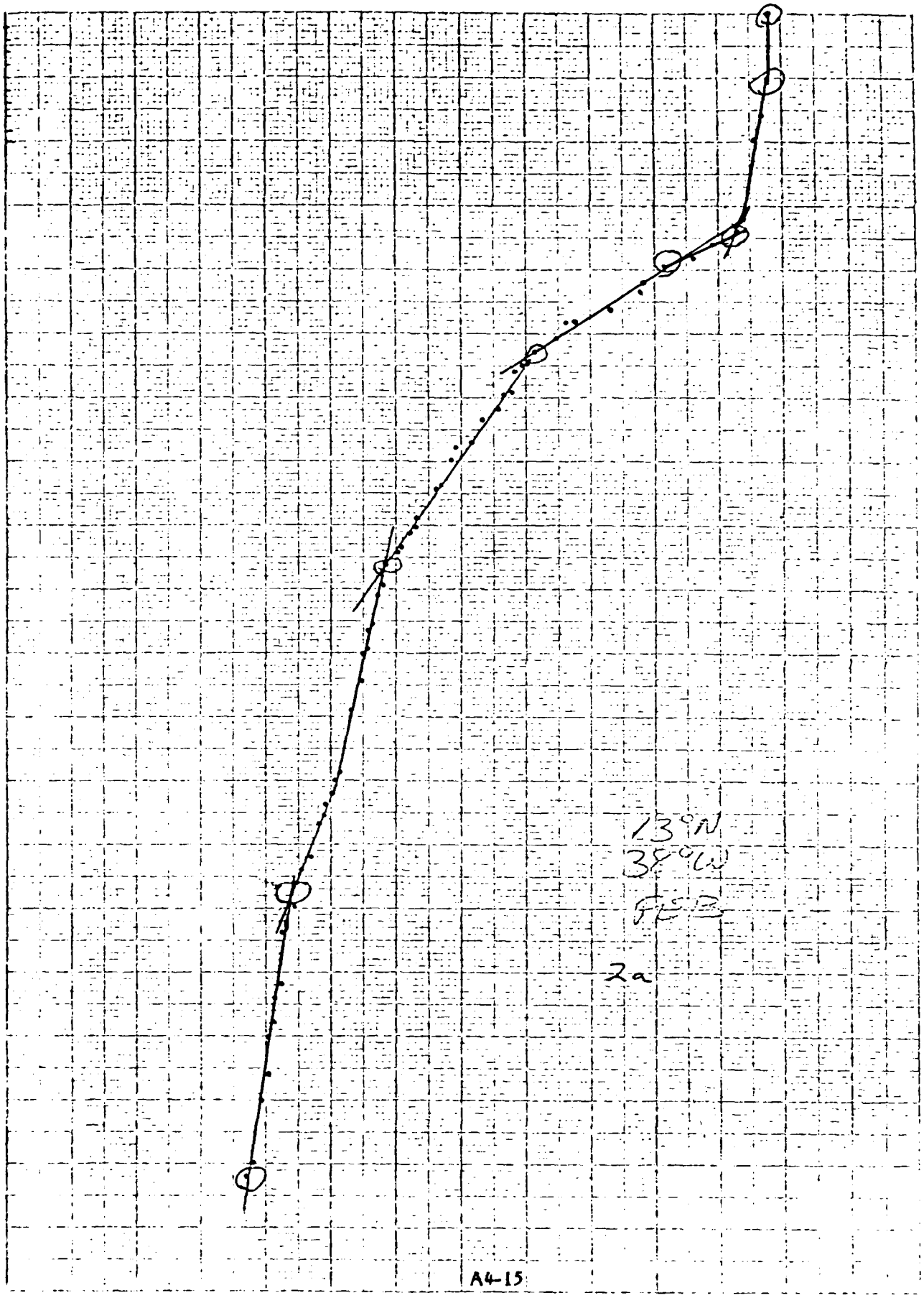
DO YOU WISH TO EDIT BT DATA? YES OR NO

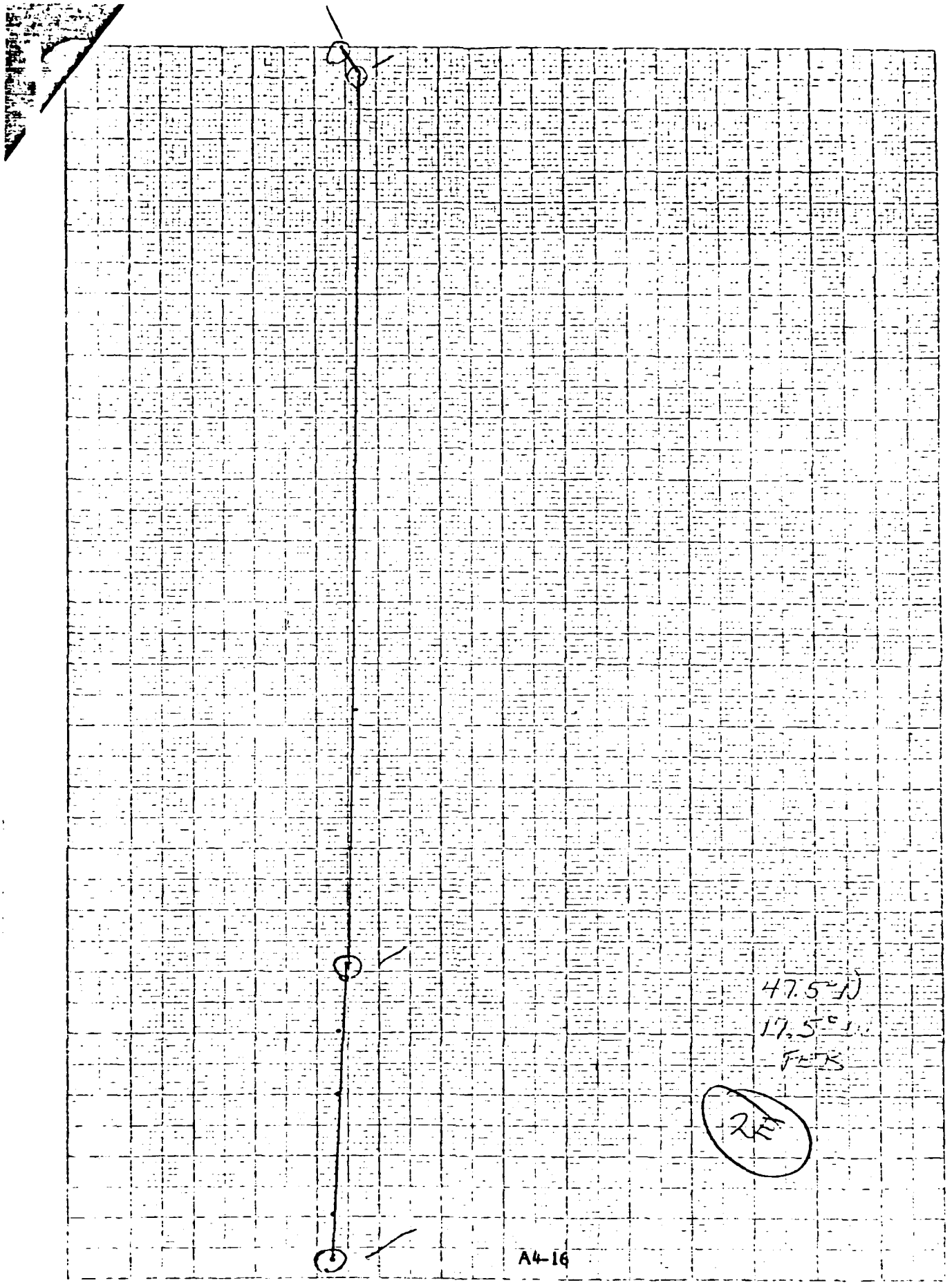
A-11

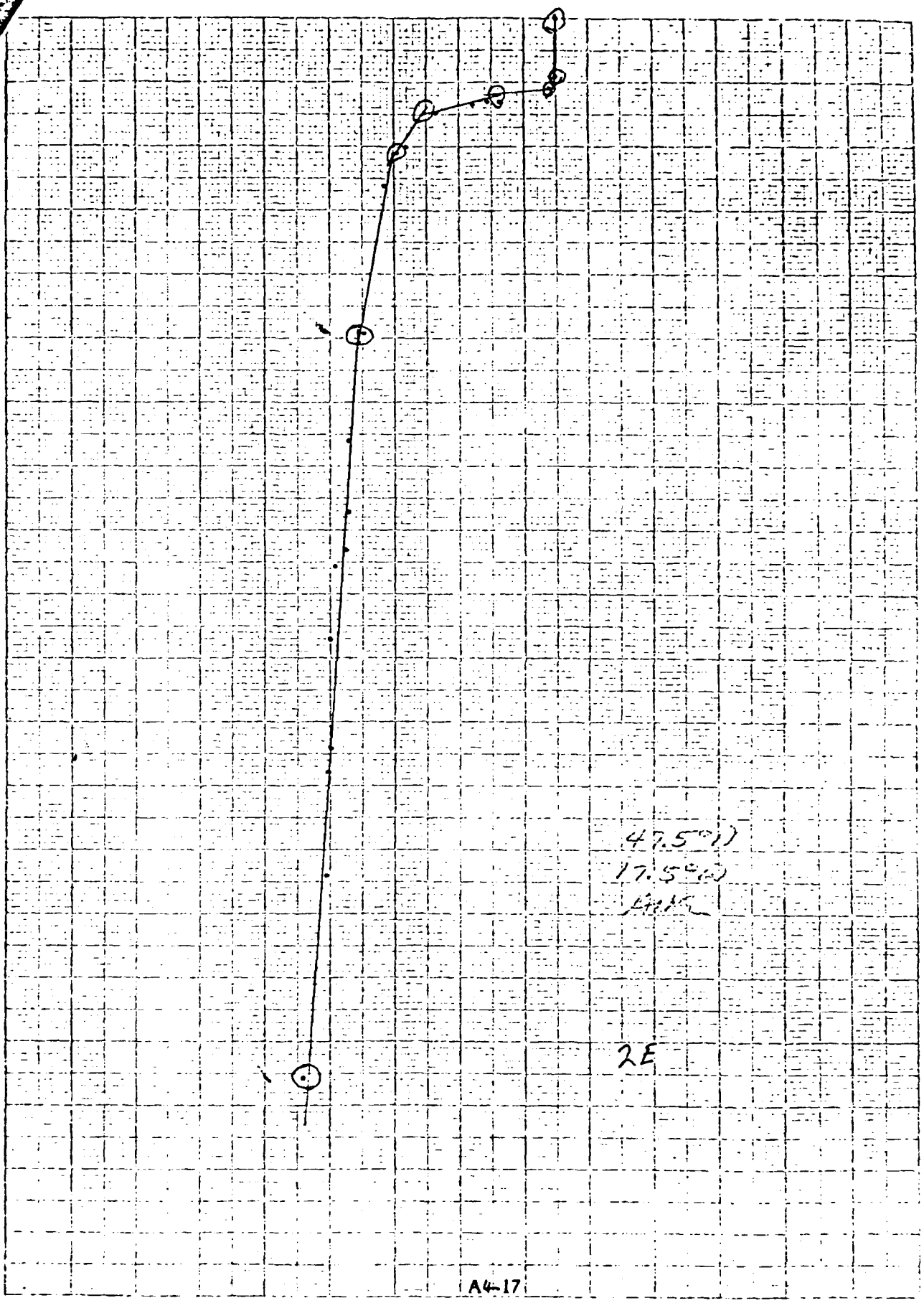

33°J
172.5°T
FOB
1 C

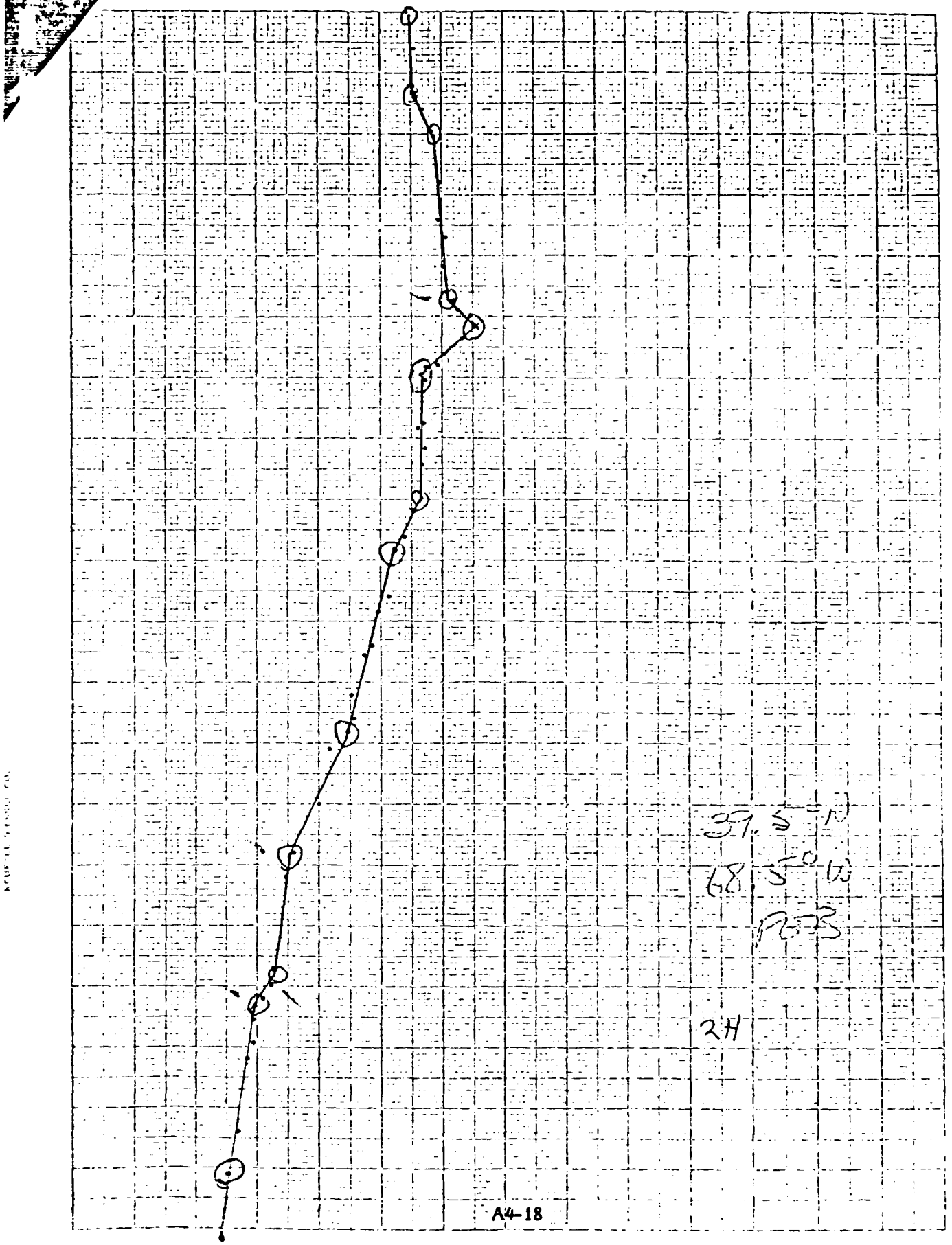

42°N
143.5°W
IF

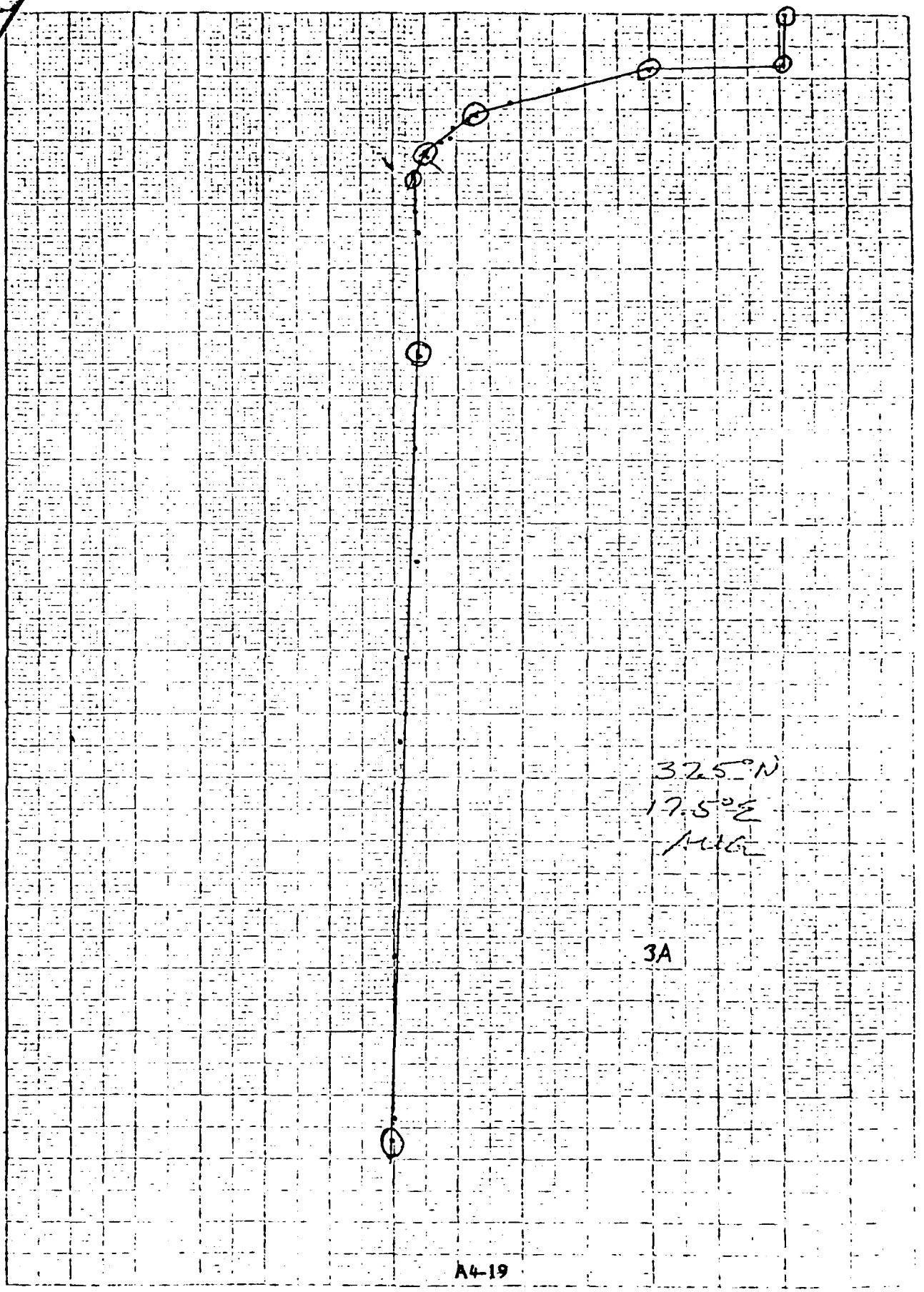

42°N
143.5°W
1F


13°N
35°W
2a


47.5°J
17.5°J
F=K
2K


47.5°1)
17.5°2)
2E


37.5 N
68.5 W
FOS
2H


32.5°N
17.5°E
MLC
3A

APPENDIX A

Section A5

SIMAS Outputs

PROBABLE ERROR IN XBT

	ICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4955.5	1	0.0	4967.1
2	250.0	4958.0	2	321.5	4973.0
3	300.0	4956.0	3	498.7	4974.0
4	500.0	4944.0	4	511.8	4965.9
5	1000.0	4920.0	5	1000.0	4941.7
6	1250.0	4905.0	6	1561.8	4913.8
7	1500.0	4890.0			

I.C. Feb. HDI OK

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 2/15/79 AT 0000

NGS PROVINCE NO. IS 7
TRUE WIND SPEED IS 19 KNOTS
CORRECTED BOTTOM DEPTH IS 3093 FATHOMS
LAYER DEPTH IS 499 FEET
SOUND VELOCITY AT SURFACE IS 4955.5 FT/SEC

I.C. Feb

SOUND VELOCITY PROFILE DATA

NO.	DEPTH	VELOCITY
1	0.0	4955.5
2	498.7	4963.7
3	500.0	4944.0
4	1000.0	4920.0
5	1250.0	4905.0
6	1500.0	4890.0
7	1750.0	4876.0
8	2000.0	4866.0
9	2250.0	4859.0
10	2500.0	4855.0
11	2750.0	4854.0
12	3000.0	4856.0
13	3250.0	4857.0
14	3500.0	4859.0
15	4000.0	4864.0
16	4500.0	4869.0
17	5000.0	4874.0
18	6000.0	4885.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	18557.4	5095.0

I.C. Feb ~~HDI~~ ADJUST OK

TO JS1

PROBABLE ERROR IN XBT

	HISTORICAL DATA		XBT DATA	
	DEPTH	VEL	DEPTH	VEL
1	0.0	4876.0	0.0	4916.2
2	300.0	4880.5	357.6	4922.3
3	600.0	4886.0	383.9	4919.9
4	750.0	4880.0	413.4	4909.9
5	1000.0	4870.0	439.7	4905.9
6	1250.0	4859.0	1000.0	4883.7
7	1500.0	4852.0	1630.7	4858.8

IS Feb ADS OK

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 2/15/79 AT 0000

MGS PROVINCE NO. IS 7
TRUE WIND SPEED IS 18 KNOTS
CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 358 FEET
SOUND VELOCITY AT SURFACE IS 4876.0 FT/SEC

FEB ADS IS OK

SOUND VELOCITY PROFILE DATA

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	357.6	4882.1
3	750.0	4880.0
4	1000.0	4870.0
5	1250.0	4859.0
6	1500.0	4852.0
7	1750.0	4848.0
8	2000.0	4846.0
9	2250.0	4846.0
10	2500.0	4847.0
11	2750.0	4849.0
12	3000.0	4851.0
13	3250.0	4853.0
14	3500.0	4855.0
15	4000.0	4860.0
16	4500.0	4864.0
17	5000.0	4871.0
18	6000.0	4883.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	15999.6	5049.0

f Feb. 917

ARCTIC SUMMER

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 8/15/79 AT 0000

MGS PROVINCE NO. IS 7
TRUE WIND SPEED IS 12 KNOTS
CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 98 FEET
SOUND VELOCITY AT SURFACE IS 4949.6 FT/SEC

SOUND VELOCITY PROFILE DATA

I.F. Aug

NO.	DEPTH	VELOCITY
1	0.0	4949.6
2	98.4	4950.2
3	118.1	4909.8
4	180.5	4887.8
5	370.8	4872.3
6	482.3	4873.8
7	508.6	4879.1
8	643.1	4883.1
9	1000.0	4869.0
10	1128.7	4863.9
11	1499.4	4854.1
12	1500.0	4852.0
13	1750.0	4848.0
14	2000.0	4846.0
15	2250.0	4846.0
16	2500.0	4847.0
17	2750.0	4849.0
18	3000.0	4851.0
19	3250.0	4853.0
20	3500.0	4855.0
21	4000.0	4860.0
22	4500.0	4864.0
23	5000.0	4871.0
24	6000.0	4883.0
25	7000.0	4899.0
26	9000.0	4930.0
27	13000.0	4979.0
28	15000.0	5031.0
29	16001.4	5049.0

IF AUG merge

	0.0	5024.0
	100.0	5025.0
3	200.0	5010.0
4	300.0	4952.0
5	500.0	4929.0
6	750.0	4920.0
7	1000.0	4915.0
8	1250.0	4910.0
9	1500.0	4905.0

1	[illegible]	[illegible]
2	85.3	5041.6
3	285.4	5037.2
4	321.5	5019.5
5	449.5	4982.7
6	708.7	4943.2
7	1000.0	4925.6
8	1131.9	4917.7
9	1492.9	4907.2

I A Feb

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 2/15/79 AT 0000

MGS PROVINCE NO. IS 4
TRUE WIND SPEED IS 15 KNOTS
CORRECTED BOTTOM DEPTH IS 2839 FATHOMS
LAYER DEPTH IS 85 FEET
SOUND VELOCITY AT SURFACE IS 5024.0 FT/SEC

I.a Feb.

SOUND VELOCITY PROFILE DATA

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	85.3	5025.4
3	100.0	5025.0
4	200.0	5010.0
5	300.0	4952.0
6	500.0	4929.0
7	750.0	4920.0
8	1000.0	4915.0
9	1250.0	4910.0
10	1500.0	4905.0
11	1750.0	4899.0
12	2000.0	4892.0
13	2250.0	4886.0
14	2500.0	4879.0
15	2750.0	4876.0
16	3000.0	4877.0
17	3250.0	4879.0
18	3500.0	4880.0
19	4000.0	4885.0
20	4500.0	4891.0
21	5000.0	4898.0
22	6000.0	4909.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15000.0	5044.0
27	17032.3	5077.9

I A Feb
CR
ADJust
OK

ATLANTIC WINTER

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 2/15/79 AT 0000

MGS PROVINCE NO. IS 3
TRUE WIND SPEED IS 21 KNOTS
CORRECTED BOTTOM DEPTH IS 2525 FATHOMS
LAYER DEPTH IS 1618 FEET
SOUND VELOCITY AT SURFACE IS 4907.9 FT/SEC

IIe Feb Mergl

SOUND VELOCITY PROFILE DATA

IIe-FEB

NO.	DEPTH	VELOCITY
1	0.0	4907.9
2	26.2	4913.8
3	1000.0	4926.0
4	1220.5	4928.8
5	1617.5	4930.2
6	1750.0	4926.0
7	2000.0	4925.0
8	2250.0	4923.0
9	2500.0	4920.0
10	2750.0	4917.0
11	3000.0	4914.0
12	3250.0	4910.0
13	3500.0	4906.0
14	4000.0	4902.0
15	4500.0	4902.0
16	5000.0	4903.0
17	6000.0	4905.0
18	7000.0	4920.0
19	9000.0	4949.0
20	12000.0	4995.0
21	15151.7	5046.5

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 8/15/79 AT 0000

MGS PROVINCE NO. IS 3
TRUE WIND SPEED IS 21 KNOTS
CORRECTED BOTTOM DEPTH IS 2526 FATHOMS
LAYER DEPTH IS 72 FEET
SOUND VELOCITY AT SURFACE IS 4979.0 FT/SEC

SOUND VELOCITY PROFILE DATA

NO.	DEPTH	VELOCITY
1	0.0	4979.0
2	72.2	4980.2
3	88.6	4978.6
4	95.1	4963.4
5	121.4	4944.7
6	173.9	4933.0
7	400.3	4934.5
8	1000.0	4927.0
9	1358.3	4922.5
10	1500.0	4920.0
11	1750.0	4916.0
12	2000.0	4915.0
13	2250.0	4913.0
14	2500.0	4910.0
15	2750.0	4907.0
16	3000.0	4904.0
17	3250.0	4900.0
18	3500.0	4896.0
19	4000.0	4892.0
20	4500.0	4892.0
21	5000.0	4893.0
22	6000.0	4899.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15154.9	5046.5

I.E AUG ✓

I.E AUG merge

1	0.0	4855.0
2	100.0	4861.0
3	300.0	4880.0
4	550.0	4914.0
5	700.0	4910.0
6	1000.0	4884.0
7	1250.0	4868.0
8	1500.0	4862.0

Layer shift

2	114.8	4927.5
3	157.5	4934.1
4	387.2	4943.4
5	436.4	4951.2
6	482.3	4936.0
7	649.6 148	4939.1
8	1000.0 351	4936.3
9	1053.2 321	4925.8
10	951.5 290	4918.7
11	1138.5	4896.2
12	1296.0	4893.9
13	1335.4	4885.8
14	1565.0	4878.6

E T Logan

Bad.

should be 221

77

This the metric → English conversion error (EDITBT) ENVS.

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 2/15/79 AT 0000

MGS PROVINCE NO. IS 5
TRUE WIND SPEED IS 19 KNOTS
CORRECTED BOTTOM DEPTH IS 1684 FATHOMS
LAYER DEPTH IS 115 FEET
SOUND VELOCITY AT SURFACE IS 4861.0 FT/SEC

SOUND VELOCITY PROFILE DATA

NO.	DEPTH	VELOCITY
1	0.0	4861.0
2	114.8	4866.0
3	150.0	4861.0
4	300.0	4880.0
5	550.0	4914.0
6	700.0	4910.0
7	1000.0	4884.0
8	1250.0	4868.0
9	1500.0	4862.0
10	1750.0	4858.0
11	2000.0	4856.0
12	2250.0	4858.0
13	2500.0	4860.0
14	2750.0	4862.0
15	3000.0	4864.0
16	3250.0	4867.0
17	3500.0	4870.0
18	4000.0	4876.0
19	4500.0	4884.0
20	5000.0	4891.0
21	6000.0	4906.0
22	7000.0	4920.0
23	9000.0	4949.0
24	10106.1	4966.0

11h FEB

Bad Ryan Apt.

11h FEB ADJOIN

4	100.0	5010.0	4	441.4	5212.7
5	200.0	4990.0	5	635.1	5203.0
6	350.0	4977.5	6	689.0	5200.5
7	600.0	4975.8	7	1000.0	5206.2
8	1000.0	4976.3	8	1453.3	5214.4
9	1500.0	4977.0	9	4768.9	5263.4

BBT

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	5056.5	1	0.0	5055.9
2	30.0	5057.0	2	59.1	5056.1
3	50.0	5034.0	3	72.2	5023.8
4	100.0	5010.0	4	134.5	4976.2
5	200.0	4990.0	5	193.6	4960.8
6	350.0	4977.5	6	210.0	4957.9
7	600.0	4975.8	7	442.9	4963.3
8	1000.0	4976.3	8	1000.0	4967.3
9	1500.0	4977.0	9	1453.5	4970.4

IIa August

NEW DATA TO BE STORED:

DATE AND TIME OF ENVIRONMENTAL UPDATE 8/15/79 AT 0000

MGS PROVINCE NO. IS 5
TRUE WIND SPEED IS 7 KNOTS
CORRECTED BOTTOM DEPTH IS 1602 FATHOMS
LAYER DEPTH IS 59 FEET
SOUND VELOCITY AT SURFACE IS 5056.5 FT/SEC

SOUND VELOCITY PROFILE DATA

IIa AUG

NO.	DEPTH	VELOCITY
1	0.0	5056.5 ✓
2	59.1 ✓	5057.5 ✓
3	100.0	5010.0 -
4	200.0	4990.0 ✓
5	350.0	4977.5
6	600.0	4975.8
7	1000.0	4976.3
8	1500.0	4977.0
9	3000.0	4997.0
10	4200.0	5016.0
11	7200.0	5066.0
12	9614.7	5107.0

IIa aug, ADJ OK

APPENDIX A

Section A6

Sound Speed Profiles (reference 2)

Historical ICAPS
XBT's merged with historical ICAPS
XBT's merged with historical SIMAS

HISTORICAL ICAPS

25 JF1C 1

0	00	4942	89	32	81	4943	41	65	62	4943	74	98	42	4943	93
164	04	4944	69	246	00	4944	23	328	08	4942	39	410	10	4939	25
492	12	4938	13	656	16	4929	30	820	20	4922	74	984	24	4915	66
1312	32	4900	20	1640	40	4880	91	1968	48	4864	96	2624	64	4854	43
3280	80	4855	91	3938	96	4862	05	4921	20	4872	68	6561	60	4891	28
8202	00	4915	29	9842	40	4942	30	13123	20	4998	89	16404	00	5058	07
17978	79	5086	82												

24 JF1F 1

0	00	4881	01	32	81	4881	40	65	62	4881	70	98	42	4882	13
164	04	4883	44	246	00	4884	03	328	08	4884	42	410	10	4883	70
492	12	4883	18	656	16	4881	60	820	20	4876	88	984	24	4870	32
1312	32	4854	89	1640	40	4846	10	1968	48	4843	77	2624	64	4847	51
3280	80	4852	37	3938	96	4858	80	4921	20	4869	72	6561	60	4891	54
8202	00	4916	31	9842	40	4942	46	13123	20	4998	76	15583	80	5041	87

24 JF1F 2

0	00	4826	05	32	81	4826	12	65	62	4826	55	98	42	4826	94
164	04	4827	86	246	00	4828	32	328	08	4827	57	410	10	4824	71
492	12	4824	35	656	16	4823	76	820	20	4822	64	984	24	4823	10
1312	32	4826	68	1640	40	4830	88	1968	48	4834	72	2624	64	4841	51
3280	80	4848	43	3938	96	4855	81	4921	20	4868	12	6561	60	4891	05
8202	00	4916	15	9842	40	4942	89	13123	20	4998	89	15583	80	5041	74

24 JA1F 1

0	00	4948	76	32	81	4946	69	65	62	4938	55	98	42	4924	15
164	04	4089	64	246	00	4874	07	328	08	4871	79	410	10	4871	69
492	12	4874	08	650	16	4874	97	820	20	4869	10	984	24	4861	85
1312	32	4849	71	1640	40	4843	87	1968	48	4843	48	2624	64	4846	63
3200	80	4851	61	3930	96	4857	95	4921	20	4869	30	6561	60	4891	38
8202	00	4916	15	9842	40	4942	46	13123	20	4998	89	15583	80	5041	93

24 JA1F 2

0	00	4912	11	32	81	4909	85	65	62	4905	09	98	42	4888	88
164	04	4852	43	246	00	4836	20	328	08	4830	95	410	10	4829	70
492	12	4830	48	656	16	4828	75	820	20	4826	52	984	24	4826	02
1312	32	4828	45	1640	40	4832	22	1968	48	4835	83	2624	64	4841	87
3280	80	4848	56	3938	96	4856	98	4921	20	4867	92	6561	60	4890	92
8202	00	4916	15	9842	40	4942	59	13123	20	4999	09	15583	80	5042	13

25 JF2A(1)

0	00	5037	34	32	81	5037	86	65	62	5038	46	98	42	5038	98
164	04	5039	77	246	00	5039	78	328	08	5034	42	410	10	5019	20
492	12	5003	61	656	16	4981	17	820	20	4965	29	984	24	4952	14
1312	32	4933	18	1640	40	4916	87	1968	48	4902	53	2624	64	4886	75
3200	80	4880	62	3938	96	4892	20	4921	20	4899	09	6561	60	4915	29
8202	00	4936	62	9842	40	4959	81	13123	20	5013	09	16404	00	5070	02
19028	64	5116	24												

25 JF2A(2)

0	00	5041	77	32	81	5042	20	65	62	5042	65	98	42	5043	82
164	04	5043	87	246	00	5040	55	328	08	5015	69	410	10	4987	47
492	12	4984	44	656	16	4948	33	820	20	4923	20	984	24	4913	72
1312	32	4902	89	1640	40	4897	15	1968	48	4890	95	2624	64	4883	30
3280	80	4884	06	3936	96	4891	18	4921	20	4899	64	6561	60	4915	29
8202	00	4936	46	9842	40	4961	68	13123	20	5012	54	16404	00	5086	50
19028	64	5110	47												

24 JF2E 1

0	00	4920	51	32	81	4920	68	65	62	4921	10	98	42	4921	43
164	04	4922	05	246	08	4923	10	328	08	4924	12	410	10	4924	91
492	12	4925	53	656	16	4926	71	820	20	4927	23	984	24	4927	63
1312	32	4929	14	1640	40	4930	81	1968	48	4931	43	2624	64	4931	50
3280	80	4932	59	3936	96	4927	37	4921	20	4911	75	6561	60	4918	02
8202	00	4938	55	9842	40	4960	03	13123	20	5014	64	15157	30	5046	53

24 JA2E 1

0	00	4973	04	32	81	4970	31	65	62	4987	43	98	42	4960	80
164	04	4944	07	246	08	4931	63	328	08	4926	19	410	10	4924	58
492	12	4923	63	656	16	4923	30	820	20	4924	09	984	24	4924	88
1312	32	4928	58	1640	40	4928	12	1968	48	4928	88	2624	64	4931	21
3280	80	4930	98	3936	96	4925	82	4921	20	4909	16	6561	60	4916	77
8202	00	4938	46	9842	40	4961	91	13123	20	5014	98	15813	46	5048	39

22 JF2H 1

0	00	4791	51	32	81	4793	12	65	62	4795	15	98	42	4798	27
164	04	4807	00	246	08	4822	61	328	08	4839	74	410	10	4852	53
492	12	4859	75	656	16	4865	43	820	20	4863	49	984	24	4860	41
1312	32	4851	02	1640	40	4850	11	1968	48	4852	83	2624	64	4859	36
3280	80	4867	10	3936	96	4875	73	4921	20	4889	74	6561	60	4913	43
8202	00	4936	91	9842	40	4958	21								

22 JF2H 2

0	00	4889	31	32	81	4890	06	65	62	4894	20	98	42	4899	05
164	04	4908	08	246	08	4918	28	328	08	4924	38	410	10	4925	20
492	12	4925	82	656	16	4916	67	820	20	4904	34	984	24	4892	10
1312	32	4872	41	1640	40	4862	21	1968	48	4858	90	2624	64	4861	91
3280	80	4868	94	3936	96	4877	27	4921	20	4890	69	6561	60	4913	55
8202	00	4935	90	9842	40	4960	04								

22 JF2H 3

0	00	5003	78	32	81	5004	50	65	62	5005	32	98	42	5005	98
164	04	5006	89	246	08	5006	57	328	08	5005	81	410	10	5004	79
492	12	5003	97	656	16	4998	66	820	20	4984	95	984	24	4974	88
1312	32	4983	13	1640	40	4955	78	1968	48	4940	13	2624	64	4910	85
3280	80	4890	43	3936	96	4885	24	4921	20	4894	82	6561	60	4917	46
8202	00	4941	08	9842	40	4963	42								

22 JF2H 4

0	00	5000	56	32	81	5001	18	65	62	5001	74	98	42	5002	00
164	04	5002	23	246	08	5002	73	328	08	5002	82	410	10	5002	89
492	12	5002	86	656	16	5000	70	820	20	4999	35	984	24	4999	05
1312	32	4997	84	1640	40	4993	41	1968	48	4982	18	2624	64	4944	26
3280	80	4907	88	3936	96	4894	27	4921	20	4897	68	6561	60	4918	41
8202	00	4941	54	9842	40	4964	05								

22 JA3A 1

0	00	5049	41	32	81	5045	48	65	62	5033	04	98	42	5013	13
164	04	4986	88	246	08	4974	68	328	08	4970	38	410	10	4969	49
492	12	4969	36	656	16	4970	28	820	20	4971	23	984	24	4972	38
1312	32	4975	07	1640	40	4978	42	1968	48	4982	09	2624	64	4991	11
3280	80	5001	05	3936	96	5011	42	4921	20	5027	76	6561	60	5055	25
8202	00	5082	84	9842	40	5110	96								

XBT's MERGED WITH HISTORICAL ICAPS

33 IF1C 1

0	00	4964	93	45	03	4908	21	321	52	4970	74	489	15	4972	12
492	12	4971	49	511	80	4963	82	518	37	4981	91	692	25	4953	22
830	04	4947	87	902	22	4944	66	944	87	4940	95	1131	88	4932	68
1150	12	4931	00	1204	05	4928	12	1315	60	4924	05	1348	41	4921	00
1308	09	4921	36	1397	62	4918	31	1433	71	4916	51	1450	11	4914	31
1473	08	4914	77	1561	66	4910	14	1968	48	4886	59	2624	64	4870	21
3280	80	4867	13	3936	96	4869	95	4921	20	4877	34	6561	60	4893	21
8202	00	4916	08	9842	40	4942	62	13123	20	4998	95	16404	00	5058	04
17978	79	5086	71												

32 IF1F 1

0	00	4909	88	305	11	4916	15	357	61	4916	18	383	85	4914	54
413	38	4903	75	429	78	4902	99	439	63	4900	89	508	52	4897	84
554	40	4897	58	580	70	4895	74	636	48	4894	46	662	72	4892	56
721	78	4891	11	787	71	4887	01	997	36	4880	85	1269	67	4868	71
1304	34	4860	38	1433	71	4859	72	1459	96	4860	14	1496	04	4856	80
1630	50	4854	14	1968	48	4850	37	2624	64	4852	20	3280	80	4855	65
3936	96	4861	13	4921	20	4871	10	6561	60	4892	10	8202	00	4916	54
9842	40	4942	56	13123	20	4998	76	15583	80	5043	11	16404	00	5058	04

38 IA1F 1

0	00	4935	93	65	82	4938	23	82	02	4936	46	98	42	4936	82
118	11	4898	17	137	79	4887	21	154	20	4885	21	160	76	4881	77
190	85	4875	20	226	38	4873	37	239	50	4869	92	269	03	4868	02
282	15	4865	75	298	55	4866	08	337	92	4861	85	433	07	4860	21
449	47	4860	50	452	75	4861	98	482	28	4862	73	590	54	4871	36
643	04	4872	45	803	80	4866	28	859	57	4862	05	954	71	4858	41
1128	60	4853	35	1348	41	4843	61	1407	46	4843	28	1499	33	4843	51
1968	48	4841	02	2624	64	4844	89	3280	80	4850	37	3936	96	4857	09
4921	20	4868	80	6561	60	4891	18	8202	00	4916	08	9842	40	4942	43
13123	20	4998	89	15583	80	5043	34								

27 IF2A 1

0	00	5043	57	85	30	5044	89	88	58	5044	23	127	95	5044	89
250	18	5042	59	311	68	5031	11	344	48	5018	97	390	42	4999	94
485	50	4982	88	574	14	4966	15	659	44	4954	66	734	90	4944	82
820	20	4938	91	1082	68	4924	48	1295	92	4914	84	1492	76	4906	77
1968	48	4897	25	2624	64	4887	73	3280	80	4887	41	3936	96	4892	66
4921	20	4901	19	6561	60	4915	95	8202	00	4936	85	9842	40	4961	88
13123	20	5012	73	16404	00	5006	87	19028	84	5110	83				

20 IF2E 1

0	00	4903	22	8	58	4906	24	26	25	4909	13	879	25	4921	89
1008	20	4921	27	1220	48	4923	86	1309	04	4922	84	1394	34	4924	32
1551	82	4923	14	1817	43	4925	56	1968	48	4927	11	2624	64	4928	45
3280	80	4930	42	3936	96	4925	79	(4921	20)	4910	80	6561	60	4917	83
8202	00	4938	39	9842	40	4960	88	13123	20	5014	84	15157	30	5050	82

33 IA2E 1

0	00	4987	27	72	18	4988	39	88	58	4986	82	95	14	4970	74
104	99	4968	97	108	27	4964	08	121	39	4953	18	124	87	4949	09
131	23	4947	00	164	04	4944	46	173	88	4941	48	218	53	4937	87
400	20	4933	21	541	33	4930	91	629	91	4932	42	679	13	4932	09
702	09	4929	11	787	23	4928	22	935	03	4930	52	964	56	4929	83
1090	07	4932	09	1358	25	4928	25	1640	40	4929	34	1968	48	4929	89
2024	04	4931	93	3280	80	4931	50	3936	96	4926	22	4921	20	4909	39
6561	00	4910	87	8202	00	4938	49	9842	40	4981	91	13123	20	5014	96
15157	30	5050	89												

38 IF2H 1

0	00	4920	28	52	49	4923	00	98	42	4925	00	114	83	4925	33
127	95	4929	20	157	48	4933	37	229	66	4938	89	278	87	4939	54
301	83	4941	15	341	20	4941	84	400	26	4948	73	419	94	4954	86
472	44	4943	21	482	28	4937	54	495	40	4939	02	581	02	4937	73
583	98	4940	55	610	23	4939	84	649	60	4940	52	725	06	4931	06
807	08	4925	99	862	85	4922	21	951	43	4918	84	990	00	4911	19
1131	88	4898	92	1289	35	4893	90	1325	44	4889	47	1391	06	4886	79
1509	17	4882	32	1656	80	4878	29	1968	48	4872	84	2624	64	4871	59
3280	80	4875	73	3936	96	4881	99	4921	20	4893	45	6561	60	4914	67
8202	00	4936	38	9842	40	4960	24								

31 IA3A 1

0	00	5057	98	59	05	5058	07	72	18	5026	12	95	14	5002	00
114	83	4988	30	134	51	4978	09	150	92	497:	43	160	76	4970	57
187	32	4967	89	193	57	4963	16	223	09	4961	72	252	62	4961	23
275	59	4962	80	442	01	4967	03	557	74	4967	00	705	37	4969	53
830	04	4968	51	902	22	4969	89	938	31	4969	23	1213	90	4970	45
1423	87	4973	95	1453	39	4973	36	1640	40	4976	18	1968	48	4980	55
2024	64	4990	38	3280	80	5000	66	3936	98	5011	23	4921	20	5027	73
6561	60	5055	25	8202	00	5082	84	9842	40	5110	96				

XBT's MERGED WITH HISTORICAL SIMAS

23 SF1C 1

0 00	4955 50	498 70	4963 70	500 00	4944 00	1000 00	4928 00
1250 00	4905 00	1500 00	4890 00	1750 00	4878 00	2000 00	4866 00
2250 00	4859 00	2500 00	4855 00	2750 00	4854 00	3000 00	4858 00
3250 00	4857 00	3500 00	4859 00	4000 00	4864 00	4500 00	4869 00
5000 00	4874 00	6000 00	4885 00	7000 00	4899 00	9000 00	4930 00
12000 00	4979 00	15000 00	5031 00	18557 40	5095 00		

23 SF1F 1

0 00	4878 00	357 60	4882 10	750 00	4880 00	1000 00	4870 00
1250 00	4859 00	1500 00	4852 00	1750 00	4848 00	2000 00	4846 00
2250 00	4848 00	2500 00	4847 00	2750 00	4849 00	3000 00	4851 00
3250 00	4853 00	3500 00	4855 00	4000 00	4860 00	4500 00	4864 00
5000 00	4871 00	6000 00	4883 00	7000 00	4899 00	9000 00	4930 00
12000 00	4979 00	15000 00	5031 00	15999 00	5049 00		

20 SA1F 1

0 00	4949 00	98 40	4950 20	118 10	4909 00	180 50	4887 00
370 00	4872 30	482 30	4873 80	508 00	4879 10	843 10	4883 10
1000 00	4889 00	1128 70	4883 90	1499 40	4854 10	1500 00	4852 00
1750 00	4848 00	2000 00	4846 00	2250 00	4846 00	2500 00	4847 00
2750 00	4849 00	3000 00	4851 00	3250 00	4853 00	3500 00	4855 00
4000 00	4860 00	4500 00	4864 00	5000 00	4871 00	6000 00	4883 00
7000 00	4899 00	9000 00	4930 00	12000 00	4979 00	15000 00	5031 00
16001 40	5049 00						

27 SF2A 1

0 00	5021 00	85 30	5025 40	100 00	5025 00	200 00	5010 00
300 00	4952 00	500 00	4929 00	750 00	4928 00	1000 00	4915 00
1250 00	4910 00	1500 00	4905 00	1750 00	4899 00	2000 00	4892 00
2250 00	4880 00	2500 00	4879 00	2750 00	4876 00	3000 00	4877 00
3250 00	4879 00	3500 00	4880 00	4000 00	4885 00	4500 00	4891 00
5000 00	4898 00	6000 00	4909 00	7000 00	4920 00	9000 00	4949 00
12000 00	4995 00	15000 00	5044 00	17032 30	5077 90		

21 SF2E 1

0 00	4907 00	26 20	4913 80	1000 00	4928 00	1220 50	4928 80
1617 50	4930 20	1750 00	4926 00	2000 00	4925 00	2250 00	4923 00
2500 00	4920 00	2750 00	4917 00	3000 00	4914 00	3250 00	4910 00
3500 00	4900 00	4000 00	4902 00	4500 00	4902 00	5000 00	4903 00
6000 00	4909 00	7000 00	4920 00	9000 00	4949 00	12000 00	4995 00
15151 70	5048 50						

26 SA2E 1

0 00	4979 00	72 20	4980 20	88 80	4978 80	95 10	4962 40
121 40	4944 70	173 90	4933 00	400 30	4934 50	1000 00	4927 00
1358 30	4922 50	1500 00	4928 00	1750 00	4926 00	2000 00	4925 00
2250 00	4923 00	-2500 00	4920 00	2750 00	4917 00	3000 00	4914 00
3250 00	4910 00	3500 00	4906 00	4000 00	4902 00	4500 00	4902 00
5000 00	4903 00	6000 00	4909 00	7000 00	4920 00	9000 00	4949 00
12000 00	4995 00	15154 90	5046 50				

24 SF2H 1

0 00	4801 00	114 80	4866 00	150 00	4861 00	300 00	4880 00
550 00	4914 00	700 00	4910 00	1000 00	4884 00	1250 00	4868 00
1500 00	4862 00	1750 00	4858 00	2000 00	4856 00	2250 00	4858 00
2500 00	4860 00	2750 00	4862 00	3000 00	4864 00	3250 00	4867 00
3500 00	4870 00	4000 00	4876 00	4500 00	4884 00	5000 00	4891 00
6000 00	4906 00	7000 00	4920 00	9000 00	4949 00	10106 10	4966 00

12 SA3A 1

0 00	5056 50	59 10	5057 50	100 00	5010 00	200 00	4990 00
350 00	4977 50	600 00	4975 80	1000 00	4976 30	1500 00	4977 00
3000 00	4997 00	4200 00	5016 00	7200 00	5066 00	9614 70	5107 00

APPENDIX A

Section A7

Historical SSP Plots (reference 2)

Solid lines identify ICAPS profiles
Dotted lines identify SIMAS profiles

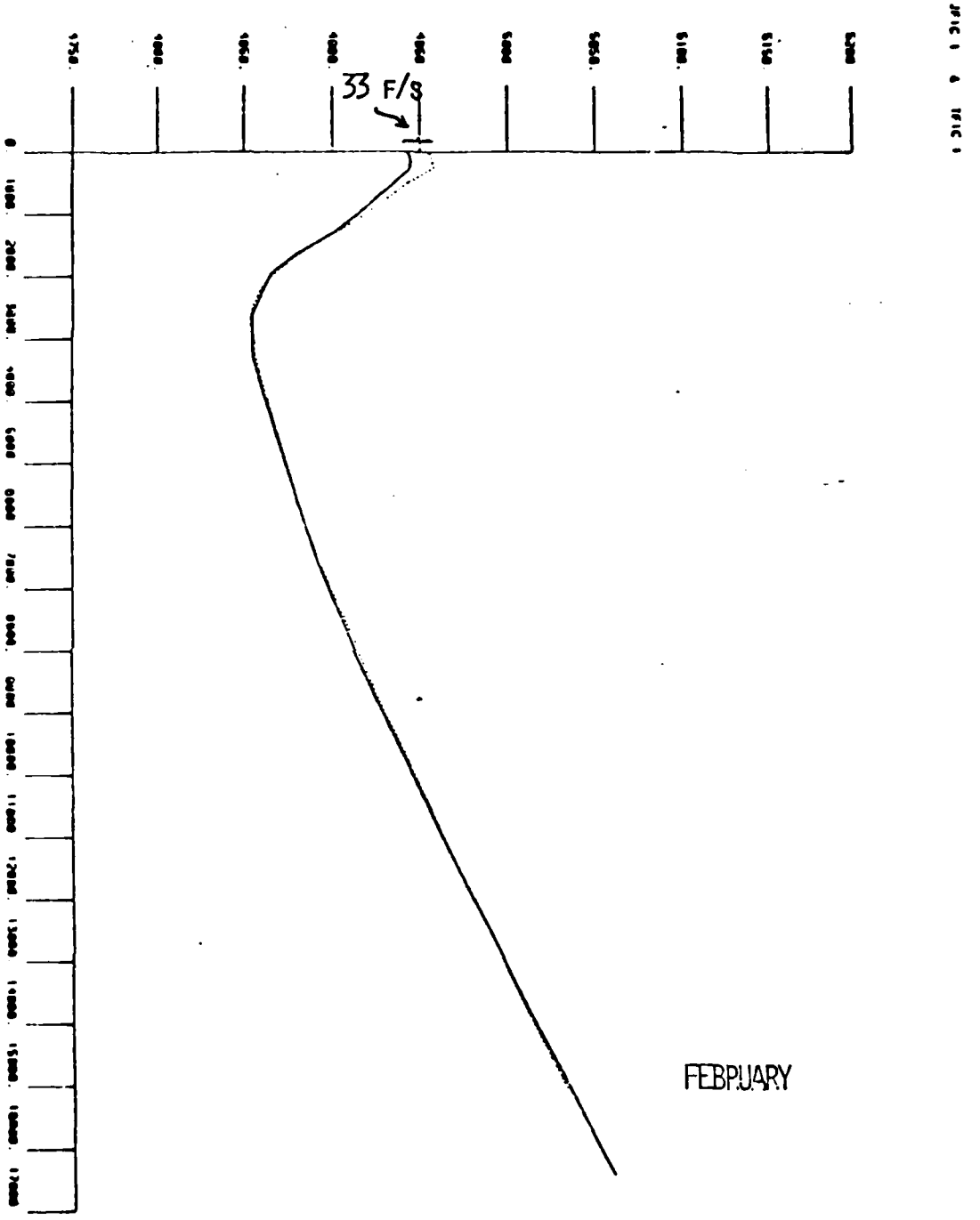


FIGURE (6) (A7-2)

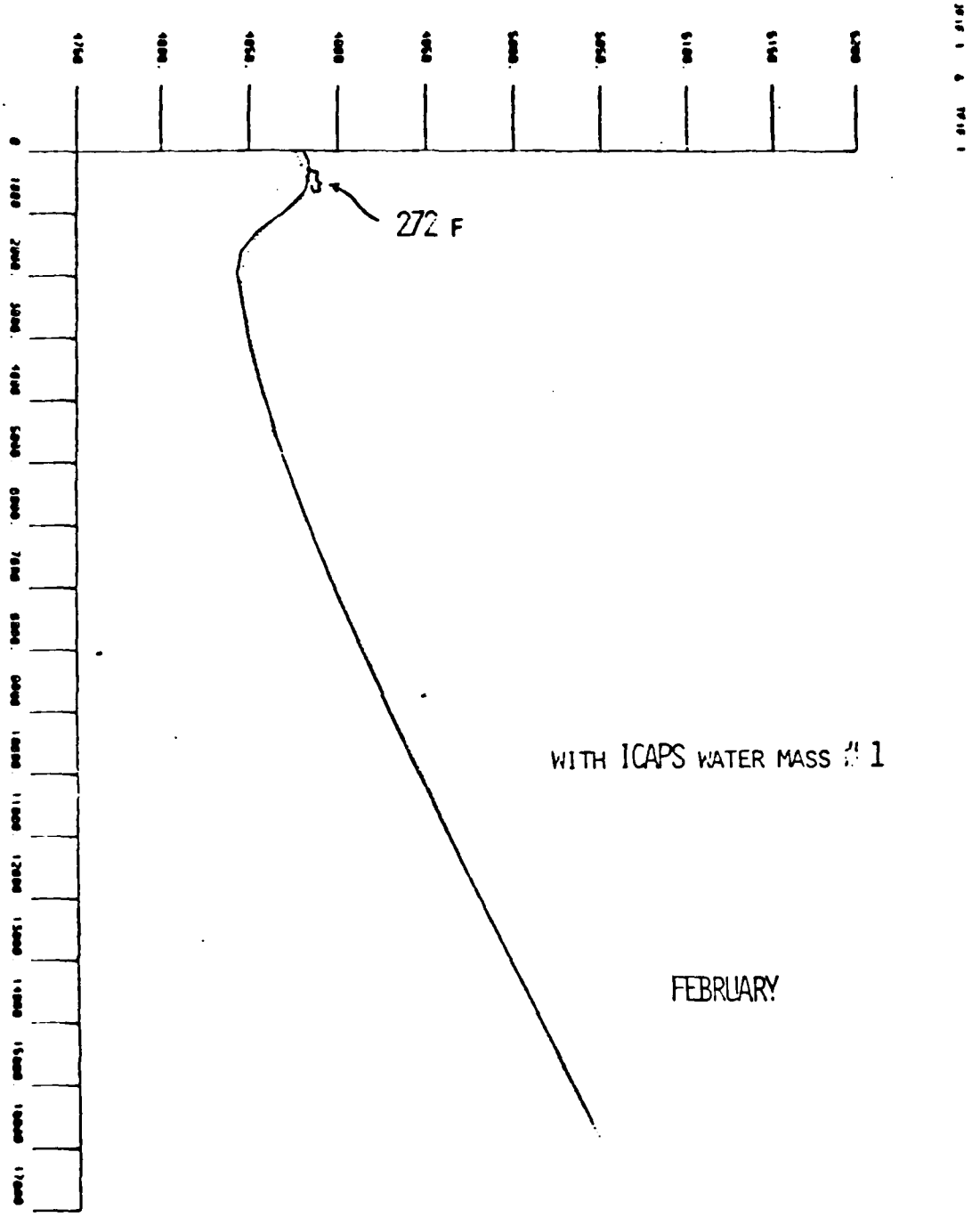


FIGURE (14)
(A7-3)

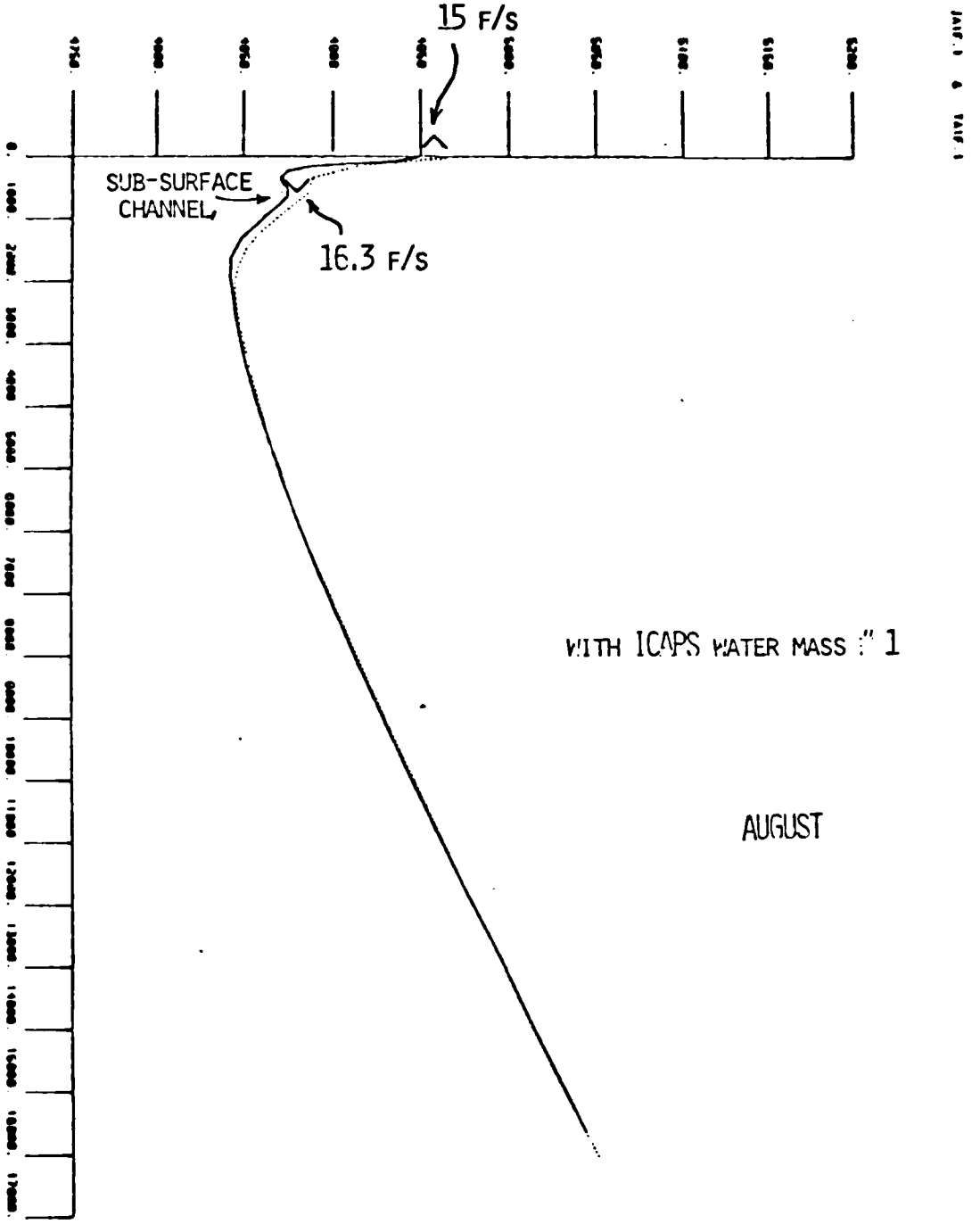


FIGURE (49)
(A7-4)

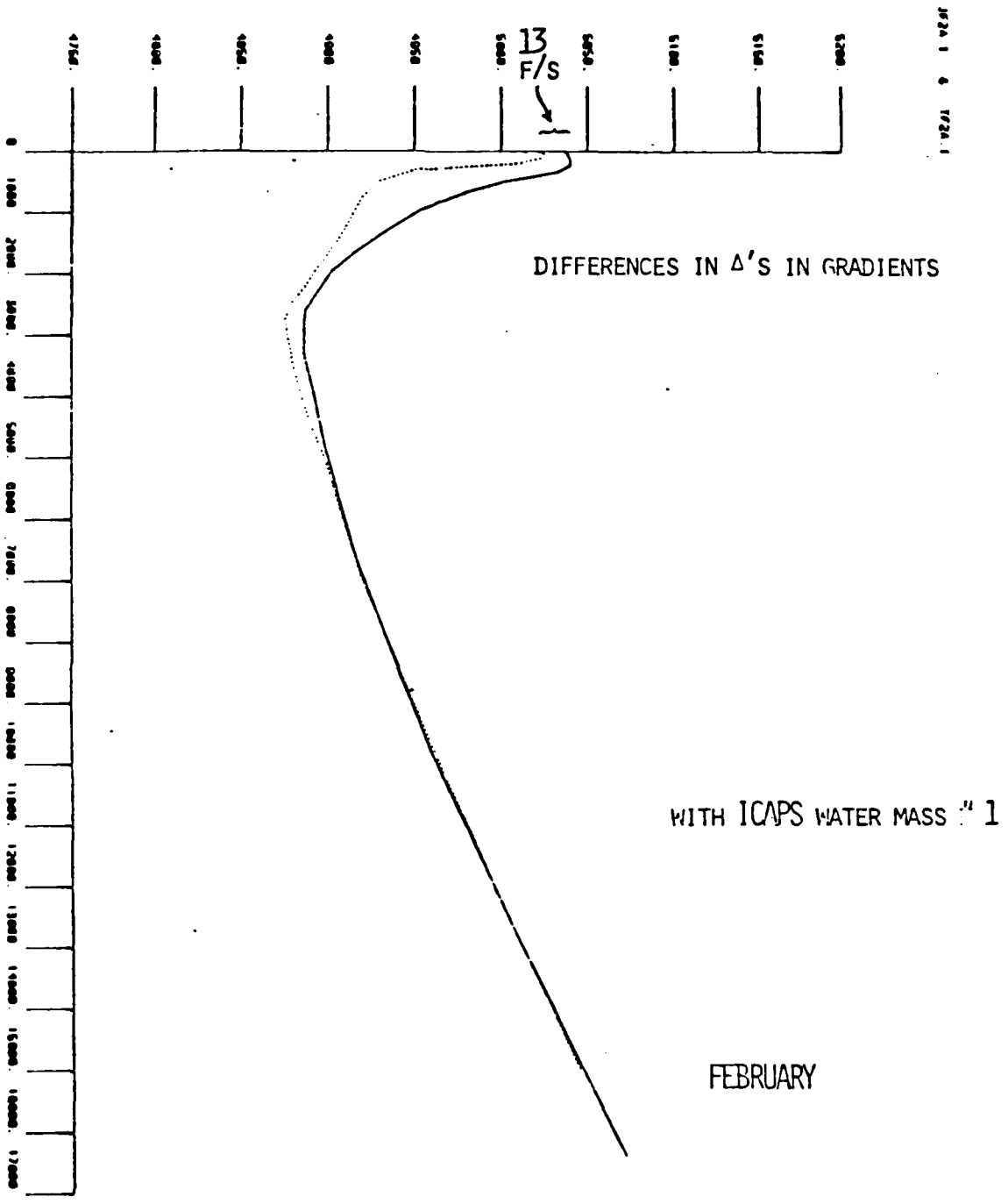


FIGURE (16)
(A7-5)

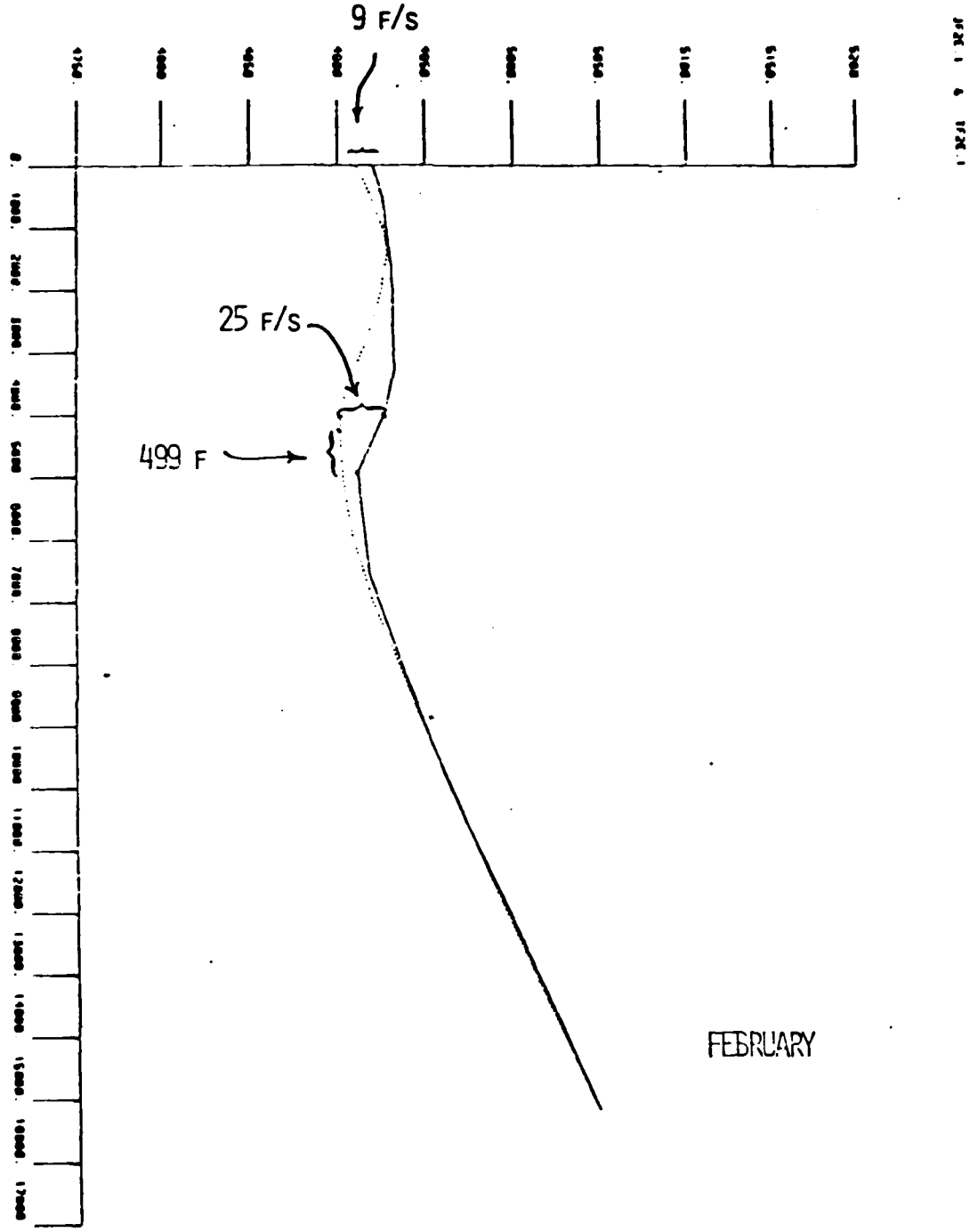


FIGURE (23)
31 (A7-6)

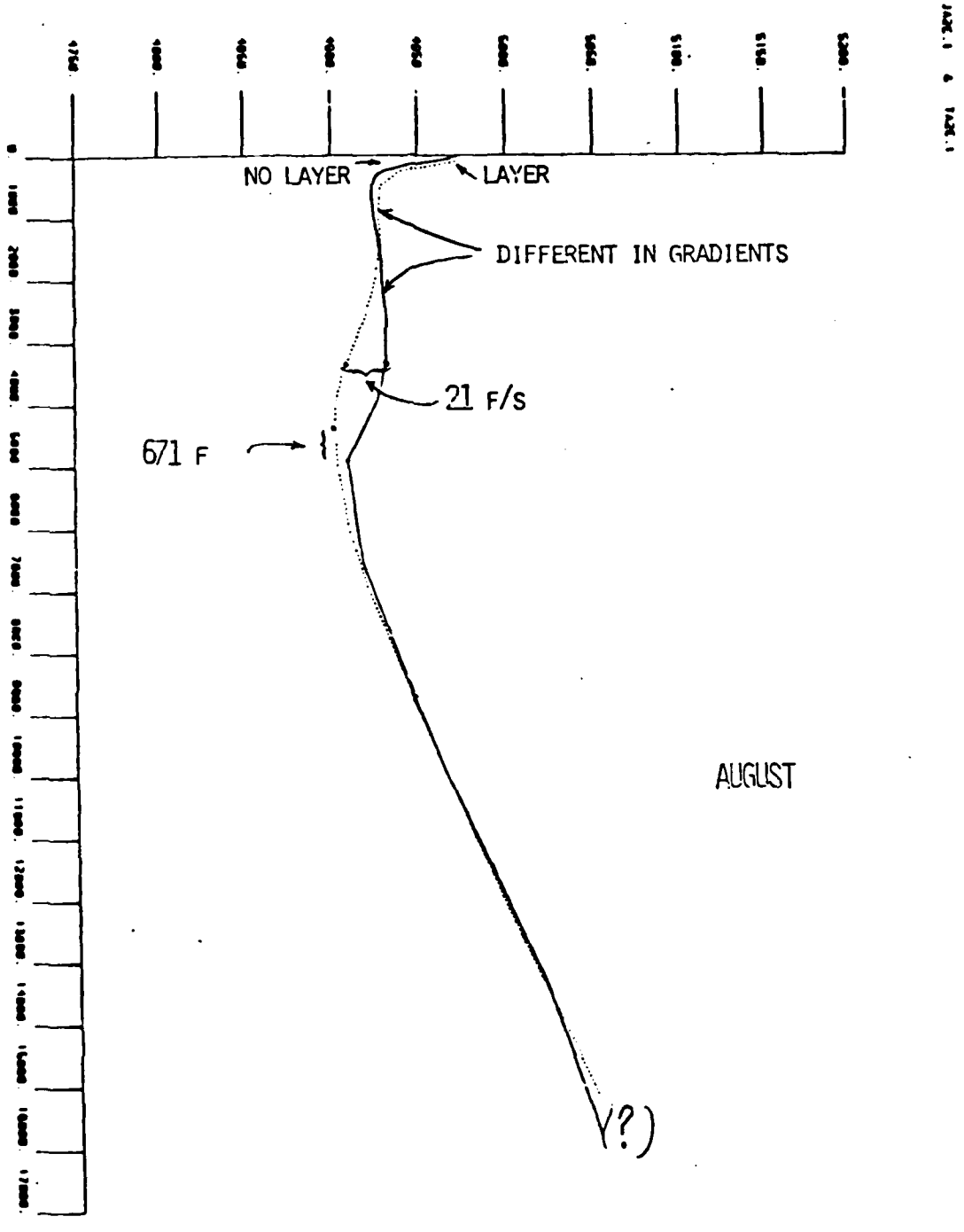
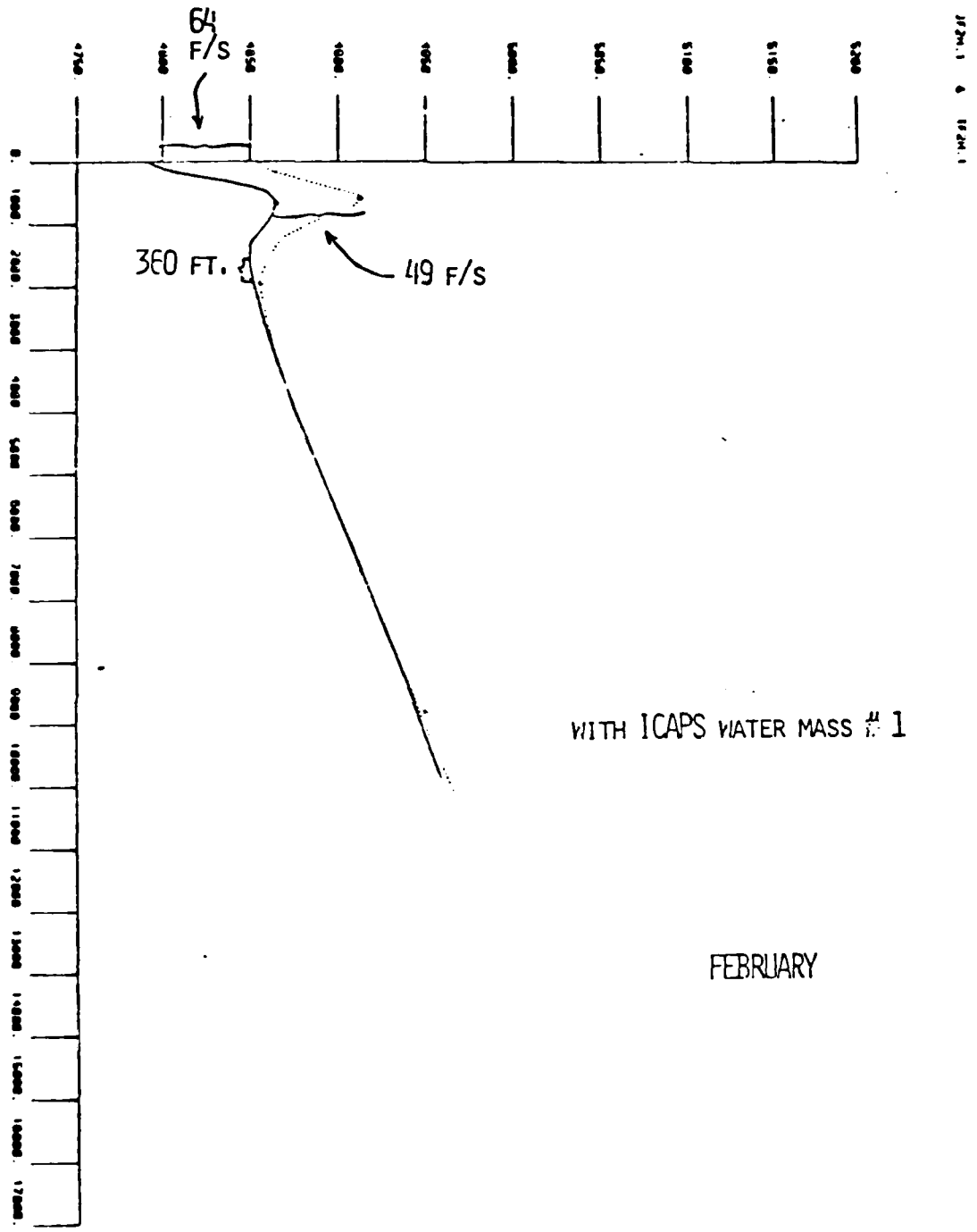


FIGURE (58)
(A7-7)



WITH ICAPS WATER MASS # 1

FEBRUARY

FIGURE (28)
(A7-8)

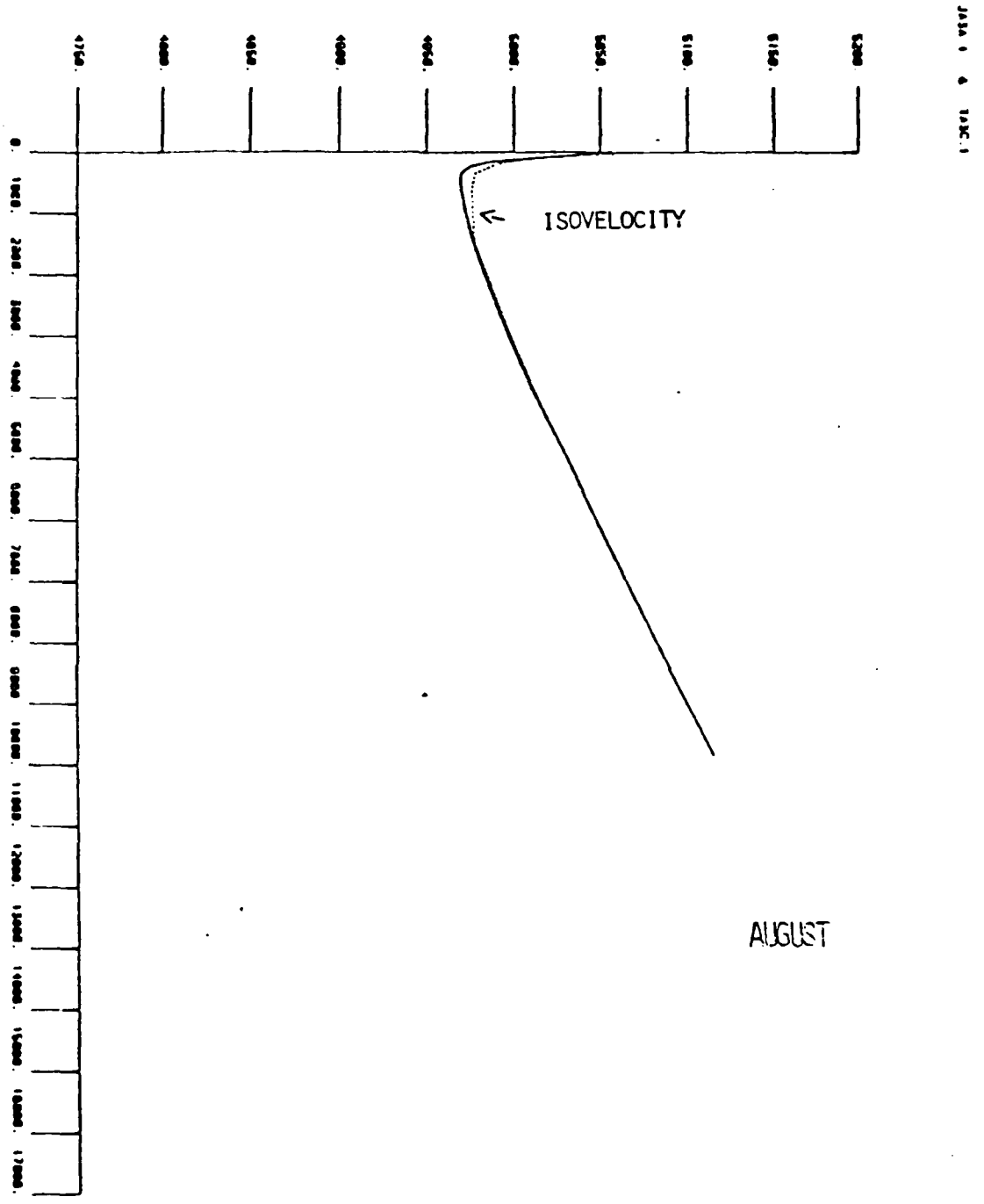


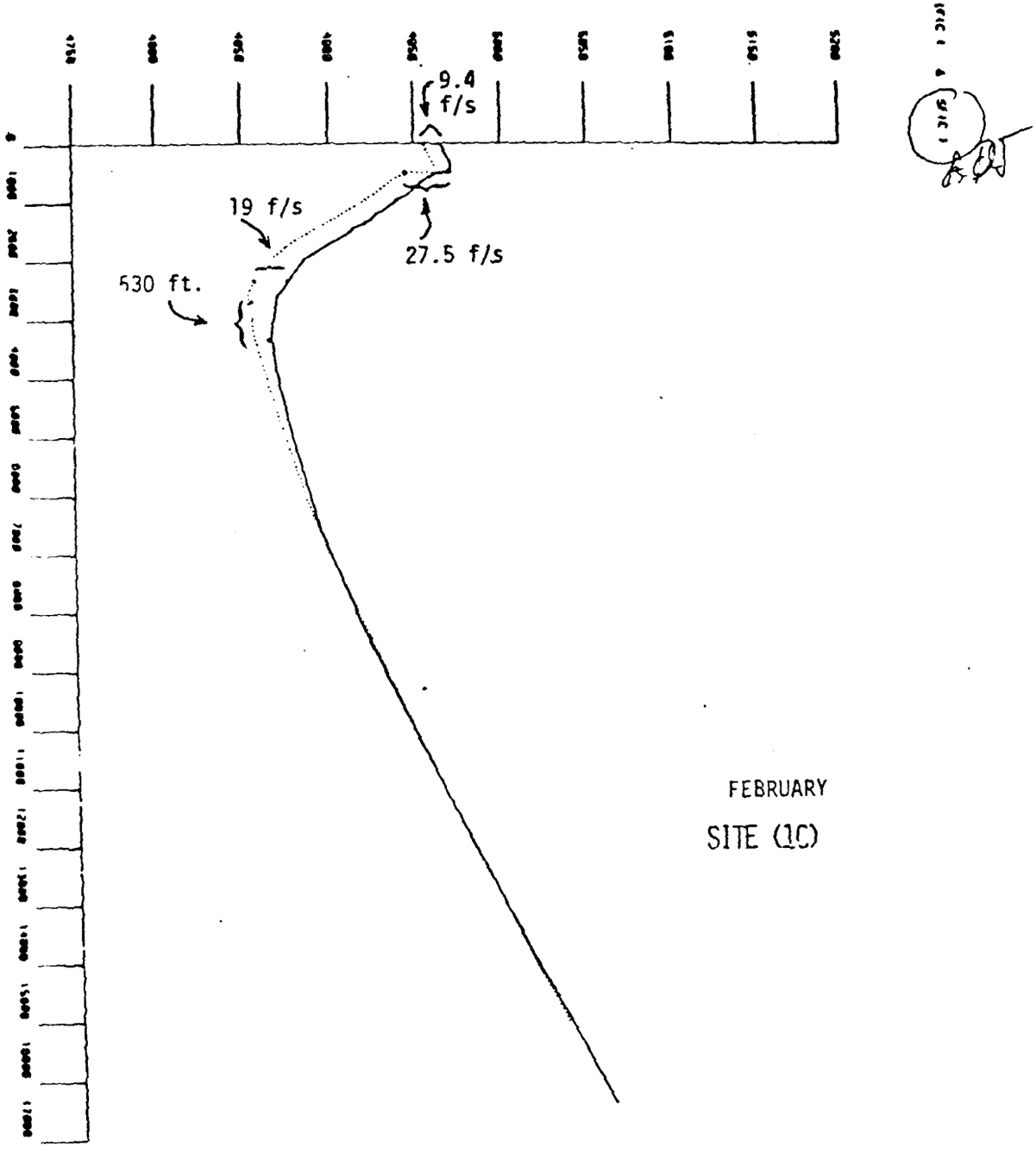
FIGURE (67)
(A7-9)

APPENDIX A

Section A8

Generated SSP Plots (reference 2)

Solid lines identify ICAPS
Dotted lines identify SIMAS



FEBRUARY

SITE (1C)

FIGURE 97
(A8-2)

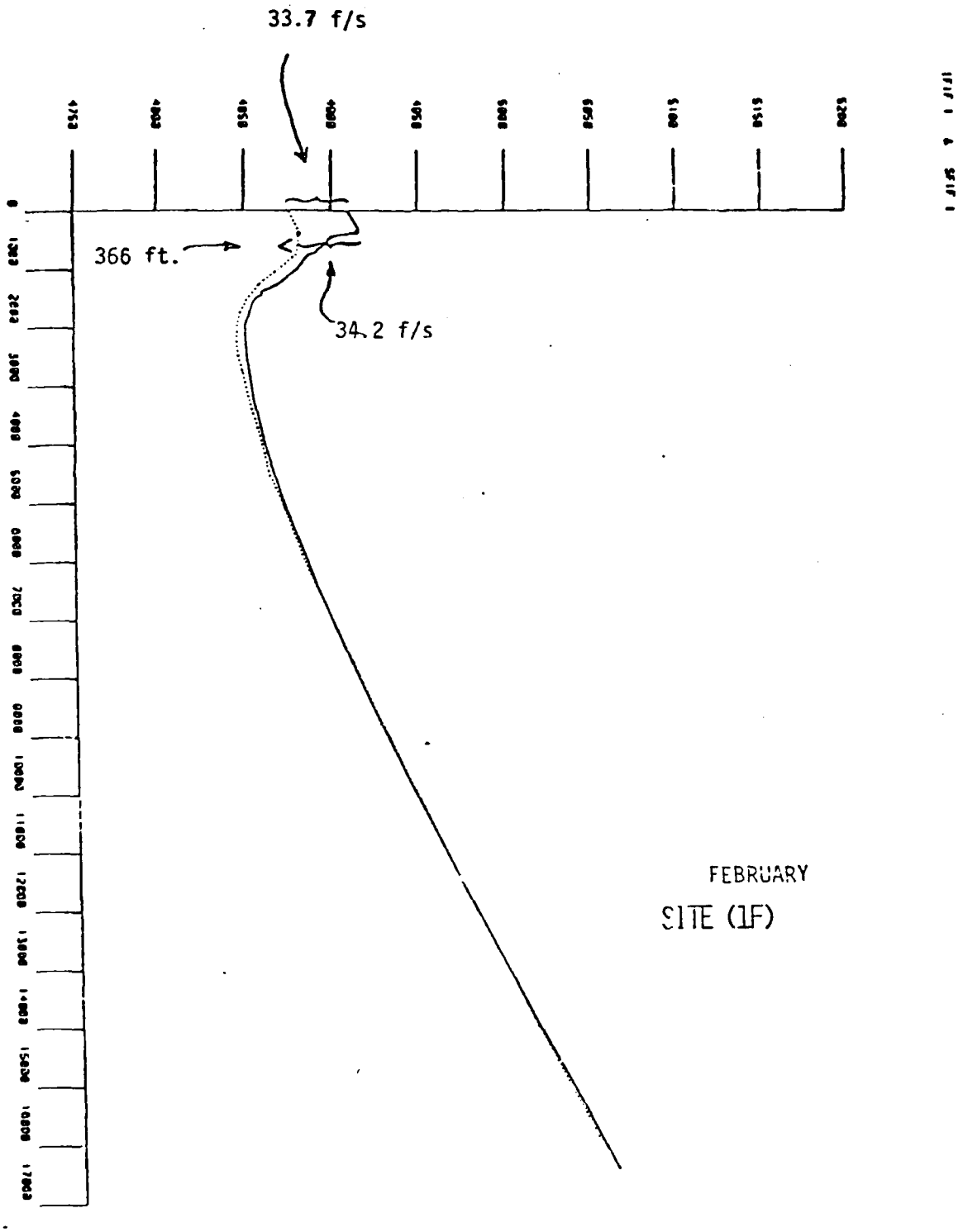


FIGURE 99
(A8-3)

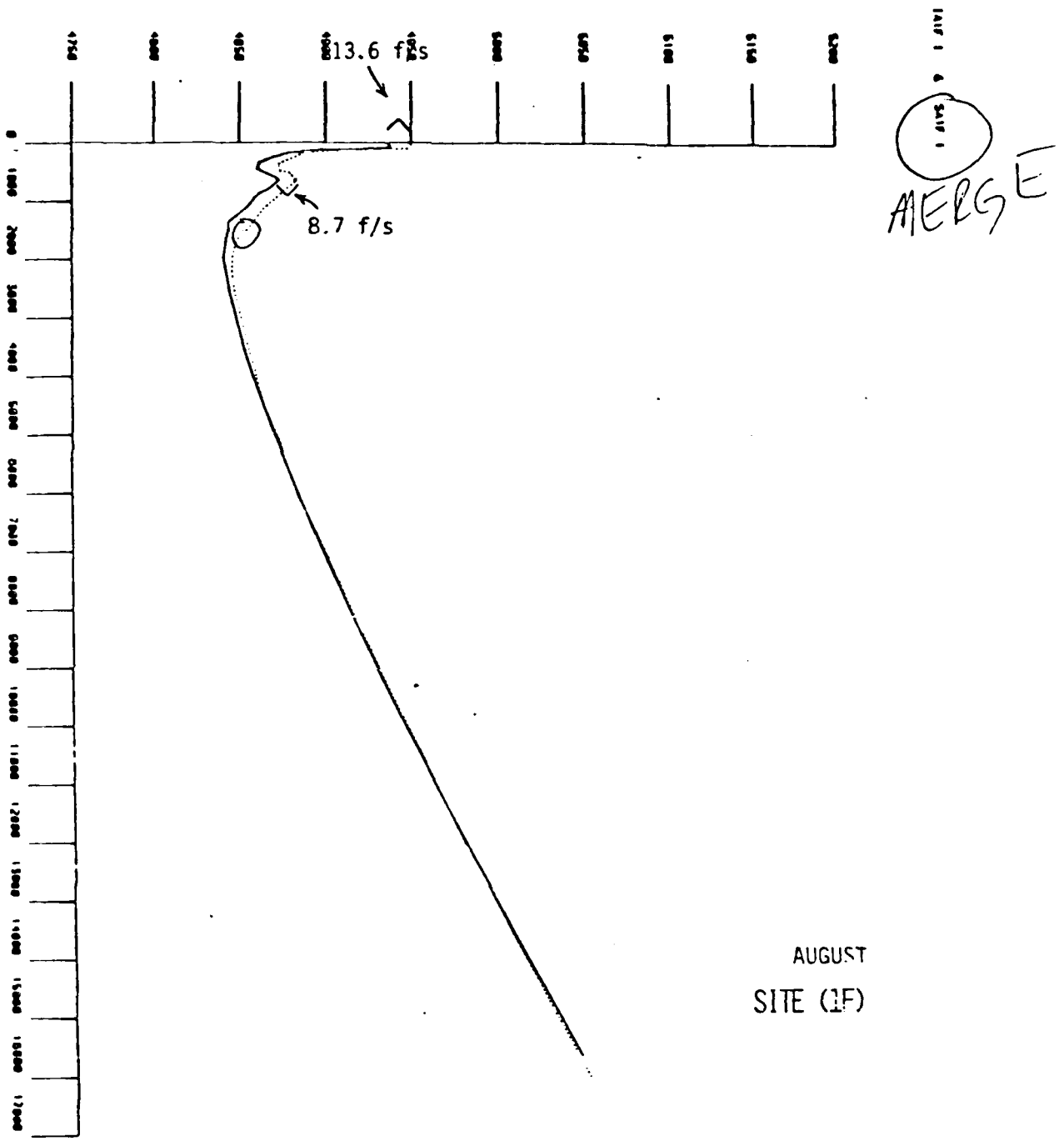


FIGURE 111
(A8-4)

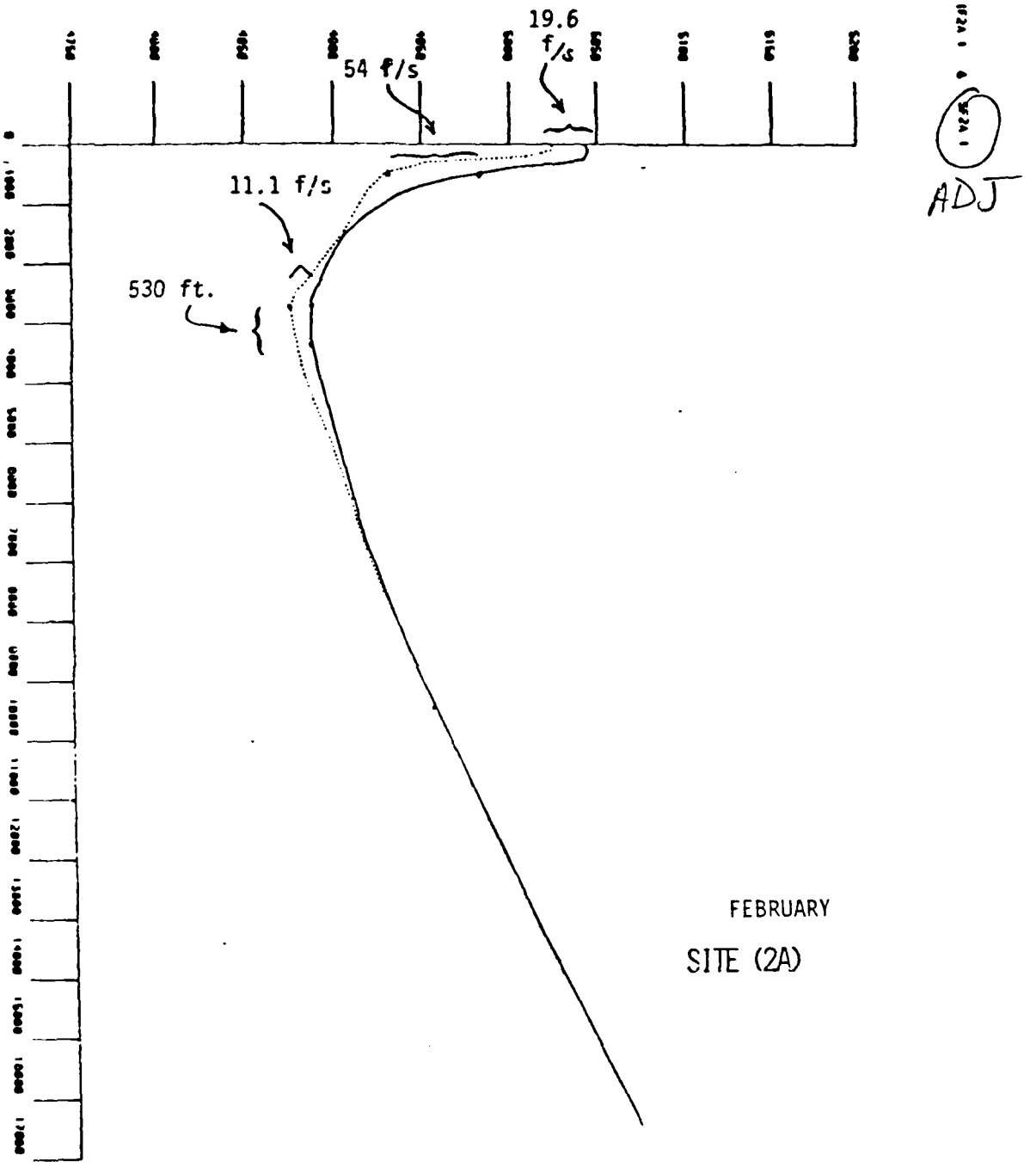


FIGURE 100
(A8-5)

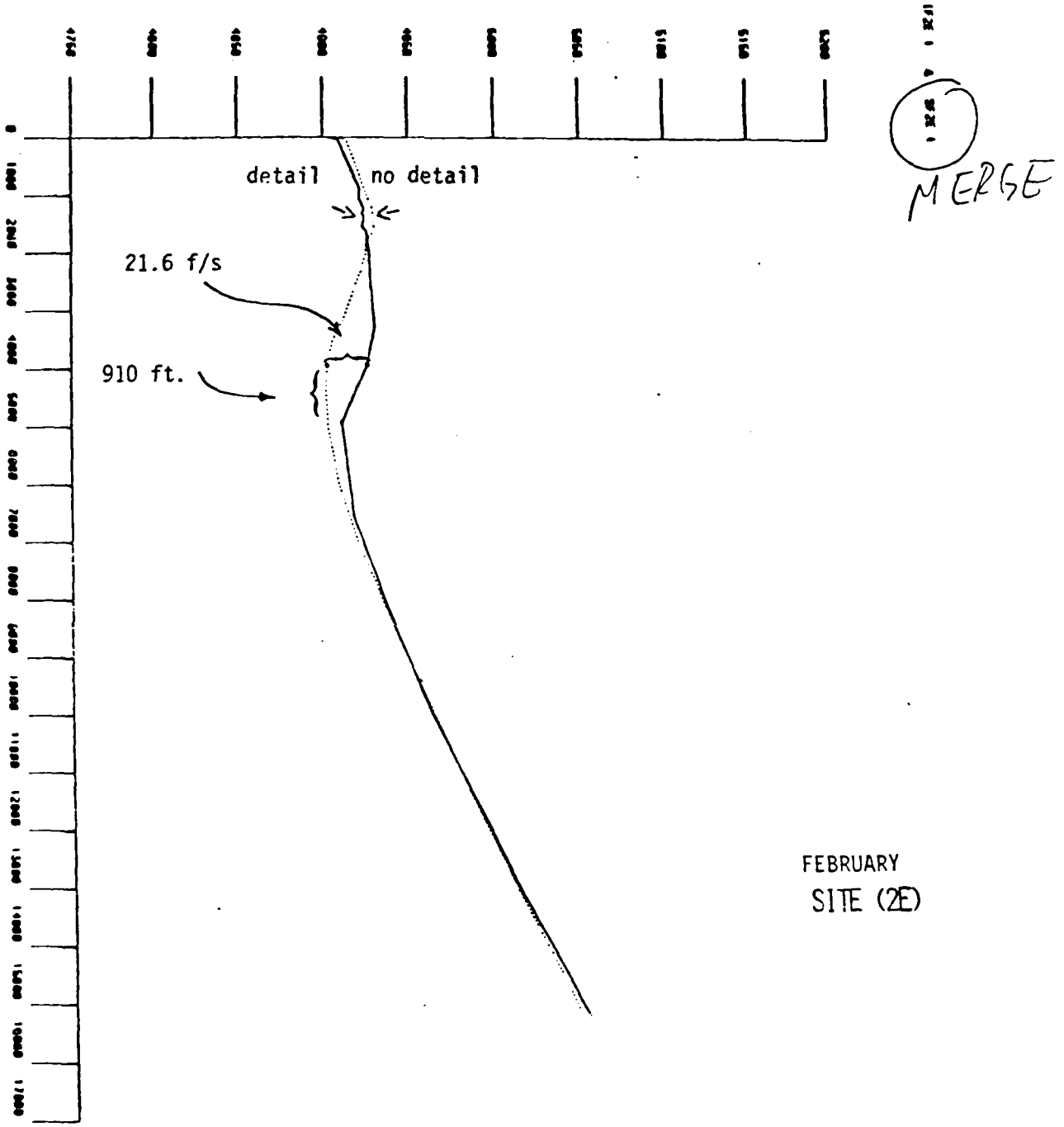


FIGURE 104
(A8-6)

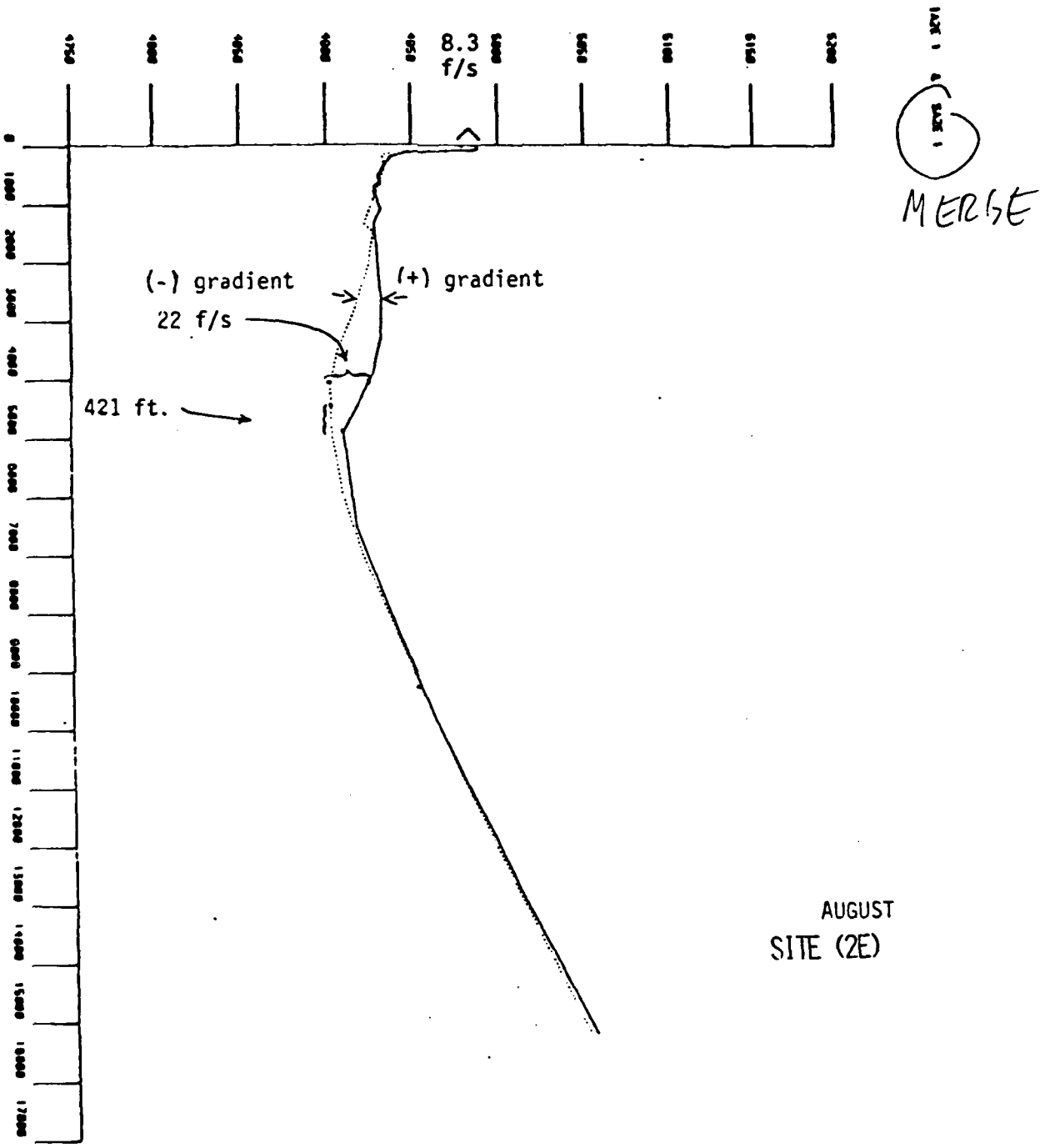
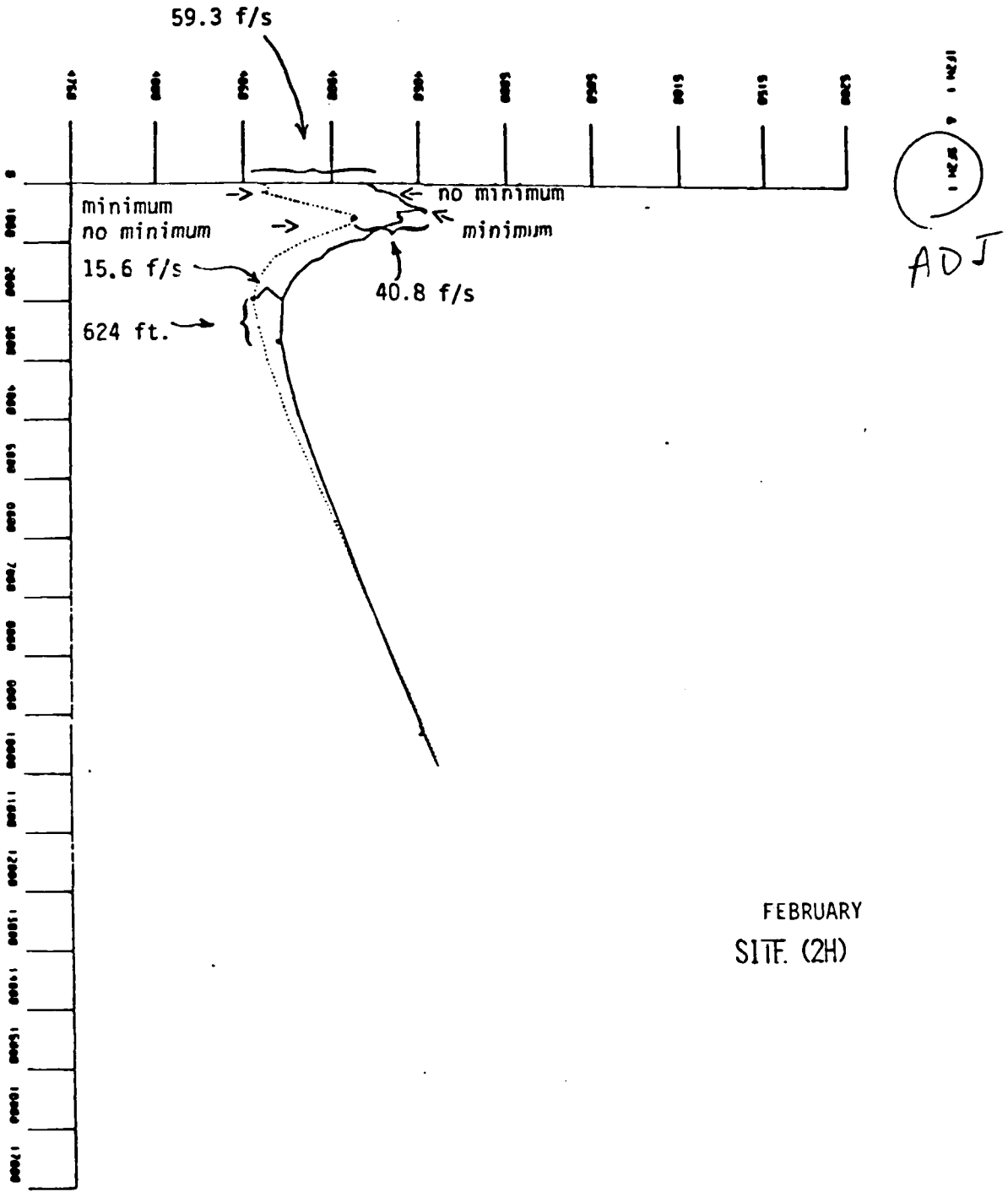
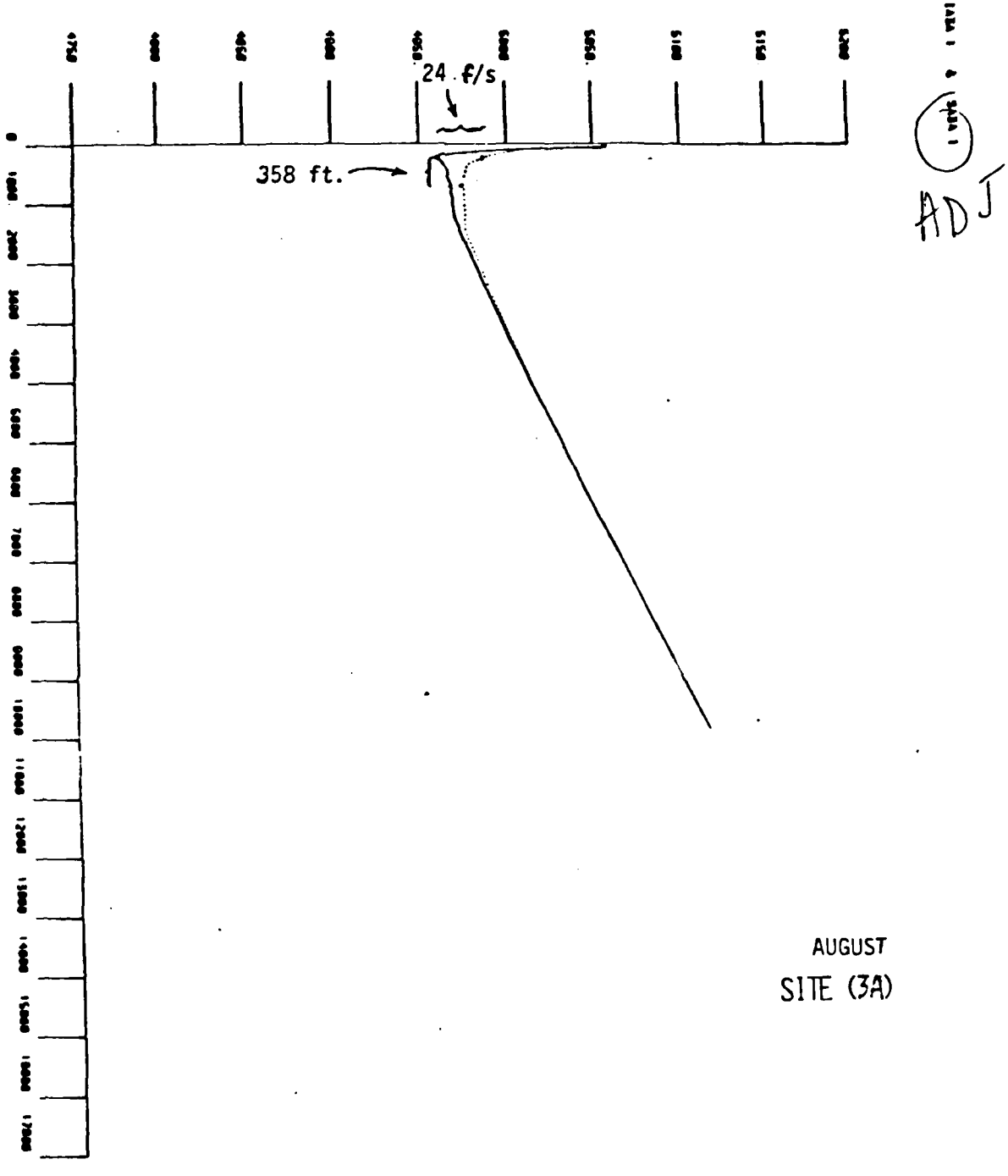


FIGURE 115
(A8-7)



FEBRUARY
SITF. (2H)

FIGURE 105
(A8-8)



AUGUST
SITE (3A)

FIGURE 119
(A8-9)

APPENDIX 3

ICAPS Generated SSP's (CDC Version)

SECTION	CONTENTS
B1	ICAPS Environmental Profiles and Detailed BT Data
B2	ICAPS Environmental Profiles and Detailed BT Data (Different Water Mass Selections)
B3	ICAPS Environmental Profiles and Less Dense BT Data

APPENDIX B

Section B1

ICAPS Environmental Profiles and Detailed BT Data

ICAPS: PAC. STATION 1C - FEB

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	14.92	58.86	34.57	1506.609	4943.183
10.00	32.81	14.92	58.86	34.57	1506.772	4943.719
20.00	65.62	14.90	58.82	34.57	1506.872	4944.046
30.00	98.43	14.87	58.77	34.56	1506.927	4944.228
50.00	164.05	14.84	58.71	34.56	1507.158	4944.986
75.00	246.08	14.68	58.42	34.53	1507.018	4944.528
100.00	328.10	14.39	57.90	34.50	1506.457	4942.686
125.00	410.13	13.98	57.16	34.47	1505.497	4939.535
150.00	492.15	13.58	56.44	34.44	1504.554	4936.440
200.00	656.20	12.73	54.91	34.39	1502.466	4929.590
250.00	820.25	11.93	53.47	34.33	1500.470	4923.043
300.00	984.30	11.10	51.98	34.27	1498.309	4915.951
400.00	1312.40	9.39	48.90	34.15	1493.605	4900.518
500.00	1640.50	7.44	45.39	34.05	1487.721	4881.212
600.00	1968.60	5.81	42.46	34.01	1482.857	4865.253
800.00	2624.80	4.18	39.52	34.15	1479.650	4854.731
1000.00	3281.00	3.45	38.21	34.30	1480.099	4856.205
1200.00	3937.20	3.07	37.53	34.41	1481.968	4862.335
1500.00	4921.50	2.62	36.72	34.51	1485.205	4872.958
2000.00	6562.00	1.95	35.51	34.60	1490.883	4891.587
2500.00	8202.50	1.66	34.99	34.63	1498.203	4915.603
3000.00	9843.00	1.56	34.81	34.66	1506.434	4942.610
4000.00	13124.00	1.50	34.70	34.67	1523.682	4999.201
5000.00	16405.00	1.55	34.79	34.66	1541.717	5058.374
5480.00	17979.88	1.57	34.83	34.68	1550.454	5087.040

BT DATA			HISTORICAL DATA			MERGED DATA		
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	17.13	34.41	0.	14.92	34.57	0.	17.13	34.41
14.	17.23	34.46	10.	14.92	34.57	14.	17.23	34.46
98.	17.20	34.46	20.	14.90	34.57	98.	17.20	34.46
143.	17.13	34.45	30.	14.87	34.56	143.	17.13	34.45
150.	17.00	34.44	50.	14.84	34.56	150.	17.00	34.44
156.	16.17	34.43	75.	14.68	34.53	156.	16.17	34.43
158.	16.03	34.43	100.	14.39	34.50	158.	16.03	34.43
211.	14.85	34.38	125.	13.98	34.47	211.	14.85	34.38
253.	14.21	34.33	150.	13.58	34.44	253.	14.21	34.33
275.	13.79	34.30	200.	12.73	34.39	275.	13.79	34.30
288.	13.40	34.28	250.	11.93	34.33	288.	13.40	34.28
345.	12.35	34.22	300.	11.10	34.27	345.	12.35	34.22
353.	12.28	34.21	400.	9.39	34.15	353.	12.28	34.21
367.	11.93	34.19	500.	7.44	34.05	367.	11.93	34.19
401.	11.40	34.15	600.	5.81	34.01	401.	11.40	34.15

(MERGE FACTOR = 835*10**-3)

417.	11.08	34.13
[illegible]	[illegible]	12
437.	10.58	34.11
442.	10.[illegible]	34.09
449.	10.[illegible]	34.10
476.	[illegible]	34.0[illegible]

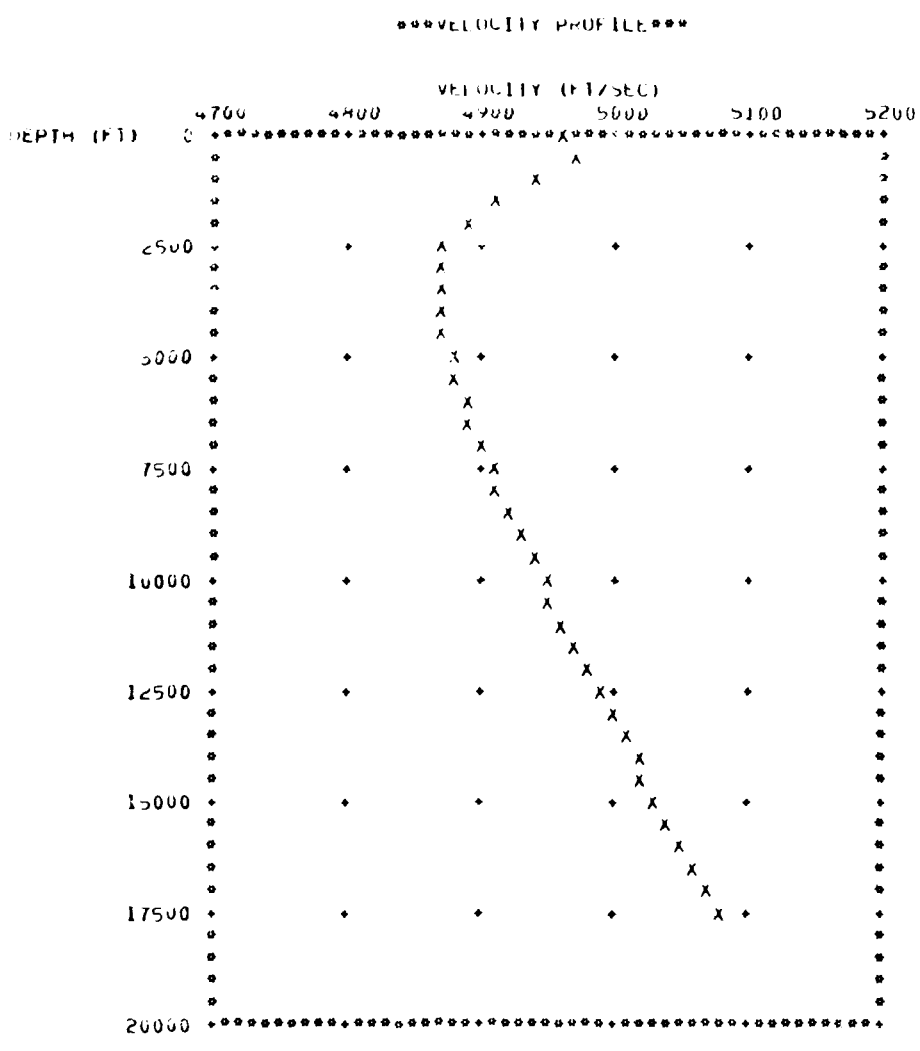
1000.	3.45	34.30
120	3	3[illegible]
1500.	2.62	34.51
2000.	2.05	34.60
2500.	1.66	34.63
3000.	1.56	34.66
4000.	1.50	34.67
5000.	1.55	34.68
5480.	1.57	34.68

417.	11.08	34.13
426.	10.75	34.12
437.	10.5[illegible]	34.[illegible]
442.	10.39	34.09
449.	10.39	34.10
476.	9.87	34.07
600.	7.45	34.01
800.	5.32	34.15
1000.	4.25	34.30
1200.	3.63	34.41
1500.	2.94	34.51
2000.	2.08	34.60
2500.	1.71	34.63
3000.	1.58	34.66
4000.	1.50	34.67
5000.	1.55	34.68
5480.	1.57	34.68

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	17.13	62.83	34.41	1513.231	4964.910
14.00	45.93	17.23	63.01	34.46	1513.807	4966.802
98.00	321.54	17.20	62.96	34.46	1515.094	4971.024
143.00	469.18	17.13	62.83	34.45	1515.611	4972.719
150.00	492.15	17.00	62.60	34.44	1515.326	4971.786
156.00	511.84	16.17	61.11	34.43	1512.899	4963.823
158.00	518.40	16.03	60.85	34.43	1512.499	4962.509
211.00	692.29	14.85	58.73	34.38	1509.598	4952.991
253.00	830.09	14.21	57.58	34.33	1508.163	4948.283
275.00	902.28	13.79	56.82	34.30	1507.118	4944.853
288.00	944.93	13.40	56.12	34.28	1506.022	4941.258
345.00	1131.95	12.35	54.23	34.22	1503.329	4932.421
353.00	1158.19	12.28	54.10	34.21	1503.208	4932.025
367.00	1204.13	11.93	53.47	34.19	1502.210	4928.752
401.00	1315.68	11.40	52.52	34.15	1500.869	4924.350
411.00	1348.49	11.10	51.98	34.12	1499.944	4921.317
417.00	1368.18	11.03	51.94	34.13	1499.982	4921.442
426.00	1397.71	10.75	51.35	34.12	1498.945	4918.037
437.00	1433.80	10.58	51.04	34.11	1498.502	4916.586
442.00	1450.20	10.39	50.70	34.09	1497.869	4914.508
449.00	1473.17	10.39	50.70	34.10	1498.000	4914.939
476.00	1561.76	9.87	49.77	34.07	1496.521	4910.085
600.00	1968.60	7.45	45.41	34.01	1489.347	4886.548
800.00	2624.80	5.32	41.58	34.15	1484.371	4870.221
1000.00	3281.00	4.25	39.64	34.30	1483.453	4867.209
1200.00	3937.20	3.63	38.53	34.41	1484.329	4870.082
1500.00	4921.50	2.94	37.30	34.51	1486.594	4877.515
2000.00	6562.00	2.04	35.75	34.60	1491.454	4893.460
2500.00	8202.50	1.71	35.08	34.63	1498.435	4916.365
3000.00	9843.00	1.58	34.85	34.66	1506.528	4942.919
4000.00	13124.00	1.50	34.71	34.67	1523.698	4999.252
5000.00	16405.00	1.55	34.79	34.68	1541.720	5058.382
5480.00	17979.88	1.57	34.83	34.68	1550.455	5087.044

THE LAYER IS AT 469.18 FEET 143.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

**********HISTORICAL PROFILE**********

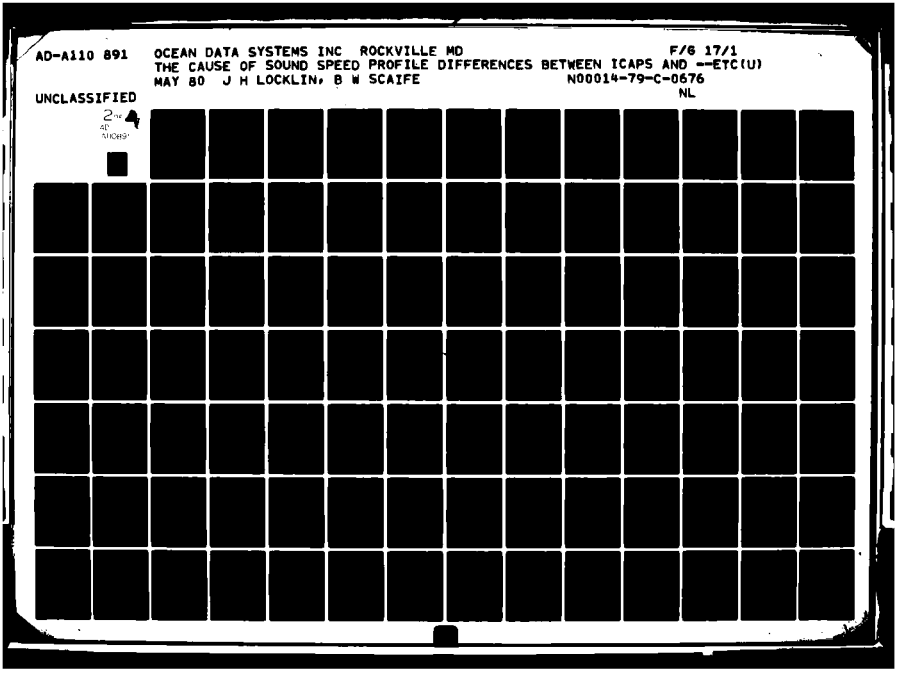
DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. PPT/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	9.84	49.71	33.40	1487.753	4881.316
10.00	32.81	9.83	49.69	33.39	1487.866	4881.689
20.00	65.62	9.81	49.66	33.39	1487.956	4881.983
30.00	98.43	9.80	49.64	33.40	1488.095	4882.440
50.00	164.05	9.82	49.68	33.40	1488.495	4883.752
75.00	246.08	9.75	49.55	33.42	1488.672	4884.332
100.00	328.10	9.64	49.35	33.51	1488.791	4884.722
125.00	410.13	9.42	48.96	33.65	1488.566	4883.986
150.00	492.15	9.21	48.58	33.82	1488.414	4883.487
200.00	656.20	8.81	47.86	33.97	1487.930	4881.898
250.00	820.25	8.21	46.78	33.98	1486.489	4877.171
300.00	984.30	7.48	45.46	33.97	1484.485	4870.596
400.00	1312.40	5.89	42.60	33.94	1479.792	4855.197
500.00	1640.50	4.82	40.68	33.97	1477.109	4846.394
600.00	1968.60	4.23	39.61	34.04	1476.399	4844.066
800.00	2624.80	3.66	38.59	34.21	1477.542	4847.815
1000.00	3281.00	3.19	37.74	34.32	1479.019	4852.660
1200.00	3937.20	2.84	37.11	34.41	1480.981	4859.100
1500.00	4921.50	2.42	36.36	34.49	1484.314	4870.034
2000.00	6562.00	1.97	35.55	34.59	1490.956	4891.827
2500.00	8202.50	1.73	35.11	34.63	1498.508	4916.605
3000.00	9843.00	1.57	34.83	34.66	1506.478	4942.753
4000.00	13124.00	1.45	34.68	34.67	1523.635	4999.060
4750.00	15584.75	1.43	34.67	34.68	1536.724	5041.992

BT DATA | HISTORICAL DATA | MERGED DATA

(MERGE FACTOR = .835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	12.30	33.40	0.	9.84	33.40	0.	12.30	33.40
93.	12.37	33.48	10.	9.83	33.39	93.	12.37	33.48
109.	12.32	33.56	20.	9.81	33.39	109.	12.32	33.56
117.	12.07	33.61	30.	9.80	33.40	117.	12.07	33.61
126.	11.15	33.66	50.	9.82	33.40	126.	11.15	33.66
131.	11.01	33.69	75.	9.75	33.42	131.	11.01	33.69
134.	10.77	33.71	100.	9.64	33.51	134.	10.77	33.71
155.	10.35	33.84	125.	9.42	33.65	155.	10.35	33.84
169.	10.31	33.88	150.	9.21	33.82	169.	10.31	33.88
177.	10.06	33.90	200.	8.81	33.97	177.	10.06	33.90
194.	9.88	33.95	250.	8.21	33.98	194.	9.88	33.95
202.	9.66	33.97	300.	7.48	33.97	202.	9.66	33.97
220.	9.46	33.97	400.	5.89	33.94	220.	9.46	33.97
234.	9.12	33.98	500.	4.82	33.97	234.	9.12	33.98
304.	8.27	33.97	600.	4.23	34.04	304.	8.27	33.97
397.	6.98	33.94	800.	3.66	34.21	397.	6.98	33.94

AD-A110 891 OCEAN DATA SYSTEMS INC ROCKVILLE MD F/G 17/1
THE CAUSE OF SOUND SPEED PROFILE DIFFERENCES BETWEEN ICAPS AND --ETC(U)
MAY 80 J H LOCKLIN, B W SCAIFE N00014-79-C-0676
UNCLASSIFIED NL



437.	6.08	33.93
445.	5.88	33.93
456.	5.82	33.96
497.	5.43	33.97

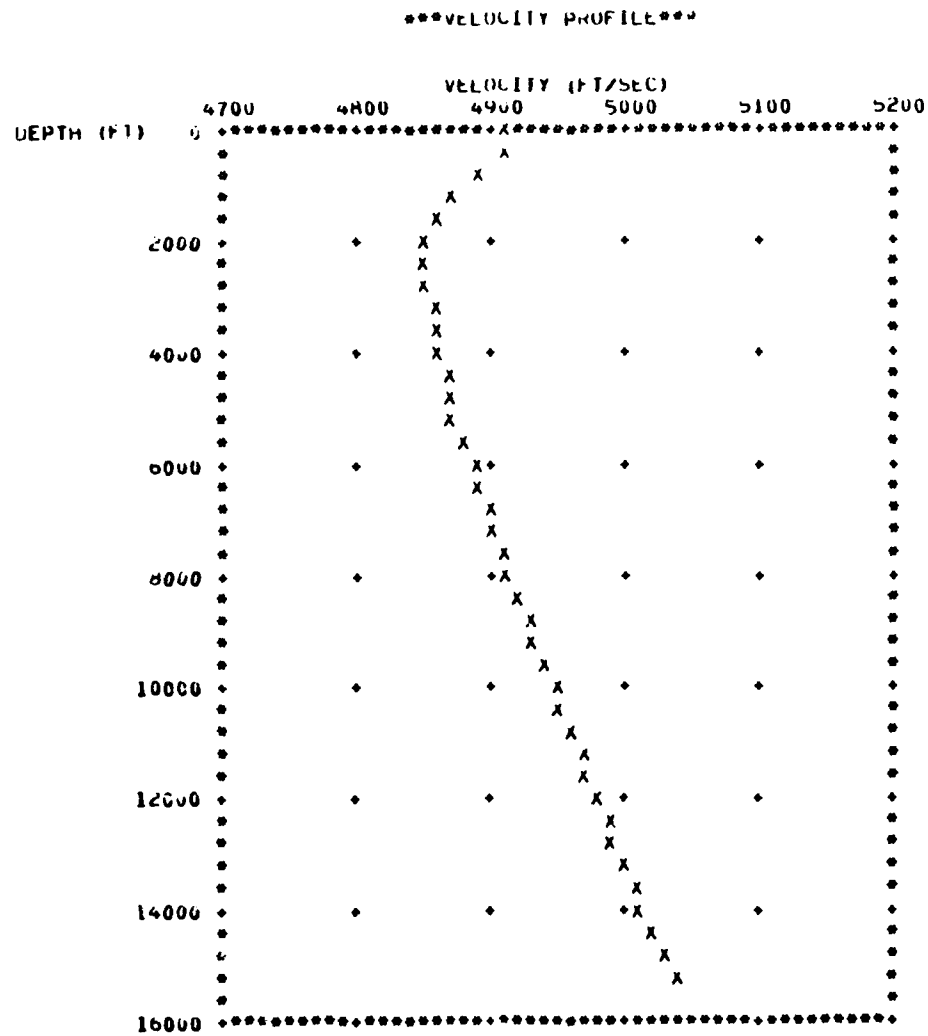
1200.	2.84	34.41
1500	2.	34.
2000.	1.97	34.59
2500.	1.73	34.63
3000.	1.57	34.66
4000.	1.49	34.67
4750.	1.43	34.68

437.	6.08	33.93
445.	5.13	33.95
456.	5.82	33.96
497.	5.43	33.97
600.	4.71	34.04
800.	4.00	34.21
1000.	3.42	34.32
1200.	3.00	34.41
1500.	2.52	34.49
2000.	2.01	34.59
2500.	1.75	34.63
3000.	1.58	34.66
4000.	1.49	34.67
4750.	1.43	34.67

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.30	54.14	33.40	1496.490	4909.984
93.00	305.13	12.37	54.27	33.48	1498.354	4916.101
109.00	357.63	12.32	54.18	33.56	1498.539	4916.707
117.00	383.86	12.07	53.73	33.61	1497.865	4914.496
126.00	413.41	11.15	52.07	33.66	1494.859	4904.633
131.00	429.81	11.01	51.82	33.69	1494.487	4903.413
134.00	439.65	10.77	51.39	33.71	1493.707	4900.852
155.00	508.56	10.35	50.63	33.84	1492.698	4897.541
169.00	554.49	10.31	50.56	33.88	1492.836	4897.994
177.00	580.74	10.06	50.11	33.90	1492.090	4895.547
194.00	636.52	9.88	49.78	33.95	1491.777	4894.519
202.00	662.76	9.66	49.39	33.97	1491.124	4892.378
220.00	721.82	9.46	49.03	33.97	1490.686	4890.940
234.00	767.75	9.12	48.42	33.98	1489.656	4887.562
304.00	997.42	8.27	46.89	33.97	1487.588	4880.778
387.00	1269.75	6.98	44.56	33.94	1483.925	4868.758
425.00	1394.43	6.24	43.23	33.95	1481.619	4861.193
437.00	1433.80	6.08	42.94	33.93	1481.155	4859.671
445.00	1460.05	6.13	43.03	33.95	1481.516	4860.852
458.00	1496.14	5.82	42.48	33.96	1480.453	4857.366
497.00	1630.66	5.43	41.77	33.97	1479.562	4854.443
600.00	1968.60	4.71	40.48	34.04	1478.408	4850.658
800.00	2624.80	4.00	39.19	34.21	1478.961	4852.471
1000.00	3281.00	3.42	38.16	34.32	1480.018	4855.940
1200.00	3937.20	3.00	37.41	34.41	1481.683	4861.402
1500.00	4921.50	2.52	36.53	34.49	1484.726	4871.385
2000.00	6562.00	2.01	35.62	34.59	1491.124	4892.379
2500.00	8202.50	1.75	35.14	34.63	1498.576	4916.829
3000.00	9843.00	1.58	34.84	34.66	1506.505	4942.844
4000.00	13124.00	1.49	34.68	34.67	1523.644	4999.075
4750.00	15584.75	1.43	34.57	34.67	1536.712	5041.950

THE LAYER IS AT 357.63 FEET (109.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: PAC. STATION IF - AUG SUM 2

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.04	60.87	33.16	1508.402	4949.067
10.00	32.81	15.78	60.40	33.17	1507.770	4946.992
20.00	65.62	14.93	58.87	33.20	1505.286	4938.844
30.00	98.43	13.52	56.34	33.24	1500.903	4924.464
50.00	164.05	10.35	50.63	33.36	1490.376	4889.923
75.00	246.08	9.00	48.20	33.44	1485.913	4875.282
100.00	328.10	8.61	47.50	33.51	1484.944	4872.100
125.00	410.13	8.46	47.23	33.61	1484.913	4872.001
150.00	492.15	8.53	47.35	33.79	1485.822	4874.981
200.00	656.20	8.28	46.90	33.96	1485.911	4875.275
250.00	820.25	7.60	45.68	33.96	1484.118	4869.390
300.00	984.30	6.83	44.29	33.95	1481.914	4862.158
400.00	1312.40	5.50	41.90	33.94	1478.211	4850.011
500.00	1640.50	4.65	40.37	33.99	1476.432	4844.172
600.00	1968.60	4.20	39.56	34.07	1476.314	4843.787
800.00	2624.80	3.59	38.46	34.23	1477.273	4846.931
1000.00	3281.00	3.13	37.63	34.34	1478.790	4851.909
1200.00	3937.20	2.78	37.00	34.41	1480.723	4858.253
1500.00	4921.50	2.39	36.30	34.49	1484.184	4869.608
2000.00	6562.00	1.96	35.53	34.59	1490.913	4891.685
2500.00	8202.50	1.72	35.10	34.63	1498.464	4916.462
3000.00	9843.00	1.57	34.83	34.66	1506.478	4942.753
4000.00	13124.00	1.50	34.70	34.67	1523.682	4999.201
4750.00	15584.75	1.45	34.61	34.68	1536.810	5042.273

BT DATA | HISTORICAL DATA | MERGED DATA

(MERGE FACTOR = 835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	14.80	33.16	0.	16.04	33.16	0.	14.80	33.16
20.	14.85	33.20	10.	15.78	33.17	20.	14.85	33.20
25.	14.70	33.22	20.	14.93	33.20	25.	14.70	33.22
30.	14.70	33.24	30.	13.52	33.24	30.	14.70	33.24
36.	11.03	33.28	50.	10.35	33.36	36.	11.03	33.28
42.	10.21	33.31	75.	9.00	33.44	42.	10.21	33.31
47.	10.00	33.34	100.	8.61	33.51	47.	10.00	33.34
49.	9.68	33.35	125.	8.46	33.61	49.	9.68	33.35
60.	9.10	33.39	150.	8.53	33.79	60.	9.10	33.39
69.	8.89	33.42	200.	8.28	33.96	69.	8.89	33.42
73.	8.62	33.43	250.	7.60	33.96	73.	8.62	33.43
82.	8.41	33.46	300.	6.83	33.95	82.	8.41	33.46
86.	8.15	33.47	400.	5.50	33.94	86.	8.15	33.47
91.	8.15	33.48	500.	4.65	33.99	91.	8.15	33.48
103.	7.78	33.52	600.	4.20	34.07	103.	7.78	33.52
132.	7.46	33.66	800.	3.59	34.23	132.	7.46	33.66

[illegible]	7.59	33.70
[illegible]	[illegible]	[illegible]
180.	8.10	33.89
196.	8.10	33.95
245.	7.41	33.96
262.	7.04	33.96
291.	6.56	33.95
344.	5.98	33.95
411.	5.00	33.95
429.	4.86	33.95
457.	4.78	33.97

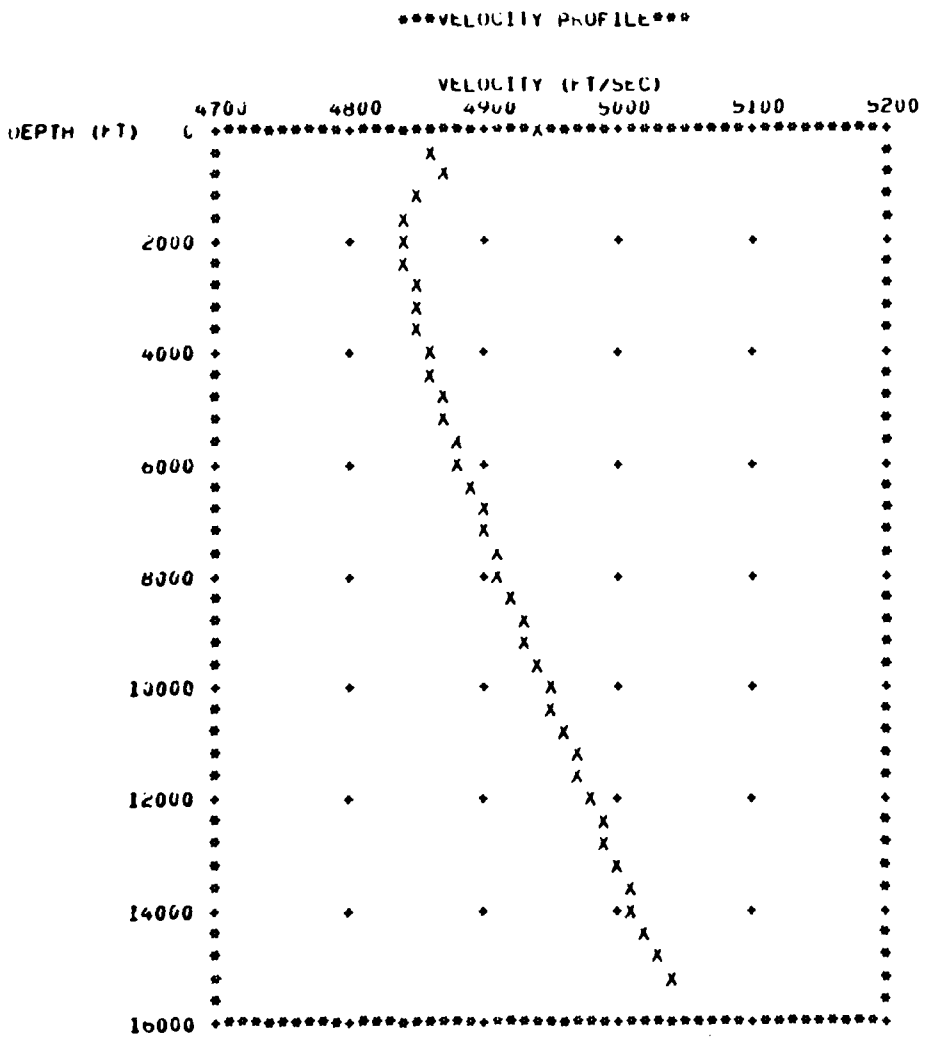
1200.	2.78	34.41
1500.	2.	34
2000.	1.96	34.59
2500.	1.72	34.63
3000.	1.57	34.66
4000.	1.50	34.67
4750.	1.45	34.68
5480.	1.57	34.68
0.	0.00	0.00
0.	0.00	0.00
0.	0.00	0.00
0.	0.00	0.00

138.	7.59	33.70
47.	7.57	33.7
180.	8.10	33.89
196.	8.10	33.95
245.	7.41	33.96
262.	7.04	33.96
291.	6.56	33.95
344.	5.98	33.95
411.	5.00	33.95
429.	4.86	33.95
457.	4.78	33.97
600.	4.00	34.07
344.	5.98	33.95
411.	5.00	33.95
429.	4.86	33.95
457.	4.78	33.97
600.	4.00	34.07
800.	3.45	34.23
1000.	3.03	34.34
1200.	2.71	34.41
1500.	2.35	34.49
2000.	1.94	34.59
2500.	1.71	34.63
3000.	1.57	34.66
4000.	1.50	34.67
4750.	1.45	34.67

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	14.80	58.64	33.16	1504.495	4936.248
20.00	65.62	14.85	58.73	33.20	1505.030	4938.005
25.00	82.03	14.70	58.46	33.22	1504.655	4936.774
30.00	98.43	14.70	58.46	33.24	1504.761	4937.122
36.00	118.12	11.05	51.65	33.28	1492.481	4896.829
42.00	137.80	10.21	50.38	33.31	1489.676	4887.627
47.00	154.21	10.00	50.00	33.34	1489.031	4885.510
49.00	160.77	9.68	49.42	33.35	1487.905	4881.816
60.00	196.86	9.10	48.38	33.39	1485.981	4875.503
69.00	226.39	8.89	48.00	33.42	1485.378	4873.524
73.00	239.51	8.62	47.52	33.43	1484.441	4870.452
82.00	269.64	8.41	47.14	33.46	1483.825	4868.431
86.00	282.17	8.15	46.67	33.47	1482.913	4865.438
91.00	298.57	8.15	46.67	33.48	1483.013	4865.766
103.00	337.94	7.78	46.00	33.52	1481.835	4861.900
132.00	433.09	7.46	45.43	33.66	1481.250	4859.980
137.00	449.50	7.46	45.43	33.67	1481.340	4860.276
138.00	452.78	7.59	45.66	33.70	1481.909	4862.144
147.00	482.31	7.57	45.63	33.77	1482.064	4862.651
180.00	590.58	8.10	46.58	33.89	1484.808	4871.654
196.00	643.08	8.10	46.58	33.95	1485.141	4872.747
245.00	803.85	7.41	45.34	33.96	1483.298	4866.701
262.00	859.62	7.04	44.67	33.96	1482.127	4862.859
291.00	954.77	6.56	43.81	33.95	1480.699	4858.174
344.00	1128.66	5.98	42.76	33.95	1479.242	4853.391
411.00	1348.49	5.00	41.00	33.95	1476.352	4843.912
429.00	1407.55	4.86	40.75	33.95	1476.083	4843.029
457.00	1499.42	4.78	40.60	33.97	1476.233	4843.519
600.00	1968.60	4.00	39.21	34.07	1475.489	4841.079
800.00	2624.80	3.45	38.22	34.23	1476.690	4845.021
1000.00	3281.00	3.03	37.46	34.34	1478.380	4850.566
1200.00	3937.20	2.71	36.88	34.41	1480.436	4857.311
1500.00	4921.50	2.33	36.23	34.49	1484.016	4869.056
2000.00	6562.00	1.94	35.50	34.59	1490.844	4891.460
2500.00	8202.50	1.71	35.08	34.63	1498.437	4916.370
3000.00	9843.00	1.57	34.82	34.66	1506.466	4942.716
4000.00	13124.00	1.50	34.70	34.67	1523.680	4999.195
4750.00	15584.75	1.45	34.61	34.67	1536.795	5042.226

THE LAYER IS AT 65.62 FEET (20.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: ATL. STATION 2A - FEB WIN 2

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	24.51	76.12	36.54	1535.396	5037.634
10.00	32.81	24.51	76.12	36.54	1535.561	5038.175
20.00	65.62	24.51	76.12	36.55	1535.737	5038.754
30.00	98.43	24.51	76.12	36.55	1535.902	5039.296
50.00	164.05	24.45	76.01	36.59	1536.135	5040.059
75.00	246.08	24.21	75.58	36.72	1536.122	5040.017
100.00	328.10	23.31	73.96	36.86	1534.511	5034.731
125.00	410.13	21.33	70.39	36.83	1529.874	5019.536
150.00	492.15	19.47	67.05	36.68	1525.115	5003.903
200.00	656.20	16.95	62.51	36.33	1518.283	4981.488
250.00	820.25	15.22	59.40	36.03	1513.444	4965.609
300.00	984.30	13.80	56.84	35.80	1509.428	4952.435
400.00	1312.40	11.72	53.10	35.47	1503.647	4933.466
500.00	1640.50	9.95	49.91	35.22	1498.684	4917.183
600.00	1968.60	8.40	47.12	35.01	1494.308	4902.824
800.00	2624.80	6.37	43.47	34.83	1489.499	4887.046
1000.00	3281.00	5.53	41.95	34.84	1489.460	4886.918
1200.00	3937.20	5.10	41.18	34.93	1491.163	4892.505
1500.00	4921.50	4.37	39.87	34.99	1493.261	4899.389
2000.00	6562.00	3.54	38.37	34.97	1498.202	4915.601
2500.00	8202.50	3.07	37.53	34.94	1504.696	4936.907
3000.00	9843.00	2.72	36.90	34.91	1511.772	4960.125
4000.00	13124.00	2.43	36.41	34.86	1528.006	5013.389
5000.00	16405.00	2.36	36.25	34.84	1545.358	5070.321
5860.00	19029.80	2.29	36.12	34.82	1559.455	5116.573

BI DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	25.61	36.54	0.	24.51	36.54	0.	25.61	36.54
26.	25.61	36.55	10.	24.51	36.54	26.	25.61	36.55
27.	25.50	36.55	20.	24.51	36.55	27.	25.50	36.55
39.	25.45	36.57	30.	24.51	36.55	39.	25.45	36.57
79.	24.81	36.74	50.	24.45	36.59	79.	24.81	36.74
95.	23.23	36.83	75.	24.21	36.72	95.	23.23	36.83
105.	21.72	36.85	100.	23.31	36.86	105.	21.72	36.85
119.	19.49	36.84	125.	21.33	36.83	119.	19.49	36.84
148.	17.58	36.69	150.	19.47	36.68	148.	17.58	36.69
175.	15.76	36.51	200.	16.95	36.33	175.	15.76	36.51
201.	14.60	36.32	250.	15.22	36.03	201.	14.60	36.32
224.	13.64	36.19	300.	13.80	35.80	224.	13.64	36.19
250.	13.01	36.03	400.	11.72	35.47	250.	13.01	36.03
330.	11.41	35.70	500.	9.95	35.22	330.	11.41	35.70

[illegible]	[illegible]	35.49
4000.	[illegible]	[illegible]

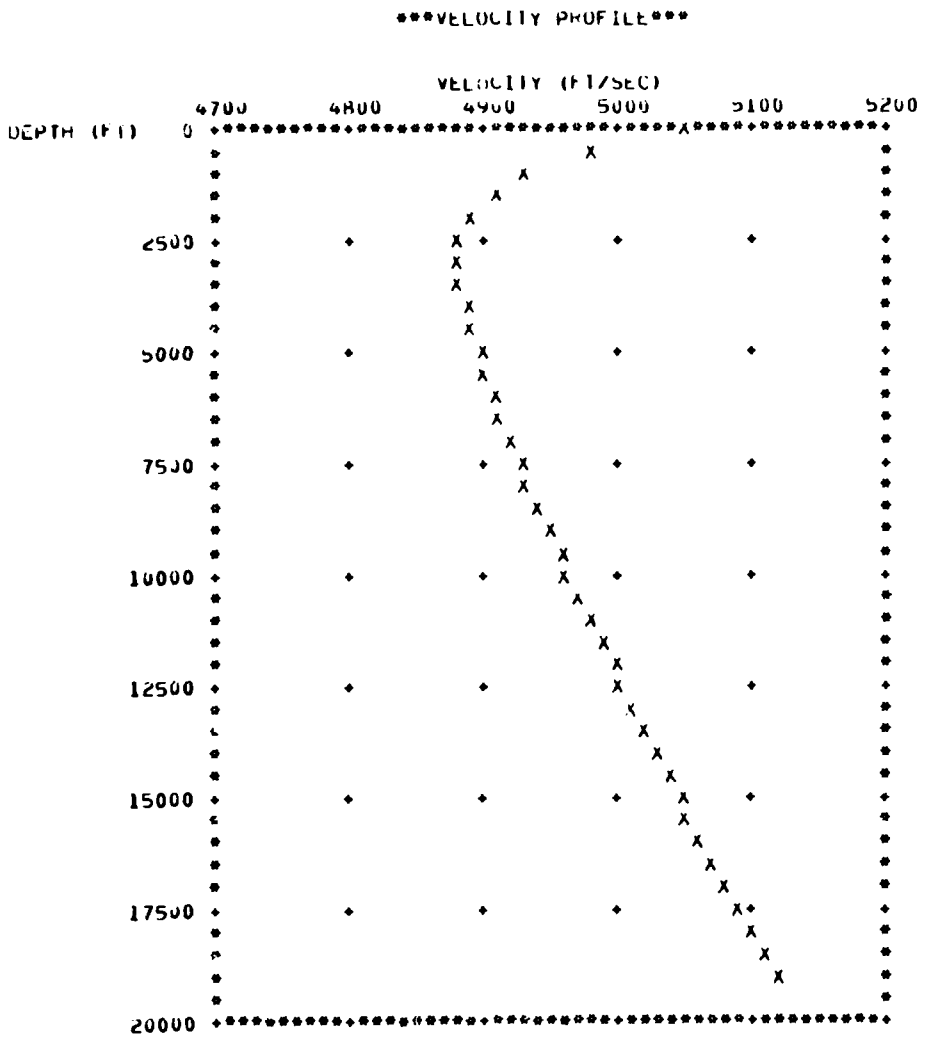
600.	8.40	35.01
800	6.	34
1000.	5.53	34.84
1200.	5.10	34.93
1500.	4.37	34.99
2000.	3.54	34.97
2500.	3.07	34.94
3000.	2.72	34.91
4000.	2.43	34.86
5000.	2.30	34.84
5800.	2.29	34.82

395.	10.32	35.49
35.	[illegible]	[illegible]
600.	7.29	35.01
800.	5.60	34.83
1000.	4.99	34.84
1200.	4.72	34.93
1500.	4.15	34.99
2000.	3.45	34.97
2500.	3.03	34.94
3000.	2.71	34.91
4000.	2.45	34.86
5000.	2.36	34.84
5800.	2.29	34.84

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.61	78.10	36.54	1537.965	5046.062
26.00	85.31	25.61	78.10	36.55	1538.406	5047.510
27.00	88.59	25.50	77.90	36.55	1538.169	5046.733
39.00	127.96	25.45	77.81	36.57	1538.272	5047.071
79.00	259.20	24.81	76.66	36.74	1537.637	5044.989
95.00	311.70	23.23	73.81	36.83	1534.200	5033.709
105.00	344.51	21.72	71.10	36.85	1530.584	5021.846
119.00	390.44	19.49	67.08	36.84	1524.848	5003.026
148.00	485.59	17.58	63.64	36.69	1519.728	4986.227
175.00	574.18	15.76	60.37	36.51	1514.479	4969.005
201.00	659.48	14.60	58.28	36.32	1511.042	4957.729
224.00	734.94	13.64	56.55	36.19	1508.141	4948.210
250.00	820.25	13.01	55.42	36.03	1506.286	4942.123
330.00	1082.73	11.41	52.54	35.70	1501.714	4927.122
395.00	1296.00	10.32	50.58	35.49	1498.641	4917.040
455.00	1492.86	9.42	48.96	35.33	1496.150	4908.868
600.00	1968.60	7.29	45.13	35.01	1490.059	4888.884
800.00	2624.80	5.60	42.08	34.83	1486.402	4876.884
1000.00	3281.00	4.99	40.98	34.84	1487.266	4879.719
1200.00	3937.20	4.72	40.50	34.93	1489.623	4887.452
1500.00	4921.50	4.15	39.47	34.99	1492.352	4896.408
2000.00	6562.00	3.45	38.21	34.97	1497.828	4914.374
2500.00	8202.50	3.03	37.46	34.94	1504.543	4936.406
3000.00	9843.00	2.71	36.87	34.91	1511.710	4959.921
4000.00	13124.00	2.45	36.41	34.86	1527.996	5013.356
5000.00	16405.00	2.36	36.25	34.84	1545.357	5070.316
5800.00	19029.80	2.29	36.12	34.84	1559.482	5116.661

THE LAYER IS AT 85.31 FEET (26.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: ATL. STATION 2E - FEB

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.42	54.36	35.70	1499.793	4920.821
10.00	32.81	12.39	54.30	35.69	1499.842	4920.980
20.00	65.62	12.38	54.28	35.69	1499.971	4921.404
30.00	98.43	12.36	54.25	35.69	1500.066	4921.717
50.00	164.05	12.32	54.18	35.69	1500.257	4922.342
75.00	246.08	12.30	54.14	35.68	1500.584	4923.417
100.00	328.10	12.27	54.09	35.68	1500.890	4924.422
125.00	410.13	12.22	54.00	35.68	1501.128	4925.203
150.00	492.15	12.16	53.89	35.67	1501.320	4925.829
200.00	656.20	12.03	53.65	35.66	1501.679	4927.010
250.00	820.25	11.85	53.33	35.63	1501.840	4927.537
300.00	984.30	11.66	52.99	35.60	1501.964	4927.943
400.00	1312.40	11.33	52.39	35.57	1502.415	4929.425
500.00	1640.50	11.02	51.84	35.54	1502.930	4931.113
600.00	1968.60	10.62	51.12	35.51	1503.117	4931.727
800.00	2624.80	9.71	49.48	35.52	1503.143	4931.814
1000.00	3281.00	8.88	47.98	35.58	1503.469	4932.882
1200.00	3937.20	7.61	45.70	35.56	1501.878	4927.660
1500.00	4921.50	5.26	41.47	35.14	1497.117	4912.039
2000.00	6562.00	3.73	38.71	34.99	1499.028	4918.309
2500.00	8202.50	3.20	37.76	34.97	1505.287	4938.847
3000.00	9843.00	2.79	37.02	34.94	1512.111	4961.236
4000.00	13124.00	2.54	36.57	34.93	1528.484	5014.955
4620.00	15158.22	2.39	36.30	34.92	1538.811	5048.839

BI DATA

DEP (M)	TEMP (C)	SAL (PPT)
0.	10.93	35.50
2.	11.19	35.57
8.	11.40	35.63
268.	11.29	35.62
325.	11.04	35.58
372.	10.99	35.58
399.	10.75	35.55
425.	10.75	35.56
473.	10.52	35.52
493.	10.55	35.54

HISTORICAL DATA

(MERGE FACTOR = 835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)
0.	12.42	35.70
10.	12.39	35.69
20.	12.38	35.69
30.	12.36	35.69
50.	12.32	35.69
75.	12.30	35.68
100.	12.27	35.68
125.	12.22	35.68
150.	12.16	35.67
200.	12.03	35.66
250.	11.85	35.63
300.	11.66	35.60
400.	11.33	35.57
500.	11.02	35.54
600.	10.62	35.51
800.	9.71	35.52

MERGED DATA

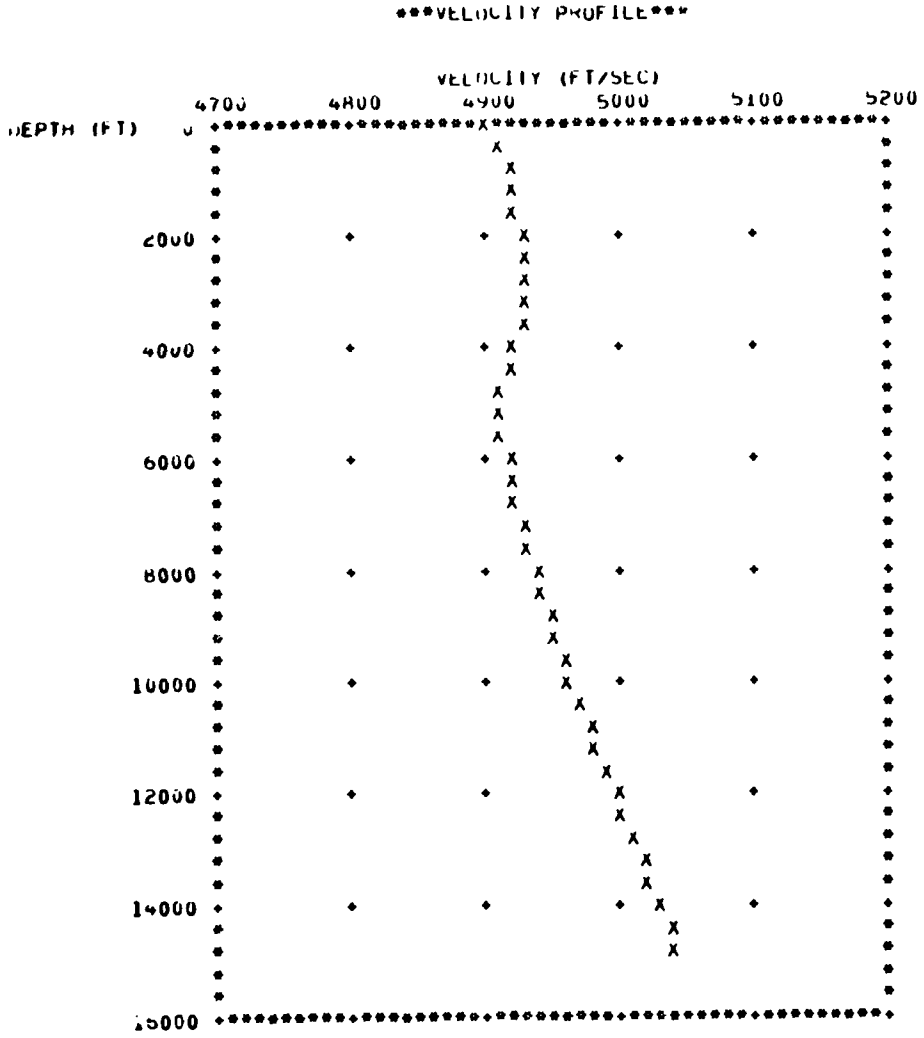
DEP (M)	TEMP (C)	SAL (PPT)
0.	10.93	35.50
2.	11.19	35.57
8.	11.40	35.63
268.	11.29	35.62
325.	11.04	35.58
372.	10.99	35.58
399.	10.75	35.55
425.	10.75	35.56
473.	10.52	35.52
493.	10.55	35.54
600.	10.21	35.51
800.	9.42	35.52
1000.	8.68	35.58
1200.	7.47	35.50
1500.	5.18	35.14
2000.	3.70	34.99

10[illegible]	[illegible]	35.58	2500.	3.19	34.97
1200.	[illegible]	[illegible]	000.	2.7	34.[illegible]
1500.	5.26	35.14	4000.	2.54	34.93
2000.	3.73	34.99	4620.	2.39	34.93
2500.	3.20	34.97			
3000.	2.79	34.94			
4000.	2.54	34.93			
4620.	2.39	34.92			

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	10.93	51.67	35.50	1494.365	4903.010
2.00	6.56	11.19	52.14	35.57	1495.409	4906.436
8.00	26.25	11.40	52.52	35.63	1496.323	4909.435
268.00	879.31	11.29	52.32	35.62	1500.173	4922.067
325.00	1066.33	11.04	51.87	35.58	1500.174	4922.072
372.00	1220.53	10.99	51.78	35.58	1500.770	4924.027
399.00	1309.12	10.75	51.35	35.55	1500.326	4922.569
425.00	1394.43	10.75	51.35	35.56	1500.769	4924.024
473.00	1551.91	10.52	50.94	35.52	1500.686	4923.751
493.00	1617.53	10.55	50.99	35.54	1501.147	4925.265
600.00	1968.60	10.21	50.38	35.51	1501.644	4926.894
800.00	2624.80	9.42	48.96	35.52	1502.094	4928.370
1000.00	3281.00	8.68	47.62	35.58	1502.723	4930.434
1200.00	3937.20	7.47	45.45	35.50	1501.341	4925.901
1500.00	4921.50	5.18	41.32	35.14	1496.787	4910.959
2000.00	6562.00	3.76	38.65	34.99	1498.890	4917.857
2500.00	8202.50	3.19	37.74	34.97	1505.231	4938.662
3000.00	9843.00	2.78	37.01	34.94	1512.088	4961.161
4000.00	13124.00	2.54	36.57	34.93	1528.480	5014.943
4620.00	15158.22	2.39	36.30	34.93	1538.824	5048.880

THE LAYER IS AT 3281.00 FEET (1000.05 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

CAPE ATL STATION 22 - AUG

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	17.49	63.48	35.66	1515.796	4973.325
10.00	32.81	17.16	62.89	35.65	1514.972	4970.625
20.00	65.62	16.81	62.26	35.65	1514.092	4967.735
30.00	98.43	16.09	60.96	35.65	1512.073	4961.112
50.00	164.05	14.36	57.85	35.65	1506.966	4944.357
75.00	246.08	13.08	55.54	35.65	1503.178	4931.928
100.00	328.10	12.47	54.45	35.64	1501.521	4926.490
125.00	410.13	12.21	53.98	35.63	1501.031	4924.883
150.00	492.15	12.01	53.62	35.62	1500.742	4923.933
200.00	656.20	11.75	53.15	35.60	1500.637	4923.591
250.00	820.25	11.59	52.86	35.58	1500.876	4924.373
300.00	984.30	11.43	52.57	35.57	1501.125	4925.190
400.00	1312.40	11.12	52.02	35.54	1501.640	4926.879
500.00	1640.50	10.80	51.44	35.51	1502.112	4928.431
600.00	1968.60	10.41	50.74	35.49	1502.340	4929.177
800.00	2624.80	9.67	49.41	35.56	1503.049	4931.504
1000.00	3281.00	8.75	47.75	35.58	1502.984	4931.289
1200.00	3937.20	7.50	45.50	35.47	1501.414	4926.140
1500.00	4921.50	5.07	41.13	35.13	1496.329	4909.457
2000.00	6562.00	3.65	38.57	34.96	1498.651	4917.073
2500.00	8202.50	3.20	37.76	34.95	1505.260	4938.757
3000.00	9843.00	2.86	37.15	34.94	1512.408	4962.210
4000.00	13124.00	2.57	36.63	34.91	1528.583	5015.280
4620.00	15158.22	2.39	36.30	34.89	1538.770	5048.704

BT DATA | HISTORICAL DATA | MERGED DATA

(MERGE FACTOR = 835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	19.00	35.64	0.	17.49	35.66	0.	19.00	35.64
22.	19.00	35.65	10.	17.16	35.65	22.	19.00	35.65
27.	18.80	35.65	20.	16.81	35.65	27.	18.80	35.65
29.	17.10	35.65	30.	16.09	35.65	29.	17.10	35.65
32.	16.90	35.65	50.	14.36	35.65	32.	16.90	35.65
33.	16.40	35.65	75.	13.08	35.65	33.	16.40	35.65
37.	15.30	35.65	100.	12.47	35.64	37.	15.30	35.65
38.	14.90	35.65	125.	12.21	35.63	38.	14.90	35.65
40.	14.70	35.65	150.	12.01	35.62	40.	14.70	35.65
50.	14.40	35.65	200.	11.75	35.60	50.	14.40	35.65
53.	14.10	35.65	250.	11.59	35.58	53.	14.10	35.65
66.	13.70	35.65	300.	11.43	35.57	66.	13.70	35.65
122.	13.00	35.63	400.	11.12	35.54	122.	13.00	35.63
165.	12.60	35.59	500.	10.80	35.51	165.	12.60	35.59
192.	12.60	35.60	600.	10.41	35.49	192.	12.60	35.60
207.	12.50	35.60	800.	9.67	35.56	207.	12.50	35.60

243.	12.00	35.55
.	10	56
294.	11.90	35.55
335.	11.90	35.56
414.	11.20	35.54

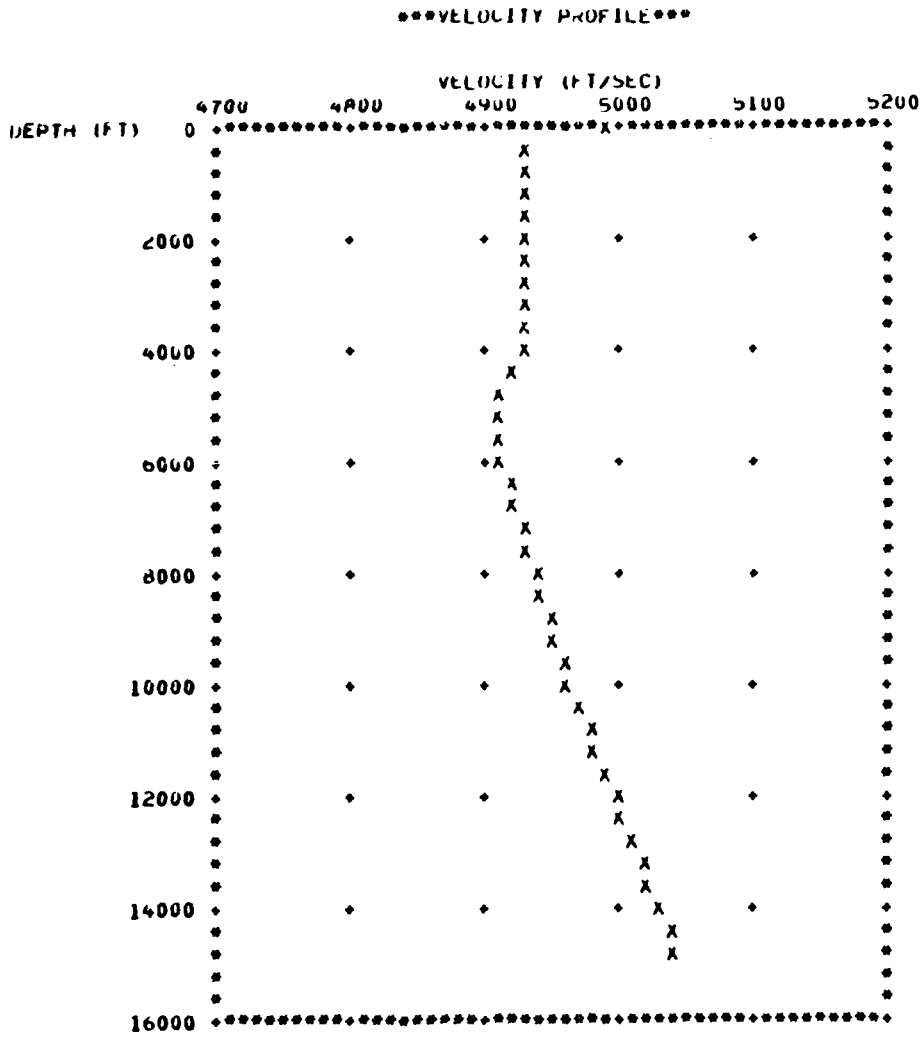
1200.	7.50	35.47
15		3
2000.	3.65	34.96
2500.	3.20	34.95
3000.	2.86	34.94
4000.	2.57	34.91
4620.	2.39	34.89

243.	12.00	35.55
285.	12.0	35.
294.	11.90	35.55
335.	11.90	35.56
414.	11.20	35.54
500.	10.90	35.51
600.	10.50	35.49
800.	9.73	35.56
1000.	8.79	35.58
1200.	7.53	35.47
1500.	5.09	35.13
2000.	3.66	34.96
2500.	3.20	34.95
3000.	2.86	34.94
4000.	2.57	34.91
4620.	2.39	34.91

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	19.00	66.20	35.64	1520.108	4987.476
22.00	72.18	19.00	66.20	35.65	1520.484	4988.707
27.00	88.59	18.83	65.89	35.65	1520.002	4987.127
29.00	95.15	17.10	62.78	35.65	1515.105	4971.060
32.00	104.99	16.90	62.42	35.65	1514.558	4969.264
33.00	108.27	16.40	61.52	35.65	1513.067	4964.374
37.00	121.40	15.30	59.54	35.65	1509.740	4953.457
38.00	124.68	14.90	58.82	35.65	1508.495	4949.374
40.60	133.24	14.70	58.46	35.65	1507.892	4947.395
50.00	164.05	14.40	57.92	35.65	1507.095	4944.779
53.00	173.89	14.10	57.38	35.65	1506.175	4941.761
66.00	216.55	13.70	56.66	35.65	1505.083	4938.177
122.00	400.28	13.00	55.40	35.63	1503.656	4933.494
165.00	541.37	12.60	54.68	35.59	1502.962	4931.219
192.00	629.95	12.60	54.68	35.60	1503.420	4932.721
207.00	679.17	12.50	54.50	35.60	1503.319	4932.390
214.00	702.13	12.20	53.96	35.59	1502.408	4929.402
243.00	797.28	12.00	53.60	35.55	1502.136	4928.508
285.00	935.09	12.00	53.60	35.56	1502.840	4930.819
294.00	964.61	11.90	53.42	35.55	1502.628	4930.123
335.00	1099.14	11.90	53.42	35.56	1503.317	4932.382
414.00	1358.33	11.20	52.16	35.54	1502.146	4928.540
500.00	1640.50	10.90	51.63	35.51	1502.482	4929.644
600.00	1968.60	10.50	50.89	35.49	1502.652	4930.200
800.00	2624.80	9.73	49.52	35.56	1503.271	4932.231
1000.00	3281.00	8.79	47.83	35.58	1503.142	4931.808
1200.00	3937.20	7.53	45.55	35.47	1501.528	4926.513
1500.00	4921.50	5.09	41.16	35.13	1496.400	4909.687
2000.00	6562.00	3.66	38.58	34.96	1498.680	4917.169
2500.00	8202.50	3.20	37.77	34.95	1505.272	4938.796
3000.00	9843.00	2.85	37.15	34.94	1512.413	4962.226
4000.00	13124.00	2.57	36.63	34.91	1528.584	5015.283
4620.00	15158.22	2.39	36.30	34.91	1538.798	5048.795

THE LAYER IS AT 72.18 FEET (22.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: ATL. STATION 2H - FEB WIN 1

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	3.32	37.98	32.41	1460.472	4791.807
10.00	32.81	3.38	38.08	32.46	1460.960	4793.411
20.00	65.62	3.47	38.25	32.51	1461.577	4795.435
30.00	98.43	3.63	38.53	32.59	1462.533	4798.570
50.00	164.05	4.12	39.42	32.79	1465.208	4807.348
75.00	246.08	5.02	41.04	33.22	1469.950	4822.905
100.00	328.10	6.05	42.89	33.68	1475.170	4840.034
125.00	410.13	6.80	44.24	34.06	1479.073	4852.838
150.00	492.15	7.17	44.91	34.31	1481.266	4860.033
200.00	656.20	7.31	45.16	34.59	1483.000	4865.722
250.00	820.25	6.89	44.40	34.77	1482.413	4863.797
300.00	984.30	6.40	43.52	34.90	1481.468	4860.696
400.00	1312.40	5.29	41.52	34.88	1478.613	4851.330
500.00	1640.50	4.81	40.66	34.91	1478.332	4850.408
600.00	1968.60	4.59	40.26	34.93	1479.101	4852.930
800.00	2624.80	4.28	39.70	34.95	1481.151	4859.656
1000.00	3281.00	4.05	39.29	34.95	1483.514	4867.409
1200.00	3937.20	3.88	38.98	34.95	1486.137	4876.016
1500.00	4921.50	3.70	38.66	34.95	1490.408	4890.028
2000.00	6562.00	3.41	38.14	34.95	1497.627	4913.713
2500.00	8202.50	3.09	37.56	34.95	1504.794	4937.230
3000.00	9843.00	2.60	36.68	34.92	1511.275	4958.494

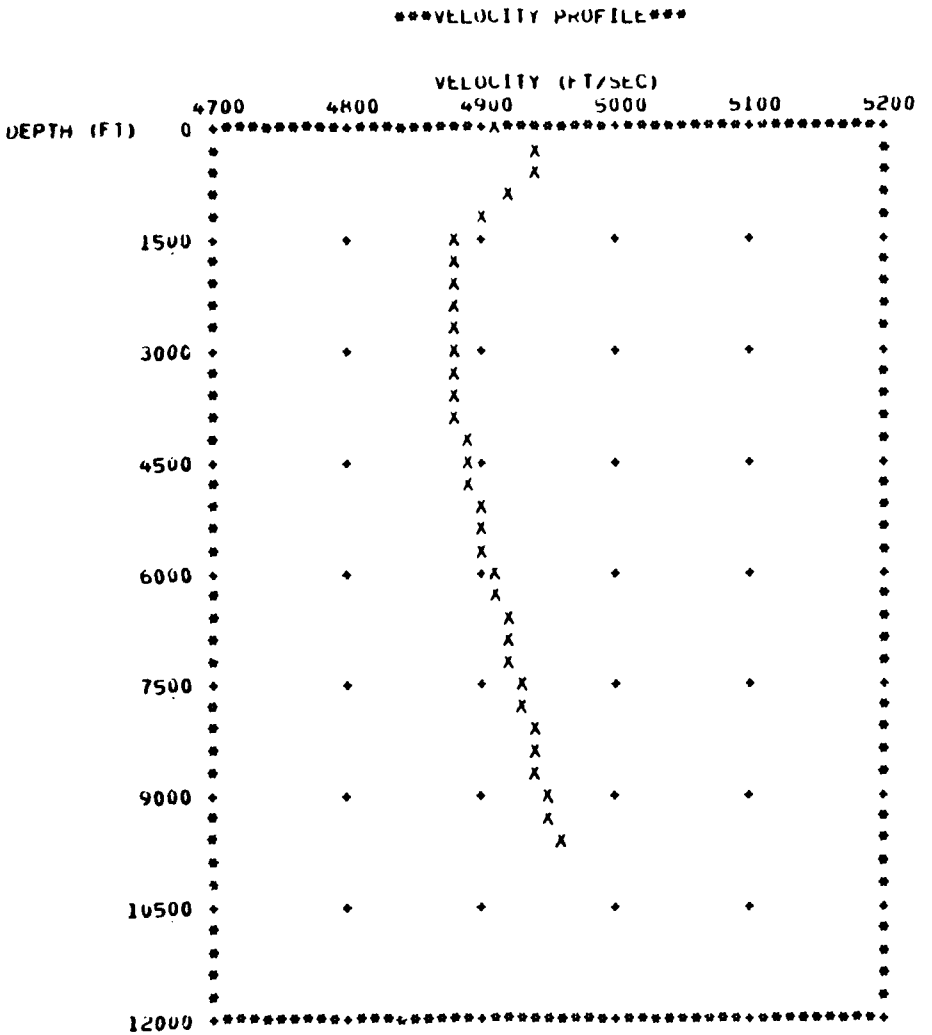
BT DATA			HISTORICAL DATA			MERGED DATA		
			'MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	12.86	32.41	0.	3.32	32.41	0.	12.86	32.41
16.	13.09	32.49	10.	3.38	32.46	16.	13.09	32.49
30.	13.09	32.57	20.	3.47	32.51	30.	13.09	32.57
35.	13.14	32.60	30.	3.63	32.59	35.	13.14	32.60
39.	13.41	32.68	50.	4.12	32.79	39.	13.41	32.68
48.	13.68	32.77	75.	5.02	33.22	48.	13.68	32.77
70.	13.96	33.13	100.	6.05	33.68	70.	13.96	33.13
85.	13.96	33.40	125.	6.80	34.06	85.	13.96	33.40
92.	14.11	33.53	150.	7.17	34.31	92.	14.11	33.53
104.	14.11	33.74	200.	7.31	34.59	104.	14.11	33.74
122.	14.57	33.94	250.	6.89	34.77	122.	14.57	33.94
128.	15.05	34.09	300.	6.40	34.90	128.	15.05	34.09
144.	13.92	34.25	400.	5.29	34.88	144.	13.92	34.25
147.	13.37	34.28	500.	4.81	34.91	147.	13.37	34.28
151.	13.50	34.32	600.	4.59	34.93	151.	13.50	34.32
171.	13.29	34.39	800.	4.28	34.95	171.	13.29	34.39
178.	13.54	34.47	1000.	4.05	34.95	178.	13.54	34.47
186.	13.40	34.51	1200.	3.88	34.95	186.	13.40	34.51

	0	57	2000.	3.[illegible]	34.[illegible]	221.	12.50	34.67
246.	11.95	34.76	2500.	3.[illegible]	34.[illegible]	246.	1.9	34.
263.	11.53	34.80	3000.	2.60	34.92	263.	11.53	34.80
290.	11.14	34.87	4000.	2.57	34.91	290.	11.14	34.87
302.	10.39	34.90	4620.	2.39	34.89	302.	10.39	34.90
345.	9.20	34.89	5800.	2.29	34.82	345.	9.20	34.89
393.	8.61	34.88	0.	0.00	0.00	393.	8.61	34.88
404.	8.22	34.88	0.	0.00	0.00	404.	8.22	34.88
424.	7.89	34.89	0.	0.00	0.00	424.	7.89	34.89
460.	7.37	34.90	0.	0.00	0.00	460.	7.37	34.90
505.	6.94	34.91	0.	0.00	0.00	505.	6.94	34.91
			0.	0.00	0.00	600.	6.38	34.93
						290.	11.14	34.87
						302.	10.39	34.90
						345.	9.20	34.89
						393.	8.61	34.88
						404.	8.22	34.88
						424.	7.89	34.89
						460.	7.37	34.90
						505.	6.94	34.91
						600.	6.38	34.93
						800.	5.53	34.95
						1000.	4.92	34.95
						1200.	4.49	34.95
						1500.	4.05	34.95
						2000.	3.55	34.95
						2500.	3.15	34.95
						3000.	2.62	34.95

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.86	55.15	32.41	1497.166	4912.200
16.00	52.50	13.09	55.56	32.49	1498.304	4915.936
30.00	98.43	13.09	55.56	32.57	1498.634	4917.019
35.00	114.84	13.14	55.65	32.60	1498.916	4917.944
39.00	127.96	13.41	56.14	32.68	1499.989	4921.464
48.00	157.49	13.68	56.62	32.77	1501.146	4925.259
70.00	229.67	13.96	57.13	33.13	1502.879	4930.945
85.00	278.89	13.96	57.13	33.40	1503.457	4932.844
92.00	301.85	14.11	57.40	33.53	1504.222	4935.353
104.00	341.22	14.11	57.40	33.74	1504.575	4936.839
122.00	400.28	14.57	58.23	33.94	1506.710	4943.516
128.00	419.97	15.05	59.09	34.09	1508.524	4949.467
144.00	472.46	13.92	57.06	34.25	1505.338	4939.015
147.00	482.31	13.37	56.07	34.28	1503.609	4933.340
151.00	495.43	13.50	56.30	34.32	1504.150	4935.117
171.00	561.05	13.29	55.92	34.39	1503.870	4934.197
178.00	584.02	13.54	56.37	34.47	1504.913	4937.618
186.00	610.27	13.40	56.12	34.51	1504.635	4936.708
198.00	649.64	13.40	56.12	34.58	1504.915	4937.627
221.00	725.10	12.50	54.50	34.67	1502.375	4929.292
246.00	807.13	11.95	53.51	34.76	1501.012	4924.821
263.00	862.90	11.53	52.75	34.80	1499.893	4921.149
290.00	951.49	11.14	52.05	34.87	1499.056	4918.401
302.00	990.86	10.39	50.70	34.90	1496.612	4910.386
345.00	1131.95	9.20	48.56	34.89	1492.957	4898.393
393.00	1289.43	8.61	47.50	34.88	1491.527	4893.700
404.00	1325.52	8.22	46.80	34.88	1490.231	4889.449
424.00	1391.14	7.89	46.20	34.89	1489.308	4886.418
460.00	1509.26	7.37	45.27	34.90	1487.907	4881.823
505.00	1656.91	6.94	44.49	34.91	1486.987	4878.803
600.00	1968.60	6.38	43.48	34.93	1486.357	4876.738
800.00	2624.80	5.53	41.95	34.95	1486.274	4876.465
1000.00	3281.00	4.92	40.85	34.95	1487.117	4879.230
1200.00	3937.20	4.49	40.07	34.95	1488.664	4884.306
1500.00	4921.50	4.05	39.29	34.95	1491.886	4894.879
2000.00	6562.00	3.55	38.40	34.95	1498.230	4915.693
2500.00	8202.50	3.15	37.67	34.95	1505.040	4938.038
3000.00	9843.00	2.62	36.72	34.95	1511.417	4958.960

THE LAYER IS AT 419.97 FEET (128.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
1500
3000
4500
6000
7500
9000
10500
12000

ICAPS: MED. STATION 3A - AUG

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.05	77.09	38.68	1539.076	5049.709
10.00	32.81	24.46	76.03	38.69	1537.877	5045.774
20.00	65.62	22.85	73.13	38.63	1534.092	5033.355
30.00	98.43	20.45	68.81	38.56	1528.024	5013.447
50.00	164.05	17.46	63.43	38.55	1520.021	4987.189
75.00	246.08	16.03	60.85	[illegible].65	1516.303	4974.990
100.00	328.10	15.44	59.79	38.72	1514.993	4970.692
125.00	410.13	15.20	59.36	38.77	1514.721	4969.800
150.00	492.15	15.04	59.07	38.81	1514.682	4969.672
200.00	656.20	14.85	58.73	38.85	1514.957	4970.573
250.00	820.25	14.68	58.42	38.86	1515.255	4971.551
300.00	984.30	14.53	58.15	38.86	1515.601	4972.688
400.00	1312.40	14.28	57.70	38.84	1516.424	4975.388
500.00	1640.50	14.09	57.36	38.82	1517.436	4978.709
600.00	1968.60	13.94	57.09	38.79	1518.564	4982.408
800.00	2624.80	13.78	56.80	38.76	1521.311	4991.420
1000.00	3281.00	13.70	56.66	38.74	1524.337	5001.348
1200.00	3937.20	13.66	56.59	38.72	1527.501	5011.730
1500.00	4921.50	13.66	56.59	38.71	1532.484	5028.081
2000.00	6562.00	13.67	56.61	38.69	1540.862	5055.569
2500.00	8202.50	13.67	56.61	38.68	1549.275	5083.170
3000.00	9843.00	13.71	56.68	38.65	1557.843	5111.284

BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 700*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	26.24	38.68	0.	25.05	38.68	0.	26.24	38.68
18.	26.14	38.64	10.	24.46	38.69	18.	26.14	38.64
22.	21.97	38.62	20.	22.85	38.63	22.	21.97	38.62
29.	19.19	38.57	30.	20.45	38.56	29.	19.19	38.57
35.	17.68	38.56	50.	17.46	38.55	35.	17.68	38.56
41.	16.62	38.55	75.	16.03	38.65	41.	16.62	38.55
46.	15.91	38.55	100.	15.44	38.72	46.	15.91	38.55
49.	15.81	38.55	125.	15.20	38.77	49.	15.81	38.55
51.	15.5.	38.55	150.	15.04	38.81	51.	15.51	38.55
59.	15.00	38.59	200.	14.85	38.85	59.	15.00	38.59
68.	14.75	38.62	250.	14.68	38.86	68.	14.75	38.62
77.	14.70	38.63	300.	14.53	38.86	77.	14.70	38.63
84.	14.82	38.68	400.	14.28	38.84	84.	14.82	38.68
135.	14.85	38.79	500.	14.09	38.82	135.	14.85	38.79
170.	14.65	38.83	600.	13.94	38.79	170.	14.65	38.83
215.	14.65	38.85	800.	13.78	38.76	215.	14.65	38.85
253.	14.39	38.86	1000.	13.70	38.74	253.	14.39	38.86
275.	14.39	38.86	1200.	13.66	38.72	275.	14.39	38.86

286.	14.24	38.86
370.	14.04	38.82
434.	14.04	38.83
443.	13.94	38.83

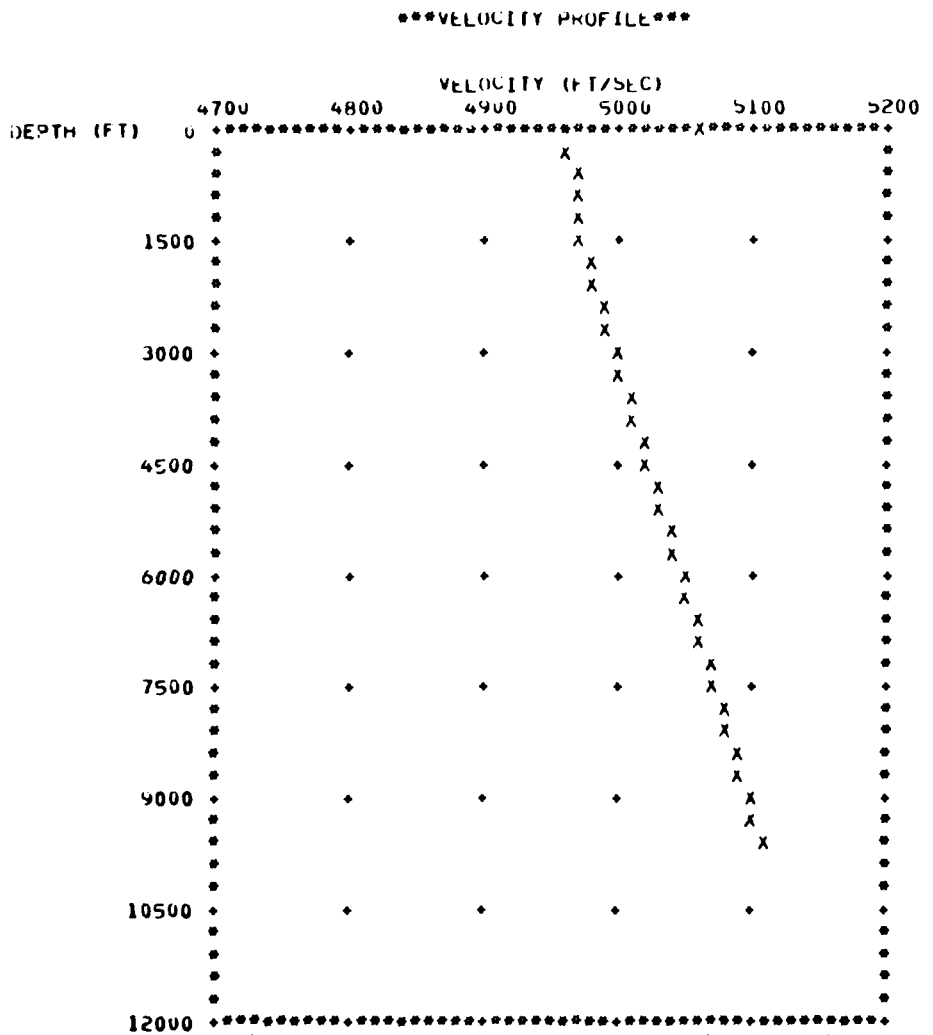
1500.	13.66	38.71
2000.	13.67	38.69
2500.	13.67	38.68
3000.	13.71	38.65
4000.	2.57	34.91

286.	.4.2	38.
370.	14.04	38.82
434.	14.04	38.83
443.	13.94	38.83
500.	13.91	38.82
500.	13.91	38.82
600.	13.81	38.79
800.	13.72	38.76
1000.	13.67	38.74
1200.	13.65	38.72
1500.	13.65	38.71
2000.	13.67	38.69
2500.	13.67	38.68
3000.	13.71	38.68

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MI./SEC.	VELOCITY FT./SEC.
0.00	0.00	26.24	79.23	38.68	1541.780	5058.581
18.00	59.06	26.14	79.05	38.64	1541.812	5058.686
22.00	72.18	21.97	71.55	38.62	1531.906	5026.182
29.00	95.15	19.19	66.54	38.57	1524.602	5002.219
35.00	114.84	17.68	63.82	38.56	1520.422	4988.506
41.00	134.52	16.62	61.92	38.55	1517.404	4978.603
46.00	150.93	15.91	60.64	38.55	1515.342	4971.838
49.00	160.77	15.81	60.46	38.55	1515.085	4970.992
51.00	167.33	15.51	59.92	38.55	1514.201	4968.093
59.00	193.58	15.00	59.00	38.59	1512.788	4963.457
68.00	223.11	14.75	58.55	38.62	1512.195	4961.512
77.00	252.64	14.70	58.46	38.63	1512.192	4961.502
84.00	275.60	14.82	58.68	38.68	1512.744	4963.312
135.00	442.94	14.85	58.73	38.79	1513.811	4966.815
170.00	557.77	14.65	58.37	38.83	1513.805	4966.795
215.00	705.42	14.65	58.37	38.85	1514.577	4969.327
253.00	830.09	14.39	57.90	38.86	1514.385	4968.697
275.00	902.28	14.39	57.90	38.86	1514.746	4969.882
286.00	938.37	14.24	57.63	38.86	1514.448	4968.905
370.00	1213.97	14.04	57.27	38.82	1515.138	4971.167
434.00	1423.95	14.04	57.27	38.83	1516.206	4974.672
443.00	1453.48	13.94	57.09	38.83	1516.030	4974.094
500.00	1640.50	13.91	57.04	38.82	1516.854	4976.799
600.00	1968.60	13.81	56.86	38.79	1518.155	4981.066
800.00	2624.80	13.72	56.69	38.76	1521.109	4990.760
1000.00	3281.00	13.67	56.61	38.74	1524.238	5001.024
1200.00	3937.20	13.65	56.56	38.72	1527.452	5011.571
1500.00	4921.50	13.65	56.58	38.71	1532.468	5028.026
2000.00	6562.00	13.67	56.60	38.69	1540.860	5055.560
2500.00	8202.50	13.67	56.61	38.68	1549.274	5083.168
3000.00	9843.00	13.71	56.68	38.68	1557.881	5111.409

THE LAYER IS AT 59.06 FEET (18.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
1500
3000
4500
6000
7500
9000
10500
12000

APPENDIX B

Section B2

ICAPS Environmental Profiles and Detailed BT Data
(Different Water Mass Selections)

ICAPS: ATL. STATION 2A - FEB WIN 1

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.39	77.70	35.91	1536.754	5042.089
10.00	32.81	25.38	77.68	35.90	1536.885	5042.518
20.00	65.62	25.37	77.67	35.89	1537.015	5042.948
30.00	98.43	25.35	77.63	35.89	1537.134	5043.337
50.00	164.05	25.31	77.56	35.91	1537.394	5044.190
75.00	246.08	24.62	76.32	36.08	1536.377	5040.852
100.00	328.10	21.35	70.43	36.22	1528.804	5016.007
125.00	410.13	18.15	64.67	36.02	1520.195	4987.761
150.00	492.15	15.74	60.33	35.83	1513.180	4964.742
200.00	656.20	13.29	55.92	35.58	1505.834	4940.643
250.00	820.25	11.61	52.90	35.32	1500.615	4923.516
300.00	984.30	10.61	51.10	35.17	1497.716	4914.005
400.00	1312.40	9.32	48.78	34.98	1494.420	4903.193
500.00	1640.50	8.44	47.19	34.90	1492.669	4897.446
600.00	1968.60	7.54	45.57	34.83	1490.782	4891.256
800.00	2624.80	6.14	43.05	34.73	1488.449	4883.601
1000.00	3281.00	5.36	41.65	34.77	1488.676	4884.346
1200.00	3937.20	4.98	40.96	34.86	1490.577	4890.584
1500.00	4921.50	4.42	39.96	34.96	1493.427	4899.935
2000.00	6562.00	3.54	38.37	34.97	1498.202	4915.601
2500.00	8202.50	3.06	37.51	34.94	1504.654	4936.768
3000.00	9843.00	2.85	37.13	34.92	1512.338	4961.981
4000.00	13124.00	2.40	36.32	34.89	1527.836	5012.830
5000.00	16405.00	2.10	35.78	34.86	1544.294	5066.829
5800.00	19029.80	1.86	35.35	34.84	1557.694	5110.794

BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	25.61	35.88	0.	25.39	35.91	0.	25.61	35.88
26.	25.61	35.89	10.	25.38	35.90	26.	25.61	35.89
27.	25.50	35.89	20.	25.37	35.89	27.	25.50	35.89
39.	25.45	35.90	30.	25.35	35.89	39.	25.45	35.90
79.	24.81	36.10	50.	25.31	35.91	79.	24.81	36.10
95.	23.23	36.19	75.	24.62	36.08	95.	23.23	36.19
105.	21.72	36.18	100.	21.35	36.22	105.	21.72	36.18
119.	19.49	36.07	125.	18.15	36.02	119.	19.49	36.07
148.	17.58	35.85	150.	15.74	35.83	148.	17.58	35.85
175.	15.76	35.71	200.	13.29	35.58	175.	15.76	35.71
201.	14.60	35.57	250.	11.61	35.32	201.	14.60	35.57
224.	13.64	35.46	300.	10.61	35.17	224.	13.64	35.46
250.	13.01	35.32	400.	9.32	34.98	250.	13.01	35.32
310.	11.41	35.11	500.	8.44	34.90	310.	11.41	35.11

395.	10.32	34.99
4---		

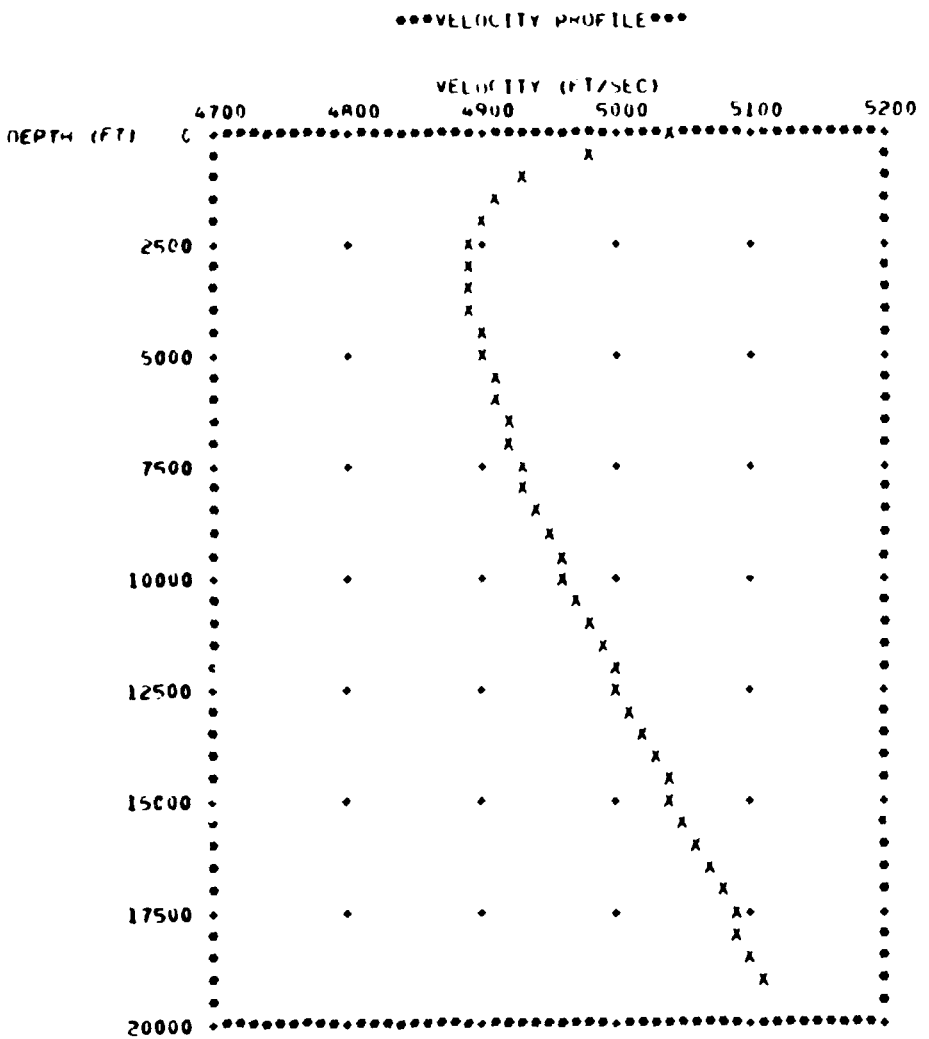
600.	7.54	34.83
800	6..	34.
1000.	5.36	34.77
1200.	4.98	34.86
1500.	4.42	34.96
2000.	3.54	34.97
2500.	3.06	34.94
3000.	2.85	34.92
4000.	2.40	34.89
5000.	2.10	34.86
5800.	1.86	34.84

395.	10.32	34.99
5.	.42	..94
600.	8.03	34.83
800.	6.48	34.73
1000.	5.60	34.77
1200.	5.15	34.86
1500.	4.52	34.96
2000.	3.58	34.97
2500.	3.08	34.94
3000.	2.86	34.92
4000.	2.40	34.89
5000.	2.10	34.86
5800.	1.86	34.86

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.61	78.10	35.88	1537.227	5043.641
26.00	85.31	25.61	78.10	35.89	1537.670	5045.095
27.00	88.59	25.50	77.90	35.89	1537.432	5044.316
39.00	127.96	25.45	77.81	35.90	1537.525	5044.620
79.00	259.20	24.81	76.66	36.10	1536.917	5042.626
95.00	311.70	23.23	73.81	36.19	1533.468	5031.309
105.00	344.51	21.72	71.10	36.18	1529.802	5019.281
119.00	390.44	19.49	67.08	36.07	1523.936	5000.035
148.00	485.59	17.58	63.64	35.85	1518.707	4982.876
175.00	574.18	15.76	60.37	35.71	1513.498	4965.787
201.00	659.48	14.60	58.28	35.57	1510.114	4954.684
224.00	734.94	13.64	56.55	35.46	1507.228	4945.215
250.00	820.25	13.01	55.42	35.32	1505.394	4939.197
330.00	1082.73	11.41	52.54	35.11	1500.965	4924.665
395.00	1296.00	10.32	50.58	34.99	1498.002	4914.943
455.00	1492.86	9.42	48.96	34.94	1495.636	4907.182
600.00	1969.60	8.03	46.45	34.83	1492.656	4897.406
800.00	2624.80	6.48	43.66	34.73	1489.803	4888.042
1000.00	3281.00	5.60	42.07	34.77	1489.637	4887.500
1200.00	3937.20	5.15	41.26	34.86	1491.253	4892.802
1500.00	4921.50	4.52	40.13	34.96	1493.825	4901.241
2000.00	6562.00	3.58	38.44	34.97	1498.366	4916.140
2500.00	8202.50	3.08	37.54	34.94	1504.721	4936.989
3000.00	9843.00	2.86	37.14	34.92	1512.365	4962.070
4000.00	13124.00	2.40	36.32	34.89	1527.841	5012.845
5000.00	16405.00	2.10	35.78	34.86	1544.295	5066.832
5800.00	19029.80	1.86	35.35	34.86	1557.722	5110.884

THE LAYER IS AT 85.31 FEET (26.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

JCAPS: ATL. STATION ZM - FEB WIN 2

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	10.20	50.36	34.35	1490.283	4889.618
10.00	32.81	10.21	50.38	34.37	1490.508	4890.356
20.00	65.62	10.43	50.86	34.47	1491.773	4894.509
30.00	98.43	10.81	51.46	34.57	1493.246	4899.339
50.00	164.05	11.41	52.54	34.81	1495.997	4908.368
75.00	246.08	12.09	53.76	35.08	1499.107	4918.572
100.00	328.10	12.45	54.41	35.26	1500.974	4924.695
125.00	410.13	12.48	54.46	35.37	1501.623	4926.826
150.00	492.15	12.28	54.10	35.42	1501.414	4926.139
200.00	656.20	11.26	52.27	35.36	1498.623	4916.983
250.00	820.25	10.02	50.04	35.24	1494.861	4904.638
300.00	984.30	8.82	47.88	35.14	1491.126	4892.385
400.00	1312.40	6.87	44.37	35.02	1485.128	4872.705
500.00	1640.50	5.69	42.24	34.98	1482.019	4862.503
600.00	1968.60	5.04	41.07	34.97	1481.009	4859.192
800.00	2624.80	4.46	40.03	34.97	1481.927	4862.202
1000.00	3281.00	4.14	39.52	34.96	1484.071	4869.236
1200.00	3937.20	3.99	39.18	34.96	1486.612	4877.574
1500.00	4921.50	3.77	38.79	34.95	1490.702	4890.994
2000.00	6562.00	3.42	38.16	34.95	1497.669	4913.851
2500.00	8202.50	3.02	37.44	34.94	1504.484	4936.212
3000.00	9843.00	2.73	36.91	34.93	1511.842	4960.355

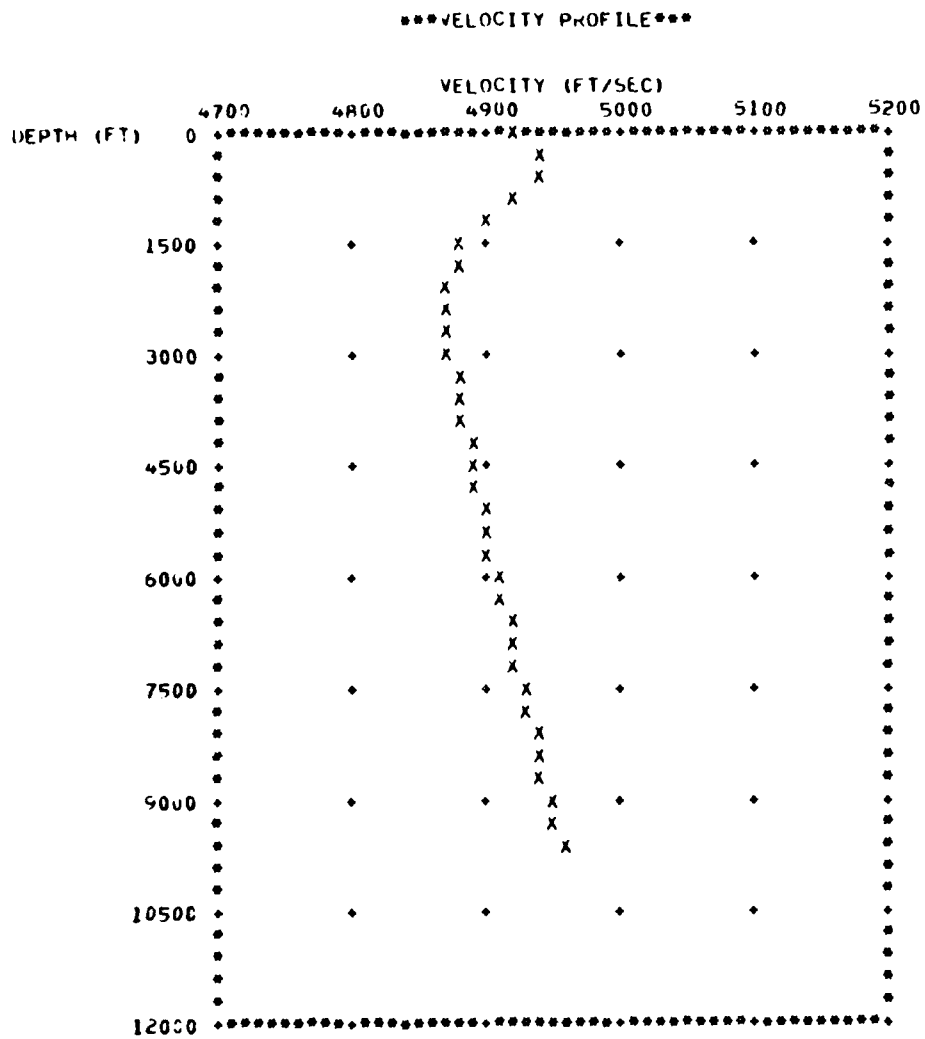
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	12.86	34.35	0.	10.20	34.35	0.	12.86	34.35
16.	13.09	34.43	10.	10.21	34.37	16.	13.09	34.43
30.	13.09	34.57	20.	10.48	34.47	30.	13.09	34.57
35.	13.14	34.59	30.	10.81	34.57	35.	13.14	34.59
39.	13.41	34.68	50.	11.41	34.81	39.	13.41	34.68
48.	13.68	34.79	75.	12.09	35.08	48.	13.68	34.79
70.	13.96	35.01	100.	12.45	35.26	70.	13.96	35.01
85.	13.96	35.03	125.	12.48	35.37	85.	13.96	35.03
92.	14.11	35.08	150.	12.28	35.42	92.	14.11	35.08
104.	14.11	35.09	200.	11.26	35.36	104.	14.11	35.09
122.	14.57	35.23	250.	10.02	35.24	122.	14.57	35.23
128.	15.05	35.38	300.	8.82	35.14	128.	15.05	35.38
144.	13.92	35.41	400.	6.87	35.02	144.	13.92	35.41
147.	13.37	35.30	500.	5.69	34.98	147.	13.37	35.30
151.	13.50	35.35	600.	5.04	34.97	151.	13.50	35.35
171.	13.29	35.31	800.	4.46	34.97	171.	13.29	35.31
178.	13.54	35.39	1000.	4.14	34.96	178.	13.54	35.39

:	1	:	200	3.[illegible]	34.[illegible]	186.	13.40	35.35
198.	13.40	35.36	1500.	3.[illegible]	34.[illegible]	[illegible]	[illegible]	[illegible]
221.	12.50	35.31	2000.	3.42	34.95	221.	12.50	35.31
246.	11.95	35.25	2500.	3.02	34.94	246.	11.95	35.25
263.	11.53	35.21	3000.	2.73	34.93	263.	11.53	35.21
290.	11.14	35.16	4000.	2.40	34.89	290.	11.14	35.16
302.	10.39	35.14	5000.	2.10	34.86	302.	10.39	35.14
345.	9.20	35.09	5800.	1.86	34.84	345.	9.20	35.09
393.	8.61	35.03	0.	0.00	0.00	393.	8.61	35.03
404.	8.22	35.02	0.	0.00	0.00	404.	8.22	35.02
424.	7.89	35.01	0.	0.00	0.00	424.	7.89	35.01
460.	7.37	35.00	0.	0.00	0.00	460.	7.37	35.00
505.	6.94	34.98	0.	0.00	0.00	505.	6.94	34.98
			0.	0.00	0.00	600.	6.11	34.97
						290.	11.14	35.16
						302.	10.39	35.14
						345.	9.20	35.09
						393.	8.61	35.03
						404.	8.22	35.02
						424.	7.89	35.01
						460.	7.37	35.00
						505.	6.94	34.98
						600.	6.11	34.97
						800.	5.21	34.97
						1000.	4.70	34.96
						1200.	4.35	34.96
						1500.	3.98	34.95
						2000.	3.51	34.95
						2500.	3.05	34.94
						3000.	2.74	34.94

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.86	55.15	34.35	1499.587	4920.145
16.00	52.50	13.09	55.56	34.43	1500.721	4923.866
30.00	98.43	13.09	55.56	34.57	1501.125	4925.190
3[illegible].00	1.4.84	13.14	55.65	34.59	1501.404	4926.107
39.00	127.96	13.41	56.14	34.68	1502.473	4929.614
48.00	157.49	13.68	56.62	34.79	1503.647	4933.466
70.00	229.67	13.96	57.13	35.01	1505.206	4938.580
85.00	278.89	13.96	57.13	35.03	1505.467	4939.437
92.00	301.85	14.11	57.40	35.08	1506.135	4941.629
104.00	341.22	14.11	57.40	35.09	1506.346	4942.320
122.00	400.28	14.57	58.23	35.23	1508.296	4948.720
128.00	419.97	15.05	59.09	35.38	1510.104	4954.653
144.00	472.46	13.92	57.06	35.41	1506.777	4943.734
147.00	482.31	13.37	56.07	35.30	1504.888	4937.537
151.00	495.43	13.50	56.30	35.35	1505.442	4939.354
171.00	561.05	13.29	55.92	35.31	1505.019	4937.967
178.00	584.02	13.54	56.37	35.39	1506.059	4941.381
186.00	610.27	13.40	56.12	35.35	1505.682	4940.142
198.00	649.64	13.40	56.12	35.36	1505.894	4940.839
221.00	725.10	12.50	54.50	35.31	1503.186	4931.953
246.00	807.13	11.95	53.51	35.25	1501.637	4926.872
263.00	862.90	11.53	52.75	35.21	1500.414	4922.859
290.00	951.49	11.14	52.05	35.16	1499.420	4919.598
302.00	990.86	10.39	50.70	35.14	1496.918	4911.388
345.00	1131.95	9.20	48.56	35.09	1493.210	4899.223
393.00	1289.43	8.61	47.50	35.03	1491.719	4894.329
404.00	1325.52	8.22	46.80	35.02	1490.411	4890.038
424.00	1391.14	7.89	46.20	35.01	1489.469	4886.948
460.00	1509.26	7.37	45.27	35.00	1488.036	4882.247
505.00	1656.91	6.94	44.49	34.98	1487.077	4879.100
600.00	1968.60	6.11	43.00	34.97	1485.346	4873.422
800.00	2624.80	5.21	41.37	34.97	1485.000	4872.286
1000.00	3281.00	4.70	40.46	34.96	1486.231	4876.324
1200.00	3937.20	4.35	39.84	34.96	1488.126	4882.541
1500.00	4921.50	3.98	39.17	34.95	1491.588	4893.900
2000.00	6562.00	3.51	38.31	34.95	1498.031	4915.038
2500.00	8202.50	3.05	37.50	34.94	1504.632	4936.696
3000.00	9843.00	2.74	36.94	34.94	1511.916	4960.597

THE LAYER IS AT 419.97 FEET (128.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
1500
3000
4500
6000
7500
9000
10500
12000

APPENDIX B

Section B3

ICAPS Environmental Profiles and Less Dense BT Data

ICAPS: HISTORICAL DATA FEB1C SHORT HT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	14.92	58.86	34.57	1506.609	4943.183
10.00	32.81	14.92	58.86	34.57	1506.772	4943.719
20.00	65.62	14.90	58.82	34.57	1506.872	4944.046
30.00	98.43	14.87	58.77	34.56	1506.927	4944.228
50.00	164.05	14.84	58.71	34.56	1507.158	4944.986
75.00	246.08	14.68	58.42	34.53	1507.018	4944.528
100.00	328.10	14.39	57.90	34.50	1506.457	4942.686
125.00	410.13	13.98	57.16	34.47	1505.497	4939.535
150.00	492.15	13.58	56.44	34.44	1504.554	4936.440
200.00	656.20	12.73	54.91	34.39	1502.466	4929.590
250.00	820.25	11.93	53.47	34.33	1500.470	4923.043
300.00	984.30	11.10	51.98	34.27	1498.309	4915.951
400.00	1312.40	9.39	48.90	34.15	1493.605	4900.518
500.00	1640.50	7.44	45.39	34.05	1487.721	4881.212
600.00	1968.60	5.81	42.46	34.01	1482.857	4865.253
800.00	2624.80	4.18	39.52	34.15	1479.650	4854.731
1000.00	3281.00	3.45	38.21	34.30	1480.099	4856.205
1200.00	3937.20	3.07	37.53	34.41	1481.968	4862.335
1500.00	4921.50	2.62	36.72	34.51	1485.205	4872.958
2000.00	6562.00	1.95	35.51	34.60	1490.883	4891.587
2500.00	8202.50	1.66	34.99	34.63	1498.203	4915.603
3000.00	9843.00	1.56	34.81	34.66	1506.434	4942.610
4000.00	13124.00	1.50	34.70	34.67	1523.692	4999.201
5000.00	16405.00	1.55	34.79	34.68	1541.717	5058.374
5480.00	17979.88	1.57	34.83	34.68	1550.454	5087.040

BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	17.13	34.45	0.	14.92	34.57	0.	17.13	34.45
98.	17.20	34.49	10.	14.92	34.57	98.	17.20	34.49
152.	17.00	34.44	20.	14.90	34.57	152.	17.00	34.44
156.	16.17	34.43	30.	14.87	34.56	156.	16.17	34.43
476.	9.87	34.07	50.	14.84	34.56	476.	9.87	34.07
			75.	14.68	34.53	600.	7.45	34.01
			100.	14.39	34.50	800.	5.32	34.15
			125.	13.98	34.47	1000.	4.25	34.30
			150.	13.58	34.44	1200.	3.63	34.41
			200.	12.73	34.39	1500.	2.94	34.51
			250.	11.93	34.33	2000.	2.08	34.60
			300.	11.10	34.27	2500.	1.71	34.63
			400.	9.39	34.15	3000.	1.58	34.66
			500.	7.44	34.05	4000.	1.50	34.67

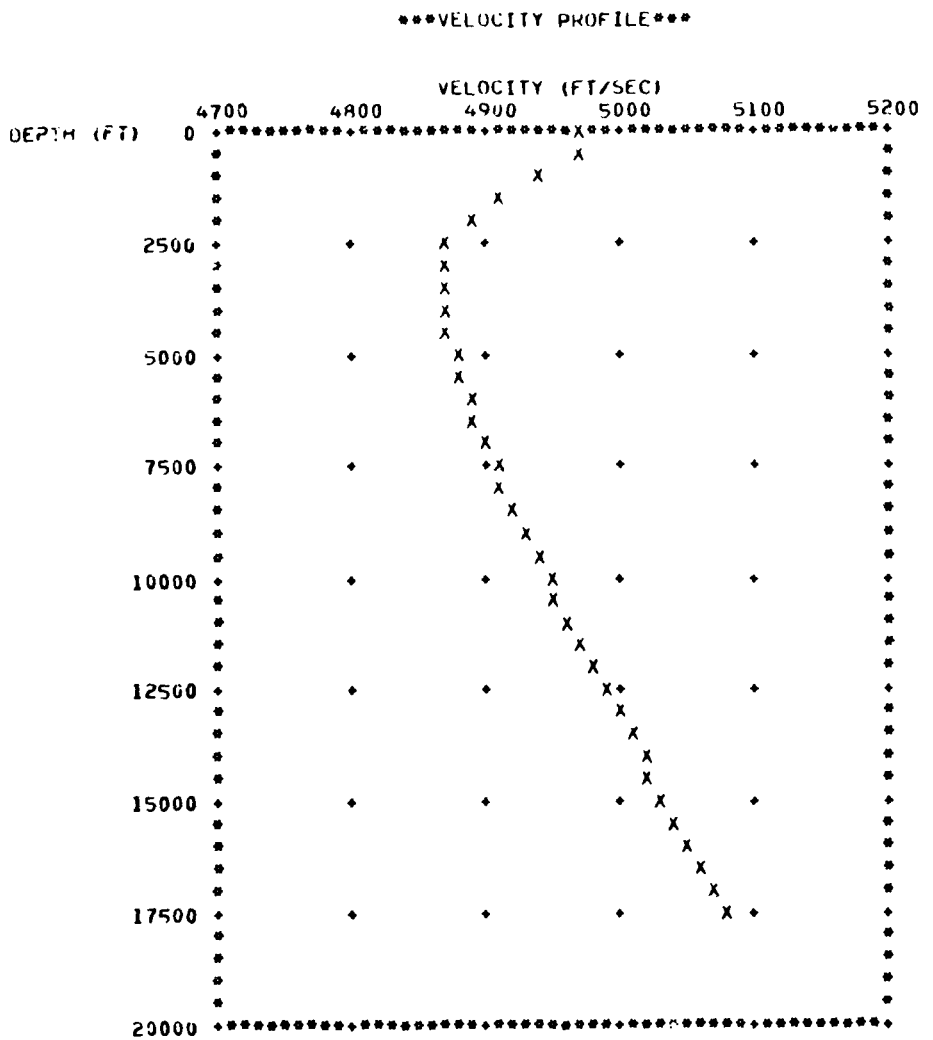
600.	5.8[illegible]	34.[illegible]
800.	4.1[illegible]	34.[illegible]
1000.	3.45	34.30
1200.	3.07	34.41
1500.	2.62	34.51
2000.	1.95	34.60
2500.	1.66	34.63
3000.	1.56	34.66
4000.	1.50	34.67
5000.	1.55	34.68
5480.	1.57	34.68

5000.	1.55	34.68
[illegible]0.	.57	.68

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	17.13	62.83	34.45	1513.278	4965.066
98.00	321.54	17.20	62.96	34.49	1515.129	4971.140
152.00	498.71	17.00	62.60	34.44	1515.357	4971.885
156.00	511.84	16.17	61.11	34.43	1512.899	4963.823
476.00	1561.76	9.87	49.77	34.07	1496.521	4910.085
600.00	1968.60	7.45	45.41	34.01	1489.347	4886.548
800.00	2624.80	5.32	41.58	34.15	1484.371	4870.221
1000.00	3281.00	4.25	39.64	34.30	1483.453	4867.209
1200.00	3937.20	3.63	38.53	34.41	1484.329	4870.082
1500.00	4921.50	2.94	37.30	34.51	1486.594	4877.515
2000.00	6562.00	2.08	35.75	34.60	1491.454	4893.460
2500.00	8202.50	1.71	35.08	34.63	1498.435	4916.365
3000.00	9843.00	1.58	34.85	34.66	1506.528	4942.919
4000.00	13124.00	1.50	34.71	34.67	1523.698	4999.252
5000.00	16405.00	1.55	34.79	34.68	1541.720	5058.382
5480.00	17979.88	1.57	34.83	34.68	1550.455	5087.044

THE LAYER IS AT 498.71 FEET (152.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

APS: HISTORICAL DATA FEB1F SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	9.84	49.71	33.40	1487.753	4881.316
10.00	32.81	9.83	49.69	33.39	1487.866	4881.689
20.00	65.62	9.81	49.66	33.39	1487.956	4881.983
30.00	98.43	9.80	49.64	33.40	1488.095	4882.440
50.00	164.05	9.82	49.68	33.40	1488.495	4883.752
75.00	246.08	9.75	49.55	33.42	1488.672	4884.332
100.00	328.10	9.64	49.35	33.51	1488.791	4884.722
125.00	410.13	9.42	48.96	33.65	1488.566	4883.986
150.00	492.15	9.21	48.58	33.82	1488.414	4883.487
200.00	656.20	8.81	47.86	33.97	1487.930	4881.898
250.00	820.25	8.21	46.78	33.98	1486.489	4877.171
300.00	984.30	7.48	45.46	33.97	1484.485	4870.596
400.00	1312.40	5.89	42.60	33.94	1479.792	4855.197
500.00	1640.50	4.82	40.68	33.97	1477.109	4846.394
600.00	1968.60	4.23	39.61	34.04	1476.399	4844.066
800.00	2624.80	3.66	38.59	34.21	1477.542	4847.815
1000.00	3281.00	3.19	37.74	34.32	1479.019	4852.660
1200.00	3937.20	2.84	37.11	34.41	1480.981	4859.100
1500.00	4921.50	2.42	36.36	34.49	1484.314	4870.034
2000.00	6562.00	1.97	35.55	34.59	1490.956	4891.827
2500.00	8202.50	1.73	35.11	34.63	1498.508	4916.605
3000.00	9843.00	1.57	34.83	34.66	1506.478	4942.753
4000.00	13124.00	1.49	34.68	34.67	1523.639	4999.060
4750.00	15584.75	1.43	34.57	34.68	1536.724	5041.992

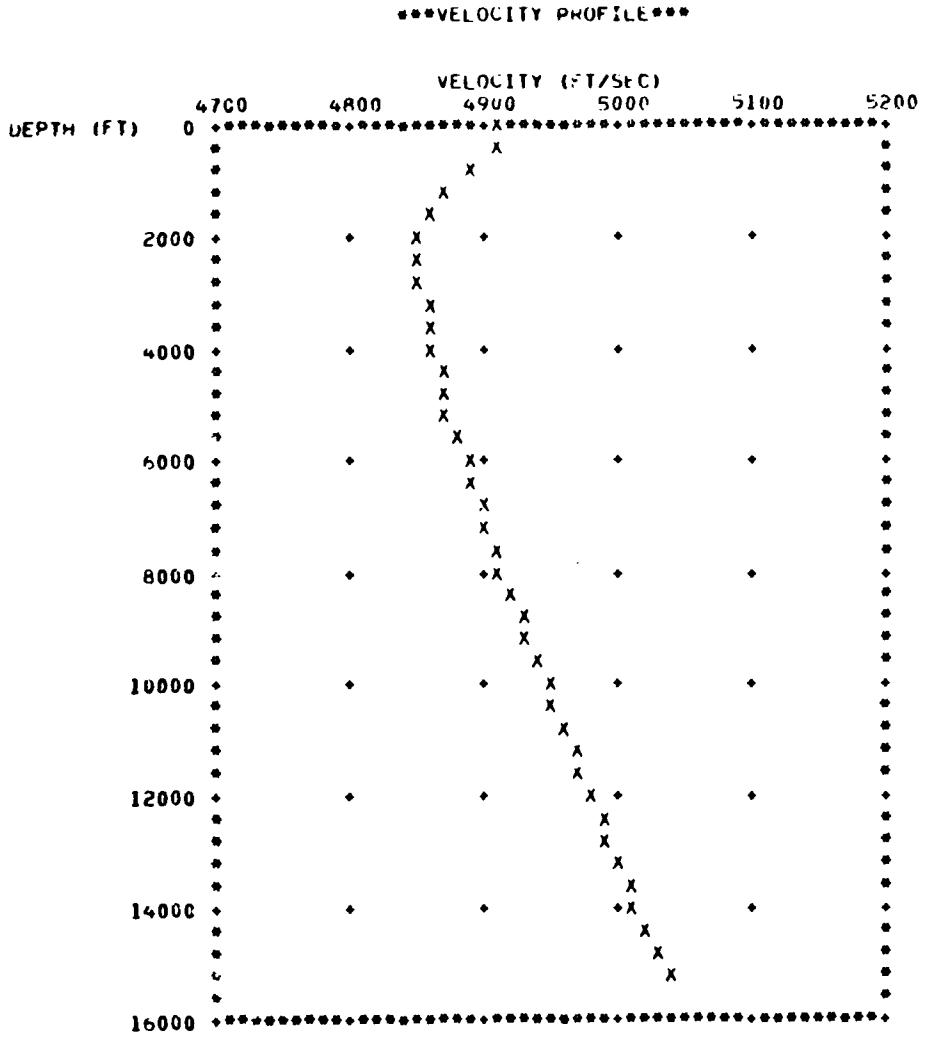
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	12.30	33.40	0.	9.84	33.40	0.	12.30	33.40
109.	12.32	33.56	10.	9.83	33.39	109.	12.32	33.56
117.	12.07	33.61	20.	9.81	33.39	117.	12.07	33.61
126.	11.15	33.66	30.	9.80	33.40	126.	11.15	33.66
134.	10.77	33.71	50.	9.82	33.40	134.	10.77	33.71
497.	5.43	33.97	75.	9.75	33.42	497.	5.43	33.97
			100.	9.64	33.51	600.	4.71	34.04
			125.	9.42	33.65	800.	4.00	34.21
			150.	9.21	33.82	1000.	3.42	34.32
			200.	8.81	33.97	1200.	3.00	34.41
			250.	8.21	33.98	1500.	2.52	34.49
			300.	7.48	33.97	2000.	2.0.	34.59
			400.	5.89	33.94	2500.	1.75	34.63
			500.	4.82	33.97	3000.	1.58	34.66
			600.	4.23	34.04	4000.	1.49	34.67

800.	3.66	34.21	4750.	1.43	34.67
1000.	3.19	34.32			
1200.	2.84	34.41			
1500.	2.42	34.49			
2000.	1.97	34.59			
2500.	1.73	34.63			
3000.	1.57	34.66			
4000.	1.49	34.67			
4750.	1.43	34.68			

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.30	54.14	33.40	1496.490	4909.984
109.00	357.63	12.32	54.18	33.56	1498.539	4916.707
117.00	383.88	12.07	53.73	33.61	1497.865	4914.496
126.00	413.41	11.15	52.07	33.66	1494.859	4904.633
134.00	439.65	10.77	51.39	33.71	1493.707	4900.852
497.00	1630.66	5.43	41.77	33.97	1479.562	4854.443
600.00	1968.50	4.71	40.48	34.04	1478.408	4850.658
800.00	2624.40	4.00	39.19	34.21	1478.961	4852.471
1000.00	3281.00	3.42	38.16	34.32	1480.018	4855.940
1200.00	3937.20	3.00	37.41	34.41	1481.683	4861.402
1500.00	4921.50	2.52	36.53	34.49	1484.726	4871.385
2000.00	6562.00	2.01	35.62	34.59	1491.124	4892.379
2500.00	8202.50	1.75	35.14	34.63	1498.576	4916.829
3000.00	9843.00	1.58	34.84	34.66	1506.505	4942.844
4000.00	13124.00	1.49	34.68	34.67	1523.644	4999.075
4750.00	15584.75	1.43	34.57	34.67	1536.712	5041.950

THE LAYER IS AT 357.63 FEET (109.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: HISTORICAL DATA AUG1F SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.04	60.87	33.16	1508.402	4949.067
10.00	32.81	15.78	60.40	33.17	1507.770	4947.992
20.00	65.62	14.93	58.87	33.20	1505.286	4938.844
30.00	98.43	13.52	56.34	33.24	1500.903	4924.464
50.00	164.05	10.35	50.63	33.36	1490.376	4889.923
75.00	246.08	9.00	48.20	33.44	1485.913	4875.282
100.00	328.10	8.61	47.50	33.51	1484.944	4872.100
125.00	410.13	8.46	47.23	33.61	1484.913	4872.001
150.00	492.15	8.53	47.35	33.79	1485.822	4874.981
200.00	656.20	8.28	46.90	33.96	1485.911	4875.275
250.00	820.25	7.60	45.68	33.96	1484.118	4869.390
300.00	984.30	6.83	44.29	33.95	1481.914	4862.158
400.00	1312.40	5.50	41.90	33.94	1478.211	4850.011
500.00	1640.50	4.65	40.37	33.99	1476.432	4844.172
600.00	1968.60	4.20	39.56	34.07	1476.314	4843.787
800.00	2624.80	3.59	38.46	34.23	1477.273	4846.931
1000.00	3281.00	3.13	37.63	34.34	1478.790	4851.909
1200.00	3937.20	2.78	37.00	34.41	1480.723	4858.253
1500.00	4921.50	2.39	36.30	34.49	1484.184	4869.608
2000.00	6562.00	1.96	35.53	34.59	1490.913	4891.685
2500.00	8202.50	1.72	35.10	34.63	1498.464	4916.462
3000.00	9843.00	1.57	34.83	34.66	1506.478	4942.755
4000.00	13124.00	1.50	34.70	34.67	1523.682	4999.201
4750.00	15584.75	1.45	34.61	34.68	1536.810	5042.273

BT DATA

DEP (M)	TEMP (C)	SAL (PPT)
0.	14.80	33.16
30.	14.70	33.24
36.	11.03	33.28
55.	9.10	33.38
113.	7.60	33.56
147.	7.57	33.72
155.	7.96	33.81
196.	8.10	33.95
344.	5.98	33.95
457.	4.78	33.97

HISTORICAL DATA

(MERGE FACTOR = 835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)
0.	16.04	33.16
10.	15.78	33.17
20.	14.93	33.20
30.	13.52	33.24
50.	10.35	33.36
75.	9.00	33.44
100.	8.61	33.51
125.	8.46	33.61
150.	8.53	33.79
200.	8.28	33.96
250.	7.60	33.96
300.	6.83	33.95
400.	5.50	33.94
500.	4.65	33.99
600.	4.20	34.07

MERGED DATA

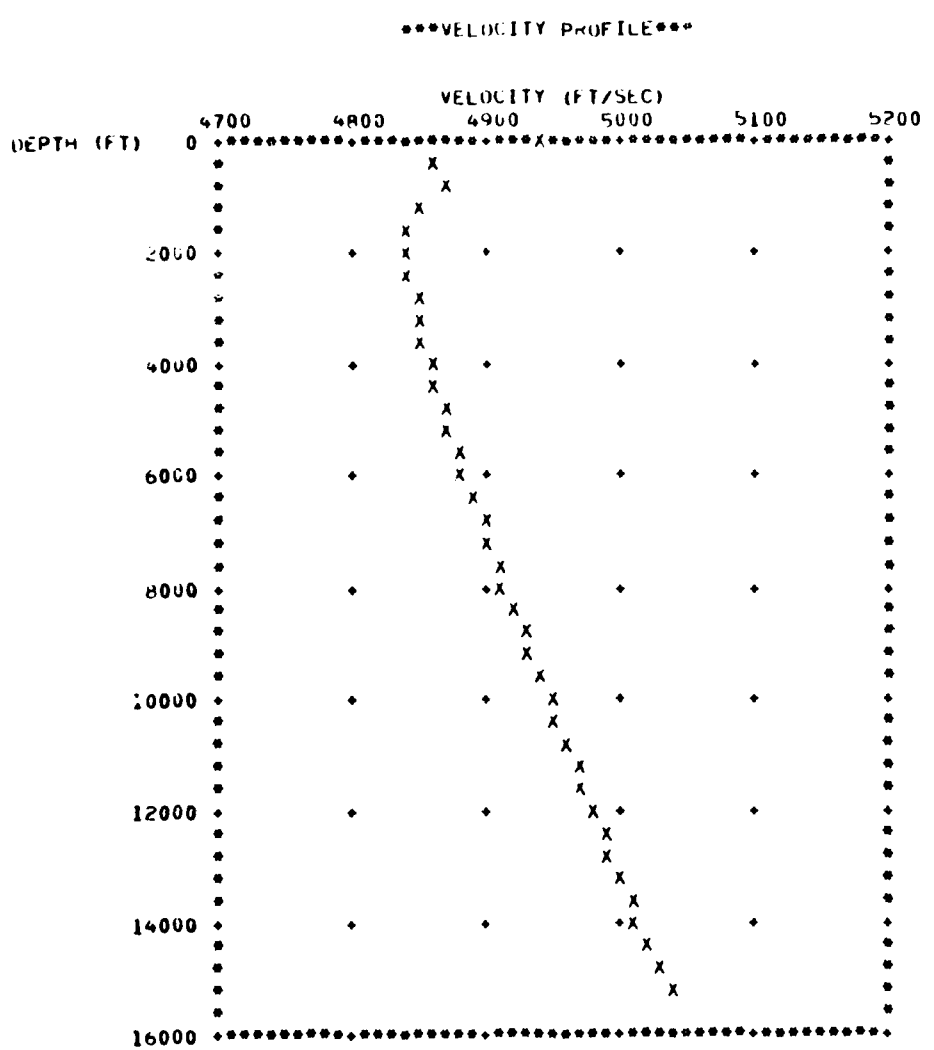
DEP (M)	TEMP (C)	SAL (PPT)
0.	14.80	33.16
30.	14.70	33.24
36.	11.03	33.28
55.	9.10	33.38
113.	7.60	33.56
147.	7.57	33.72
155.	7.96	33.81
196.	8.10	33.95
344.	5.98	33.95
457.	4.78	33.97
600.	4.20	34.07
800.	3.45	34.23
1000.	3.03	34.34
1200.	2.71	34.41
1500.	2.35	34.49

[illegible]	[illegible]	[illegible]	2000.	1.94	34.59
1000.	3.13	34.34	2500.	1.71	34.63
1200.	2.78	34.41	3000.	1.57	34.66
1500.	2.39	34.49	4000.	1.50	34.67
2000.	1.96	34.59	4750.	1.45	34.67
2500.	1.72	34.63			
3000.	1.57	34.66			
4000.	1.50	34.67			
4750.	1.45	34.68			

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	14.80	58.64	33.16	1504.495	4936.248
30.00	98.43	14.70	58.46	33.24	1504.761	4937.122
36.00	118.12	11.03	51.85	33.28	1492.481	4896.829
55.00	180.46	9.10	48.38	33.38	1485.878	4875.167
113.00	370.75	7.60	45.68	33.56	1481.354	4860.322
147.00	482.31	7.57	45.63	33.72	1482.003	4862.450
155.00	508.56	7.96	46.33	33.81	1483.751	4868.187
196.00	643.08	8.10	46.58	33.95	1485.141	4872.747
344.00	1128.66	5.98	42.76	33.95	1479.242	4853.391
457.00	1499.42	4.78	40.60	33.97	1476.233	4843.519
600.00	1968.60	4.00	39.21	34.07	1475.489	4841.079
800.00	2624.80	3.45	38.22	34.23	1476.690	4845.021
1000.00	3281.00	3.03	37.46	34.34	1478.380	4850.566
1200.00	3937.20	2.71	36.88	34.41	1480.436	4857.311
1500.00	4921.50	2.35	36.23	34.49	1484.016	4869.056
2000.00	6562.00	1.94	35.50	34.59	1490.844	4891.460
2500.00	8202.50	1.71	35.08	34.63	1498.437	4916.370
3000.00	9843.00	1.57	34.82	34.66	1506.466	4942.716
4000.00	13124.00	1.50	34.70	34.67	1523.680	4999.195
4750.00	15584.75	1.45	34.61	34.67	1536.795	5042.226

THE LAYER IS AT 98.43 FEET (30.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: HISTORICAL DATA FEB2A SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	24.51	76.12	36.54	1535.396	5037.634
10.00	32.81	24.51	76.12	36.54	1535.561	5038.175
20.00	65.62	24.51	76.12	36.55	1535.737	5038.754
30.00	98.43	24.51	76.12	36.55	1535.902	5039.296
50.00	164.05	24.45	76.01	36.59	1536.135	5040.059
75.00	246.08	24.21	75.58	36.72	1536.122	5040.017
100.00	328.10	23.31	73.96	36.86	1534.511	5034.731
125.00	410.13	21.33	70.39	36.83	1529.874	5019.516
150.00	492.15	19.47	67.05	36.68	1525.115	5003.903
200.00	656.20	16.95	62.51	36.33	1518.283	4981.488
250.00	820.25	15.22	59.40	36.03	1513.444	4965.609
300.00	984.30	13.80	56.84	35.80	1509.428	4952.435
400.00	1312.40	11.72	53.10	35.47	1503.647	4933.466
500.00	1640.50	9.95	49.91	35.22	1498.684	4917.183
600.00	1968.60	8.40	47.12	35.01	1494.308	4902.824
800.00	2624.80	6.37	43.47	34.83	1489.499	4887.046
1000.00	3281.00	5.53	41.95	34.84	1489.460	4886.918
1200.00	3937.20	5.10	41.18	34.93	1491.163	4892.505
1500.00	4921.50	4.37	39.87	34.99	1493.261	4899.389
2000.00	6562.00	3.54	38.37	34.97	1498.202	4915.601
2500.00	8202.50	3.07	37.53	34.94	1504.696	4936.907
3000.00	9843.00	2.72	36.90	34.91	1511.772	4960.125
4000.00	13124.00	2.45	36.41	34.86	1528.006	5013.389
5000.00	16405.00	2.36	36.25	34.84	1545.358	5070.321
5800.00	19029.80	2.29	36.12	34.82	1559.455	5116.573

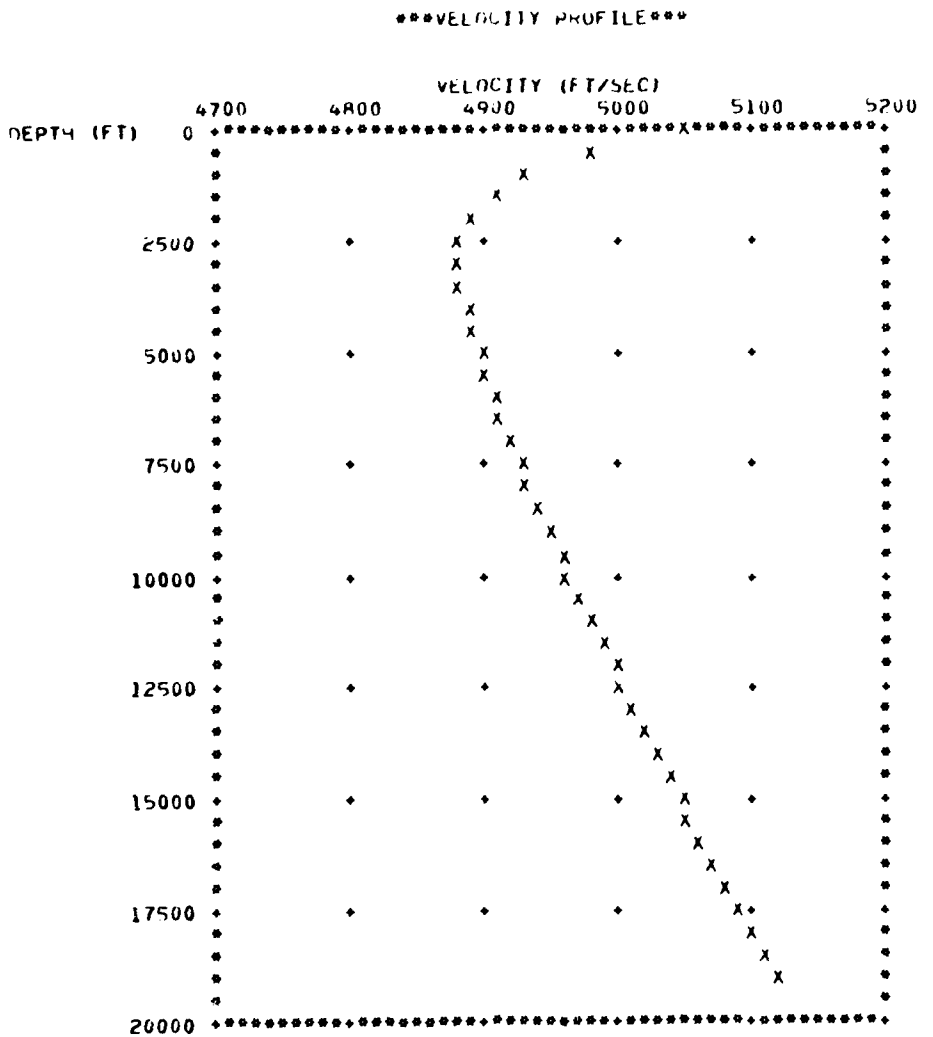
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	25.61	36.54	0.	24.51	36.54	0.	25.61	36.54
26.	25.61	36.55	10.	24.51	36.54	26.	25.61	36.55
87.	24.60	36.79	20.	24.51	36.55	87.	24.60	36.79
98.	22.33	36.85	30.	24.51	36.55	98.	22.33	36.85
137.	17.98	36.76	50.	24.45	36.59	137.	17.98	36.76
216.	13.69	36.23	75.	24.21	36.72	216.	13.69	36.23
345.	10.80	35.63	100.	23.31	36.86	345.	10.80	35.63
455.	9.42	35.33	125.	21.33	36.83	455.	9.42	35.33
			150.	19.47	36.68	600.	7.39	35.01
			200.	16.95	36.33	800.	5.60	34.83
			250.	15.22	36.03	1000.	4.99	34.84
			300.	13.80	35.80	1200.	4.72	34.93
			400.	11.72	35.47	1500.	4.15	34.99
			500.	9.95	35.22	2000.	3.45	34.97

800.	[illegible]	35.01	2500.	3.03	34.94
1000.	[illegible]	34.[illegible]	00.	2.7	34.[illegible]
1200.	5.53	34.84	4000.	2.45	34.86
1500.	5.10	34.93	5000.	2.36	34.84
2000.	4.37	34.99	6000.	2.29	34.84
2500.	3.54	34.97			
3000.	3.01	34.94			
4000.	2.72	34.91			
5000.	2.45	34.86			
6000.	2.36	34.84			
	2.29	34.82			

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.61	78.10	36.54	1537.965	5046.062
26.00	85.31	25.61	78.10	36.55	1538.406	5047.510
87.00	285.45	24.60	76.28	36.79	1537.325	5043.963
98.00	321.54	22.33	72.19	36.85	1532.021	5026.561
137.00	449.50	17.96	64.36	36.76	1520.798	4989.707
216.00	708.70	13.69	56.64	36.23	1508.234	4948.515
345.00	1131.95	10.80	51.44	35.63	1499.717	4920.571
455.00	1492.86	9.42	48.96	35.33	1496.150	4908.968
600.00	1968.60	7.29	45.13	35.01	1490.059	4888.884
800.00	2624.80	5.60	42.08	34.83	1486.402	4876.884
1000.00	3281.00	4.59	40.98	34.84	1487.266	4879.719
1200.00	3937.20	4.72	40.50	34.93	1489.623	4887.452
1500.00	4921.50	4.15	39.47	34.99	1492.352	4896.408
2000.00	6562.00	3.45	38.21	34.97	1497.828	4914.374
2500.00	8202.50	3.03	37.46	34.94	1504.543	4936.406
3000.00	9843.00	2.71	36.87	34.91	1511.710	4959.921
4000.00	13124.00	2.45	36.41	34.86	1527.996	5013.356
5000.00	16405.00	2.36	36.25	34.84	1545.357	5070.316
5800.00	19029.80	2.29	36.12	34.84	1559.482	5116.661

THE LAYER IS AT 85.31 FEET (26.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: HISTORICAL DATA FEB2E SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.42	54.36	35.70	1499.793	4920.821
10.00	32.81	12.39	54.30	35.69	1499.842	4920.980
20.00	65.62	12.38	54.28	35.69	1499.971	4921.404
30.00	98.43	12.36	54.25	35.69	1500.066	4921.717
50.00	164.05	12.32	54.18	35.69	1500.257	4922.342
75.00	246.08	12.30	54.14	35.68	1500.584	4923.417
100.00	328.10	12.27	54.09	35.68	1500.890	4924.422
125.00	410.13	12.22	54.00	35.68	1501.128	4925.203
150.00	492.15	12.16	53.89	35.67	1501.320	4925.829
200.00	656.20	12.03	53.65	35.66	1501.679	4927.010
250.00	820.25	11.85	53.33	35.63	1501.840	4927.537
300.00	984.30	11.66	52.99	35.60	1501.964	4927.943
400.00	1312.40	11.33	52.39	35.57	1502.415	4929.425
500.00	1640.50	11.02	51.84	35.54	1502.930	4931.113
600.00	1968.60	10.62	51.12	35.51	1503.117	4931.727
800.00	2624.80	9.71	49.48	35.52	1503.143	4931.814
1000.00	3281.00	8.88	47.98	35.58	1503.469	4932.882
1200.00	3937.20	7.61	45.70	35.50	1501.878	4927.660
1500.00	4921.50	5.26	41.47	35.14	1497.117	4912.039
2000.00	6562.00	3.73	38.71	34.99	1499.028	4918.309
2500.00	8202.50	3.20	37.76	34.97	1505.287	4938.847
3000.00	9843.00	2.79	37.02	34.94	1512.111	4961.236
4000.00	13124.00	2.54	36.57	34.93	1528.484	5014.955
4620.00	15158.22	2.39	36.30	34.92	1538.811	5048.839

BT DATA

DEP (M)	TEMP (C)	SAL (PPT)
0.	10.93	35.54
8.	11.40	35.66
372.	10.99	35.58
493.	10.55	35.54

HISTORICAL DATA

DEP (M)	TEMP (C)	SAL (PPT)
0.	12.42	35.70
10.	12.39	35.69
20.	12.38	35.69
30.	12.36	35.69
50.	12.32	35.69
75.	12.30	35.68
100.	12.27	35.68
125.	12.22	35.66
150.	12.16	35.67
200.	12.03	35.66
250.	11.85	35.63
300.	11.66	35.60
400.	11.33	35.57
500.	11.02	35.54
600.	10.62	35.51
800.	9.71	35.52

MERGED DATA

(MERGE FACTOR = 835*10**-3)

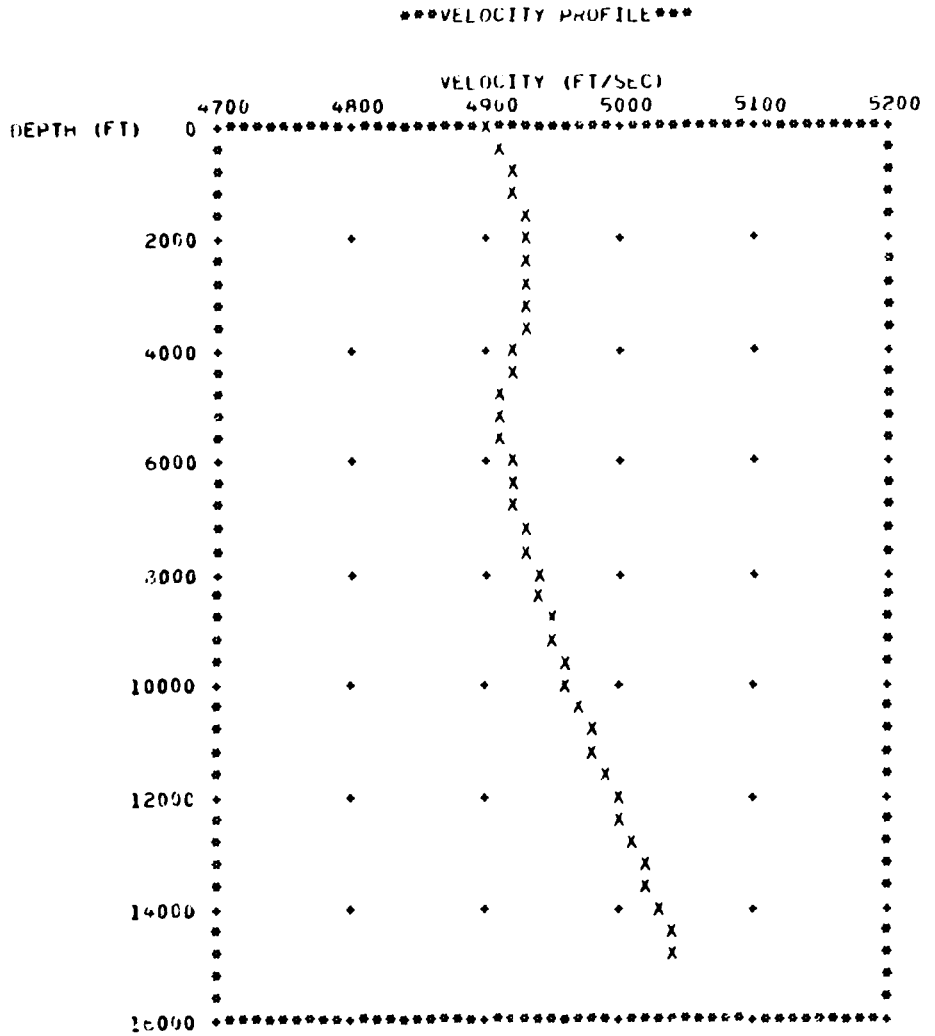
DEP (M)	TEMP (C)	SAL (PPT)
0.	10.93	35.54
8.	11.40	35.66
372.	10.99	35.58
493.	10.55	35.54
600.	10.21	35.51
800.	9.42	35.52
1000.	8.68	35.58
1200.	7.47	35.50
1500.	5.18	35.14
2000.	3.70	34.99
2500.	3.19	34.97
3000.	2.78	34.94
4000.	2.54	34.93
4620.	2.39	34.93

1200.	7.61	35.50
1500.	[illegible]	35
2000.	3.73	34.99
2500.	3.20	34.97
3000.	2.79	34.94
4000.	2.54	34.93
4620.	2.39	34.92

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	10.93	51.67	35.54	1494.419	4903.189
8.00	26.25	11.40	52.52	35.66	1496.361	4909.561
372.00	1220.53	10.99	51.78	35.58	1500.770	4924.027
493.00	1617.53	10.55	50.99	35.54	1501.147	4925.265
600.00	1968.60	10.21	50.38	35.51	1501.644	4926.894
800.00	2624.80	9.42	48.96	35.52	1502.094	4928.370
1000.00	3281.00	8.69	47.62	35.58	1502.723	4930.434
1200.00	3937.20	7.47	45.45	35.50	1501.341	4925.901
1500.00	4921.50	5.18	41.32	35.14	1496.727	4910.959
2000.00	6562.00	3.70	38.65	34.99	1498.890	4917.857
2500.00	8202.50	3.19	37.74	34.97	1505.231	4938.662
3000.00	9843.00	2.78	37.01	34.94	1512.088	4961.161
4000.00	13124.00	2.54	36.57	34.93	1528.480	5014.943
4620.00	15158.22	2.39	36.30	34.93	1538.824	5048.880

THE LAYER IS AT 3281.00 FEET (1000.05 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: HISTORICAL DATA AUG2E SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	17.49	63.48	35.66	1515.796	4973.325
10.00	32.81	17.16	62.89	35.65	1514.972	4970.625
20.00	65.62	16.81	62.26	35.65	1514.092	4967.735
30.00	98.43	16.09	60.96	35.65	1512.073	4961.112
50.00	164.05	14.36	57.85	35.65	1506.966	4944.357
75.00	246.08	13.08	55.54	35.65	1503.178	4931.928
100.00	328.10	12.47	54.45	35.64	1501.521	4926.490
125.00	410.13	12.21	53.98	35.63	1501.031	4924.883
150.00	492.15	12.01	53.62	35.62	1500.742	4923.933
200.00	656.20	11.75	53.15	35.60	1500.637	4923.591
250.00	820.25	11.59	52.86	35.58	1500.876	4924.373
300.00	984.30	11.43	52.57	35.57	1501.125	4925.190
400.00	1312.40	11.12	52.02	35.54	1501.640	4926.879
500.00	1640.50	10.80	51.44	35.51	1502.112	4928.431
600.00	1968.60	10.41	50.74	35.49	1502.340	4929.177
800.00	2624.80	9.67	49.41	35.56	1503.049	4931.504
1000.00	3281.00	8.75	47.75	35.58	1502.984	4931.289
1200.00	3937.20	7.50	45.50	35.47	1501.414	4926.140
1500.00	4921.50	5.07	41.13	35.13	1496.329	4909.457
2000.00	6562.00	3.65	38.57	34.96	1498.651	4917.073
2500.00	8202.50	3.20	37.76	34.95	1505.260	4938.757
3000.00	9843.00	2.86	37.15	34.94	1512.408	4962.210
4000.00	13124.00	2.57	36.63	34.91	1528.583	5015.280
4620.00	15158.22	2.39	36.30	34.89	1538.770	5048.704

BT DATA HISTORICAL DATA MERGED DATA

(MERGE FACTOR = 835*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	19.00	35.64	0.	17.49	35.66	0.	19.00	35.64
22.	19.00	35.65	10.	17.16	35.65	22.	19.00	35.65
27.	18.80	35.65	20.	16.81	35.65	27.	18.80	35.65
29.	17.10	35.65	30.	16.09	35.65	29.	17.10	35.65
37.	15.30	35.65	50.	14.36	35.65	37.	15.30	35.65
53.	14.10	35.65	75.	13.08	35.65	53.	14.10	35.65
122.	13.90	35.63	100.	12.47	35.64	122.	13.90	35.63
414.	11.40	35.54	125.	12.21	35.63	414.	11.40	35.54
			150.	12.01	35.62	500.	11.07	35.51
			200.	11.75	35.60	600.	10.64	35.49
			250.	11.59	35.58	800.	9.83	35.56
			300.	11.43	35.57	1000.	8.86	35.58
			400.	11.12	35.54	1200.	7.68	35.47
			500.	10.80	35.51	1500.	5.11	35.13
			600.	10.41	35.49	2000.	3.67	34.96

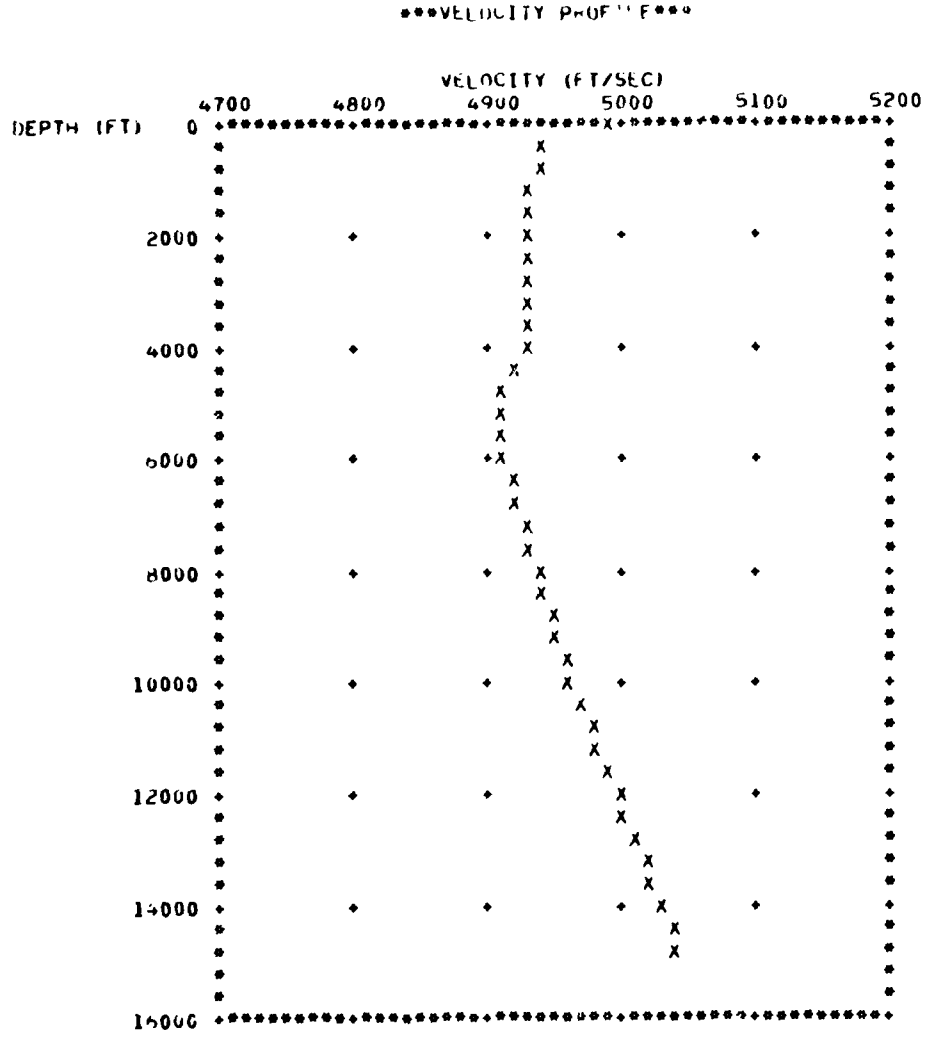
1000.	8.75	35.58
12[illegible]	[illegible]	3[illegible]
1500.	5.07	35.13
2000.	3.65	34.96
2500.	3.20	34.95
3000.	2.86	34.94
4000.	2.57	34.91
4620.	2.39	34.89

3000.	2.86	34.9[illegible]
4000.	2.57	34.91
4620.	2.3[illegible]	34.

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	19.00	66.20	35.64	1520.108	4987.476
22.00	72.18	19.00	66.20	35.65	1520.484	4988.707
27.00	88.59	18.80	65.84	35.65	1520.002	4987.127
29.00	95.15	17.10	62.78	35.65	1515.105	4971.060
37.00	121.40	15.30	59.54	35.65	1509.740	4953.457
53.00	173.89	14.10	57.38	35.65	1506.175	4941.761
122.00	400.28	13.40	57.02	35.63	1506.629	4943.251
414.00	1358.33	11.40	52.52	35.54	1502.847	4930.840
500.00	1640.50	11.07	51.93	35.51	1503.072	4931.580
600.00	1968.60	10.64	51.15	35.49	1503.150	4931.836
800.00	2624.80	9.83	49.69	35.56	1503.625	4933.394
1000.00	3281.00	8.86	47.95	35.58	1503.395	4932.638
1200.00	3937.20	7.58	45.64	35.47	1501.710	4927.110
1500.00	4921.50	5.11	41.21	35.13	1496.512	4910.055
2000.00	6562.00	3.67	38.60	34.96	1498.727	4917.323
2500.00	8202.50	3.21	37.77	34.95	1505.291	4938.859
3000.00	9843.00	2.86	37.15	34.94	1512.421	4962.252
4000.00	13124.00	2.57	36.63	34.91	1528.565	5015.267
4620.00	15158.22	2.39	36.30	34.91	1538.798	5048.796

THE LAYER IS AT 72.18 FEET (22.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2000
4000
6000
8000
10000
12000
14000
16000

ICAPS: HISTORICAL DATA FEB2H SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	3.32	37.98	32.41	1460.472	4791.807
10.00	32.81	3.38	38.08	32.46	1460.960	4793.411
20.00	65.62	3.47	38.25	32.51	1461.577	4795.435
30.00	98.43	3.63	38.53	32.59	1462.533	4798.570
50.00	164.05	4.12	39.42	32.79	1465.208	4807.348
75.00	246.08	5.02	41.04	33.22	1469.950	4822.905
100.00	328.10	6.05	42.89	33.68	1475.170	4840.034
125.00	410.13	6.80	44.24	34.06	1479.073	4852.838
150.00	492.15	7.17	44.91	34.31	1481.266	4860.033
200.00	656.20	7.31	45.16	34.59	1483.000	4865.722
250.00	820.25	6.89	44.40	34.77	1482.413	4863.797
300.00	984.30	6.40	43.52	34.90	1481.468	4860.696
400.00	1312.40	5.29	41.52	34.88	1478.613	4851.330
500.00	1640.50	4.81	40.66	34.91	1478.332	4850.408
600.00	1968.60	4.59	40.26	34.93	1479.101	4852.930
800.00	2624.80	4.28	39.70	34.95	1481.451	4859.656
1000.00	3281.00	4.05	39.29	34.95	1483.514	4867.409
1200.00	3937.20	3.88	38.98	34.95	1486.137	4876.016
1500.00	4921.50	3.70	38.66	34.95	1490.408	4890.028
2000.00	6562.00	3.41	38.14	34.95	1497.627	4913.713
2500.00	8202.50	3.09	37.56	34.95	1504.794	4937.230
3000.00	9843.00	2.60	36.68	34.92	1511.275	4958.494

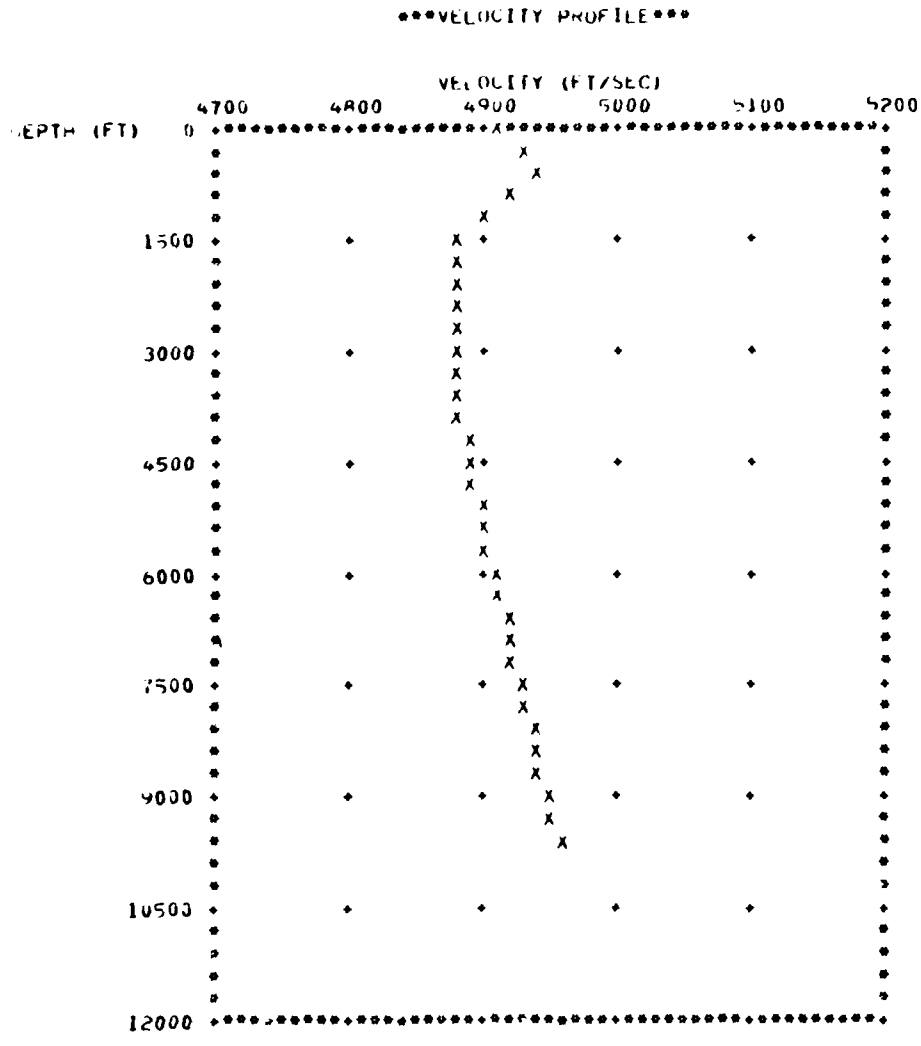
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	12.86	32.41	0.	3.32	32.41	0.	12.86	32.41
35.	13.14	32.62	10.	3.38	32.46	35.	13.14	32.62
48.	13.68	32.77	20.	3.47	32.51	48.	13.68	32.77
118.	14.20	33.95	30.	3.63	32.59	118.	14.20	33.95
133.	14.86	34.14	50.	4.12	32.79	133.	14.86	34.14
147.	13.37	34.28	75.	5.02	33.22	147.	13.37	34.28
198.	13.40	34.58	100.	6.05	33.68	198.	13.40	34.58
221.	12.50	34.67	125.	6.80	34.06	221.	12.50	34.67
290.	11.14	34.87	150.	7.17	34.31	290.	11.14	34.87
347.	9.00	34.89	200.	7.31	34.59	347.	9.00	34.89
395.	8.60	34.88	250.	6.89	34.77	395.	8.60	34.88
407.	7.90	34.88	300.	6.40	34.90	407.	7.90	34.88
477.	7.03	34.90	400.	5.29	34.88	477.	7.03	34.90
			500.	4.81	34.91	600.	6.35	34.93
			600.	4.59	34.93	800.	5.51	34.95
			800.	4.28	34.95	1000.	4.91	34.95
			1000.	4.05	34.95	1200.	4.48	34.95
			1200.	3.88	34.95	1500.	4.05	34.95

2000.	[illegible]	34.95	2500.	3.15	34.95
250	3	34 [illegible]	3000.	2.62	34.95
3000.	2.60	34.92			

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	12.86	55.15	32.41	1497.166	4912.200
35.00	114.84	13.14	55.65	32.62	1498.940	4918.022
48.00	157.49	13.68	56.62	32.77	1501.146	4925.259
118.00	387.16	14.20	57.56	33.95	1505.460	4939.415
133.00	436.37	14.86	58.75	34.14	1508.062	4947.952
147.00	482.31	13.37	56.07	34.28	1503.609	4933.340
198.00	649.64	13.40	56.12	34.58	1504.915	4937.627
221.00	725.10	12.50	54.50	34.67	1502.375	4929.292
290.00	951.49	11.14	52.05	34.87	1499.056	4918.401
347.00	1138.51	9.00	48.20	34.89	1492.246	4896.058
395.00	1296.00	8.60	47.48	34.88	1491.522	4893.683
407.00	1335.37	7.90	46.22	34.88	1489.060	4885.605
477.00	1565.04	7.03	44.65	34.90	1486.868	4878.413
600.00	1968.60	6.35	43.43	34.93	1486.253	4876.396
800.00	2624.80	5.51	41.91	34.95	1486.200	4876.222
1000.00	3281.00	4.91	40.83	34.95	1487.064	4879.058
1200.00	3937.20	4.48	40.06	34.95	1488.627	4884.185
1500.00	4921.50	4.05	39.29	34.95	1491.865	4894.809
2000.00	6562.00	3.55	38.39	34.95	1498.221	4915.664
2500.00	8202.50	3.15	37.67	34.95	1505.037	4938.026
3000.00	9843.00	2.62	36.72	34.95	1511.416	4958.955

THE LAYER IS AT 436.37 FEET (133.01 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
1500
3000
4500
6000
7500
9000
10500
12000

ICAPS: HISTORICAL DATA AUG3A SHORT BT

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	25.05	77.09	38.68	1539.076	5049.709
10.00	32.81	24.46	76.03	38.69	1537.677	5045.774
20.00	65.62	22.85	73.13	38.63	1534.092	5033.355
30.00	98.43	20.45	68.81	38.56	1528.024	5013.447
50.00	164.05	17.46	63.43	38.55	1520.021	4987.189
75.00	246.08	16.03	60.85	38.65	1516.303	4974.990
100.00	328.10	15.44	59.79	38.72	1514.993	4970.692
125.00	410.13	15.20	59.36	38.77	1514.721	4969.800
150.00	492.15	15.04	59.07	38.81	1514.682	4969.672
200.00	656.20	14.85	58.73	38.85	1514.957	4970.573
250.00	820.25	14.68	58.42	38.86	1515.255	4971.551
300.00	984.30	14.53	58.15	38.86	1515.601	4972.688
400.00	1312.40	14.28	57.70	38.84	1516.424	4975.388
500.00	1640.50	14.09	57.36	38.82	1517.436	4978.709
600.00	1968.60	13.94	57.09	38.79	1518.564	4982.408
800.00	2624.80	13.78	56.80	38.76	1521.311	4991.420
1000.00	3281.00	13.70	56.66	38.74	1524.337	5001.348
1200.00	3937.20	13.66	56.59	38.72	1527.501	5011.730
1500.00	4921.50	13.66	56.59	38.71	1532.484	5028.081
2000.00	6562.00	13.67	56.61	38.69	1540.862	5055.569
2500.00	8202.50	13.67	56.61	38.68	1549.275	5083.170
3000.00	9843.00	13.71	56.68	38.65	1557.843	5111.284

BT DATA

DEP (M)	TEMP (C)	SAL (PPT)
0.	25.24	38.68
18.	26.14	38.64
22.	21.97	38.62
41.	16.62	38.55
59.	15.00	38.59
64.	14.70	38.61
135.	14.85	38.79
443.	13.94	38.83

HISTORICAL DATA

(MERGE FACTOR = 700*10**-3)

DEP (M)	TEMP (C)	SAL (PPT)
0.	25.05	38.68
10.	24.46	38.69
20.	22.85	38.63
30.	20.45	38.56
50.	17.46	38.55
75.	16.03	38.65
100.	15.44	38.72
125.	15.20	38.77
150.	15.04	38.81
200.	14.85	38.85
250.	14.68	38.86
300.	14.53	38.86
400.	14.28	38.84
500.	14.09	38.82
600.	13.94	38.79
800.	13.78	38.76
1000.	13.70	38.74
1200.	13.66	38.72

MERGED DATA

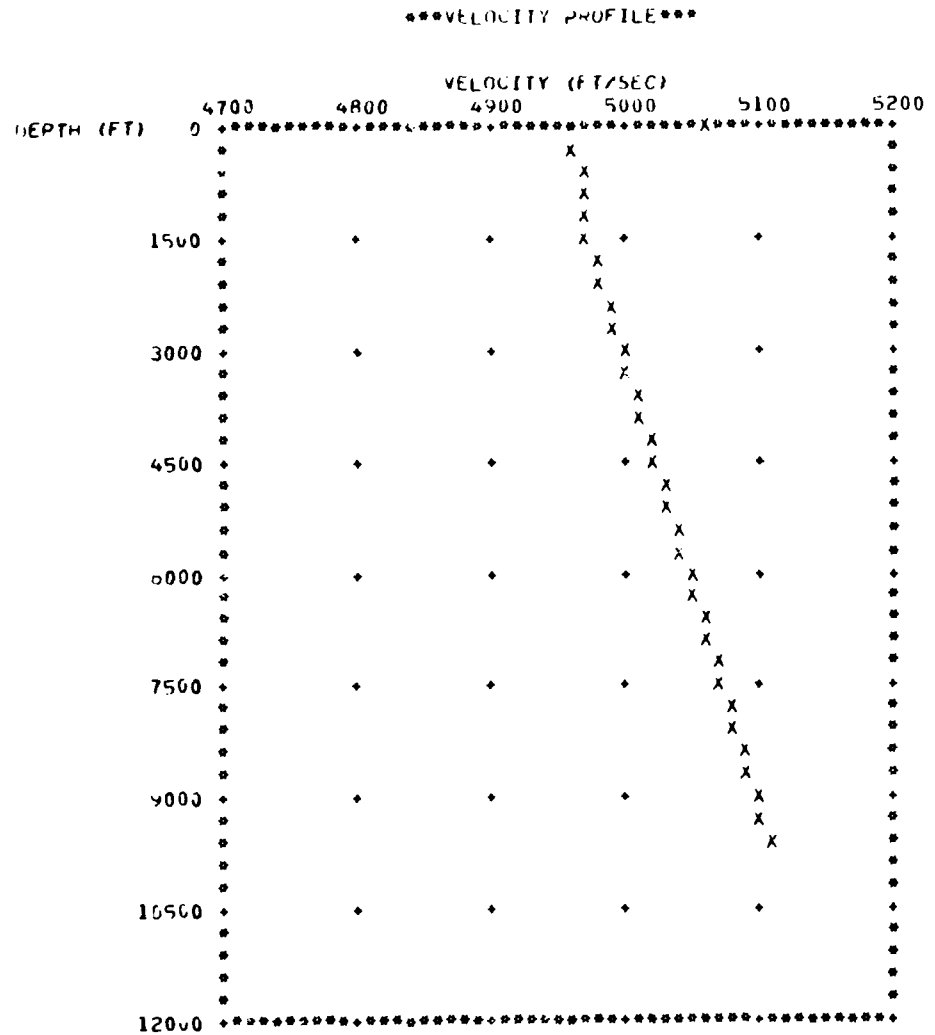
DEP (M)	TEMP (C)	SAL (PPT)
0.	26.24	38.68
18.	26.14	38.64
22.	21.97	38.62
41.	16.62	38.55
59.	15.00	38.59
64.	14.70	38.61
135.	14.85	38.79
443.	13.94	38.83
500.	13.91	38.82
600.	13.81	38.79
800.	13.72	38.76
1000.	13.67	38.74
1200.	13.65	38.72
1500.	13.65	38.71
2000.	13.67	38.69
2500.	13.67	38.68
3000.	13.71	38.68

1500.	13.66	38.71
2000.	13.67	38.69
2500.	13.67	38.68
3000.	13.71	38.65

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	26.24	79.23	38.68	1541.780	5058.581
18.00	59.06	26.14	79.05	38.64	1541.812	5058.686
22.00	72.18	21.97	71.55	38.62	1531.906	5026.182
41.00	134.52	16.62	61.92	38.55	1517.404	4978.603
59.00	193.58	15.00	59.00	38.59	1512.788	4963.457
64.00	209.98	14.70	58.46	38.61	1511.952	4960.714
135.00	442.94	14.85	58.73	38.79	1513.811	4966.815
443.00	1453.48	13.94	57.09	38.83	1516.030	4974.094
500.00	1640.50	13.91	57.04	38.82	1516.854	4976.799
600.00	1968.60	13.81	56.86	38.79	1518.155	4981.066
800.00	2624.80	13.72	56.69	38.76	1521.109	4990.760
1000.00	3281.00	13.67	56.61	38.74	1524.238	5001.024
1200.00	3937.20	13.65	56.56	38.72	1527.452	5011.571
1500.00	4921.50	13.65	56.58	38.71	1532.468	5028.026
2000.00	6562.00	13.67	56.60	38.69	1540.860	5055.560
2500.00	8202.50	13.67	56.61	38.68	1549.274	5083.168
3000.00	9843.00	13.71	56.68	38.68	1557.861	5111.409

THE LAYER IS AT 59.06 FEET (18.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
1500
3000
4500
6000
7500
9000
10500
12000

APPENDIX C

SIMAS Generated SSP'S (CDC Version)

SECTION	CONTENTS
C1	SIMAS Historical Near-surface Salinities
C2	35 PPT Near-surface Salinity for Sites FIF, AIF&F2H
C3	Detailed BT and SIMAS Historical Profiles
C4	ICAPS Environmental Profiles and Detailed BT Data

APPENDIX C

Section C1

SIMAS Historical Near-surface Salinities

SIMAS: HISTORICAL DATA FEB1C SHORT RT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4955.5
2	250.0	4958.0
3	300.0	4956.0
4	500.0	4944.0
5	1000.0	4920.0
6	1250.0	4905.0
7	1500.0	4890.0
8	1750.0	4876.0
9	2000.0	4866.0
10	2250.0	4859.0
11	2500.0	4855.0
12	2750.0	4854.0
13	3000.0	4856.0
14	3250.0	4857.0
15	3500.0	4859.0
16	4000.0	4864.0
17	4500.0	4869.0
18	5000.0	4874.0
19	6000.0	4885.0
20	7000.0	4899.0
21	9000.0	4930.0
22	12000.0	4979.0
23	15000.0	5031.0
24	18556.8	5095.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	17.1
2	98.0	17.2
3	152.0	17.0
4	156.0	16.2
5	476.0	9.9

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4955.5	1	0.0	4967.1
2	250.0	4958.0	2	321.5	4973.0
3	300.0	4956.0	3	498.7	4974.0
4	500.0	4944.0	4	511.8	4965.9
5	1000.0	4920.0	5	1000.0	4941.7

5	1250.0	4905.0	6	1561.8	4913.5
	0.0	4890			

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 3093 FATHOMS
LAYER DEPTH IS 499 FEET
SOUND VELOCITY AT SURFACE IS 4955.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4955.5
2	498.7	4963.7
3	500.0	4944.0
4	1000.0	4920.0
5	1250.0	4905.0
6	1500.0	4890.0
7	1750.0	4876.0
8	2000.0	4866.0
9	2250.0	4859.0
10	2500.0	4855.0
11	2750.0	4854.0
12	3000.0	4856.0
13	3250.0	4857.0
14	3500.0	4859.0
15	4000.0	4864.0
16	4500.0	4869.0
17	5000.0	4874.0
18	6000.0	4885.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	18556.8	5095.0

SIMAS: HISTORICAL DATA FEB1F SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	300.0	4880.5
3	600.0	4886.0
4	750.0	4880.0
5	1000.0	4870.0
6	1250.0	4859.0
7	1500.0	4852.0
8	1750.0	4848.0
9	2000.0	4846.0
10	2250.0	4846.0
11	2500.0	4847.0
12	2750.0	4849.0
13	3000.0	4851.0
14	3250.0	4853.0
15	3500.0	4855.0
16	4000.0	4860.0
17	4500.0	4864.0
18	5000.0	4871.0
19	6000.0	4883.0
20	7000.0	4899.0
21	9000.0	4930.0
22	12000.0	4979.0
23	15000.0	5031.0
24	15999.8	5049.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.3
2	109.0	12.3
3	117.0	12.1
4	126.0	11.2
5	134.0	10.8
6	497.0	5.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4876.0	1	0.0	4912.1
2	300.0	4880.5	2	357.6	4918.2
3	600.0	4886.0	3	383.9	4915.8
4	750.0	4880.0	4	413.4	4905.7

5	[illegible]	4871	5	[illegible]	[illegible]
6	1250.0	4859.0	6	1000.0	4879.5
7	1500.0	4852.0	7	1630.7	4854.4

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 358 FEET
SOUND VELOCITY AT SURFACE IS 4876.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	357.6	4882.1
3	750.0	4880.0
4	1000.0	4870.0
5	1250.0	4859.0
6	1500.0	4852.0
7	1750.0	4848.0
8	2000.0	4846.0
9	2250.0	4846.0
10	2500.0	4847.0
11	2750.0	4849.3
12	3000.0	4851.0
13	3250.0	4853.0
14	3500.0	4855.0
15	4000.0	4860.0
16	4500.0	4864.0
17	5000.0	4871.0
18	6000.0	4883.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	15999.8	5049.0

SIMAS: HISTORICAL DATA AUGIF SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4964.0
2	35.0	4964.1
3	150.0	4916.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0
9	1750.0	4848.0
10	2000.0	4846.0
11	2250.0	4846.0
12	2500.0	4847.0
13	2750.0	4849.0
14	3000.0	4851.0
15	3250.0	4853.0
16	3500.0	4855.0
17	4000.0	4860.0
18	4500.0	4864.0
19	5000.0	4871.0
20	6000.0	4883.0
21	7000.0	4899.0
22	9000.0	4930.0
23	12000.0	4979.0
24	15000.0	5031.0
25	16003.0	5049.1

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	14.8
2	30.0	14.7
3	36.0	11.0
4	55.0	9.1
5	113.0	7.6
6	147.0	7.6
7	155.0	8.0
8	196.0	8.1
9	344.0	6.0
10	457.0	4.8

PROBABLE ERROR IN XBT

HISTORICAL DATA		XBT DATA	
DEPTH	VEL	DEPTH	VEL

1	0.0	4964.0
2	35.0	496
3	150.0	4916.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0

1	0.0	4939.4
2	9[illegible]	[illegible].9
3	114.1	4899.5
4	180.5	4877.4
5	370.8	4861.9
6	482.3	4863.3
7	508.6	4868.7
8	643.1	4872.6
9	1000.0	4858.5
10	1128.7	4853.4
11	1499.4	4843.5

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 98 FEET
SOUND VELOCITY AT SURFACE IS 4964.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4964.0
2	98.4	4965.6
3	150.0	4916.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0
9	1750.0	4848.0
10	2000.0	4846.0
11	2250.0	4846.0
12	2500.0	4847.0
13	2750.0	4849.0
14	3000.0	4851.0
15	3250.0	4853.0
16	3500.0	4855.0
17	4000.0	4860.0
18	4500.0	4864.0
19	5000.0	4871.0
20	6000.0	4883.0
21	7000.0	4899.0
22	9000.0	4930.0
23	12000.0	4979.0
24	15000.0	5031.0
25	16003.0	5049.1

SIMAS: HISTORICAL DATA FEB2A SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	100.0	5025.0
3	200.0	5010.0
4	300.0	4952.0
5	500.0	4929.0
6	750.0	4920.0
7	1000.0	4915.0
8	1250.0	4910.0
9	1500.0	4905.0
10	1750.0	4899.0
11	2000.0	4892.0
12	2250.0	4886.0
13	2500.0	4879.0
14	2750.0	4876.0
15	3000.0	4877.0
16	3250.0	4879.0
17	3500.0	4880.0
18	4000.0	4885.0
19	4500.0	4891.0
20	5000.0	4898.0
21	6000.0	4909.0
22	7000.0	4920.0
23	9000.0	4949.0
24	12000.0	4995.0
25	15000.0	5044.0
26	17032.2	5077.9

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	25.6
2	26.0	25.6
3	87.0	24.6
4	98.0	22.3
5	137.0	18.0
6	216.0	13.7
7	345.0	10.8
8	455.0	9.4

PROBABLE ERROR IN XBT

HISTORICAL DATA		XBT DATA	
DEPTH	VEL	DEPTH	VEL

	0.0	5024	1	0	5( )
2	100.0	5025.0	2	85.3	5043.4
3	200.0	5010.0	3	285.4	5039.0
4	300.0	4952.0	4	321.5	5021.4
5	500.0	4929.0	5	449.5	4984.7
6	750.0	4920.0	6	708.7	4945.3
7	1000.0	4915.0	7	1000.0	4927.7
8	1250.0	4910.0	8	1131.9	4919.8
9	1500.0	4905.0	9	1492.9	4909.3

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2839 FATHOMS
LAYER DEPTH IS 85 FEET
SOUND VELOCITY AT SURFACE IS 5024.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	85.3	5025.4
3	100.0	5025.0
4	200.0	5010.0
5	300.0	4952.0
6	500.0	4929.0
7	750.0	4920.0
8	1000.0	4915.0
9	1250.0	4910.0
10	1500.0	4905.0
11	1750.0	4899.0
12	2000.0	4892.0
13	2250.0	4886.0
14	2500.0	4879.0
15	2750.0	4876.0
16	3000.0	4877.0
17	3250.0	4879.0
18	3500.0	4880.0
19	4000.0	4885.0
20	4500.0	4891.0
21	5000.0	4898.0
22	6000.0	4909.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15000.0	5044.0
27	17032.2	5077.9

SIMAS: HISTORICAL DATA FEB2E SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4911.0
2	500.0	4919.0
3	750.0	4922.0
4	1000.0	4926.0
5	1250.0	4928.0
6	1500.0	4928.0
7	1750.0	4926.0
8	2000.0	4925.0
9	2250.0	4923.0
10	2500.0	4920.0
11	2750.0	4917.0
12	3000.0	4914.0
13	3250.0	4910.0
14	3500.0	4906.0
15	4000.0	4902.0
16	4500.0	4902.0
17	5000.0	4903.0
18	6000.0	4909.0
19	7000.0	4920.0
20	9000.0	4949.0
21	12000.0	4995.0
22	15151.3	5046.5

INPUT DATA FOR BT - METRIC

NO.	[illegible]	TEMP
1	0.0	10.9
2	8.0	11.4
3	372.0	11.0
4	493.0	10.6

CORRECTED BOTTOM DEPTH IS 2525 FATHOMS
LAYER DEPTH IS 1618 FEET
SOUND VELOCITY AT SURFACE IS 4907.9 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4907.9
2	26.2	4913.[illegible]
3	1000.0	4926.0
4	122[illegible].5	492[illegible].8
5	1617.5	4930.2

7	[illegible]	[illegible]
8	[illegible]	[illegible]
9	2500.0	4920.0
10	2750.0	4917.0
11	3000.0	4914.0
12	3250.0	4910.0
13	3500.0	4906.0
14	4000.0	4902.0
15	4500.0	4902.0
16	5000.0	4903.0
17	6000.0	4909.0
18	7000.0	4920.0
19	9000.0	4949.0
20	12000.0	4995.0
21	15151.3	5046.5

SIMAS: HISTORICAL DATA AUG2E SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4972.0
2	100.0	4974.0
3	250.0	4940.0
4	500.0	4928.0
5	1000.0	4927.0
6	1250.0	4926.0
7	1500.0	4928.0
8	1750.0	4926.0
9	2000.0	4925.0
10	2250.0	4923.0
11	2500.0	4920.0
12	2750.0	4917.0
13	3000.0	4914.0
14	3250.0	4910.0
15	3500.0	4906.0
16	4000.0	4902.0
17	4500.0	4902.0
18	5000.0	4903.0
19	6000.0	4909.0
20	7000.0	4920.0
21	9000.0	4949.0
22	12000.0	4995.0
23	15155.4	5046.5

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	19.0
2	22.0	19.0
3	27.0	18.8
4	29.0	17.1
5	37.0	15.3
6	53.0	14.1
7	122.0	13.9
8	414.0	11.4

CORRECTED BOTTOM DEPTH IS 2526 FATHOMS
LAYER DEPTH IS 72 FEET
SOUND VELOCITY AT SURFACE IS 4978.9 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY

1	[illegible]	4978.9
2	72.[illegible]	4[illegible].1
3	88.6	4978.5
4	95.1	[illegible]
5	121.[illegible]	4964.7
6	173.9	4932.9
7	400.3	4934.5
8	1000.0	4927.0
9	1358.3	4922.5
10	1500.0	4928.0
11	1750.0	4926.0
12	2000.0	4925.0
13	2250.0	4923.0
14	2500.0	4920.0
15	2750.0	4917.0
16	3000.0	4914.0
17	3250.0	4910.0
18	3500.0	4906.0
19	4000.0	4902.0
20	4500.0	4902.0
21	5000.0	4903.0
22	6000.0	4909.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15155.4	5046.5

SIMAS: HISTORICAL DATA FEB2H SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4855.0
2	150.0	4861.0
3	300.0	4880.0
4	550.0	4914.0
5	700.0	4910.0
6	1000.0	4884.0
7	1250.0	4868.0
8	1500.0	4862.0
9	1750.0	4858.0
10	2000.0	4856.0
11	2250.0	4858.0
12	2500.0	4860.0
13	2750.0	4862.0
14	3000.0	4864.0
15	3250.0	4867.0
16	3500.0	4870.0
17	4000.0	4876.0
18	4500.0	4884.0
19	5000.0	4891.0
20	6000.0	4906.0
21	7000.0	4920.0
22	9000.0	4949.0
23	10105.9	4966.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.9
2	35.0	13.1
3	48.0	13.7
4	118.0	14.2
5	133.0	14.9
6	147.0	13.4
7	198.0	13.4
8	221.0	12.5
9	290.0	11.1
10	347.0	9.0
11	395.0	8.6
12	407.0	7.9
13	477.0	7.0

PROBABLE ERROR IN XBT

HISTORICAL DATA		XBT DATA	
DEPTH	VEL	DEPTH	VEL

	.0	855.
2	150.0	4851.0
3	300.0	4880.0
4	550.0	4914.0
5	700.0	4910.0
6	1000.0	4884.0
7	1250.0	4868.0
8	1500.0	4862.0

1	0.0	4922.5
2	114.8	4[illegible]
3	157.5	4934.1
4	387.2	4943.4
5	436.4	4951.2
6	482.3	4936.0
7	649.6	4939.1
8	725.1	4930.4
9	951.5	4918.7
10	1000.0	4912.8
11	1138.5	4896.2
12	1296.0	4893.9
13	1335.4	4885.8
14	1565.0	4878.6

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 1684 FATHOMS
LAYER DEPTH IS 115 FEET
SOUND VELOCITY AT SURFACE IS 4861.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4861.0
2	114.8	4866.0
3	150.0	4861.0
4	300.0	4880.0
5	550.0	4914.0
6	700.0	4910.0
7	1000.0	4884.0
8	1250.0	4868.0
9	1500.0	4862.0
10	1750.0	4858.0
11	2000.0	4856.0
12	2250.0	4858.0
13	2500.0	4860.0
14	2750.0	4862.0
15	3000.0	4864.0
16	3250.0	4867.0
17	3500.0	4870.0
18	4000.0	4876.0
19	4500.0	4884.0
20	5000.0	4891.0
21	6000.0	4906.0
22	7000.0	4920.0
23	9000.0	4949.0
24	10105.9	4966.0

SIMAS: HISTORICAL DATA AUG3A SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5056.5
2	30.0	5057.0
3	50.0	5034.0
4	100.0	5010.0
5	200.0	4990.0
6	350.0	4977.5
7	600.0	4975.8
8	1500.0	4977.0
9	3000.0	4997.0
10	4200.0	5016.0
11	7200.0	5066.0
12	9614.5	5107.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	26.2
2	18.0	26.1
3	22.0	22.0
4	41.0	16.6
5	59.0	15.0
6	64.0	14.7
7	135.0	14.9
8	443.0	13.9

PROBABLE ERROR IN XBT

	HISTORICAL DATA		XBT DATA	
	DEPTH	VEL	DEPTH	VEL
1	0.0	5056.5	0.0	5055.9
2	30.0	5057.0	59.1	5056.1
3	50.0	5034.0	72.2	5023.8
4	100.0	5010.0	134.5	4976.2
5	200.0	4990.0	193.6	4960.8
6	350.0	4977.5	210.0	4957.9
7	600.0	4975.8	442.9	4963.3
8	1000.0	4976.3	1000.0	4967.3
9	1500.0	4977.0	1453.5	4970.4

COMMENT NEW MAY BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 1602 FATHOMS
LAYER DEPTH IS 59 FEET
SOUND VELOCITY AT SURFACE IS 5056.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5056.5
2	59.1	5057.5
3	100.0	5010.0
4	200.0	4990.0
5	350.0	4977.5
6	600.0	4975.8
7	1000.0	4976.3
8	1500.0	4977.0
9	3000.0	4997.0
10	4200.0	5016.0
11	7200.0	5066.0
12	9614.5	5107.0

APPENDIX C

Section C2

35 PPT Near-surface Salinity for Sites FIF, AIF&F2H

SIMAS: HISTORICAL DATA FERIF SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	300.0	4880.5
3	600.0	4886.0
4	750.0	4880.0
5	1000.0	4870.0
6	1250.0	4859.0
7	1500.0	4852.0
8	1750.0	4848.0
9	2000.0	4846.0
10	2250.0	4846.0
11	2500.0	4847.0
12	2750.0	4849.0
13	3000.0	4851.0
14	3250.0	4853.0
15	3500.0	4855.0
16	4000.0	4860.0
17	4500.0	4864.0
18	5000.0	4871.0
19	6000.0	4883.0
20	7000.0	4899.0
21	9000.0	4930.0
22	12000.0	4979.0
23	15000.0	5031.0
24	15999.8	5049.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.3
2	109.0	12.3
3	117.0	12.1
4	126.0	11.2
5	134.0	10.8
6	497.0	5.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4876.0	1	0.0	4916.2
2	300.0	4880.5	2	357.6	4922.3
			3	343.4	4919.0

	750.0	4880.0	4	413.4	4909.9
5	1000.0	.70.	5	39.7	4905.0
6	1250.0	4859.0	6	1000.0	4863.1
7	1500.0	4852.0	7	1630.7	4858.8

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 358 FEET
SOUND VELOCITY AT SURFACE IS 4876.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	357.6	4882.1
3	750.0	4880.0
4	1000.0	4870.0
5	1250.0	4859.0
6	1500.0	4852.0
7	1750.0	4848.0
8	2000.0	4846.0
9	2250.0	4846.0
10	2500.0	4847.0
11	2750.0	4849.0
12	3000.0	4851.0
13	3250.0	4853.0
14	3500.0	4855.0
15	4000.0	4860.0
16	4500.0	4864.0
17	5000.0	4871.0
18	6000.0	4883.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	15999.8	5049.0

SIMAS: HISTORICAL DATA AUG1F SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4964.0
2	35.0	4964.1
3	150.0	4915.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0
9	1750.0	4848.0
10	2000.0	4846.0
11	2250.0	4846.0
12	2500.0	4847.0
13	2750.0	4849.0
14	3000.0	4851.0
15	3250.0	4853.0
16	3500.0	4855.0
17	4000.0	4860.0
18	4500.0	4864.0
19	5000.0	4871.0
20	6000.0	4883.0
21	7000.0	4899.0
22	9000.0	4930.0
23	12000.0	4979.0
24	15000.0	5031.0
25	16003.0	5049.1

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	14.8
2	30.0	14.7
3	36.0	11.0
4	55.0	9.1
5	113.0	7.6
6	147.0	7.6
7	155.0	8.0
8	196.0	8.1
9	344.0	6.0
10	457.0	4.8

CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 98 FEET
SOUND VELOCITY AT SURFACE IS 4949.6 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4949.6
2	98.4	4950.2
3	118.1	4909.8
4	180.5	4887.8
5	370.8	4872.3
6	482.3	4873.8
7	508.6	4879.1
8	643.1	4883.1
9	1000.0	4869.0
10	1128.7	4863.9
11	1499.4	4854.1
12	1500.0	4852.0
13	1750.0	4848.0
14	2000.0	4846.0
15	2250.0	4846.0
16	2500.0	4847.0
17	2750.0	4849.0
18	3000.0	4851.0
19	3250.0	4853.0
20	3500.0	4855.0
21	4000.0	4860.0
22	4500.0	4864.0
23	5000.0	4871.0
24	6000.0	4883.0
25	7000.0	4899.0
26	9000.0	4930.0
27	12000.0	4979.0
28	15000.0	5031.0
29	16003.0	5049.1

SIMAS: HISTORICAL DATA FEB2A SHORT BT

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	100.0	5025.0
3	200.0	5010.0
4	300.0	4952.0
5	500.0	4929.0
6	750.0	4920.0
7	1000.0	4915.0
8	1250.0	4910.0
9	1500.0	4905.0
10	1750.0	4899.0
11	2000.0	4892.0
12	2250.0	4886.0
13	2500.0	4879.0
14	2750.0	4876.0
15	3000.0	4877.0
16	3250.0	4879.0
17	3500.0	4880.0
18	4000.0	4885.0
19	4500.0	4891.0
20	5000.0	4898.0
21	6000.0	4909.0
22	7000.0	4920.0
23	9000.0	4949.0
24	12000.0	4995.0
25	15000.0	5044.0
26	17032.2	5077.9

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	25.6
2	26.0	25.6
3	87.0	24.6
4	98.0	22.3
5	137.0	18.0
6	216.0	13.7
7	345.0	10.8
8	455.0	9.4

PROBABLE ERROR IN XBT

HISTORICAL DATA		XBT DATA	
DEPTH	VEL	DEPTH	VEL

	0.0	5024	1	0.0	5024.0
2	100.0	5025.0	2	85.3	5041.6
3	200.0	5010.0	3	285.4	5037.2
4	300.0	4952.0	4	321.5	5019.5
5	500.0	4929.0	5	449.5	4982.7
6	750.0	4920.0	6	708.7	4943.2
7	1000.0	4915.0	7	1000.0	4925.6
8	1250.0	4910.0	8	1131.9	4917.7
9	1500.0	4905.0	9	1492.9	4907.2

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2839 FATHOMS
LAYER DEPTH IS 85 FEET
SOUND VELOCITY AT SURFACE IS 5024.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	85.3	5025.4
3	100.0	5025.0
4	200.0	5010.0
5	300.0	4952.0
6	500.0	4929.0
7	750.0	4920.0
8	1000.0	4915.0
9	1250.0	4910.0
10	1500.0	4905.0
11	1750.0	4899.0
12	2000.0	4892.0
13	2250.0	4886.0
14	2500.0	4879.0
15	2750.0	4876.0
16	3000.0	4877.0
17	3250.0	4879.0
18	3500.0	4880.0
19	4000.0	4985.0
20	4500.0	4891.0
21	5000.0	4898.0
22	6000.0	4909.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15000.0	5044.0
27	17032.2	5077.9

APPENDIX C

Section C3

Detailed BT and SIMAS Historical Profiles

SIMAS: HISTORICAL DATA FEB;C

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4955.5
2	250.0	4958.0
3	300.0	4956.0
4	500.0	4944.0
5	1000.0	4920.0
6	1250.0	4905.0
7	1500.0	4890.0
8	1750.0	4876.0
9	2000.0	4866.0
10	2250.0	4859.0
11	2500.0	4855.0
12	2750.0	4854.0
13	3000.0	4856.0
14	3250.0	4857.0
15	3500.0	4859.0
16	4000.0	4864.0
17	4500.0	4869.0
18	5000.0	4874.0
19	6000.0	4885.0
20	7000.0	4899.0
21	9000.0	4930.0
22	12000.0	4979.0
23	15000.0	5031.0
24	18556.8	5095.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	17.1
2	14.0	17.2
3	98.0	17.2
4	143.0	17.1
5	150.0	17.0
6	156.0	16.2
7	158.0	16.0
8	211.0	14.9
9	253.0	14.2
10	275.0	13.8
11	286.0	13.4
12	345.0	12.4
13	353.0	12.3
14	367.0	11.9
15	401.0	11.4
16	411.0	11.1
17	417.0	11.1
18	426.0	10.8
19	437.0	10.6
20	442.0	10.4
21	449.0	10.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4955.5	1	0.0	4967.1
2	250.0	4958.0	2	45.9	4968.8
3	300.0	4956.0	3	321.5	4973.0
4	500.0	4944.0	4	469.2	4974.8
5	1000.0	4920.0	5	492.2	4973.9
6	1250.0	4905.0	6	511.8	4965.9
7	1500.0	4890.0	7	518.4	4964.6
			8	692.3	4955.3
			9	830.1	4950.8
			10	902.3	4947.5
			11	944.9	4944.0
			12	1000.0	4941.5
			13	1131.9	4935.4
			14	1158.2	4935.1
			15	1204.1	4931.9
			16	1315.7	4927.7
			17	1348.5	4924.7
			18	1368.2	4924.8
			19	1397.7	4921.5
			20	1433.8	4920.1
			21	1450.2	4918.1
			22	1473.2	4918.5
			23	1561.8	4913.8

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

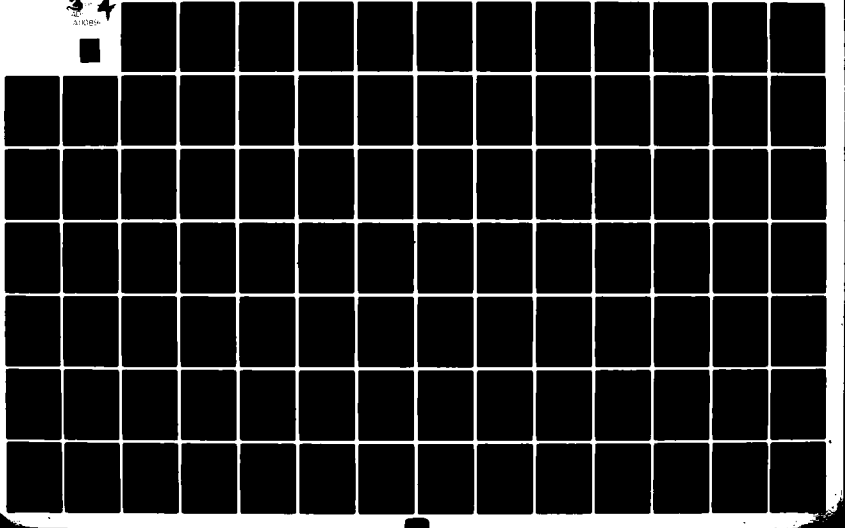
CORRECTED BOTTOM DEPTH IS 3093 FATHOMS
LAYER DEPTH IS 469 FEET
SOUND VELOCITY AT SURFACE IS 4955.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4955.5
2	469.2	4963.2
3	500.0	4944.0
4	1000.0	4920.0
5	1250.0	4905.0
6	1500.0	4890.0
7	1750.0	4876.0
8	2000.0	4866.0
9	2250.0	4859.0
10	2500.0	4855.0
11	2750.0	4854.0
12	3000.0	4856.0

13	3250.0	4857.0
14	3500.0	4[illegible]7.0
15	4000.0	4864.0
16	4500.0	4869.0
17	5000.0	4874.0
18	6000.0	4885.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	18556.8	5095.0

AD-A110 891 OCEAN DATA SYSTEMS INC ROCKVILLE MD F/G 17/1
THE CAUSE OF SOUND SPEED PROFILE DIFFERENCES BETWEEN ICAPS AND --ETC(U)
MAY 80 J H LOCKLIN, B W SCAIFE N00014-79-C-0676
UNCLASSIFIED NL



'SIM. HIST ·CAL ··· FP···

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	300.0	4880.5
3	600.0	4886.0
4	750.0	4880.0
5	1000.0	4870.0
6	1250.0	4859.0
7	1500.0	4852.0
8	1750.0	4848.0
9	2000.0	4846.0
10	2250.0	4846.0
11	2500.0	4847.0
12	2750.0	4849.0
13	3000.0	4851.0
14	3250.0	4853.0
15	3500.0	4855.0
16	4000.0	4860.0
17	4500.0	4864.0
18	5000.0	4871.0
19	6000.0	4883.0
20	7000.0	4899.0
21	9000.0	4930.0
22	12000.0	4979.0
23	15000.0	5031.0
24	15999.8	5049.0

C3-5

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.3
2	93.0	12.4
3	109.0	12.3
4	117.0	12.1
5	126.0	11.2
6	131.0	11.0
7	134.0	10.8
8	155.0	10.4
9	169.0	10.3
10	177.0	10.1
11	194.0	9.9
12	202.0	9.7
13	220.0	9.5
14	234.0	9.1
15	304.0	8.3
16	387.0	7.0
17	425.0	6.2
18	437.0	6.1
19	445.0	6.1
20	456.0	5.8
21	497.0	5.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA DEPTH	HISTORICAL DATA VEL		XBT DATA DEPTH	XBT DATA VEL
1	0.0	4876.0	1	0.0	4912.1
2	300.0	4880.5	2	305.1	4917.9
3	600.0	4886.6	3	357.6	4918.2
4	750.0	4880.0	4	383.9	4915.8
5	1000.0	4870.0	5	413.4	4905.7
6	1250.0	4859.0	6	429.8	4904.4
7	1500.0	4852.0	7	439.7	4901.7
			8	508.6	4897.9
			9	554.5	4898.2
			10	580.7	4895.6
			11	636.5	4894.4
			12	662.8	4892.2
			13	721.8	4890.7
			14	767.8	4887.3
			15	997.4	4880.6
			16	1000.0	4880.5
			17	1209.7	4868.8
			18	1394.4	4861.2
			19	1433.8	4859.8
			20	1460.0	4860.8
			21	1496.1	4857.4
			22	1630.7	4854.4

C3-6

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2667 FATHOMS
LAYER DEPTH IS 305 FEET
SOUND VELOCITY AT SURFACE IS 4876.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4876.0
2	305.1	4881.8
3	750.0	4880.0
4	1000.0	4870.0
5	1250.0	4859.0
6	1500.0	4852.0
7	1750.0	4848.0
8	2000.0	4846.0
9	2250.0	4846.0
10	2500.0	4847.0
11	2750.0	4849.0
12	3000.0	4851.0
13	3250.0	4853.0

14	3500.0	[illegible].0
15	4000.0	4860.0
16	4500.0	4864.0
17	5000.0	4871.0
18	6000.0	4883.0
19	7000.0	4899.0
20	9000.0	4930.0
21	12000.0	4979.0
22	15000.0	5031.0
23	15999.8	5049.0

SIMAS1 HISTORICAL DATA ACOUF

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4964.0
2	35.0	4964.1
3	150.0	4916.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0
9	1750.0	4848.0
10	2000.0	4846.0
11	2250.0	4846.0
12	2500.0	4847.0
13	2750.0	4849.0
14	3000.0	4851.0
15	3250.0	4853.0
16	3500.0	4855.0
17	4000.0	4860.0
18	4500.0	4864.0
19	5000.0	4871.0
20	6000.0	4883.0
21	7000.0	4899.0
22	9000.0	4930.0
23	12000.0	4979.0
24	15000.0	5031.0
25	16003.0	5049.1

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	14.8
2	20.0	14.9
3	25.0	14.7
4	30.0	14.7
5	36.0	11.0
6	42.0	10.2
7	47.0	10.0
8	49.0	9.7
9	60.0	9.1
10	69.0	8.9
11	73.0	8.6
12	82.0	8.4
13	86.0	8.2
14	91.0	8.2
15	103.0	7.8
16	132.0	7.5
17	137.0	7.5
18	138.0	7.6
19	147.0	7.6
20	180.0	8.1
21	196.0	8.1

22	245.0	1.4
	>2.0	7
24	291.0	6.6
25	344.0	6.0
26	411.0	5.0
27	429.0	4.9
28	457.0	4.8

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4964.0	1	0.0	4939.4
2	35.0	4964.1	2	65.6	4941.0
3	150.0	4916.0	3	82.0	4939.7
4	350.0	4886.0	4	98.4	4939.9
5	600.0	4886.0	5	118.1	4899.5
6	1000.0	4869.0	6	137.8	4890.1
7	1250.0	4859.0	7	154.2	4887.9
8	1500.0	4852.0	8	160.8	4884.2
			9	196.9	4877.7
			10	226.4	4875.6
			11	239.5	4872.5
			12	269.0	4870.4
			13	282.2	4867.3
			14	298.6	4867.6
			15	337.9	4863.6
			16	433.1	4861.1
			17	449.5	4861.4
			18	452.8	4863.1
			19	482.3	4863.3
			20	590.6	4871.8
			21	643.1	4872.6
			22	803.8	4866.6
			23	859.6	4862.8
			24	954.8	4858.1
			25	1000.0	4856.9
			26	1128.7	4853.4
			27	1348.5	4844.0
			28	1407.5	4843.0
			29	1499.4	4843.5

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2067 FATHOMS
LAYER DEPTH IS 66 FEET
SOUND VELOCITY AT SURFACE IS 4964.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4964.0
2	65.6	4965.1
3	150.0	4916.0
4	350.0	4889.0
5	600.0	4886.0
6	1000.0	4869.0
7	1250.0	4859.0
8	1500.0	4852.0
9	1750.0	4848.0
10	2000.0	4846.0
11	2250.0	4846.0
12	2500.0	4847.0
13	2750.0	4849.0
14	3000.0	4851.0
15	3250.0	4853.0
16	3500.0	4855.0
17	4000.0	4860.0
18	4500.0	4864.0
19	5000.0	4871.0
20	6000.0	4883.0
21	7000.0	4899.0
22	9000.0	4930.0
23	12000.0	4979.0
24	15000.0	5031.0
25	16003.0	5049.1

SIMAS: HISTORICAL DATA FEB2A

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	100.0	5025.0
3	200.0	5010.0
4	300.0	4952.0
5	500.0	4929.0
6	750.0	4920.0
7	1000.0	4915.0
8	1250.0	4910.0
9	1500.0	4905.0
10	1750.0	4899.0
11	2000.0	4892.0
12	2250.0	4886.0
13	2500.0	4879.0
14	2750.0	4876.0
15	3000.0	4877.0
16	3250.0	4879.0
17	3500.0	4880.0
18	4000.0	4885.0
19	4500.0	4891.0
20	5000.0	4898.0
21	6000.0	4909.0
22	7000.0	4920.0
23	9000.0	4949.0
24	12000.0	4995.0
25	15000.0	5044.0
26	17032.2	5077.9

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	25.6
2	26.0	25.6
3	27.0	25.5
4	39.0	25.5
5	79.0	24.8
6	95.0	23.2
7	105.0	21.7
8	119.0	19.5
9	148.0	17.6
10	175.0	15.8
11	201.0	14.6
12	224.0	13.6
13	250.0	13.0
14	330.0	11.4
15	395.0	10.3
16	455.0	9.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	5024.0	1	0.0	5042.0
2	100.0	5025.0	2	85.3	5043.4
3	200.0	5010.0	3	88.6	5042.7
4	300.0	4952.0	4	128.0	5042.9
5	500.0	4929.0	5	259.2	5040.2
6	750.0	4920.0	6	311.7	5028.6
7	1000.0	4915.0	7	344.5	5016.6
8	1250.0	4910.0	8	390.4	4997.8
9	1500.0	4905.0	9	485.6	4981.4
			10	574.2	4964.8
			11	659.5	4954.2
			12	734.9	4945.2
			13	820.3	4939.7
			14	1000.0	4930.3
			15	1082.7	4926.0
			16	1296.0	4916.8
			17	1492.9	4909.3

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2839 FATHOMS
LAYER DEPTH IS 85 FEET
SOUND VELOCITY AT SURFACE IS 5024.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5024.0
2	85.3	5025.4
3	100.0	5025.0
4	200.0	5010.0
5	300.0	4952.0
6	500.0	4929.0
7	750.0	4920.0
8	1000.0	4915.0
9	1250.0	4910.0
10	1500.0	4905.0
11	1750.0	4899.0
12	2000.0	4892.0
13	2250.0	4886.0
14	2500.0	4879.0
15	2750.0	4876.0
16	3000.0	4877.0
17	3250.0	4879.0

18	4500	4[illegible]0
19	4000.0	4485.0
20	4500.0	4891.0
21	5000.0	4848.0
22	6000.0	4909.0
23	7000.0	4920.0
24	9000.0	4949.0
25	12000.0	4995.0
26	15000.0	5044.0
27	17032.2	5077.9

SIMAS: HISTORICAL DATA FEB2E

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4911.0
2	500.0	4919.0
3	750.0	4922.0
4	1000.0	4926.0
5	1250.0	4928.0
6	1500.0	4928.0
7	1750.0	4926.0
8	2000.0	4925.0
9	2250.0	4923.0
10	2500.0	4920.0
11	2750.0	4917.0
12	3000.0	4914.0
13	3250.0	4910.0
14	3500.0	4906.0
15	4000.0	4902.0
16	4500.0	4902.0
17	5000.0	4903.0
18	6000.0	4909.0
19	7000.0	4920.0
20	9000.0	4949.0
21	12000.0	4995.0
22	15151.3	5046.5

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	10.9
2	2.0	11.2
3	8.0	11.4
4	268.0	11.3
5	325.0	11.0
6	372.0	11.0
7	399.0	10.8
8	425.0	10.8
9	473.0	10.5
10	493.0	10.6

CORRECTED BOTTOM DEPTH IS 2525 FATHOMS
LAYER DEPTH IS 1221 FEET
SOUND VELOCITY AT SURFACE IS 4907.2 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4907.2
2	6.6	4910.3
3	26.2	4913.1
4	879.3	4925.9
5	1000.0	4926.0
6	1066.3	4926.1
7	1220.5	4928.0
8	1309.1	4926.7
9	1394.4	4928.1
10	1551.9	4928.0
11	1617.5	4929.5
12	1750.0	4926.0
13	2000.0	4925.0
14	2250.0	4923.0
15	2500.0	4920.0
16	2750.0	4917.0
17	3000.0	4914.0
18	3250.0	4910.0
19	3500.0	4906.0
20	4000.0	4902.0
21	4500.0	4902.0
22	5000.0	4903.0
23	6000.0	4909.0
24	7000.0	4920.0
25	9000.0	4949.0
26	12000.0	4995.0
27	15151.3	5046.5

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.50 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4972.0
2	100.0	4974.0
3	250.0	4940.0
4	500.0	4928.0
5	1000.0	4927.0
6	1250.0	4928.0
7	1500.0	4928.0
8	1750.0	4926.0
9	2000.0	4925.0
10	2250.0	4923.0
11	2500.0	4920.0
12	2750.0	4917.0
13	3000.0	4914.0
14	3250.0	4910.0
15	3500.0	4906.0
16	4000.0	4902.0
17	4500.0	4902.0
18	5000.0	4903.0
19	6000.0	4909.0
20	7000.0	4920.0
21	9000.0	4949.0
22	12000.0	4995.0
23	15155.4	5046.5

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	19.0
2	22.0	19.0
3	27.0	18.8
4	29.0	17.1
5	32.0	16.9
6	33.0	16.4
7	37.0	15.3
8	38.0	14.9
9	40.0	14.7
10	50.0	14.4
11	53.0	14.1
12	66.0	13.7
13	122.0	13.0
14	165.0	12.8
15	192.0	12.6
16	207.0	12.5
17	214.0	12.2
18	243.0	12.0
19	285.0	12.0
20	294.0	11.9
21	335.0	11.9
22	414.0	11.2

CORRECTED BOTTOM DEPTH IS 2526 FATHOMS
LAYER DEPTH IS 72 FEET
SOUND VELOCITY AT SURFACE IS 4983.6 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4983.6
2	72.2	4984.8
3	88.6	4983.2
4	95.1	4967.1
5	105.0	4965.3
6	108.3	4960.4
7	121.4	4949.4
8	124.7	4945.3
9	131.2	4943.3
10	164.1	4940.7
11	173.9	4937.6
12	216.5	4934.0
13	400.3	4929.4
14	541.4	4927.3
15	630.0	4928.8
16	679.2	4928.5
17	702.1	4925.5
18	797.3	4924.8
19	935.1	4927.1
20	964.6	4926.4
21	1000.0	4927.0
22	1099.1	4928.6
23	1358.3	4924.9
24	1500.0	4928.0
25	1750.0	4926.0
26	2000.0	4925.0
27	2250.0	4923.0
28	2500.0	4920.0
29	2750.0	4917.0
30	3000.0	4914.0
31	3250.0	4910.0
32	3500.0	4906.0
33	4000.0	4902.0
34	4500.0	4902.0
35	5000.0	4903.0
36	6000.0	4909.0
37	7000.0	4920.0
38	9000.0	4949.0
39	12000.0	4995.0
40	15155.4	5046.5

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4855.0
2	150.0	4861.0
3	300.0	4880.0
4	550.0	4914.0
5	700.0	4910.0
6	1000.0	4884.0
7	1250.0	4868.0
8	1500.0	4862.0
9	1750.0	4858.0
10	2000.0	4856.0
11	2250.0	4858.0
12	2500.0	4860.0
13	2750.0	4862.0
14	3000.0	4864.0
15	3250.0	4867.0
16	3500.0	4870.0
17	4000.0	4876.0
18	4500.0	4884.0
19	5000.0	4891.0
20	6000.0	4906.0
21	7000.0	4920.0
22	9000.0	4949.0
23	10105.9	4966.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.9
2	16.0	13.1
3	30.0	13.1
4	35.0	13.1
5	39.0	13.4
6	48.0	13.7
7	70.0	14.0
8	85.0	14.0
9	92.0	14.1
10	104.0	14.1
11	122.0	14.6
12	128.0	15.1
13	144.0	13.9
14	147.0	13.4
15	151.0	13.5
16	171.0	13.3
17	178.0	13.5
18	186.0	13.4
19	198.0	13.4
20	221.0	12.5

21	246.0	12.0
22	263.0	11.5
23	290.0	11.1
24	302.0	10.4
25	345.0	9.2
26	393.0	8.6
27	404.0	8.2
28	424.0	7.9
29	460.0	7.4
30	505.0	6.9

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4855.0	1	0.0	4922.5
2	150.0	4861.0	2	52.5	4925.9
3	300.0	4880.0	3	98.4	4926.6
4	550.0	4914.0	4	114.8	4927.5
5	700.0	4910.0	5	128.0	4930.6
6	1000.0	4884.0	6	157.5	4934.1
7	1250.0	4868.0	7	229.7	4938.3
8	1500.0	4862.0	8	278.9	4939.1
			9	301.9	4941.1
			10	341.2	4941.7
			11	400.3	4947.6
			12	420.0	4952.9
			13	472.5	4941.8
			14	482.3	4936.0
			15	495.4	4937.7
			16	561.1	4936.5
			17	584.0	4939.6
			18	610.3	4938.5
			19	649.6	4939.1
			20	725.1	4930.4
			21	807.1	4925.6
			22	862.9	4921.7
			23	951.5	4918.7
			24	990.9	4910.5
			25	1000.0	4909.7
			26	1131.9	4898.6
			27	1289.4	4893.9
			28	1325.5	4889.7
			29	1391.1	4886.6
			30	1509.3	4882.0
			31	1656.9	4879.0

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 1684 FATHOMS
LAYER DEPTH IS 52 FEET
SOUND VELOCITY AT SURFACE IS 4861.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4861.0
2	52.5	4864.4
3	150.0	4861.0
4	300.0	4880.0
5	550.0	4914.0
6	700.0	4910.0
7	1000.0	4884.0
8	1250.0	4868.0
9	1500.0	4862.0
10	1750.0	4858.0
11	2000.0	4856.0
12	2250.0	4858.0
13	2500.0	4860.0
14	2750.0	4862.0
15	3000.0	4864.0
16	3250.0	4867.0
17	3500.0	4870.0
18	4000.0	4876.0
19	4500.0	4884.0
20	5000.0	4891.0
21	6000.0	4906.0
22	7000.0	4920.0
23	9000.0	4949.0
24	10105.9	4966.0

SIMAS: HISTORICAL DATA AUG3A

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.00 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5056.5
2	30.0	5057.0
3	50.0	5034.0
4	100.0	5010.0
5	200.0	4990.0
6	350.0	4977.5
7	600.0	4975.8
8	1500.0	4977.0
9	3000.0	4997.0
10	4200.0	5016.0
11	7200.0	5066.0
12	9614.5	5107.0

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	26.2
2	18.0	26.1
3	22.0	22.0
4	29.0	19.2
5	35.0	17.7
6	41.0	16.6
7	46.0	15.9
8	49.0	15.8
9	51.0	15.5
10	59.0	15.0
11	68.0	14.8
12	77.0	14.7
13	84.0	14.8
14	135.0	14.9
15	170.0	14.7
16	215.0	14.7
17	253.0	14.4
18	275.0	14.4
19	286.0	14.2
20	370.0	14.0
21	434.0	14.0
22	443.0	13.9

PROBABLE ERROR IN XBT

HISTORICAL DATA		XBT DATA	
DEPTH	VEL	DEPTH	VEL

1	0.0	5056.5
2	30.0	5057.0
3	50.0	5034.0
4	100.0	5010.0
5	200.0	4990.0
6	350.0	4977.5
7	600.0	4975.8
8	1000.0	4976.3
9	1500.0	4977.0

1	0.0	5056.5
2	59.1	5056.1
3	72.2	5023.8
4	95.1	4999.9
5	114.8	4986.1
6	134.5	4976.2
7	150.9	4969.4
8	160.8	4968.5
9	167.3	4965.6
10	193.6	4960.8
11	223.1	4958.7
12	252.6	4958.6
13	275.6	4960.3
14	442.9	4963.3
15	557.8	4963.2
16	705.4	4965.6
17	830.1	4964.9
18	902.3	4966.1
19	938.4	4965.1
20	1000.0	4965.7
21	1214.0	4967.6
22	1424.0	4971.0
23	1453.5	4970.4

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

C3-22

CORRECTED BOTTOM DEPTH IS 1602 FATHOMS
LAYER DEPTH IS 59 FEET
SOUND VELOCITY AT SURFACE IS 5056.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5056.5
2	59.1	5057.5
3	100.0	5010.0
4	200.0	4990.0
5	350.0	4977.5
6	600.0	4975.8
7	1000.0	4976.3
8	1500.0	4977.0
9	3000.0	4997.0
10	4200.0	5016.0
11	7200.0	5066.0
12	9614.5	5107.0

APPENDIX

Section C4

ICAPS Environmental Profiles and Detailed BT Data

SIMAS PAC STATION IC - FEB

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 34.43 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4942.9
2	32.8	4943.5
3	65.6	4943.8
4	98.4	4944.0
5	164.1	4944.7
6	246.1	4944.3
7	328.1	4942.4
8	410.1	4939.3
9	492.2	4936.2
10	656.2	4929.3
11	820.3	4922.8
12	984.3	4915.7
13	1312.4	4900.3
14	1640.5	4881.0
15	1968.6	4865.1
16	2624.8	4854.7
17	3281.0	4856.2
18	3937.2	4862.4
19	4921.5	4873.0
20	6562.0	4891.8
21	8202.5	4915.8
22	9843.0	4942.9
23	13124.0	4999.6
24	16405.0	5058.8
25	17979.9	5087.6

C4-2

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	17.1
2	14.0	17.2
3	98.0	17.2
4	143.0	17.1
5	150.0	17.0
6	156.0	16.2
7	158.0	16.0
8	211.0	14.9
9	253.0	14.2
10	275.0	13.8
11	288.0	13.4
12	345.0	12.4
13	353.0	12.3
14	367.0	11.9
15	401.0	11.4
16	411.0	11.1
17	417.0	11.1
18	426.0	10.8
19	437.0	10.6
20	442.0	10.4
21	449.0	10.4
22	476.0	9.9

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4942.9	1	0.0	4964.8
2	32.8	4943.5	2	45.9	4966.5
3	65.6	4943.8	3	321.5	4970.8
4	98.4	4944.0	4	469.2	4972.5
5	164.1	4944.7	5	492.2	4971.6
6	246.1	4944.3	6	511.8	4963.6
7	328.1	4942.4	7	518.4	4962.3
8	410.1	4939.3	8	692.3	4953.0
9	492.2	4936.2	9	830.1	4948.5
10	656.2	4929.3	10	902.3	4945.2
11	820.3	4922.8	11	944.9	4941.6
12	984.3	4915.7	12	1000.0	4939.1
13	1000.0	4915.0	13	1131.9	4933.1
14	1312.4	4900.3	14	1158.2	4932.7
15	1500.0	4889.3	15	1204.1	4929.5
			16	1315.7	4925.3
			17	1348.5	4922.4
			18	1368.2	4922.4
			19	1397.7	4919.1
			20	1433.8	4917.7
			21	1450.2	4915.7
			22	1473.2	4916.1
			23	1561.8	4911.4

C4-3

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2997 FATHOMS
LAYER DEPTH IS 469 FEET
SOUND VELOCITY AT SURFACE IS 4942.9 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4942.9
2	469.2	4950.6
3	492.2	4936.2
4	656.2	4929.3
5	820.3	4922.8
6	984.3	4915.7
7	1000.0	4915.0

8	1312.4	4900.3
9	1500.0	4889.3
10	1640.5	4881.0
11	1968.6	4865.1
12	2624.8	4854.7
13	3281.0	4856.2
14	3937.2	4862.4
15	4921.5	4873.0
16	6562.0	4891.8
17	8202.5	4915.8
18	9843.0	4942.9
19	13124.0	4999.6
20	16405.0	5058.8
21	17979.9	5087.6

SIM... PAC ATI(... B 2

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 33.66 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4880.9
2	32.8	4881.3
3	65.6	4881.6
4	98.4	4882.1
5	164.1	4883.4
6	246.1	4884.0
7	328.1	4884.4
8	410.1	4883.6
9	492.2	4883.1
10	656.2	4881.6
11	820.3	4876.9
12	984.3	4870.3
13	1312.4	4855.0
14	1640.5	4846.2
15	1968.6	4843.9
16	2624.8	4847.8
17	3281.0	4852.7
18	3937.2	4859.1
19	4921.5	4870.1
20	6562.0	4892.0
21	8202.5	4916.8
22	9843.0	4943.0
23	13124.0	4999.4
24	15584.8	5042.4

C-5

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.3
2	93.0	12.4
3	109.0	12.3
4	117.0	12.1
5	126.0	11.2
6	131.0	11.0
7	134.0	10.8
8	155.0	10.4
9	169.0	10.3
10	177.0	10.1
11	194.0	9.9
12	202.0	9.7
13	220.0	9.5
14	234.0	9.1
15	304.0	8.3
16	387.0	7.0
17	425.0	6.2
18	437.0	6.1
19	445.0	6.1
20	456.0	5.8
21	497.0	5.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA		XBT DATA	
	DEPTH	VEL	DEPTH	VEL
1	0.0	4880.9	0.0	4910.7
2	32.8	4881.3	305.1	4916.5
3	65.6	4881.6	357.6	4916.8
4	98.4	4882.1	383.9	4914.4
5	164.1	4883.4	413.4	4904.3
6	246.1	4884.0	429.8	4902.9
7	328.1	4884.4	439.7	4900.3
8	410.1	4883.6	508.6	4896.5
9	492.2	4883.1	554.5	4896.8
10	656.2	4881.6	580.7	4894.2
11	820.3	4876.9	636.5	4893.0
12	984.3	4870.3	662.8	4890.7
13	1000.0	4869.6	721.8	4889.3
14	1312.4	4855.0	767.8	4885.9
15	1500.0	4850.0	997.4	4879.2
16			1000.0	4879.1
17			1269.7	4867.3
18			1394.4	4859.7
19			1433.8	4858.3
20			1460.0	4859.4
21			1496.1	4855.9
22			1630.7	4852.9

C4-6

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 2597 FATHOMS
LAYER DEPTH IS 358 FEET
SOUND VELOCITY AT SURFACE IS 4880.9 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4880.9
2	357.6	4886.8
3	410.1	4883.6
4	492.2	4883.1
5	656.2	4881.6
6	820.3	4876.9
7	984.3	4870.3
8	1000.0	4869.6
9	1312.4	4855.0
10	1500.0	4850.0
11	1640.5	4846.2
12	1968.6	4843.9
13	2624.8	4847.8

14	3281.0	4852.7
15	3937.2	4859.1
16	4921.5	4870.1
17	6562.0	4892.0
18	8202.5	4916.8
19	9843.0	4943.0
20	13124.0	4999.4
21	15584.8	5042.4

SIA PAC AII F JG 2

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 33.59 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4948.8
2	32.8	4946.8
3	65.6	4938.6
4	98.4	4924.2
5	164.1	4889.5
6	246.1	4874.9
7	328.1	4871.7
8	410.1	4871.7
9	492.2	4874.6
10	656.2	4874.9
11	820.3	4869.1
12	984.3	4861.9
13	1312.4	4849.8
14	1640.5	4844.0
15	1968.6	4843.7
16	2624.8	4846.9
17	3281.0	4851.9
18	3937.2	4858.3
19	4921.5	4869.7
20	6562.0	4891.9
21	8202.5	4916.7
22	9843.0	4943.0
23	13124.0	4999.6
24	15584.8	5042.7

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	14.8
2	20.0	14.9
3	25.0	14.7
4	30.0	14.7
5	36.0	11.0
6	42.0	10.2
7	47.0	10.0
8	49.0	9.7
9	60.0	9.1
10	69.0	8.9
11	73.0	8.6
12	82.0	8.4
13	86.0	8.2
14	91.0	8.2
15	103.0	7.8
16	132.0	7.5
17	137.0	7.5
18	138.0	7.6
19	147.0	7.6
20	180.0	8.1
21	196.0	8.1

22	262.0	7.0
23	262.0	7.0
24	291.0	6.6
25	344.0	6.0
26	411.0	5.0
27	429.0	4.9
28	457.0	4.8

CORRECTED BOTTOM DEPTH IS 2597 FATHOMS
LAYER DEPTH IS 66 FEET
SOUND VELOCITY AT SURFACE IS 4943.9 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4943.9
2	65.6	4945.5
3	82.0	4944.2
4	98.4	4944.5
5	118.1	4904.0
6	137.8	4894.6
7	154.2	4892.4
8	160.8	4888.6
9	196.9	4882.2
10	226.4	4880.1
11	239.5	4876.9
12	269.0	4874.8
13	282.2	4871.8
14	298.6	4872.0
15	337.9	4868.0
16	433.1	4865.5
17	449.5	4865.8
18	452.8	4867.5
19	482.3	4867.7
20	590.6	4876.2
21	643.1	4877.1
22	803.8	4871.0
23	859.6	4867.2
24	954.8	4862.5
25	1000.0	4861.3
26	1128.7	4857.8
27	1348.5	4848.4
28	1407.5	4847.5
29	1499.4	4847.9
30	1640.5	4844.0
31	1968.6	4843.7
32	2624.8	4846.9
33	3281.0	4851.9
34	3937.2	4858.3
35	4921.5	4869.7
36	6562.0	4891.9
37	8202.5	4916.7
38	9843.0	4943.0
39	13124.0	4999.6
40	15584.8	5042.7

SIMA.. ATL. ..All A EB 2

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 36.34 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5037.5
2	32.8	5038.1
3	65.6	5038.6
4	98.4	5039.2
5	164.1	5039.9
6	246.1	5039.9
7	328.1	5034.6
8	410.1	5019.5
9	492.2	5003.9
10	656.2	4981.4
11	820.3	4965.4
12	984.3	4952.2
13	1312.4	4933.2
14	1640.5	4917.0
15	1968.6	4902.6
16	2624.8	4886.9
17	3281.0	4886.8
18	3937.2	4892.5
19	4921.5	4899.4
20	6562.0	4915.7
21	8202.5	4937.1
22	9843.0	4960.4
23	13124.0	5013.8
24	16405.0	5070.8
25	19029.8	5117.1

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	25.6
2	26.0	25.6
3	27.0	25.5
4	39.0	25.5
5	79.0	24.8
6	95.0	23.2
7	105.0	21.7
8	119.0	19.5
9	148.0	17.6
10	175.0	15.8
11	201.0	14.6
12	224.0	13.6
13	250.0	13.0
14	330.0	11.4
15	395.0	10.3
16	455.0	9.4

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	5037.5	1	0.0	5045.1
2	32.8	5038.1	2	85.3	5046.5
3	65.6	5038.6	3	88.6	5045.8
4	98.4	5039.2	4	128.0	5046.0
5	164.1	5039.9	5	259.2	5043.3
6	246.1	5039.9	6	311.7	5031.8
7	328.1	5034.6	7	344.5	5019.8
8	410.1	5019.5	8	390.4	5001.0
9	492.2	5003.9	9	485.6	4984.7
10	656.2	4981.4	10	574.2	4968.2
11	820.3	4965.4	11	659.5	4957.6
12	984.3	4952.2	12	734.9	4948.6
13	1000.0	4951.3	13	820.3	4943.1
14	1312.4	4933.2	14	1000.0	4933.8
15	1500.0	4923.9	15	1082.7	4929.5
			16	1296.0	4920.3
			17	1492.9	4912.8

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 3172 FATHOMS
LAYER DEPTH IS 85 FEET
SOUND VELOCITY AT SURFACE IS 5037.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5037.5
2	85.3	5038.9
3	328.1	5034.6
4	410.1	5019.5
5	492.2	5003.9
6	656.2	4981.4
7	820.3	4965.4
8	984.3	4952.2
9	1000.0	4951.3
10	1312.4	4933.2
11	1500.0	4923.9
12	1640.5	4917.0
13	1968.6	4902.6
14	2624.8	4886.9
15	3281.0	4886.8
16	3937.2	4892.5
17	4921.5	4899.4
18	6562.0	4915.7
19	8202.5	4937.1
20	9843.0	4960.4
21	13124.0	5013.8
22	16405.0	5070.8

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.66 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4920.5
2	32.8	4920.6
3	65.6	4921.0
4	98.4	4921.4
5	164.1	4922.0
6	246.1	4923.1
7	328.1	4924.1
8	410.1	4924.9
9	492.2	4925.5
10	656.2	4926.7
11	820.3	4927.3
12	984.3	4927.7
13	1312.4	4929.2
14	1640.5	4930.9
15	1968.6	4931.5
16	2624.8	4931.7
17	3281.0	4932.8
18	3937.2	4927.6
19	4921.5	4912.1
20	6562.0	4918.5
21	8202.5	4939.1
22	9843.0	4961.5
23	13124.0	5015.3
24	15158.2	5049.3

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	10.9
2	2.0	11.2
3	8.0	11.4
4	268.0	11.3
5	325.0	11.0
6	372.0	11.0
7	399.0	10.8
8	425.0	10.8
9	473.0	10.5
10	493.0	10.6

CORRECTED BOTTOM DEPTH IS 2526 FATHOMS
LAYER DEPTH IS 1221 FEET
SOUND VELOCITY AT SURFACE IS 4909.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY

1	0.	49
2	6.6	4912.1
3	26.2	4914.8
4	879.3	4927.6
5	1000.0	4927.7
6	1066.3	4927.8
7	1220.5	4929.8
8	1309.1	4928.4
9	1394.4	4929.9
10	1551.9	4929.8
11	1617.5	4931.2
12	1640.5	4930.9
13	1968.6	4931.5
14	2624.8	4931.7
15	3281.0	4932.8
16	3937.2	4927.6
17	4921.5	4912.1
18	6562.0	4918.5
19	8202.5	4939.1
20	9843.0	4961.5
21	13124.0	5015.3
22	15158.2	5049.3

SIM ATL [illegible] E - AUG

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.61 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4973.2
2	32.8	4970.5
3	65.6	4967.6
4	98.4	4960.9
5	164.1	4944.1
6	246.1	4931.6
7	328.1	4926.2
8	410.1	4924.6
9	492.2	4923.6
10	656.2	4923.3
11	820.3	4924.1
12	984.3	4924.9
13	1312.4	4926.6
14	1640.5	4928.2
15	1968.6	4929.0
16	2624.8	4931.4
17	3281.0	4931.2
18	3937.2	4926.1
19	4921.5	4909.5
20	6562.0	4917.2
21	8202.5	4939.0
22	9843.0	4962.5
23	13124.0	5015.7
24	15158.2	5049.1

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	19.0
2	22.0	19.0
3	27.0	18.8
4	29.0	17.1
5	32.0	16.9
6	33.0	16.4
7	37.0	15.3
8	38.0	14.9
9	40.0	14.7
10	50.0	14.4
11	53.0	14.1
12	66.0	13.7
13	122.0	13.0
14	165.0	12.6
15	192.0	12.6
16	207.0	12.5
17	214.0	12.2
18	243.0	12.0
19	285.0	12.0
20	294.0	11.9
21	335.0	11.9
22	414.0	11.2

CORRECTED BOTTOM DEPTH IS 2526 FATHOMS
LAYER DEPTH IS 72 FEET
SOUND VELOCITY AT SURFACE IS 4981.6 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4981.6
2	72.2	4982.8
3	88.6	4981.2
4	95.1	4965.0
5	105.0	4963.2
6	108.3	4958.3
7	121.4	4947.4
8	124.7	4943.3
9	131.2	4941.3
10	164.1	4938.6
11	173.9	4935.6
12	216.5	4932.0
13	400.3	4927.4
14	541.4	4925.3
15	630.0	4926.8
16	679.2	4926.5
17	762.1	4923.5
18	797.3	4922.8
19	935.1	4925.1
20	964.6	4924.4
21	1000.0	4925.0
22	1099.1	4926.6
23	1358.3	4922.9
24	1640.5	4928.2
25	1968.6	4929.0
26	2624.8	4931.4
27	3281.0	4931.2
28	3937.2	4926.1
29	4921.5	4909.5
30	6562.0	4917.2
31	8202.5	4939.0
32	9843.0	4962.5
33	13124.0	5015.7
34	15158.2	5049.1

'SIM ATL ATIC - FEB 1

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 33.72 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4791.6
2	32.8	4793.2
3	65.6	4795.2
4	98.4	4798.4
5	164.1	4807.1
6	246.1	4822.6
7	328.1	4839.7
8	410.1	4852.5
9	492.2	4859.7
10	656.2	4865.4
11	820.3	4863.5
12	984.3	4860.4
13	1312.4	4851.1
14	1640.5	4850.2
15	1968.6	4852.8
16	2624.8	4859.5
17	3281.0	4867.3
18	3937.2	4876.0
19	4921.5	4890.1
20	6562.0	4913.9
21	8202.5	4937.5
22	9843.0	4958.8

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	12.9
2	16.0	13.1
3	30.0	13.1
4	35.0	13.1
5	39.0	13.4
6	48.0	13.7
7	70.0	14.0
8	85.0	14.0
9	92.0	14.1
10	104.0	14.1
11	122.0	14.6
12	128.0	15.1
13	144.0	13.9
14	147.0	13.4
15	151.0	13.5
16	171.0	13.3
17	178.0	13.5
18	186.0	13.4
19	198.0	13.4
20	221.0	12.5
21	246.0	12.0
22	263.0	11.5
23	290.0	11.1

24	302.0	10.4
25	345.0	9.2
26	393.0	8.6
27	404.0	8.2
28	424.0	7.9
29	460.0	7.4
30	505.0	6.9

PROBABLE ERROR IN XBT

	HISTORICAL DATA			XBT DATA	
	DEPTH	VEL		DEPTH	VEL
1	0.0	4791.6	1	0.0	4917.2
2	32.8	4793.2	2	52.5	4920.6
3	65.6	4795.2	3	98.4	4921.4
4	98.4	4798.4	4	114.8	4922.2
5	164.1	4807.1	5	128.0	4925.4
6	246.1	4822.6	6	157.5	4928.8
7	328.1	4839.7	7	229.7	4933.1
8	410.1	4852.5	8	278.9	4933.9
9	492.2	4859.7	9	301.9	4935.9
10	656.2	4865.4	10	341.2	4936.5
11	820.3	4863.5	11	400.3	4942.4
12	984.3	4860.4	12	420.0	4947.8
13	1000.0	4860.0	13	472.5	4936.6
14	1312.4	4851.1	14	482.3	4930.8
15	1500.0	4850.6	15	495.4	4932.4
			16	561.1	4931.2
			17	584.0	4934.3
			18	610.3	4933.2
			19	649.6	4933.9
			20	725.1	4925.1
			21	807.1	4920.3
			22	862.9	4916.4
			23	951.5	4913.3
			24	990.9	4905.2
			25	1000.0	4904.4
			26	1131.9	4893.2
			27	1289.4	4888.5
			28	1325.5	4884.2
			29	1391.1	4881.2
			30	1509.3	4876.5
			31	1656.9	4873.4

RECOMMEND NEW BT BE TAKEN

XBT DATA WILL BE ADJUSTED TO
USE LAYER DEPTH INDICATED BY XBT AND
HISTORICAL DATA BELOW LAYER

CORRECTED BOTTOM DEPTH IS 1641 FATHOMS
LAYER DEPTH IS 52 FEET
SOUND VELOCITY AT SURFACE IS 4797.6 FT/SEC

SINAJ GENE...LO S... VEL... TY P...LE

NO.	DEPTH	VELOCITY
1	0.0	4797.6
2	52.5	4801.0
3	65.6	4795.2
4	98.4	4798.4
5	164.1	4807.1
6	246.1	4822.6
7	328.1	4839.7
8	41..1	4852.5
9	492.7	4859.7
10	656.2	4865.4
11	820.3	4863.5
12	984.3	4860.4
13	1000.0	4860.0
14	1312.4	4851.1
15	1500.0	4850.6
16	1640.5	4850.2
17	1968.6	4852.8
18	2624.8	4859.5
19	3281.0	4867.3
20	3937.2	4876.0
21	4921.5	4890.1
22	6562.0	4913.9
23	8202.5	4937.5
24	9843.0	4958.8

SIMAST MED. STATION JA - AUG

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 38.74 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5049.6
2	32.8	5045.7
3	65.6	5033.3
4	98.4	5013.4
5	164.1	4987.0
6	246.1	4974.7
7	328.1	4970.4
8	410.1	4969.5
9	492.2	4969.4
10	656.2	4970.3
11	820.3	4971.3
12	984.3	4972.4
13	1312.4	4975.1
14	1640.5	4978.5
15	1968.6	4982.2
16	2624.8	4991.2
17	3281.0	5001.2
18	3937.2	5011.7
19	4921.5	5028.1
20	6562.0	5055.7
21	8202.5	5083.4
22	9843.0	5111.6

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	26.2
2	18.0	26.1
3	22.0	22.0
4	29.0	19.2
5	35.0	17.7
6	41.0	16.6
7	46.0	15.9
8	49.0	15.8
9	51.0	15.5
10	59.0	15.0
11	68.0	14.8
12	77.0	14.7
13	84.0	14.8
14	135.0	14.9
15	170.0	14.7
16	215.0	14.7
17	253.0	14.4
18	275.0	14.4
19	286.0	14.2
20	370.0	14.0
21	434.0	14.0
22	443.0	13.9

CORRECTED BOTTOM DEPTH IS 1641 FATHOMS
LAYER DEPTH IS 59 FEET
SOUND VELOCITY AT SURFACE IS 5062.5 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5062.5
2	59.1	5062.7
3	72.2	5030.5
4	95.1	5006.7
5	114.8	4992.9
6	134.5	4983.0
7	150.9	4976.2
8	160.8	4975.4
9	167.3	4972.4
10	193.6	4967.7
11	223.1	4965.6
12	252.6	4965.5
13	275.6	4967.1
14	442.9	4970.2
15	557.8	4970.0
16	705.4	4972.5
17	830.1	4971.8
18	902.3	4973.0
19	938.4	4972.0
20	1000.0	4972.5
21	1214.0	4974.4
22	1424.0	4977.9
23	1453.5	4977.3
24	1640.5	4978.5
25	1968.6	4982.2
26	2624.8	4991.2
27	3281.0	5001.2
28	3937.2	5011.7
29	4921.5	5028.1
30	6562.0	5055.7
31	8202.5	5083.4
32	9843.0	5111.6

APPENDIX D

ICAPS and SIMAS Sound Speed Profile Generation Methodologies

MEMORANDUM

TO: LCDR Al Galus

FROM: J. Locklin and B. W. Scaife

DATE: 21 April 80

SUBJECT: ICAPS and SIMAS Sound Speed Profile Generation Methodologies

ENCLOSURES:
(1) Features of ICAPS and SIMAS SSP GENERATORS
(2) ICAPS Logic Flow
(3) SIMAS Logic Flow
(4) Problem Areas in ICAPS and SIMAS Codes
(5) ICAPS Temperature Synthesizing Algorithm
(6) Test Results

REFERENCE:
(1) "The ICAPS Water Mass History File," by Alvan Fisher, Jr., N00 RP-19, May 1978.

(2) "Description of ICAPS Environmental Data Structure" by John Lever, NAVOCEANO TN 3700-82-79, March 1979

1. The purpose of this task was to provide the capability to examine the parameter (temperature, salinity, depth, sound speed) and coded algorithm dependencies of the SIMAS and ICAPS profile generation processes. This effort is directed toward determining an optimal choice of parameters to be included in the APF Data Base which is to support both ICAPS and SIMAS as they are to be configured in the Comprehensive APP systems.

2. Enclosures (1), (2), and (3) document the respective algorithms and were prepared from FORTRAN source code listings. ICAPS listings were provided by Mr. Doug Gordon, NAVOCEANO, for both the Univac 1108 and NOVA 800 software versions. SIMAS listings were provided by Mr. Burley Brunson, NORDA CODE 320, for the PDP 11/40 version installed at NORDA. In the process of examining and documenting the source code, several problems were discovered in each of the systems. These problems are discussed in enclosures (4) and (5).

3. In order to study the performance of each algorithm, a version of each was coded from the source listings and installed on the CDC 6600 for test purposes. The basic algorithms to treat historical and BT profile data, and to prepare resultant SSP's remain intact and reflect the same methods used in ICAPS and SIMAS codes currently in operation on their respective computers.

4. A preliminary set of tests were conducted to verify the CDC versions, look at the criticality of near-surface vertical salinity variation, and compare the merge processes. E. Hashimoto, NORDA code 321, provided hydrographic data at two stations. The results of these tests are contained in enclosure (6). The test cases illustrate the applicability of the ICAPS and SIMAS algorithms.

ENCLOSURE 1

FEATURES OF ICAPS AND SIMAS SSP GENERATORS

Enclosure (1) to
ODSI memo dtd 4/21/80
Locklin to Galus

METHODOLOGICAL FEATURES OF SSP GENERATOR

ICAPS	SIMAS
Multiple water mass (up to 5) capability for each geographic area.	A geographic area is represented by one water mass.
Historical data base contains for each water mass, temperature and salinity profiles (ZH_i, TH_i, SH_i), i=1, NH ≤ 45.	Historical data base contains for each water mass a sound speed profile (ZH_i, VH_i), NH ≤ 27, and a representative near-surface salinity value, S.
Extends the Bathythermograph (BT) profile, (ZB_j, TB_j), j=1, NBT_j[1] with modified historical temperatures for corresponding water mass at depths below the last BT depth, and interpolate salinity values from historical profile.	Utilize Leroy's equation to calculate the SSP for BT profile with historical constant salinity. The BT profile may consist of up to 24 points.
Insert bathymetry and truncate SSP at bottom depth.	Shift the BT SSP by the linearly interpolated velocity difference between historical SSP and BT SSP at 1000 ft. Next, extend below the BT SSP with unmodified historical SSP points.
Correct salinity values for a stable environment.	Insert bathymetry and truncate SSP at bottom depth.
Utilize Wilson's equation to calculate SSP.	Adjust fathometer bathymetry and interpolate sound speed at adjusted bottom depth.
Calculate the layer depth.	Calculate the layer depth.

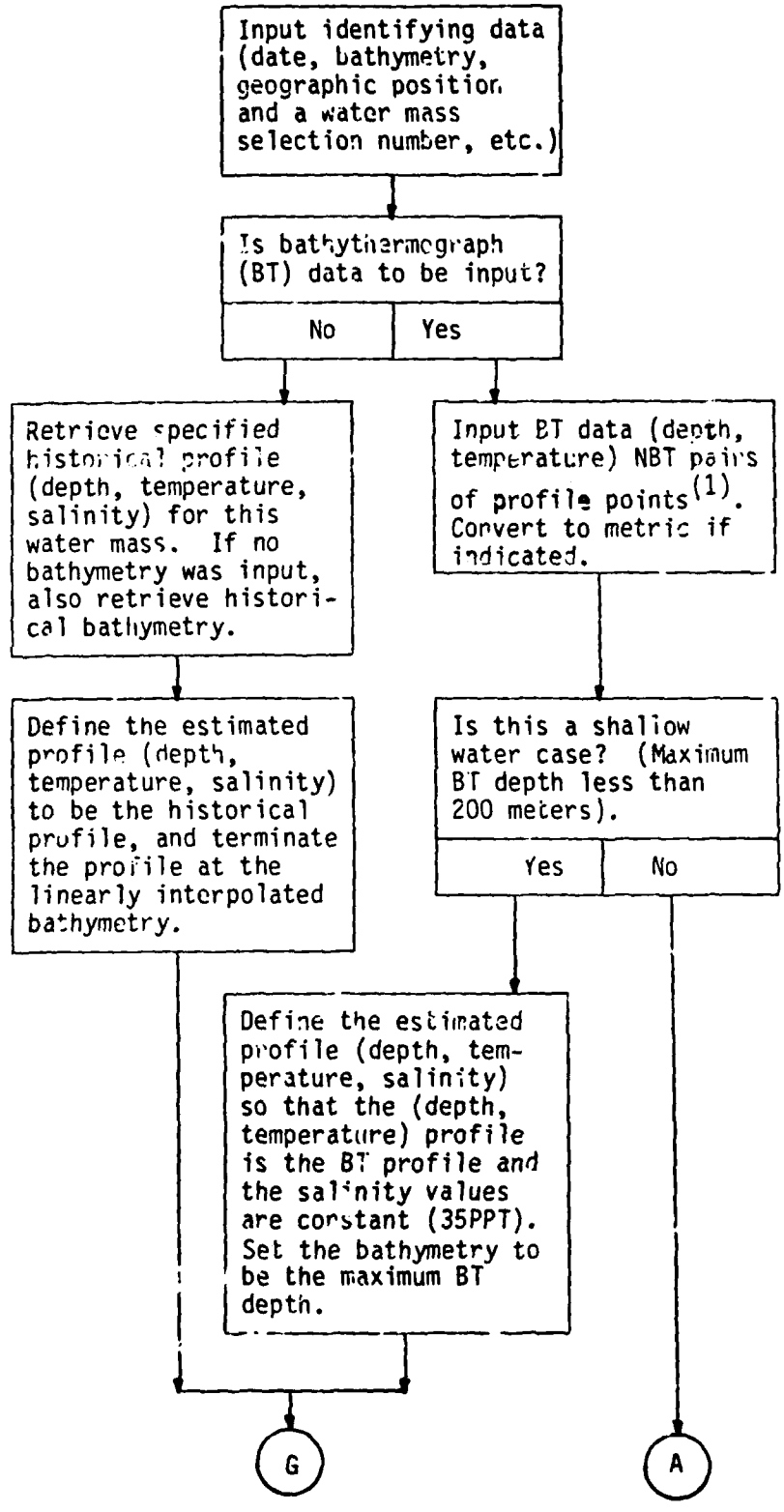
(1) $NBT \leq \begin{cases} 16 \text{ Univac} \\ 30 \text{ Nova} \end{cases}$

ENCLOSURE 2

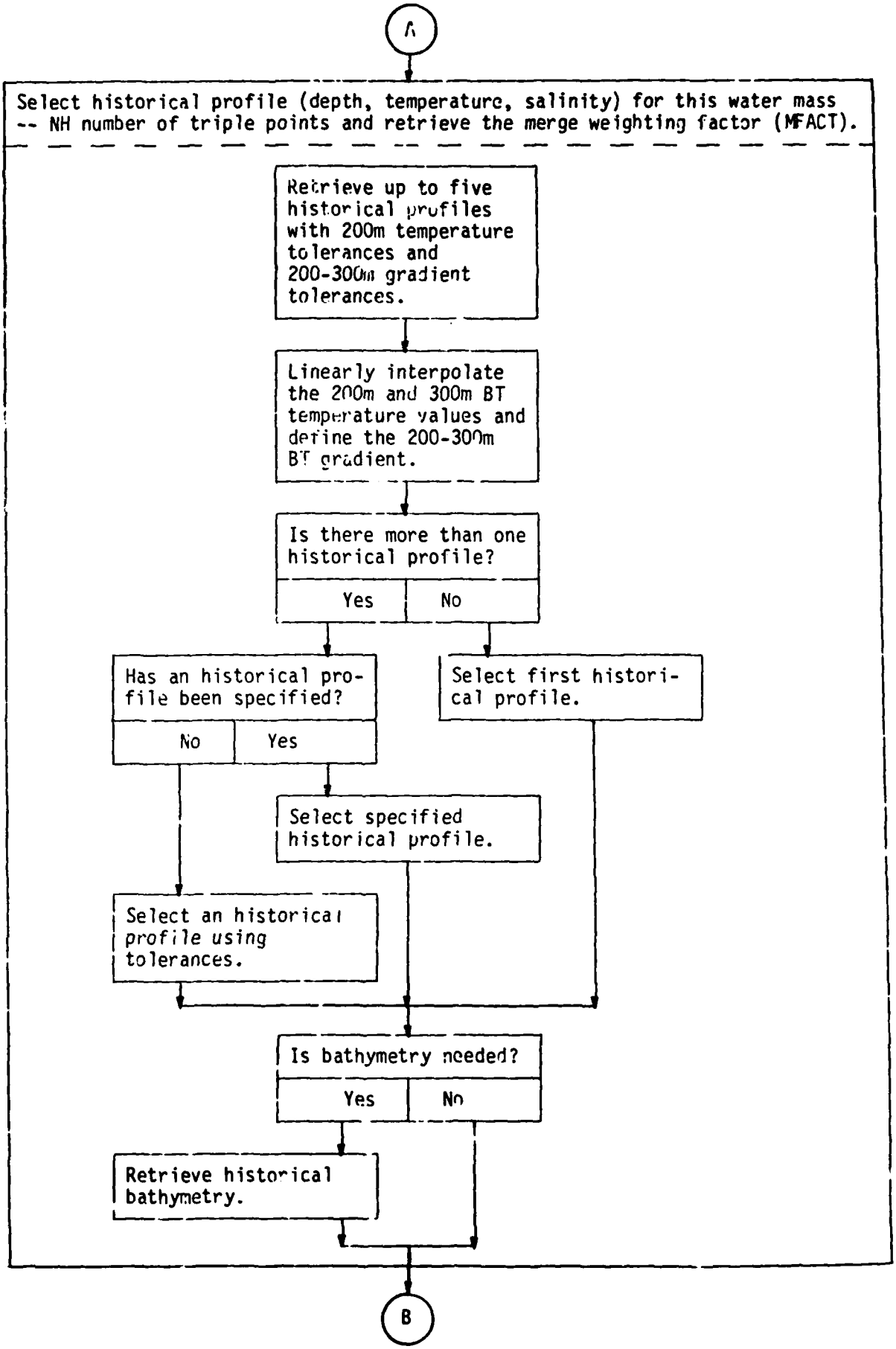
ICAPS LOGIC FLOW

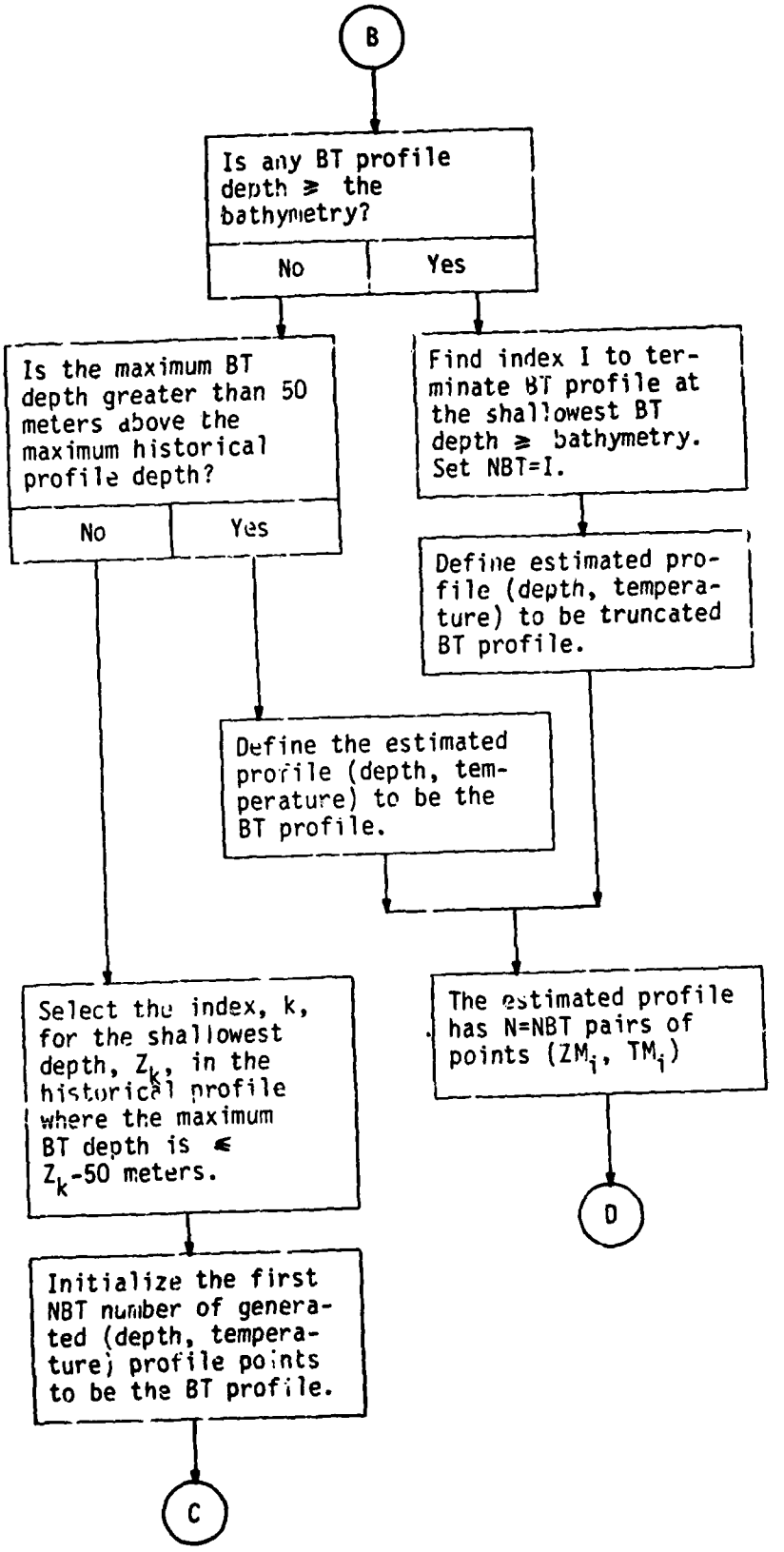
Enclosure (2) to
ODSI memo dtd 4/21/80
Locklin to Galus

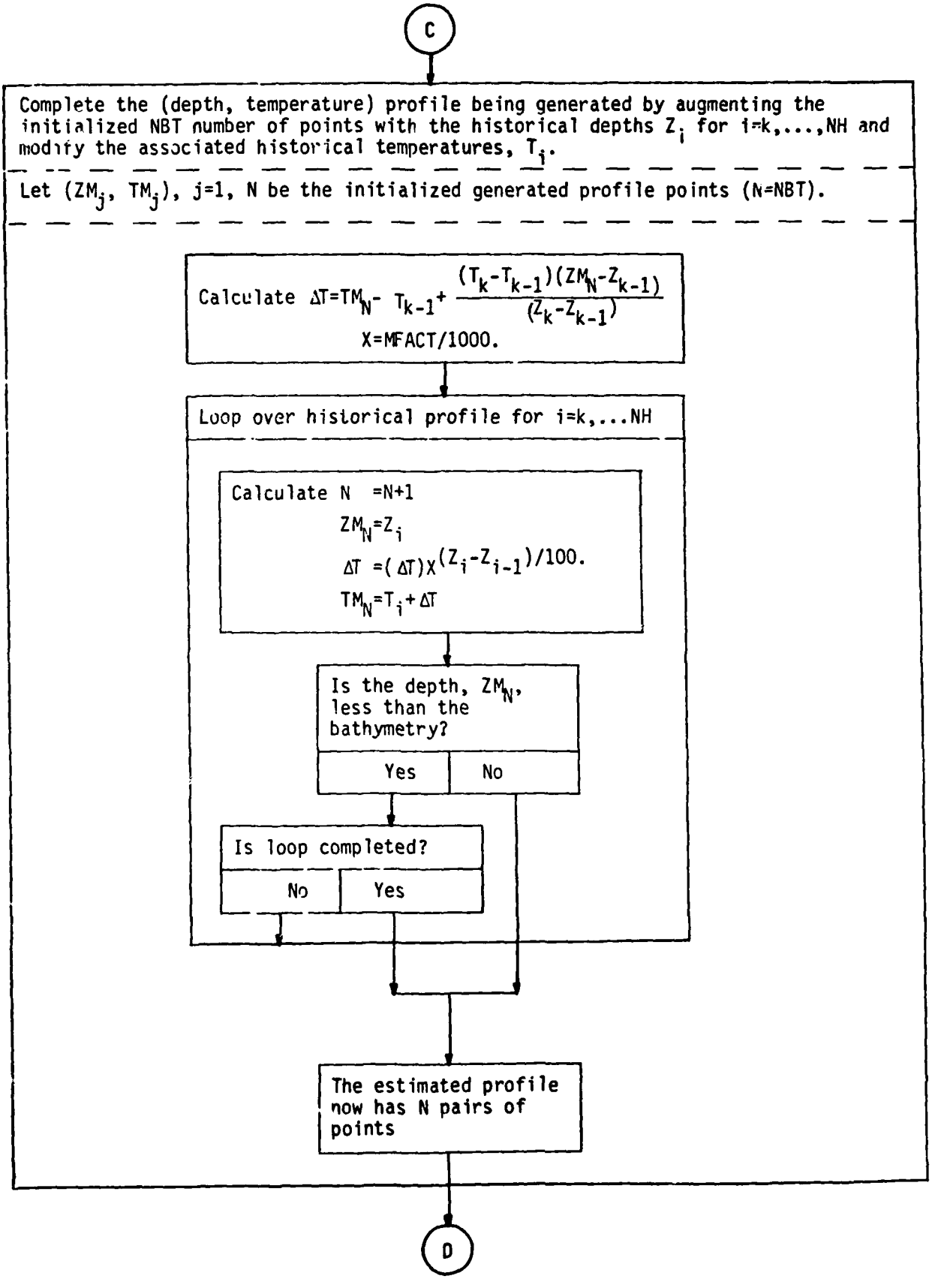
ICAPS Sound Speed Profile (SSP) Generation (UNIVAC Version)

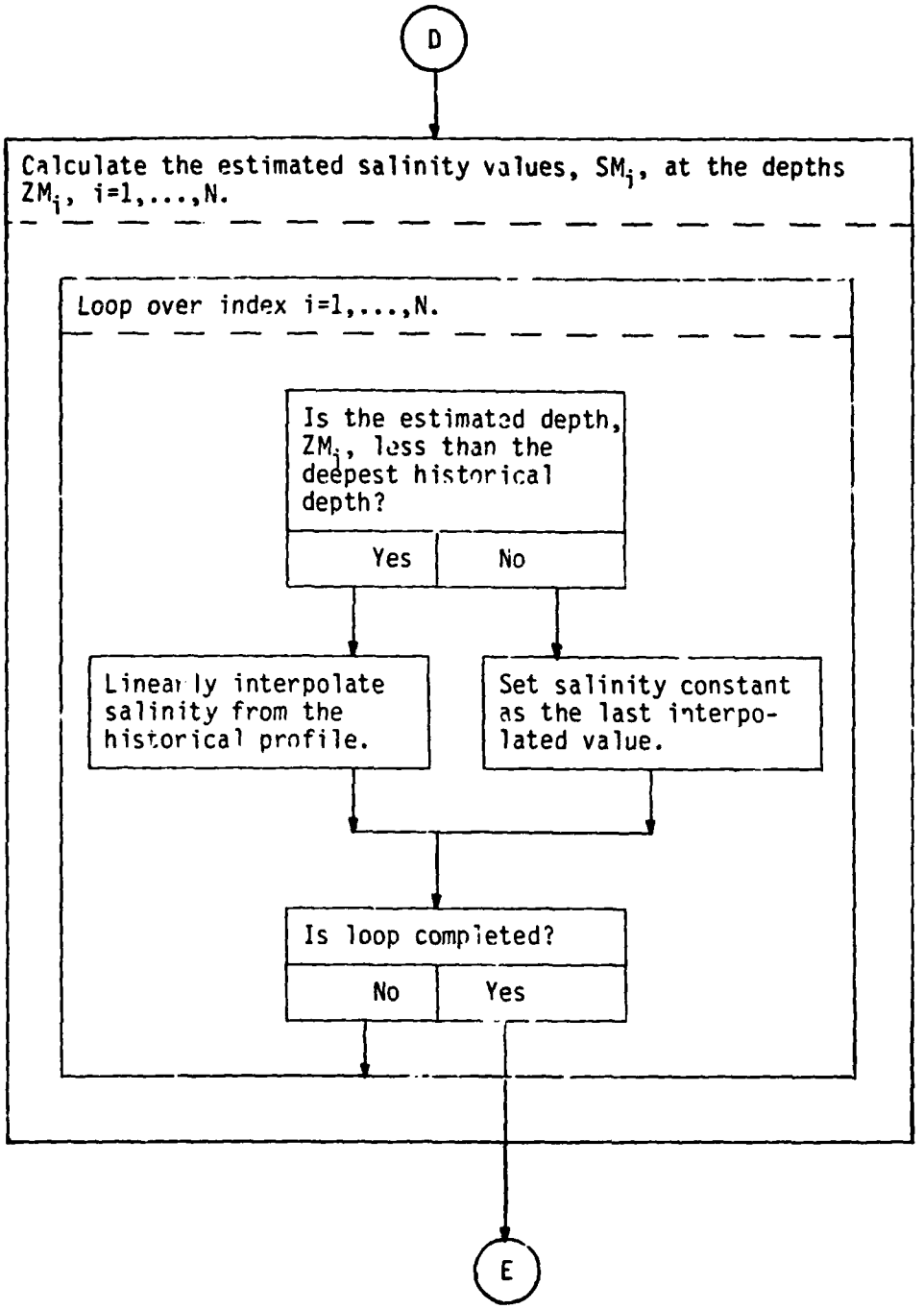


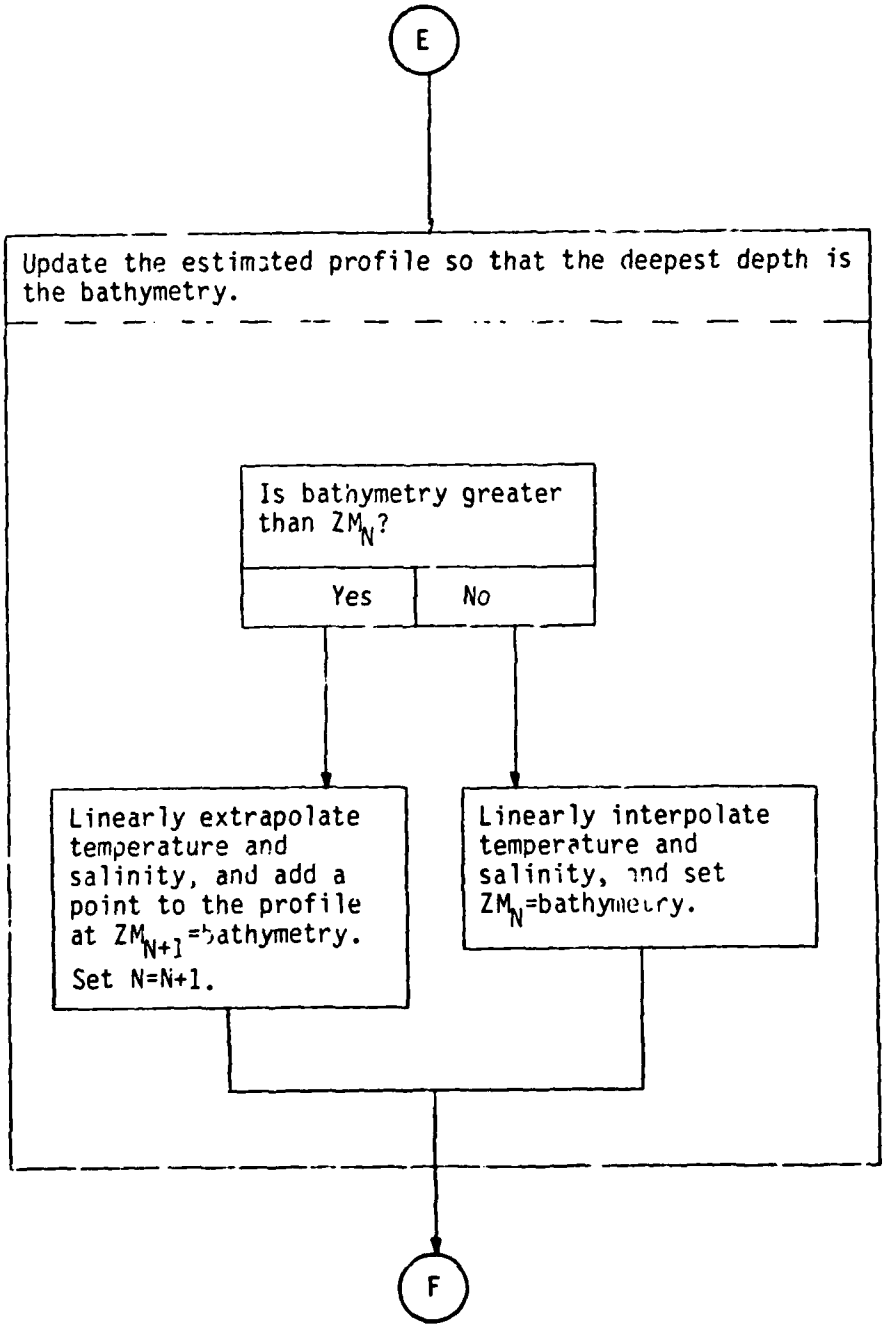
(1) NBT $\leq$ {16 Univac / 30 Nova}

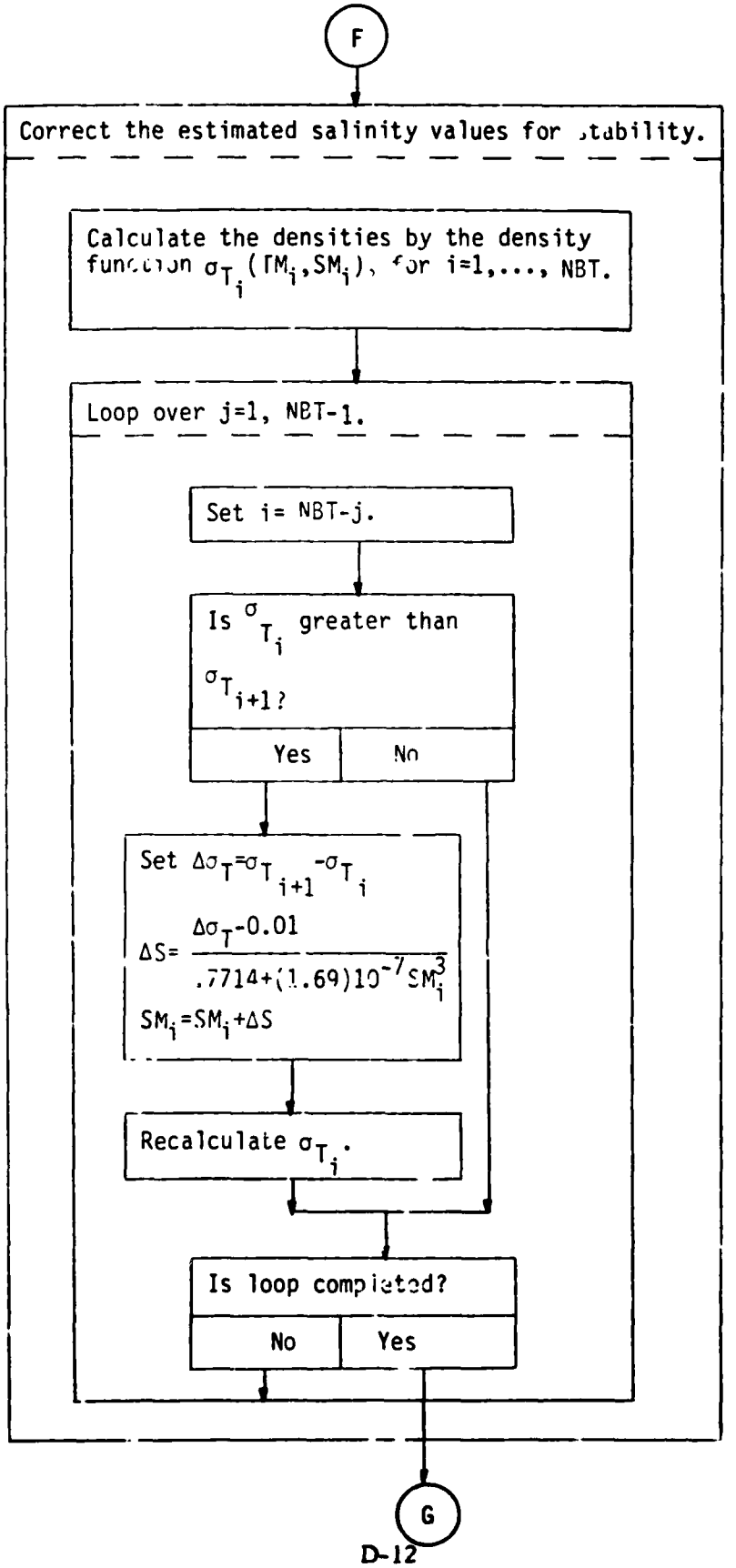

A
Select historical profile (depth, temperature, salinity) for this water mass -- NH number of triple points and retrieve the merge weighting factor (MFACT).
Retrieve up to five historical profiles with 200m temperature tolerances and 200-300m gradient tolerances.
Linearly interpolate the 200m and 300m BT temperature values and define the 200-300m BT gradient.
Is there more than one historical profile?
Yes
No
Has an historical profile been specified?
No
Yes
Select first historical profile.
Select specified historical profile.
Select an historical profile using tolerances.
Is bathymetry needed?
Yes
No
Retrieve historical bathymetry.
B

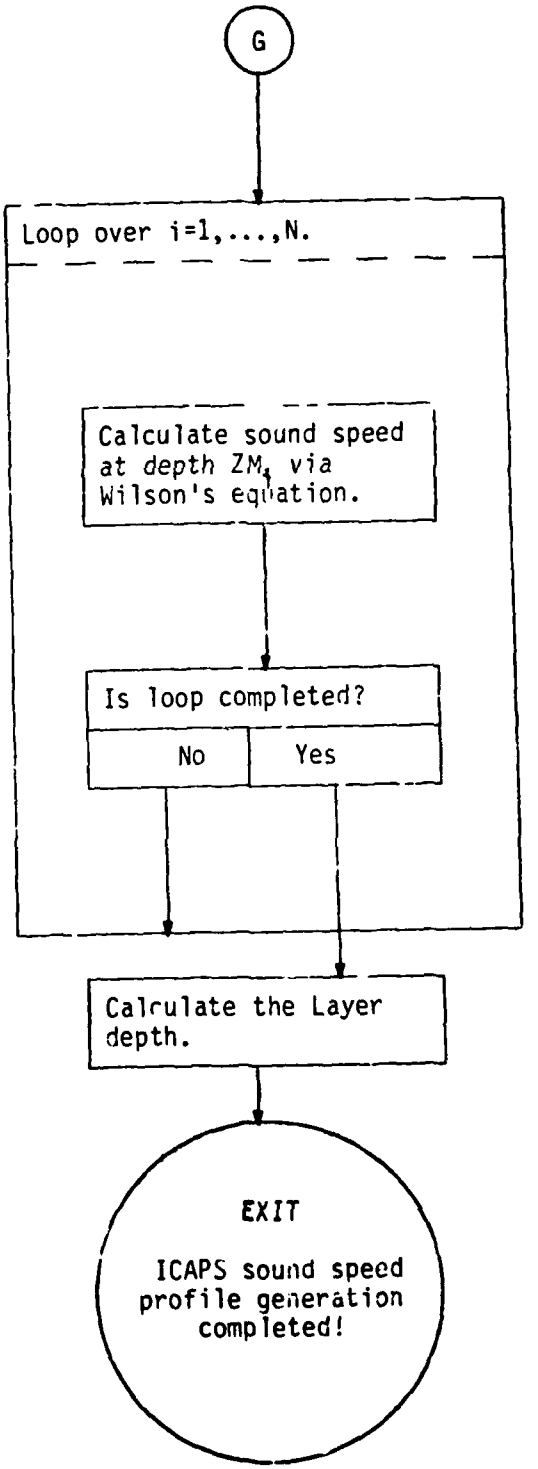

B
Is any BT profile depth ≥ the bathymetry?
No
Yes
Is the maximum BT depth greater than 50 meters above the maximum historical profile depth?
No
Yes
Find index I to terminate BT profile at the shallowest BT depth ≥ bathymetry. Set NBT=I.
Define estimated profile (depth, temperature) to be truncated BT profile.
Define the estimated profile (depth, temperature) to be the BT profile.
Select the index, k, for the shallowest depth, Z_k, in the historical profile where the maximum BT depth is ≤ Z_k-50 meters.
The estimated profile has N=NBT pairs of points (ZM_i, TM_i)
Initialize the first NBT number of generated (depth, temperature) profile points to be the BT profile.
D
C


C
Complete the (depth, temperature) profile being generated by augmenting the initialized NBT number of points with the historical depths Z_i for i=k,...,NH and modify the associated historical temperatures, T_i.
Let (ZM_j, TM_j), j=1, N be the initialized generated profile points (N=NBT).
Calculate $\Delta T=TM_N - T_{k-1} + \frac{(T_k-T_{k-1})(ZM_N-Z_{k-1})}{(Z_k-Z_{k-1})}$
X=MFACT/1000.
Loop over historical profile for i=k,...NH
Calculate N =N+1
$ZM_N=Z_i$
$\Delta T = (\Delta T) X (Z_i-Z_{i-1})/100.$
$TM_N=T_i+\Delta T$
Is the depth, ZM_N, less than the bathymetry?
Yes
No
Is loop completed?
No
Yes
The estimated profile now has N pairs of points
D


D
Calculate the estimated salinity values, SM_j, at the depths ZM_i, i=1,...,N.
Loop over index i=1,...,N.
Is the estimated depth, ZM_i, less than the deepest historical depth?
Yes
No
Linearly interpolate salinity from the historical profile.
Set salinity constant as the last interpolated value.
Is loop completed?
No
Yes
E


E
Update the estimated profile so that the deepest depth is the bathymetry.
Is bathymetry greater than ZM_N?
Yes
No
Linearly extrapolate temperature and salinity, and add a point to the profile at ZM_{N+1}=bathymetry.
Set N=N+1.
Linearly interpolate temperature and salinity, and set ZM_N=bathymetry.
F


F
Correct the estimated salinity values for stability.
Calculate the densities by the density function $\sigma_{T_i}(TM_i, SM_i)$, for i=1,..., NBT.
Loop over j=1, NBT-1.
Set i= NBT-j.
Is σ_{T_i} greater than $\sigma_{T_{i+1}}$?
Yes
No
Set $\Delta\sigma_T=\sigma_{T_{i+1}}-\sigma_{T_i}$
$\Delta S=\frac{\Delta\sigma_T-0.01}{.7714+(1.69)10^{-7}SM_i^3}$
$SM_i=SM_i+\Delta S$
Recalculate σ_{T_i}.
Is loop completed?
No
Yes
G

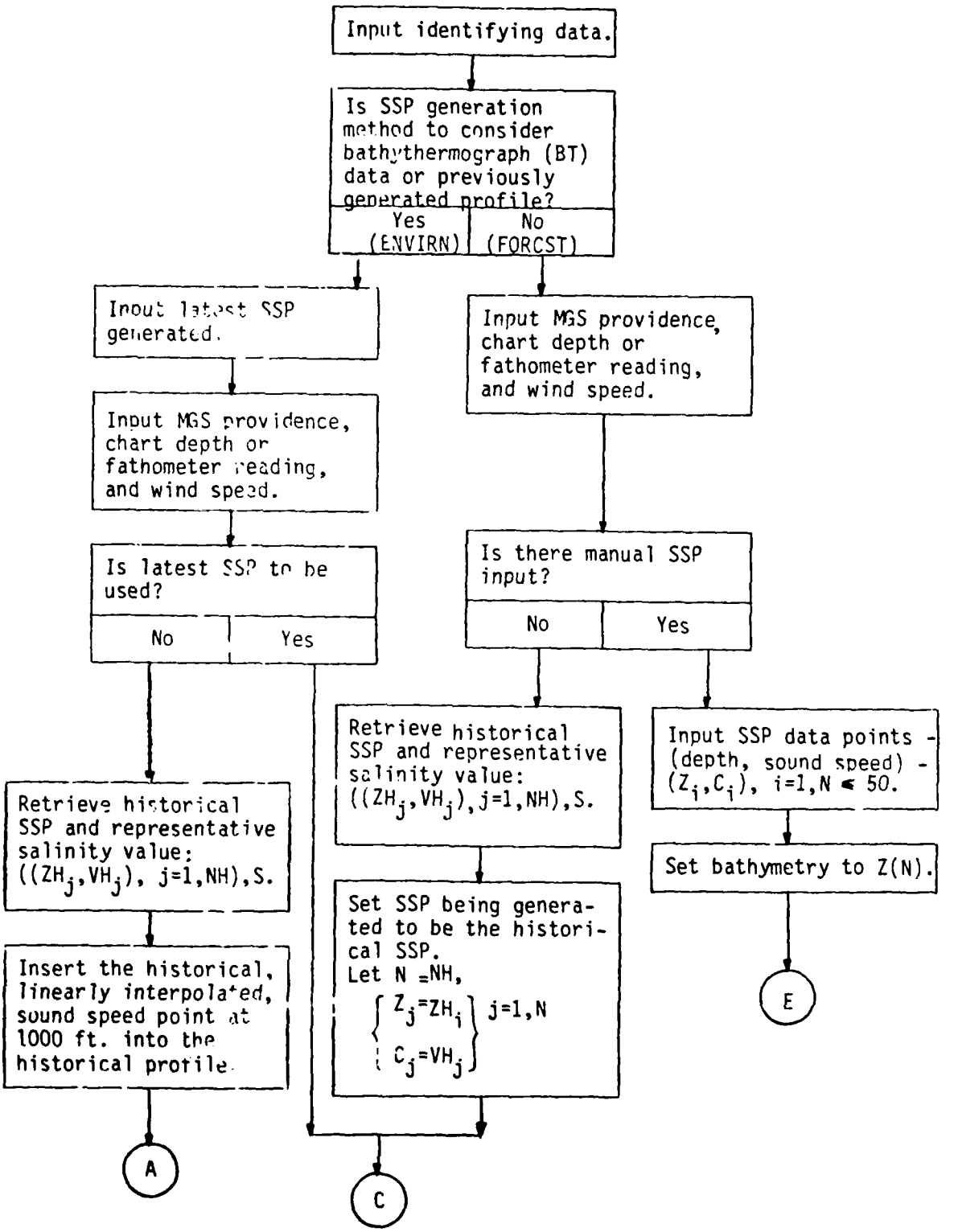

G
Loop over i=1,...,N.
Calculate sound speed at depth ZM, via Wilson's equation.
Is loop completed?
No
Yes
Calculate the Layer depth.
EXIT
ICAPS sound speed profile generation completed!

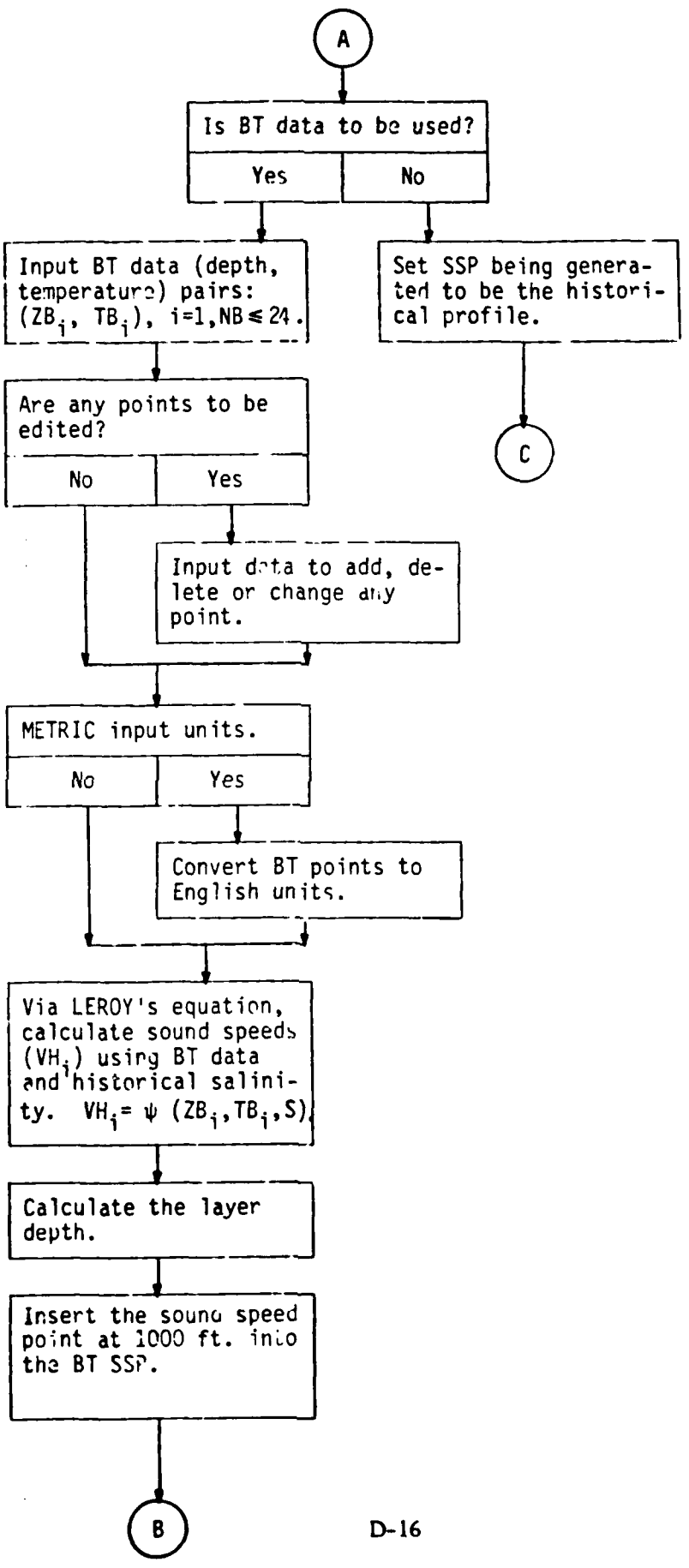
ENCLOSURE 3

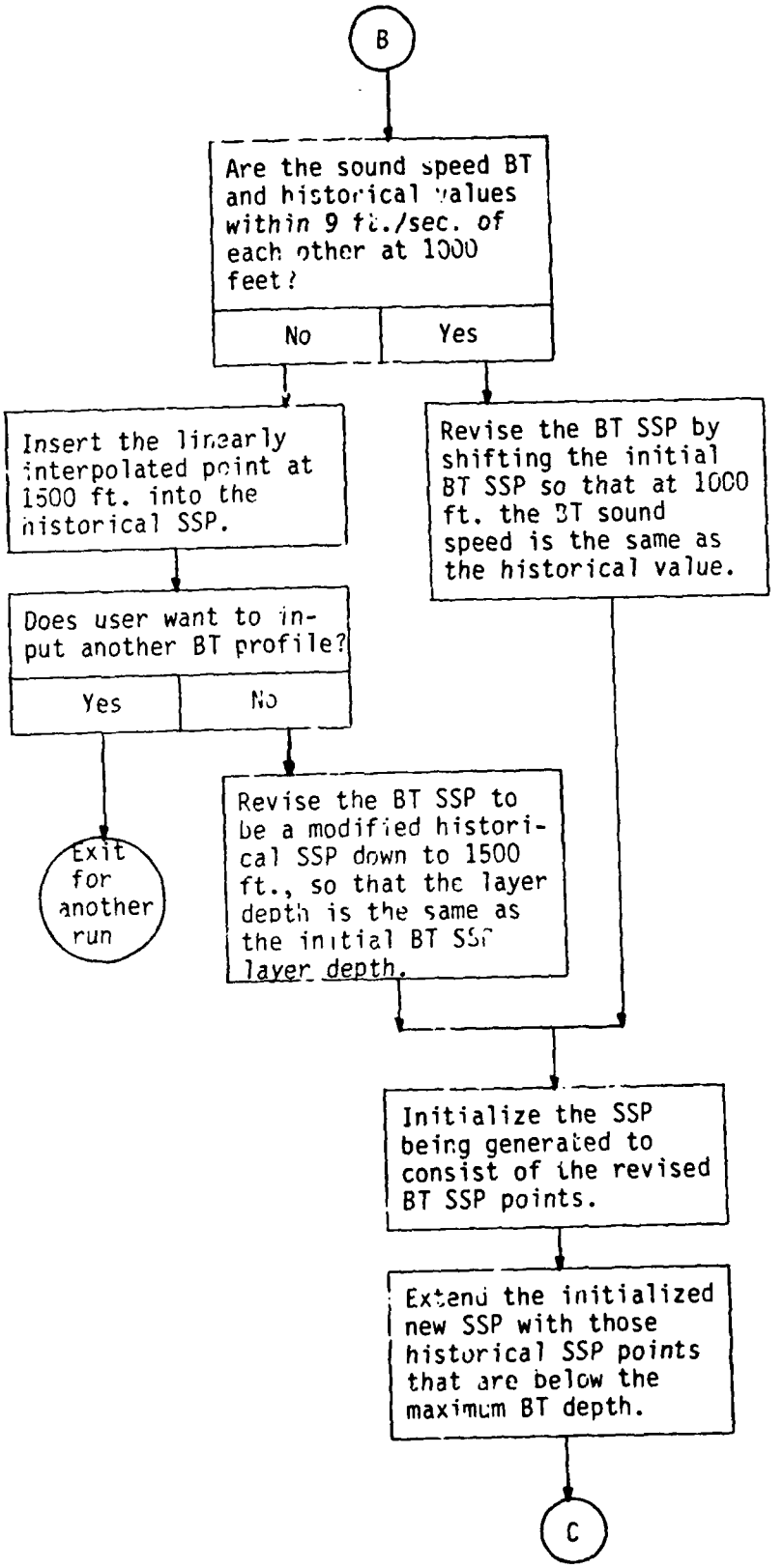
SIMAS LOGIC FLOW

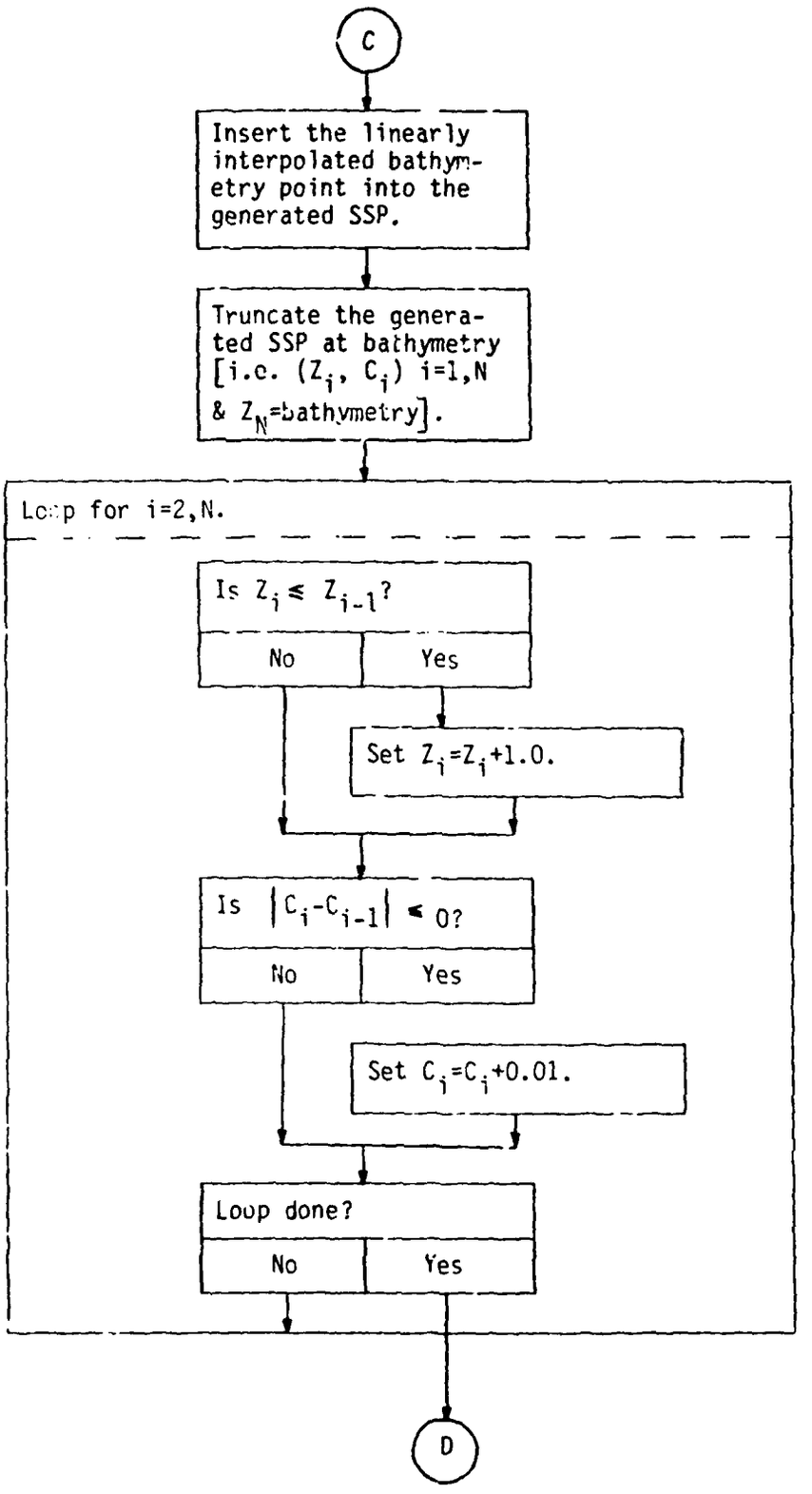
Enclosure (3) to
ODSI memo dtd 4/21/80
Locklin to Galus

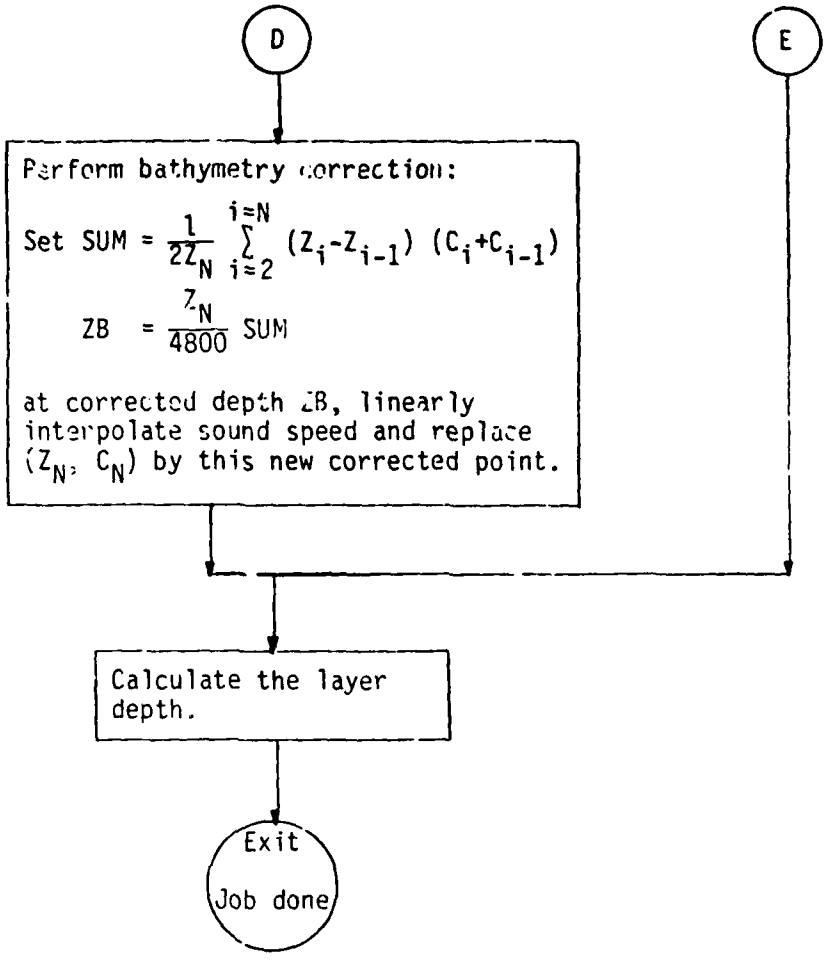
SIMAS Sound Speed Profile (SSP) Generation




A
Is BT data to be used?
Yes
No
Input BT data (depth, temperature) pairs: (ZB_i, TB_i), i=1,NB≤24.
Set SSP being generated to be the historical profile.
C
Are any points to be edited?
No
Yes
Input data to add, delete or change any point.
METRIC input units.
No
Yes
Convert BT points to English units.
Via LEROY's equation, calculate sound speeds (VH_i) using BT data and historical salinity. $VH_i = \psi (ZB_i, TB_i, S)$
Calculate the layer depth.
Insert the sound speed point at 1000 ft. into the BT SSP.
B


B
Are the sound speed BT and historical values within 9 ft./sec. of each other at 1000 feet?
No
Yes
Insert the linearly interpolated point at 1500 ft. into the historical SSP.
Revise the BT SSP by shifting the initial BT SSP so that at 1000 ft. the BT sound speed is the same as the historical value.
Does user want to input another BT profile?
Yes
No
Exit for another run
Revise the BT SSP to be a modified historical SSP down to 1500 ft., so that the layer depth is the same as the initial BT SSP layer depth.
Initialize the SSP being generated to consist of the revised BT SSP points.
Extend the initialized new SSP with those historical SSP points that are below the maximum BT depth.
C


C
Insert the linearly interpolated bathymetry point into the generated SSP.
Truncate the generated SSP at bathymetry [i.e. (Z_i, C_i) i=1,N & Z_N=bathymetry].
Loop for i=2,N.
Is $Z_i \leq Z_{i-1}$?
No
Yes
Set $Z_i=Z_i+1.0$.
Is $|C_i-C_{i-1}| \leq 0$?
No
Yes
Set $C_i=C_i+0.01$.
Loop done?
No
Yes
D


D
E
Perform bathymetry correction:
Set SUM = $\frac{1}{2Z_N} \sum_{i=2}^{i=N} (Z_i - Z_{i-1})(C_i + C_{i-1})$
ZB = $\frac{Z_N}{4800}$ SUM
at corrected depth ZB, linearly interpolate sound speed and replace (Z_N, C_N) by this new corrected point.
Calculate the layer depth.
Exit
Job done

ENCLOSURE 4

PROBLEM AREAS IN ICAPS AND SIMAS CODES

During the implementation process to establish ICAPS and SIMAS on the CDC 6600 computer for comparative analysis purposes, problems were revealed. These problems are assembled for each program under three categories: 1. program errors, 2. program cautions, and 3. comments.

Enclosure (4) to
ODSI memo dtd 4/21/80
Locklin to Galus

1. ICAPS

1.1 PROGRAM ERRORS

1.1.1 Univac Version

1.1.1.1 The synthesized profile contains salinities that are initialized by interpolating values from the historical profile, and when a depth of the synthesized profile is equal to or exceeds the maximum depth of the historical profile (a most frequent occurrence) the salinity is set to be the historical salinity for the previous depth. This can be corrected by changing the inequality ".LT." to ".LE." in the IF statement following FORTRAN statement number 50 in subroutine MERGE. This code error will have negligable impact for the deeper profiles. For shallower profiles the impact will depend upon the effect on velocity by the error in salinity.

1.1.1.2 When the user wishes to use only the historical data (no BT data: NDP=0 and BOTZ 1.0) and metric is not specified (MOE ≠ "M"), the program incorrectly multiplies the historical bathymetry in meters by the feet-to-meters conversion factor, FTMT. This can be corrected by inserting after format statement number 9001 in the main program

IF (MOE .NE. 1 HM) BOTZ = FTMT*BOTZ

and deleting the statement immediately after FORTRAN statement number 10, and replacing FORTRAN statement number 100 with

100 CONTINUE.

1.1.1.3 An error message is not utilized when appropriate and an incorrect message is printed. Change the line just preceeding format statement number 1045 to read

WRITE (6, 1045) IBTYP2.

1.1.1.4 In the main program, there is an "MP" variable occurring just after format statement number 1013 that is not initialized. Apparently, this was to have been defined by "NP" in the preceeding call to subroutine COMPUX. This is corrected by changing "NP" to "MP," the last argument in the argument list for the "CALL COMPUX ..." statement, two lines after FORTRAN statement number 360.

1.1.1.5 Subroutine MERGE calls subroutine SGMTST to perform the water column stability algorithm from the bottom of the merged profile. Though this is in contrast with the NOVA version that starts from the bottom of the BT, it is more reasonable since the algorithm is applied just below the BT where merging occurs (refer to paragraph 1.1.2.2). Subroutine SGMTST has an incorrect DIMENSION statement allocating insufficient memory, particularly for the density array. The current dimension for 30 elements is not consistent with the calling routine. The arrays should be dimensioned for 50 elements each, since the calling routine, MERGE, identifies the arrays as for the merged profile. This is corrected by changing the dimension statement in subroutine SGMTST to read

DIMENSION T(50), S(50), SIGMA(50)

1.1.1.6 Under normal operating system usage, the density and stability calculations will be incorrect. Mixed expressions contain integers raised to negative integer powers which result in zero values.

1.1.1.6.1 Subroutine SIGMAT has an equation "B = ..." that contains the integer 10 raised to a negative integer power.

1.1.1.6.2 Subroutine SGMTST has the equation "DS = ..." that contains two integer 10's raised to negative powers.

1.1.2 Nova 800 version

1.1.2.1 Same error as described in paragraph 1.1.1.1 above.

1.1.2.2 The program should perform the water column stability algorithm from the bottom of the merged profile as the Univac version does (refer to paragraph 1.1.1.5) -- rather than from the bottom of the BT. Thus, the effects on density (refer to paragraph 1.3.4.2) due to temperature revisions by merging just below the deepest BT depth would be accounted for. This can be corrected by changing in subroutine MERGE, the FORTRAN statement just after statement number 100 to:

N=NOPTM-1

and two lines later, change to read

K=NOPTM-J.

1.2 PROGRAM CAUTIONS

1.2.1 ICAPS, Univac and Nova versions

1.2.1.1 When a merged profile is created, the number of points defining the profile is not verified to avoid exceeding the allocated storage for a maximum of 50 points. In the event that a merged profile should have more than 50 points, the overflow would incorrectly redefine necessary program locations (e.g. the near-surface temperatures, TM(1), TM(2), ..., would be redefined by depth values ZM(51), ZM(52), ..., respectively, etc.)

1.2.1.2 When the bathymetry is below the ICAPS merged profile, the merged profile is augmented by one more point defined by the bathymetry, and temperature and salinity values extrapolated from the deepest (last) depth interval in the profile. The ICAPS program does not address the question "How reasonable are the extrapolated values?". Reasonability of these values is dependent upon how much deeper the extrapolation extends the profile with respect to the depth interval being extrapolated from, and the gradient on that same interval.

1.3 COMMENTS — ICAPS is a merge methodology that assumes the bathythermograph, BT, data to be the best current information upon which to define a sound speed profile (SSP); and, the historical data extending below the BT profile is the most reasonable information available to merge with the BT data to form a representative up-to-date SSP.

1.3.1 A shallow water case is defined when the deepest depth of the input BT data is above 200m. This excludes a merge with historical data -- e.g. an operator cannot input a shallow BT profile to merge with historical data for a deeper water mass. In shallow areas where BT data is sufficient, a shallow water case should be specified by another input parameter, rather than the deepest BT profile depth.

1.3.2 For a shallow water case, the salinity is set to 35 PPT. This is considered valid everywhere except in the Mediterranean Sea where 38 PPT is more appropriate. In keeping with the philosophy of making use of the "best" information available, historical data (salinity) should still be utilized whenever it's available.

1.3.3 Coding of constants is more efficient when using the form $\pm$X.XXE+YY, rather than $\pm$X.XX*10.**(-YY) (see subroutines SGMTST and SIGMAT).

1.3.4 There are inconsistencies between the ICAPS program and the reference report, "The ICAPS Water Mass History File," by Alvan Fisher, Jr., May 1978.

1.3.4.1 The program implementation of the synthesized temperature algorithm (see Enclosure 5), is reasonable, though the approximation to the synthesizing algorithm is unnecessary.

1.3.4.2 The density (sigma-t) stability algorithm described in Apperdix A (reference (1)) does not correspond to the implementation. The document states, "... salinity inversion must coincide with a temperature inversion ...". The code assumes that if the density at depth Z_j is greater than the density at the depth below, Z_{J+1}, (starting from the bottom of the profile), then recompute the salinity at Z_j via the stability expression and use this "corrected" salinity value with the temperature to recalculate the density at depth Z_j. There is no application of the criteria to adjust salinities that are "... within temperature inversions that are more than the temperature maximum minus 0.25°C at the lower boundary of the inversion ..." One should note that the stability expression was derived for a constant temperature of 10°C and salinity ranges of 30 to 40 PPT. This algorithm to "correct" salinity is applied whenever the density does not monotonically increase with depth, and over the temperature ranges of the BT. The BT temperatures can range from approximately 4°C on up to 27°C. This wide range of temperatures suggests the need for a temperature varying stability algorithm --e.g. at depth Z_j, adjust the historical salinity by the increment indicated by the change in temperature (merge temperature minus historical temperature) to stabilize the water column at depth Z_j --.

1.3.5 Both program versions retrieve a historical profile as described in the report "Description of ICAPS Environmental Data Structure" by John Lever, NAVOCEANO TN 3700-82-79, March 1979. The report presents the file structure and the retrieval algorithm. The following comments may enable the report to be more useful; particularly for profile revisions.

1.3.5.1 Expand the text to specifically define the ordering of profiles (water masses) for a geographical location. Although the ordering is intrinsic to the retrieval design (refer to report figure 6), the following conditions being stated would clarify the profile data:

When more than one water mass represent a geographical location, let $1<N\leq 5$ be the number of profiles, then XMINT2(i), XMAXT2(i), i=1, N must be defined (temperature tolerances at 200m), and

1) XMINT2(i)<XMAXT2(i) for i=1, N
2) XMINT2(i) = XMAXT2(i-1) for i=2, N

must be true for continuity. The exception to this is that two adjacent profiles can have the same tolerances, XMINT2(j) = XMINT2(j+1) and XMAXT2(j) = XMAXT2(j+1). For this exception, there must be a non-zero flag (NOGL(j)) in order to consider the j+1 profile. The tie breaker is the 200-300m gradient tolerances (XMINGL(j), XMAXGL(j)) and (XMINGL(j+1), XMAXGL(j+1)). When NOGL(j) is non-zero, then XMINGL(j) and XMAXGL(j) must be defined. Profile j is selected for the BT temperature gradient less than XMAXGL(j), otherwise profile j+1 is selected. If the gradient tolerances are given for j+1, then XMAXGL(j) = XMINGL(j+1) must occur for continuity. In practice, the tolerances at j+1 are only necessary to make an output message meaningful when the BT gradient at 200-300m is greater than XMAXGL(j+1).

1.3.5.2 On pages 3 and 9, state that the maximum number of points for a historical profile is 45.

1.3.5.3 On pages 10 and 11, the references labelled "400" should be labelled "80" in order to agree with the programs, as do the other labelled references.

1.3.5.4 On page 3, line 2 of the second paragraph, "NOPTS(N)" should be "NOPTI(N)" since NOPTS is set to the NOPTI(I) value for the selected profile.

1.3.5.5 On page 3, the text should state that $NPRF\leq 5$.

2. SIMAS

2.1 PROGRAM ERRORS

2.1.1 Conversion errors occur involving subroutines BT and EDITBT. Metric inputs are converted to English units at least twice. We understand that this is corrected at NUSC but not at NORDA.

2.1.2 Subroutine CKBT shows an error in the algorithm for modifying the historical data to reflect the BT profile layer depth. The DO loop at FORTRAN statement number 550 may be executed with K=N15+1, i.e.

DO 600 J=N15+1, N15

thus, causing erroneous results.

2.2 PROGRAM CAUTIONS

2.2.1 The generated SSP arrays are allocated for 50 points. Subroutine INSERT adds points to the generated profile, and subroutine ENVIRN extends the up to 25 revised BT profile points with historical points. The program does not properly check on this limit. Structurally, depth array element Z(51) is the location of velocity C(1), the surface velocity which could be changed to be the Z(51) value. Also, the test on the 1000 ft point insert into the historical data (line 32, ENVIRN) is incorrect in that DS and VS are dimensioned for 30 each.

2.2.2 Subroutine BT can input up to 25 BT temperature profile points. Subroutine CKBT calls subroutine INSERT to augment the BT points with the interpolated temperature point at 1000 feet, whenever the input BT profile does not have a 1000 ft. point. Since the program allocates space for 25 BT points, an overflow can occur, so that the surface temperature, T(1), value is replaced by the overflow depth value, D(26).

2.2.3 Whenever the BT profile is augmented by a point at 1000 ft., extrapolation is performed when the profile is to be extended by a 1000 ft. point. The SIMAS program also does not consider the reasonability of the extrapolation, see paragraph 1.2.1.2 above.

2.2.4 In subroutines ENVIRN and FORCST, there is no test that the corrected bottom depth value is in the deepest (last) interval which ends with the input fathometer (or chart) value. Consequently, extrapolation may occur.

2.3 COMMENTS -- The methodology is to shift the BT SSP so that at 1000 feet the shifted BT SSP has the same velocity value as does the historical profile. The shifted BT SSP is then extended by those historical profile points below the deepest BT SSP depth.

2.3.1 SIMAS assumes that the historical profile will always extend below the BT profile. This assumption can only be valid if, over each geographical area, the associated historical profile extends down to the deepest bathymetry in the area, and any deepest BT depth value would not be deeper due to measurement errors. Though the assumption will usually

be valid, it is too strict for a general purpose production program. Since the program does not verify the input data to meet this assumption, errored profiles may result (refer to subroutine ENVIRN lines 0052 through 0063).

2.3.2 The criteria at 1000 feet does not assure a smooth transition below that depth from the bottom of the shifted BT profile and the attached historical points.

2.3.3 Assuming that the usage of the layer depth is important, a comment on the SIMAS layer depth algorithm is appropriate. Subroutine LAYER defines the layer depth to be the shallowest depth after which the velocity gradient first becomes negative. This algorithm requires that the BT data not be noisy, and it consists of points that only define the essential shape of the profile.

ENCLOSURE 5

ICAPS TEMPERATURE SYNTHESIZING ALGORITHM

Enclosure (5) to
ODSI memo dtd 4/21/80
Locklin to Galus

TEMPERATURE SYNTHESIZING ALGORITHM

ICAPS temperature synthesizing algorithm applies when the historical profile extends below the BT profile. The purpose is to mathematically merge the deep historical temperature profile into the bottom of the BT profile. This algorithm is described as follows:

Define -- the historical temperature profile to be (Z_{h_j}, T_{h_j}), $j=1,\ldots,N_h$

-- the BT profile to be (Z_{BT_k}, T_{BT_k}), $k=1,\ldots,N_{BT}$

-- the merged profile to be (Z_i, T_i), $i=1,\ldots,N_M$

-- $A = \begin{cases} 0.700 \text{ in the Mediterranean Sea} \\ 0.835 \text{ everywhere else} \end{cases}$

Initialize the merged profile so that

$$(Z_i, T_i)=(Z_{BT_i}, T_{BT_i}),\ i=1,\ldots,N_{BT}, \text{ and}$$

$$Z_{N_{BT+i}}=Zh_j,\ j=j_o,\ldots N_h$$

where $i=j-j_o+1$, so that depth ZH_{j_o} $(i=1)$ is the first selected depth below the BT profile at which the synthesized temperatures are to begin.

$$(N_M=N_{BT}+N_h-j_o+1)$$

Let $T = T_{N_{BT}}-T_H$, where T_H is the interpolated historical temperature at the bottom of the BT $(Z_{N_{BT}})$.

The synthesizing algorithm is given by

$$T_{NBT+i}=TH_j+\left[A^{(Z_{h_j}-Z_{N_{BT}})/100}\right]\Delta T$$

Clearly, the first synthesized temperature, T_{NBT+1} becomes $T_{BT_{NBT}}$ as $Z_{h_{j_o}}$ approaches (merges with) the last BT depth.

A. Report number NOO RP-19, on page 1, presents, for the synthesized temperature, the equation

$$T_{NBT+i}=TH_j+K_j\,(K_{j-1}\,\Delta T)$$

with $K_{j_o-1}=1$ and $K_j=A^{(Z_{h_j}-Z_{h_{j-1}})/100}$

B. The ICAPS programs use the approximating equation

$$T_{NBT+i}=TH_j+\left(\prod_{r=j_o}^{r=j} K_r\right)\Delta T$$

with $K_r=A^{(Z_{h_j}-Z_{h_{j-1}})/100}$

for i=1, $\quad K_{j_o} = A^{(Z_{h_{j_o}}-Z_{h_{j_o-1}})/100}$

i=2, $\quad K_{j_o+1}\,K_{j_o} = \left[A^{(Z_{h_{j_o+1}}-Z_{h_{j_o}})/100}\right]\left[A^{(Z_{h_{j_o}}-Z_{h_{j_o-1}})/100}\right]$

$$= A^{(Z_{h_{j_o+1}}-Z_{h_{j_o-1}})/100}$$

. .
. .
. .

i=i, $\quad K_j \ldots K_{j_o} = A^{(Z_{h_j}-Z_{h_{j_o-1}})/100}$

(Note: $Z_{h_{j_o-1}}$ is used instead of $Z_{N_{BT}}$, which means that the product coefficient is at most off by $A^{1/2}$ using the 50m tolerance).

ENCLOSURE 6

TEST RESULTS

Enclosure (6) to
ODSI memo dtd 4/21/80
Locklin to Galus

TEST RESULTS

The Univac 1108 at NAVOCEANO was used to retrieve ICAPS historical data at two geographical locations, (42^{o} 1' N, 9^{o} 55' W) and (31^{o} 3' N, 54^{o} 36' W), herein identified as cases A and B, respectively. This data served as historical data for execution of the CDC ICAPS and SIMAS programs. Six cases were executed by both programs:

A0, B0 — historical data, only, defined sound speed profiles.

A1, B1 — modified historical data defined sound speed profiles. The modification defined the historical profile to have an average constant near-surface salinity.

A2, B2 — Hydrographic station data, provided by E. Hashimoto (NORDA 321), down to 500 meters defines a BT that is merged with the historical data.

The results from these cases between ICAPS and SIMAS, though indicative, only represent the data for these two stations.

1. Cases A0 and B0 reflect the use of Wilson's equation (ICAPS) and Leroy's equation (SIMAS) in the generation of sound speeds. B0 is the "worst" case and shows a difference of 0.3 ft/sec at the surface and becomes -0.6 ft/sec at the bottom of the profile (18144 ft.). This is within the relative accuracy of the models. Though both cases suggest that below approximately 13,000 ft the two methods may begin to slightly diverge.

2. Analysis of Wilson's equation shows that, down to the 500 meters, the approximation of the change in velocity, V, with respect to salinity, S is given by

$$\frac{dV}{dS} \simeq 1.398+(3.384)10^{-3}(S-35)-(1.1)10^{-2}T$$

for T = temperature.

Similarly, Leroy's equation yields

$$\frac{dV}{dS} \simeq -0.01(T-18)+1.2$$

Thus, for salinities 30-40 PPT and temperatures 0-30^{o}C

$$\Delta V_{max} \simeq 1.4 \text{ m/sec for } \Delta S=1\text{PPT}$$

So that, for $\Delta S \simeq 0.1$PPT, the velocity can change at most 0.14 m/sec (½ ft/sec).

Cases A1 and B1 agree with this near-surface analysis. The largest salinity difference between cases A0, B0 and A1, B1 is at 500 meters, and shown in the table below.

		ICAPS	SIMAS
	ΔS	ΔV	ΔV
A	0.14 PPT	0.6 ft/sec	0.5 ft/sec
B	0.48 PPT	2 ft/sec	2 ft/sec

3. Cases A2 and B2 shows the ICAPS and SIMAS merging results. Either method produces accoustically similar profiles with the layer depths at the surface. The bottom (lower part) of the BT temperatures are within 0.1°C, so excellent agreement is expected. The following tables present the profile features.

A2	ICAPS	SIMAS	
surface velocity	4958.1 ft/sec	4956.3 ft/sec	ΔV=1.8*
deep sound channel	6562.0 ft	6562.0 ft	
	4922.5 ft/sec	4922.7 ft/sec	

ICAPS BT @ 984 ft = 4930.8
SIMAS Historical @ 1000 ft = 4929.5
1.3

B2	ICAPS	SIMAS	
surface velocity	5065.7 ft/sec	5063.2 ft/sec.	ΔV=2.5*
deep sound channel	3927.2 ft	3937.2 ft/sec.	
	4896.7 ft/sec	4896.9 ft/sec.	

ICAPS BT @ 984 ft = 4991.5
SIMAS Historical @ 1000 ft = 4990.4 ΔS=.1
1.1

*The difference in ΔV is probably due to the SIMAS profile shift determined at 1000 feet.

ICAPS: TEST CASE A0 - HISTORICAL PROFILE ONLY.

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.43	61.57	35.78	1512.777	4963.421
10.00	32.81	16.14	61.05	35.78	1512.058	4961.061
20.00	65.62	15.83	60.49	35.78	1511.269	4958.475
30.00	98.43	15.39	59.70	35.78	1510.067	4954.529
50.00	164.05	14.41	57.94	35.78	1507.288	4945.413
75.00	246.08	13.57	56.43	35.79	1504.977	4937.831
100.00	328.10	13.06	55.51	35.78	1503.683	4933.585
125.00	410.13	12.86	55.15	35.76	1503.397	4932.647
150.00	492.15	12.68	54.82	35.75	1503.188	4931.960
200.00	656.20	12.39	54.30	35.71	1502.973	4931.255
250.00	820.25	12.05	53.69	35.67	1502.580	4929.963
300.00	984.30	11.81	53.26	35.64	1502.534	4929.814
400.00	1312.40	11.34	52.41	35.59	1502.476	4929.624
500.00	1640.50	11.06	51.91	35.59	1503.135	4931.787
600.00	1968.60	10.93	51.67	35.67	1504.424	4936.015
800.00	2624.80	10.83	51.49	35.87	1507.626	4946.520
1000.00	3281.00	10.47	50.85	35.97	1509.782	4953.595
1200.00	3937.20	9.74	49.53	35.94	1510.429	4955.717
1500.00	4921.50	6.84	44.31	35.47	1503.860	4934.163
2000.00	6562.00	4.02	39.24	35.05	1500.321	4922.554
2500.00	8202.50	3.21	37.78	34.97	1505.329	4938.986
3000.00	9843.00	2.83	37.09	34.94	1512.281	4961.793
4000.00	13124.00	2.54	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

BT NOT INPUT. RETRIEVED HISTORY TO BE USED

RETRIEVED DATA

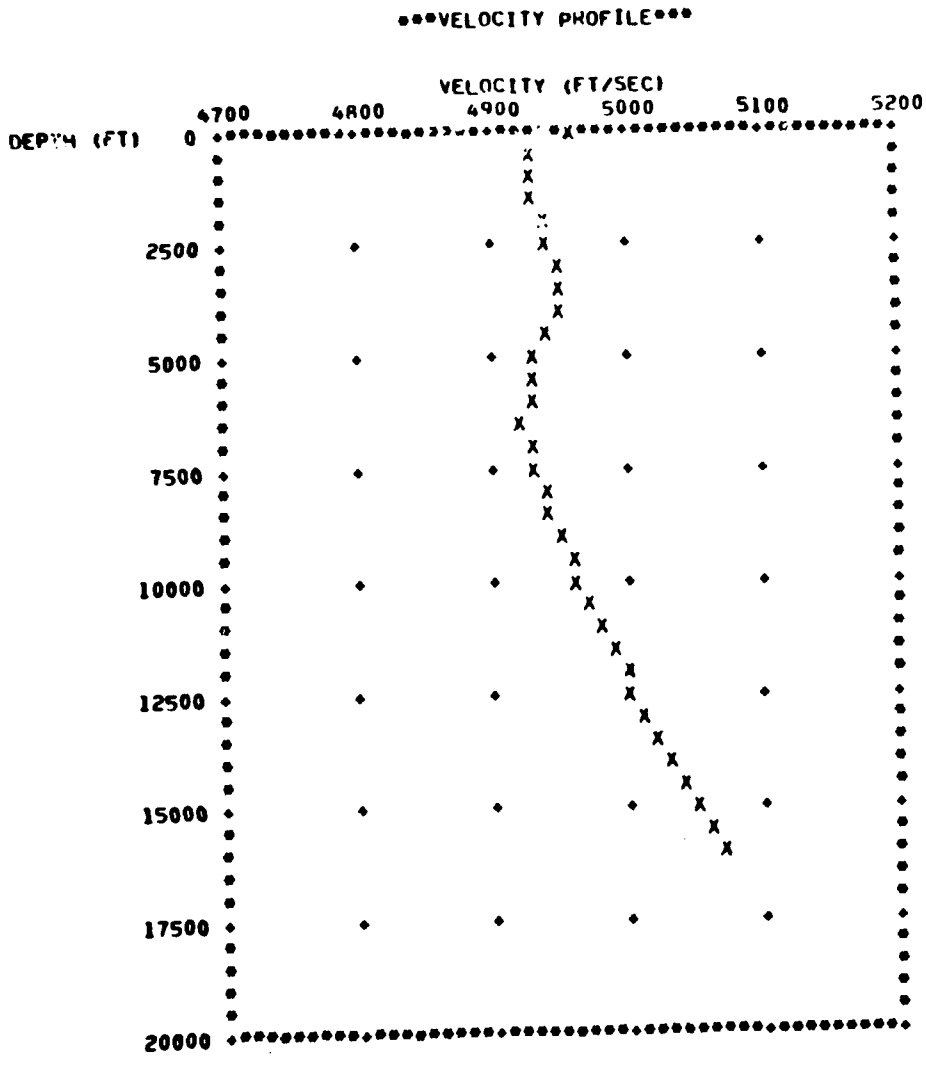
DEP (M)	TEMP (C)	SAL (PPT)
0.	16.43	35.78
10.	16.14	35.78
20.	15.83	35.78
30.	15.39	35.78
50.	14.41	35.78
75.	13.57	35.79
100.	13.06	35.78
125.	12.86	35.76
150.	12.68	35.75
200.	12.39	35.71
250.	12.05	35.67
300.	11.81	35.64
400.	11.34	35.59
500.	11.06	35.59
600.	10.93	35.67
800.	10.83	35.87
1000.	10.47	35.97
1200.	9.74	35.94
1500.	6.84	35.47
2000.	4.02	35.05

3000.	2.83	34.94
4000.	2.54	34.91
5000.	2.56	34.91

••••••••••••••••••••ICAPS GENERATED SOUND VELOCITY PROFILE••••••••••••••••••••

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.43	61.57	35.78	1512.777	4963.421
10.00	32.81	16.14	61.05	35.78	1512.058	4961.061
20.00	65.62	15.83	60.49	35.78	1511.269	4958.475
30.00	98.43	15.39	59.70	35.78	1510.067	4954.529
50.00	164.05	14.41	57.94	35.78	1507.288	4945.413
75.00	246.08	13.57	56.43	35.79	1504.977	4937.831
100.00	328.10	13.06	55.51	35.78	1503.683	4933.585
125.00	410.13	12.86	55.15	35.75	1503.397	4932.647
150.00	492.15	12.68	54.82	35.75	1503.188	4931.960
200.00	656.20	12.39	54.30	35.71	1502.973	4931.255
250.00	820.25	12.05	53.69	35.67	1502.580	4929.963
300.00	984.30	11.81	53.26	35.64	1502.534	4929.814
400.00	1312.40	11.34	52.41	35.59	1502.476	4929.624
500.00	1640.50	11.06	51.91	35.59	1503.135	4931.787
600.00	1968.60	10.93	51.67	35.67	1504.424	4936.015
800.00	2624.80	10.83	51.49	35.87	1507.626	4946.520
1000.00	3281.00	10.47	50.85	35.97	1509.782	4953.595
1200.00	3937.20	9.74	49.53	35.94	1510.429	4955.717
1500.00	4921.50	6.84	44.31	35.47	1503.860	4934.163
2000.00	6562.00	4.02	39.24	35.05	1500.321	4922.554
2500.00	8202.50	3.21	37.78	34.97	1505.329	4938.986
3000.00	9843.00	2.83	37.09	34.94	1512.281	4961.793
4000.00	13124.00	2.54	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

THE LAYER IS AT 0.00 FEET (0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS1 TEST CASE 03 - HISTORICAL PROFILE ONLY

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	27.28	81.10	36.64	1541.823	5058.721
10.00	32.81	26.59	79.86	36.63	1540.451	5054.219
20.00	65.62	25.87	78.57	36.62	1538.980	5049.393
30.00	98.43	24.62	76.32	36.62	1536.242	5040.410
50.00	164.05	21.83	71.29	36.64	1529.714	5018.991
75.00	246.08	20.42	68.76	36.58	1526.351	5007.959
100.00	328.10	19.37	66.87	36.52	1523.828	4999.679
125.00	410.13	18.85	65.93	36.49	1522.750	4996.144
150.00	492.15	18.47	65.25	36.49	1522.085	4993.960
200.00	656.20	18.00	64.40	36.45	1521.510	4992.073
250.00	820.25	17.62	63.72	36.40	1521.166	4990.946
300.00	984.30	17.30	63.14	36.38	1521.024	4990.478
400.00	1312.40	16.41	61.54	36.19	1519.774	4986.378
500.00	1640.50	15.18	59.32	35.99	1517.375	4978.507
600.00	1968.60	13.51	56.32	35.73	1513.319	4965.198
800.00	2624.80	9.37	48.87	35.27	1501.571	4926.655
1000.00	3281.00	6.57	43.83	35.08	1493.941	4901.619
1200.00	3937.20	5.39	41.70	35.06	1492.518	4896.953
1500.00	4921.50	4.54	40.17	35.05	1494.046	4901.964
2000.00	6562.00	3.72	38.70	34.99	1498.986	4918.172
2500.00	8202.50	3.33	37.99	34.97	1505.836	4940.647
3000.00	9843.00	2.67	36.81	34.94	1511.601	4959.563
4000.00	13124.00	2.30	36.14	34.89	1527.412	5011.439
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
6000.00	19686.00	2.10	35.78	34.84	1562.328	5125.998

BT NOT INPUT. RETRIEVED HISTORY TO BE USED

RETRIEVED DATA

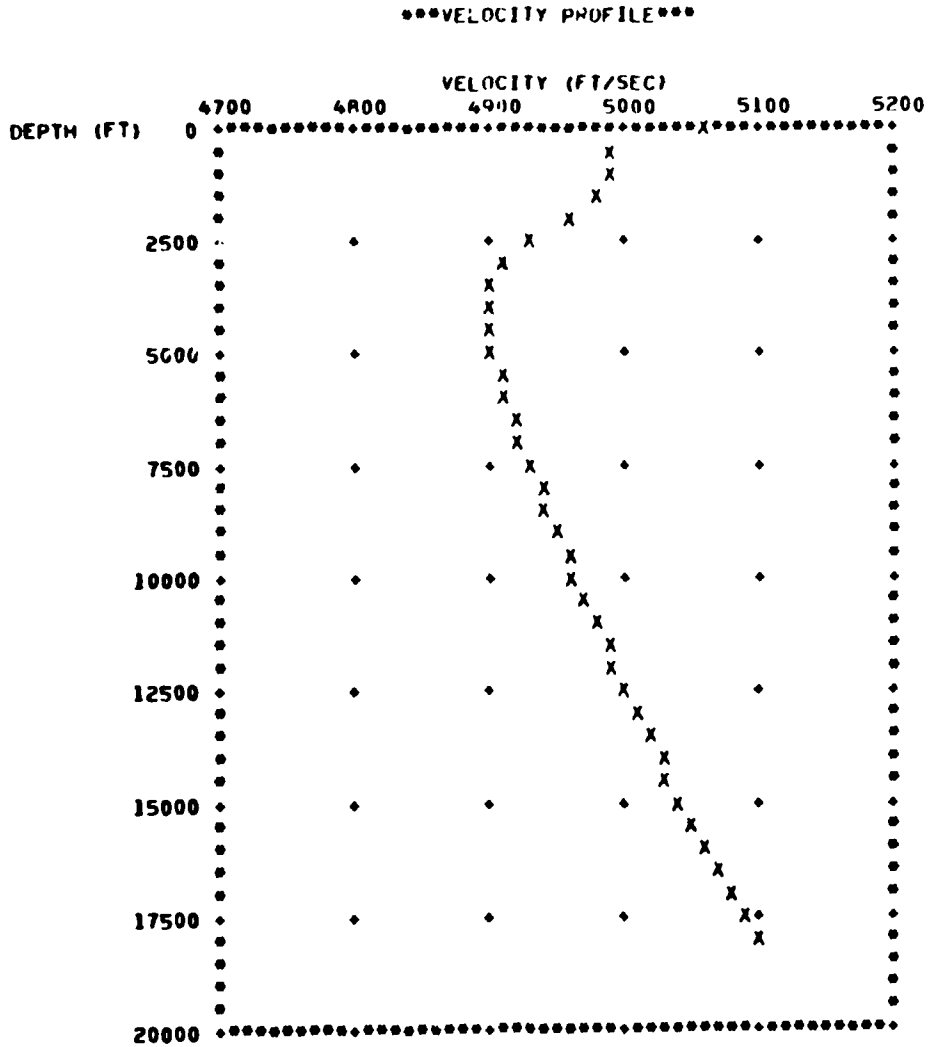
DEP (M)	TEMP (C)	SAL (PPT)
0.	27.28	36.64
10.	26.59	36.63
20.	25.87	36.62
30.	24.62	36.62
50.	21.83	36.64
75.	20.42	36.58
100.	19.37	36.52
125.	18.85	36.49
150.	18.47	36.49
200.	18.00	36.45
250.	17.62	36.40
300.	17.30	36.38
400.	16.41	36.19
500.	15.18	35.99
600.	13.51	35.73
800.	9.37	35.27
1000.	6.57	35.08
1200.	5.39	35.06
1500.	4.54	35.05
2000.	3.72	34.99

2500.	3.33	34.97
3[illegible]	[illegible]7	[illegible]94
4000.	2.30	[illegible].89
5000.	2.14	34.84
5530.	2.12	34.84

••••••••••••••••••••>ICAPS GENERATED SOUND VELOCITY PROFILE••••••••••••••••••••

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	27.28	81.10	36.64	1541.823	5058.721
10.00	32.81	26.59	79.86	36.63	1540.451	5054.219
20.00	65.62	25.87	78.57	36.62	1538.980	5049.393
30.00	98.43	24.62	76.32	36.62	1536.242	5040.410
50.00	164.05	21.83	71.29	36.64	1529.714	5018.991
75.00	246.08	20.42	68.76	36.58	1526.351	5007.959
100.00	328.10	19.37	66.87	36.52	1523.828	4999.679
125.00	410.13	18.35	65.03	36.49	1522.750	4996.144
150.00	492.15	18.47	65.25	36.49	1522.085	4993.960
200.00	656.20	18.00	64.40	36.45	1521.510	4992.073
250.00	820.25	17.62	63.72	36.40	1521.166	4990.946
300.00	984.30	17.30	63.14	36.38	1521.024	4990.478
400.00	1312.40	16.41	61.54	36.15	1519.774	4986.378
500.00	1640.50	15.18	59.32	35.99	1517.375	4978.507
600.00	1968.60	13.51	56.32	35.73	1513.318	4965.198
800.00	2624.80	9.37	48.87	35.27	1501.571	4926.655
1000.00	3281.00	6.57	43.83	35.08	1493.941	4901.619
1200.00	3937.20	5.39	41.70	35.06	1492.518	4896.953
1500.00	4921.50	4.54	40.17	35.05	1494.046	4901.964
2000.00	6562.00	3.72	38.70	34.99	1498.986	4918.172
2500.00	8202.50	3.33	37.99	34.97	1505.836	4940.647
3000.00	9843.00	2.67	36.81	34.94	1511.601	4959.563
4000.00	13124.00	2.39	36.14	34.89	1527.412	5011.439
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
5530.00	18143.93	2.12	35.81	34.84	1553.884	5098.292

THE LAYER IS AT 0.00 FEET (0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: TEST CASE A1 - HISTORICAL PROFILE ONLY. CONSTANT SALINITY DOWN TO 500 METERS.

••••••••••••••••••••••••••••••HISTORICAL PROFILE••••••••••••••••••••••••••••••

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.43	61.57	35.73	1512.713	4963.210
10.00	32.81	16.14	61.05	35.73	1511.993	4960.849
20.00	65.62	15.83	60.49	35.73	1511.205	4958.262
30.00	98.43	15.39	59.70	35.73	1510.002	4954.316
50.00	164.05	14.41	57.94	35.73	1507.223	4945.197
75.00	246.08	13.57	56.43	35.73	1504.899	4937.572
100.00	328.10	13.06	55.51	35.73	1503.617	4933.367
125.00	410.13	12.86	55.15	35.73	1503.356	4932.511
150.00	492.15	12.68	54.82	35.73	1503.159	4931.865
200.00	656.20	12.39	54.30	35.73	1502.995	4931.326
250.00	820.25	12.05	53.69	35.73	1502.652	4930.200
300.00	984.30	11.81	53.26	35.73	1502.645	4930.177
400.00	1312.40	11.34	52.41	35.73	1502.651	4930.197
500.00	1640.50	11.06	51.91	35.73	1503.311	4932.362
600.00	1968.60	10.93	51.67	35.67	1504.424	4936.015
800.00	2624.80	10.83	51.49	35.87	1507.626	4946.520
1000.00	3281.00	10.47	50.85	35.97	1509.782	4953.595
1200.00	3937.20	9.74	49.53	35.94	1510.429	4955.717
1500.00	4921.50	6.84	44.31	35.47	1503.860	4934.163
2000.00	6562.00	4.02	39.24	35.05	1500.321	4922.556
2500.00	8202.50	3.21	37.78	34.97	1505.329	4938.985
3000.00	9843.00	2.83	37.09	34.94	1512.281	4961.793
4000.00	13124.00	2.48	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

INPUT. RETRIEVED HISTORY TO BE USED

RETRIEVED DATA

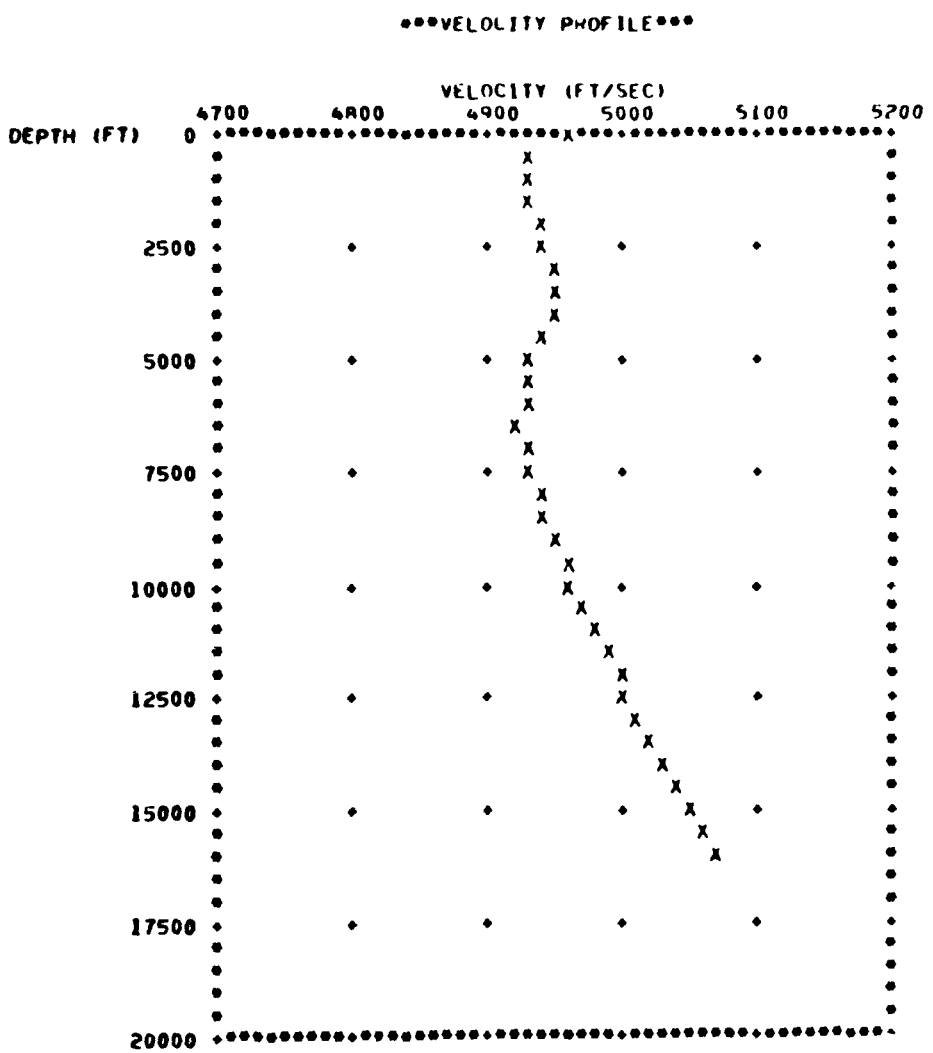
DEP (M)	TEMP (C)	SAL (PPT)
0.	16.43	35.73
10.	16.14	35.73
20.	15.83	35.73
30.	15.39	35.73
50.	14.41	35.73
75.	13.57	35.73
100.	13.06	35.73
125.	12.86	35.73
150.	12.68	35.73
200.	12.39	35.73
250.	12.05	35.73
300.	11.81	35.73
400.	11.34	35.73
500.	11.06	35.73
600.	10.93	35.67
800.	10.83	35.87
1000.	10.47	35.97
1200.	9.74	35.94
1500.	6.84	35.47

2500.	3.21	34.97
3000.	2.83	34.94
4000.	[illegible]	1
5000.	2.56	34.91

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.43	61.57	35.73	1512.713	4963.210
10.00	32.81	16.14	61.05	35.73	1511.993	4960.849
20.00	65.62	15.83	60.49	35.73	1511.205	4958.262
30.00	98.43	15.39	59.70	35.73	1510.002	4954.316
50.00	164.05	14.41	57.94	35.73	1507.223	4945.197
75.00	246.08	13.57	56.43	35.73	1504.899	4937.573
100.00	328.10	13.06	55.51	35.73	1503.617	4933.367
125.00	410.13	12.86	55.15	35.73	1503.356	4932.511
150.00	492.15	12.68	54.82	35.73	1503.159	4931.865
200.00	656.20	12.39	54.30	35.73	1502.995	4931.326
250.00	820.25	12.05	53.69	35.73	1502.652	4930.200
300.00	984.30	11.81	53.26	35.73	1502.645	4930.177
400.00	1312.40	11.34	52.41	35.73	1502.651	4930.197
500.00	1640.50	11.06	51.91	35.73	1503.311	4932.362
600.00	1968.60	10.93	51.67	35.67	1504.424	4936.015
800.00	2624.80	10.83	51.49	35.87	1507.626	4946.520
1000.00	3281.00	10.47	50.85	35.97	1509.782	4953.595
1200.00	3937.20	9.74	49.53	35.94	1510.429	4955.717
1500.00	4921.50	6.84	44.31	35.47	1503.360	4934.103
2000.00	6562.00	4.02	39.24	35.05	1500.321	4922.554
2500.00	8202.50	3.21	37.78	34.97	1505.329	4938.980
3000.00	9843.00	2.83	37.09	34.94	1512.281	4961.793
4000.00	13124.00	2.54	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

THE LAYER IS AT 0.00 FEET (0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: TEST CASE B1 - HISTORICAL PROFILE ONLY, CONSTANT SALINITY DOWN TO 500 METERS.

**********HISTORICAL PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	27.28	81.10	36.47	1541.641	5058.124
10.00	32.81	26.59	79.86	36.47	1540.279	5053.655
20.00	65.62	25.87	78.57	36.47	1538.818	5048.861
30.00	98.43	24.62	76.32	36.47	1536.078	5039.871
50.00	164.05	21.83	71.29	36.47	1529.522	5018.361
75.00	246.08	20.42	68.76	36.47	1526.227	5007.551
100.00	328.10	19.37	66.87	36.47	1523.774	4999.501
125.00	410.13	18.85	65.93	36.47	1522.732	4996.082
150.00	492.15	18.47	65.25	36.47	1522.066	4993.899
200.00	656.20	18.00	64.40	36.47	1521.539	4992.169
250.00	820.25	17.62	63.72	36.47	1521.256	4991.240
300.00	984.30	17.30	63.14	36.47	1521.138	4990.853
400.00	1312.40	16.41	61.54	36.47	1520.121	4987.517
500.00	1640.50	15.18	59.32	36.47	1517.973	4980.470
600.00	1968.60	13.51	56.32	35.73	1513.318	4965.198
800.00	2624.80	9.37	48.87	35.27	1501.571	4926.655
1000.00	3281.00	6.57	43.83	35.08	1493.941	4901.619
1200.00	3937.20	5.39	41.70	35.06	1492.518	4896.953
1500.00	4921.50	4.54	40.17	35.05	1494.046	4901.964
2000.00	6562.00	3.72	38.70	34.99	1498.986	4918.172
2500.00	8202.50	3.33	37.99	34.97	1505.836	4940.647
3000.00	9843.00	2.67	36.81	34.94	1511.601	4959.563
4000.00	13124.00	2.30	36.14	34.89	1527.412	5011.439
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
6000.00	19686.00	2.10	35.78	34.84	1562.328	5125.998

BT NOT INPUT. RETRIEVED HISTORY TO BE USED

RETRIEVED DATA

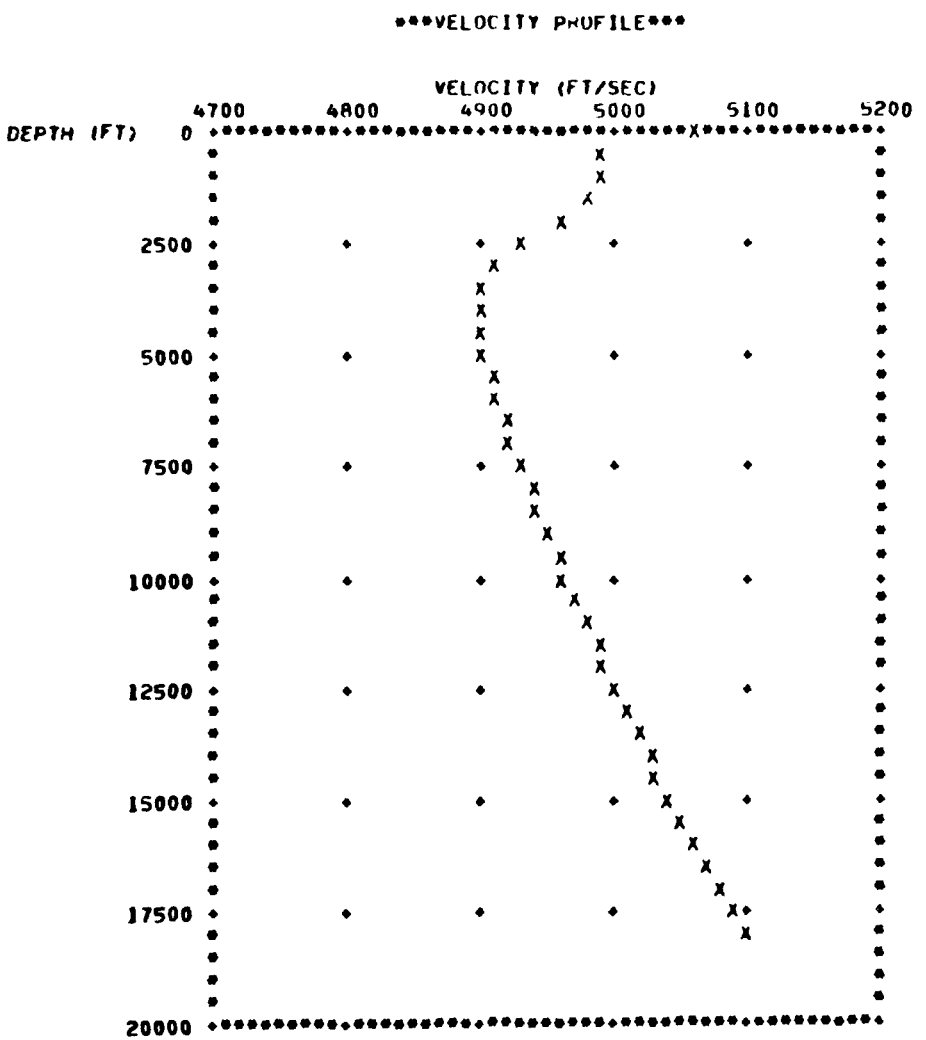
DEP (M)	TEMP (C)	SAL (PPT)
0.	27.28	36.47
10.	26.59	36.47
20.	25.87	36.47
30.	24.62	36.47
50.	21.83	36.47
75.	20.42	36.47
100.	19.37	36.47
125.	18.85	36.47
150.	18.47	36.47
200.	18.00	36.47
250.	17.62	36.47
300.	17.30	36.47
400.	16.41	36.47
500.	15.18	36.47
600.	13.51	35.73
800.	9.37	35.27
1000.	6.57	35.08
1200.	5.39	35.06
1500.	4.54	35.05

2500.	3.33	34.97
[illegible]	[illegible]67	[illegible].94
4000.	2.30	34.89
5000.	2.14	34.84
5530.	2.12	34.84

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	27.[illegible]	81.10	36.47	1541.641	5058.124
10.00	32.81	26.[illegible]	79.86	36.47	1540.279	5053.655
20.00	65.62	25.87	78.57	36.47	1538.818	5048.861
30.00	98.43	24.62	76.32	36.47	1536.078	5039.871
50.00	164.05	21.83	71.29	36.47	1529.522	5018.361
75.00	246.08	20.42	68.76	36.47	1526.227	5007.551
100.00	328.10	19.37	66.87	36.47	1523.774	4999.501
125.00	410.13	18.85	65.93	36.47	1522.732	4996.082
150.00	492.15	18.47	65.25	36.47	1522.066	4993.899
200.00	656.20	18.00	64.40	36.47	1521.539	4992.169
250.00	820.25	17.62	63.72	36.47	1521.256	4991.240
300.00	984.30	17.30	63.14	36.47	1521.138	4990.853
400.00	1312.40	16.41	61.54	36.47	1520.121	4987.517
500.00	1640.50	15.18	59.32	36.47	1517.973	4980.470
600.00	1968.60	13.51	56.32	35.73	1513.318	4965.198
800.00	2624.80	9.37	48.87	35.27	1501.571	4926.655
1000.00	3281.00	6.57	43.83	35.08	1493.941	4901.619
1200.00	3937.20	5.39	41.70	35.06	1492.518	4896.953
1500.00	4921.50	4.54	40.17	35.05	1494.046	4901.964
2000.00	6562.00	3.72	38.70	34.99	1498.986	4918.172
2500.00	8202.50	3.33	37.99	34.97	1505.836	4940.647
3000.00	9843.00	2.67	36.81	34.94	1511.601	4959.563
4000.00	13124.00	2.30	36.14	34.89	1527.412	5011.439
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
5530.00	18143.93	2.12	35.81	34.84	1553.884	5098.292

THE LAYER IS AT 0.00 FEET (0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: TEST CASE A2 - MERGE.

••••••••••••••••••••••••••••••HISTORICAL PROFILE••••••••••••••••••••••••••••••

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	16.43	61.57	35.78	1512.777	4963.421
10.00	32.81	16.14	61.05	35.78	1512.058	4961.061
20.00	65.62	15.83	60.49	35.78	1511.269	4958.475
30.00	98.43	15.39	59.70	35.78	1510.067	4954.529
50.00	164.05	14.41	57.94	35.78	1507.288	4945.413
75.00	246.08	13.57	56.43	35.79	1504.977	4937.831
100.00	328.10	13.06	55.51	35.78	1503.683	4933.585
125.00	410.13	12.86	55.15	35.76	1503.397	4932.647
150.00	492.15	12.68	54.82	35.75	1503.188	4931.960
200.00	656.20	12.39	54.30	35.71	1502.973	4931.255
250.00	820.25	12.05	53.69	35.67	1502.580	4929.963
300.00	984.30	11.81	53.26	35.64	1502.534	4929.814
400.00	1312.40	11.34	52.41	35.59	1502.476	4929.624
500.00	1640.50	11.06	51.91	35.59	1503.135	4931.787
600.00	1968.60	10.93	51.67	35.67	1504.424	4936.015
800.00	2624.80	10.83	51.49	35.87	1507.626	4946.520
1000.00	3281.00	10.47	50.85	35.97	1509.782	4953.595
1200.00	3937.20	9.74	49.53	35.94	1510.429	4955.717
1500.00	4921.50	6.84	44.31	35.47	1503.860	4934.163
2000.00	6562.00	4.02	39.24	35.05	1500.321	4922.554
2500.00	8202.50	3.21	37.78	34.97	1505.329	4938.986
3000.00	9843.00	2.83	37.09	34.94	1512.281	4961.793
4000.00	13124.00	2.54	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

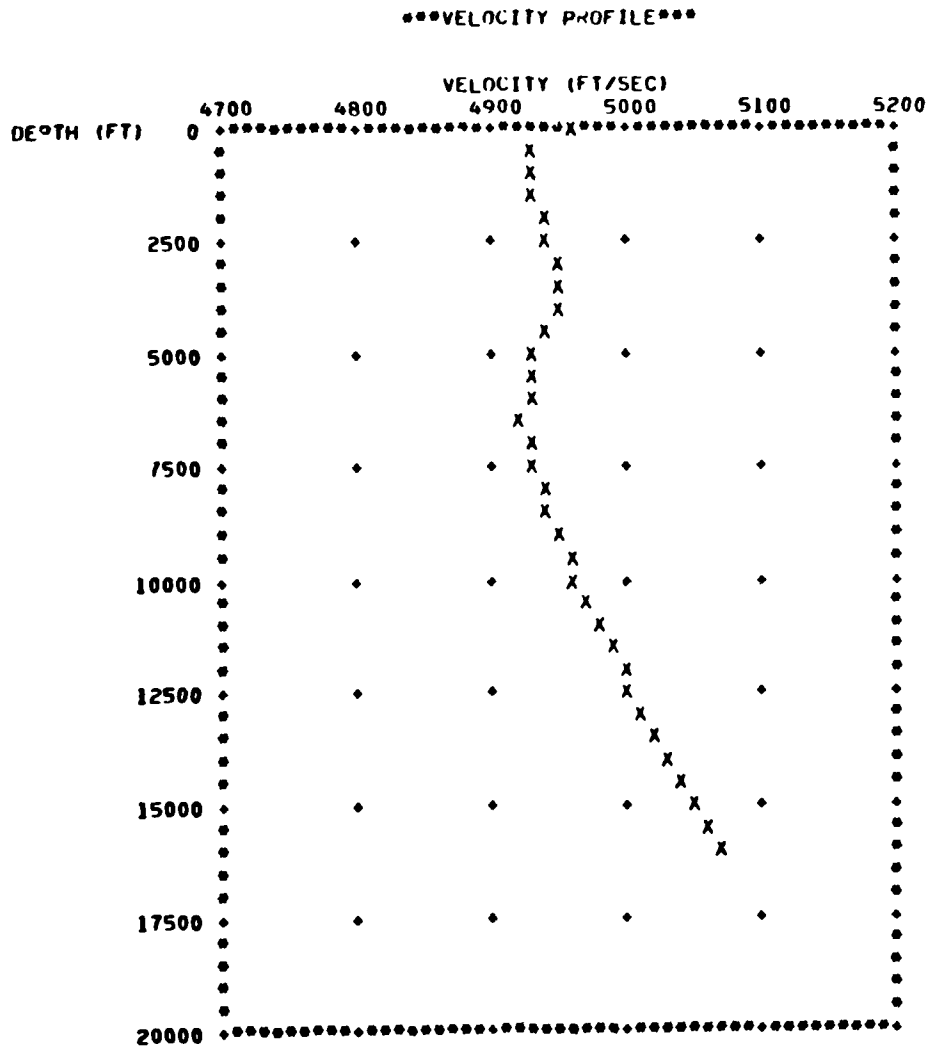
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	15.90	35.78	0.	16.43	35.78	0.	15.90	35.78
10.	15.62	35.78	10.	16.14	35.78	10.	15.62	35.78
20.	15.17	35.78	20.	15.83	35.78	20.	15.17	35.78
30.	14.97	35.78	30.	15.39	35.78	30.	14.97	35.78
50.	14.70	35.78	50.	14.41	35.78	50.	14.70	35.78
75.	13.75	35.79	75.	13.57	35.79	75.	13.75	35.79
100.	13.02	35.78	100.	13.06	35.78	100.	13.02	35.78
125.	12.85	35.76	125.	12.86	35.76	125.	12.85	35.76
150.	12.69	35.75	150.	12.68	35.75	150.	12.69	35.75
200.	12.40	35.71	200.	12.39	35.71	200.	12.40	35.71
250.	12.14	35.67	250.	12.05	35.67	250.	12.14	35.67
300.	11.90	35.64	300.	11.81	35.64	300.	11.90	35.64
400.	11.36	35.59	400.	11.34	35.59	400.	11.36	35.59
500.	11.04	35.59	500.	11.06	35.59	500.	11.04	35.59
			600.	10.93	35.67	600.	10.91	35.67
			800.	10.83	35.87	800.	10.82	35.87

1200.	9.74	35.94	1200.	9.73	35.94
150	6	3[illegible]	[illegible]00.	6.84	35.47
2000.	4.02	35.05	2000.	4.0[illegible]	35.0[illegible]
2500.	3.21	34.97	2500.	3.21	34.97
3000.	2.83	34.94	3000.	2.83	34.94
4000.	2.54	34.91	4000.	2.54	34.91
5000.	2.56	34.91	5000.	2.56	34.91

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	15.90	60.62	35.78	1511.158	4958.110
10.00	32.81	15.62	60.12	35.78	1510.456	4955.806
20.00	65.62	15.17	59.31	35.78	1509.214	4951.731
30.00	98.43	14.97	58.95	35.78	1508.747	4950.198
50.00	164.05	14.70	58.46	35.78	1508.216	4948.458
75.00	246.08	13.75	56.75	35.79	1505.568	4939.770
100.00	328.10	13.02	55.44	35.78	1503.550	4933.146
125.00	410.13	12.85	55.13	35.76	1503.364	4932.537
150.00	492.15	12.69	54.84	35.75	1503.222	4932.070
200.00	656.20	12.40	54.32	35.71	1503.007	4931.367
250.00	820.25	12.14	53.85	35.67	1502.888	4930.976
300.00	984.30	11.90	53.42	35.64	1502.845	4930.834
400.00	1312.40	11.36	52.45	35.59	1502.546	4929.853
500.00	1640.50	11.04	51.87	35.59	1503.065	4931.555
600.00	1968.60	10.91	51.64	35.67	1504.365	4935.822
800.00	2624.80	10.82	51.47	35.87	1507.584	4946.384
1000.00	3281.00	10.46	50.83	35.97	1509.753	4953.500
1200.00	3937.20	9.73	49.52	35.94	1510.408	4955.649
1500.00	4921.50	6.84	44.31	35.47	1503.847	4934.121
2000.00	6562.00	4.02	39.23	35.05	1500.316	4922.536
2500.00	8202.50	3.21	37.78	34.97	1505.327	4938.978
3000.00	9843.00	2.83	37.09	34.94	1512.280	4961.790
4000.00	13124.00	2.54	36.57	34.91	1528.456	5014.864
5000.00	16405.00	2.56	36.61	34.91	1546.291	5073.379

THE LAYER IS AT 0.00 FEET , 0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

ICAPS: TEST CASE B2 - MERGE.

••••••••••••••••••••••••••••••HISTORICAL PROFILE••••••••••••••••••••••••••••••

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC.
0.00	0.00	27.28	81.10	36.64	1541.823	5058.721
10.00	32.81	26.59	79.86	36.63	1540.451	5054.219
20.00	65.62	25.87	78.57	36.62	1538.980	5049.393
30.00	98.43	24.62	76.32	36.62	1536.242	5040.410
50.00	164.05	21.83	71.29	36.64	1529.714	5018.991
75.00	246.08	20.42	68.76	36.58	1526.351	5007.959
100.00	328.10	19.37	66.87	36.52	1523.828	4999.679
125.00	410.13	18.85	65.93	36.49	1522.750	4996.144
150.00	492.15	18.47	65.25	36.49	1522.085	4993.960
200.00	656.20	18.00	64.40	36.45	1521.510	4992.073
250.00	820.25	17.62	63.72	36.40	1521.166	4990.946
300.00	984.30	17.30	63.14	36.38	1521.024	4990.478
400.00	1312.40	16.41	61.54	36.19	1519.774	4986.378
500.00	1640.50	15.18	59.32	35.99	1517.375	4978.507
600.00	1968.60	13.51	56.32	35.73	1513.318	4965.198
800.00	2624.80	9.37	48.87	35.27	1501.571	4926.655
1000.00	3281.00	6.57	43.83	35.08	1493.941	4901.619
1200.00	3937.20	5.39	41.70	35.06	1492.518	4896.953
1500.00	4921.50	4.54	40.17	35.05	1494.046	4901.964
2000.00	6562.00	3.72	38.70	34.99	1498.986	4918.172
2500.00	8202.50	3.33	37.99	34.97	1505.836	4940.647
3000.00	9843.00	2.67	36.81	34.94	1511.601	4959.563
4000.00	13124.00	2.30	36.14	34.89	1527.412	5011.439
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
6000.00	19686.00	2.10	35.78	34.84	1562.328	5125.998

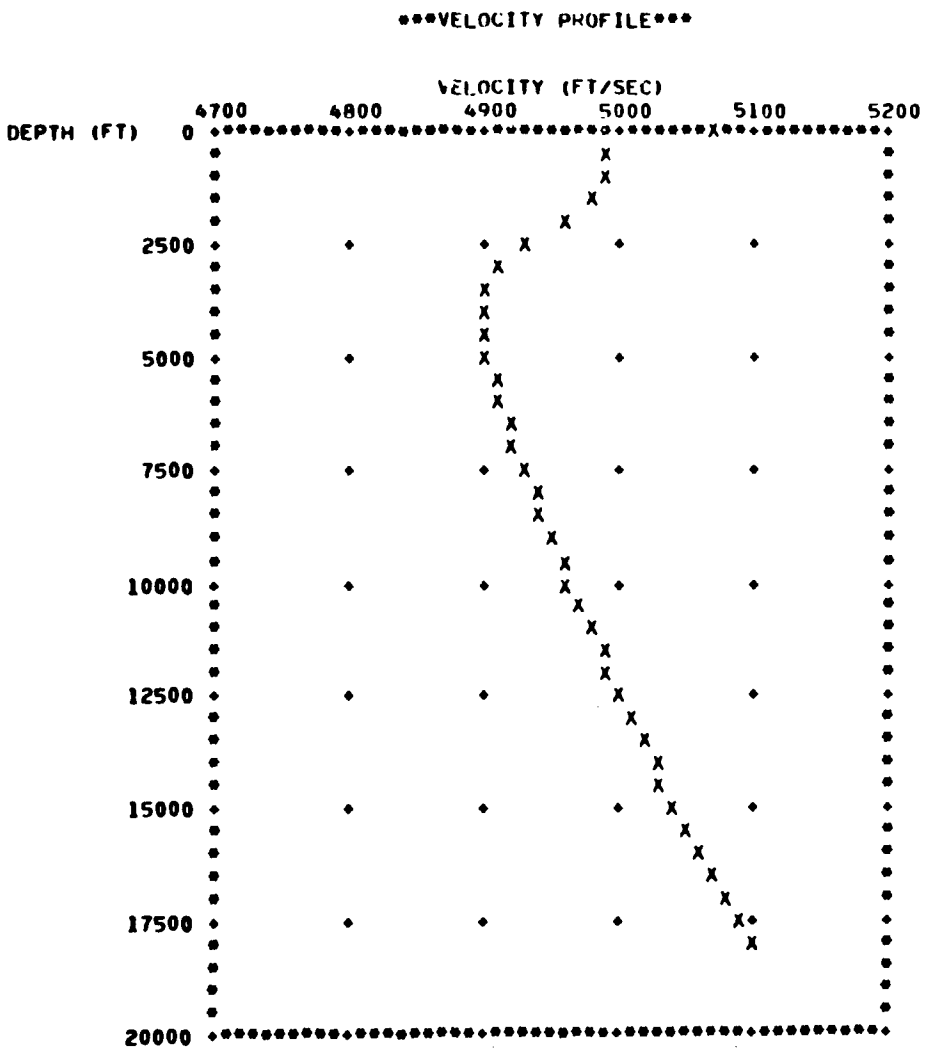
BT DATA			HISTORICAL DATA			MERGED DATA		
			(MERGE FACTOR = 835*10**-3)					
DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)	DEP (M)	TEMP (C)	SAL (PPT)
0.	28.26	36.64	0.	27.28	36.64	0.	28.26	36.64
10.	27.88	36.63	10.	26.59	36.63	10.	27.88	36.63
20.	27.80	36.62	20.	25.87	36.62	20.	27.80	36.62
30.	23.82	36.62	30.	24.62	36.62	30.	23.82	36.62
50.	21.47	36.64	50.	21.83	36.64	50.	21.47	36.64
75.	19.93	36.58	75.	20.42	36.58	75.	19.93	36.58
100.	19.10	36.52	100.	19.37	36.52	100.	19.10	36.52
125.	18.66	36.49	125.	18.85	36.49	125.	18.66	36.49
150.	18.30	36.49	150.	18.47	36.49	150.	18.30	36.49
200.	17.83	36.45	200.	18.00	36.45	200.	17.83	36.45
250.	17.66	36.40	250.	17.62	36.40	250.	17.66	36.40
300.	17.41	36.38	300.	17.30	36.38	300.	17.41	36.38
400.	16.54	36.19	400.	16.41	36.19	400.	16.54	36.19
500.	15.11	35.99	500.	15.18	35.99	500.	15.11	35.99
			600.	13.51	35.73	600.	13.45	35.73

1000.	6.57	35.08	1000.	6.54	35.08
12		5	200	5.[illegible]	35.[illegible]
1500.	4.54	35.05	1500.	4.53	35.05
2000.	3.72	34.99	2000.	3.72	34.99
2500.	3.33	34.97	2500.	3.33	34.97
3000.	2.67	34.94	3000.	2.67	34.94
4000.	2.30	34.89	4000.	2.30	34.89
5000.	2.14	34.84	5000.	2.14	34.84
6000.	2.10	34.84	5530.	2.12	34.84

**********ICAPS GENERATED SOUND VELOCITY PROFILE**********

DEPTH METERS	DEPTH FEET	TEMP. DEG C	TEMP. DEG F	SALIN. P/1000	VELOCITY MT./SEC.	VELOCITY FT./SEC
0.00	0.00	28.26	82.87	36.64	1543.942	5065.374
10.00	32.81	27.88	82.18	36.63	1543.282	5063.509
20.00	65.62	27.80	82.04	36.62	1543.265	5063.451
30.00	98.43	23.82	74.88	36.62	1534.327	5034.128
50.00	164.05	21.47	70.65	36.64	1528.783	5015.939
75.00	246.08	19.93	67.87	36.58	1525.027	5003.613
100.00	328.10	19.10	66.38	36.52	1523.077	4997.215
125.00	410.13	18.66	65.59	36.49	1522.214	4994.384
150.00	492.15	18.30	64.94	36.49	1521.600	4992.368
200.00	656.20	17.83	64.09	36.45	1521.017	4990.458
250.00	820.25	17.66	63.79	36.40	1521.283	4991.330
300.00	984.30	17.41	63.34	36.38	1521.348	4991.541
400.00	1312.40	16.54	61.77	36.19	1520.167	4987.668
500.00	1640.50	15.11	59.20	35.99	1517.155	4977.784
600.00	1968.60	13.45	56.21	35.73	1513.125	4964.564
800.00	2624.80	9.33	48.79	35.27	1501.421	4926.161
1000.00	3281.00	6.54	43.77	35.08	1493.828	4901.251
1200.00	3937.20	5.37	41.67	35.06	1492.438	4896.689
1500.00	4921.50	4.53	40.15	35.05	1493.998	4901.807
2000.00	6562.00	3.72	38.69	34.99	1498.966	4918.107
2500.00	8202.50	3.33	37.99	34.97	1505.828	4940.621
3000.00	9843.00	2.67	36.80	34.94	1511.598	4959.552
4000.00	13124.00	2.30	36.14	34.89	1527.411	5011.437
5000.00	16405.00	2.14	35.85	34.84	1544.435	5067.291
5530.00	18143.93	2.12	35.81	34.84	1553.884	5098.292

THE LAYER IS AT 0.00 FEET (0.00 METERS).


VELOCITY PROFILE
VELOCITY (FT/SEC)
4700
4800
4900
5000
5100
5200
DEPTH (FT)
0
2500
5000
7500
10000
12500
15000
17500
20000

SIMAS' TEST CASE A0 - HISTORICAL PROFILE ONLY.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.73 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4963.2
2	32.8	4960.9
3	65.6	4958.3
4	98.4	4954.3
5	164.1	4945.2
6	246.1	4937.5
7	328.1	4933.3
8	410.1	4932.3
9	492.2	4931.7
10	656.2	4931.0
11	820.3	4929.7
12	984.3	4929.5
13	1312.4	4929.4
14	1640.5	4931.6
15	1968.6	4935.8
16	2624.8	4946.4
17	3281.0	4953.5
18	3937.2	4955.7
19	4921.5	4934.2
20	6562.0	4922.7
21	8202.5	4939.2
22	9343.0	4962.1
23	13124.0	5015.2
24	16405.0	5073.8

CORRECTED BOTTOM DEPTH IS 2734 FATHOMS
LAYER DEPTH IS 0 FEET
SOUND VELOCITY AT SURFACE IS 4963.2 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4963.2
2	32.8	4960.9
3	65.6	4958.3
4	98.4	4954.3
5	164.1	4945.2
6	246.1	4937.5
7	328.1	4933.3
8	410.1	4932.3
9	492.2	4931.7
10	656.2	4931.0
11	820.3	4929.7
12	984.3	4929.5
13	1000.0	4929.5
14	1312.4	4929.4
15	1640.5	4931.6

17	2624.8	4946.4
	1.0	495
19	3937.2	4955.7
20	4921.5	4934.2
21	6562.0	4922.7
22	8202.5	4939.2
23	9843.0	4962.1
24	13124.0	5015.2
25	16405.0	5073.8

SIMAS* TEST CASE 80 - HISTORICAL PROFILE ONLY.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 36.47 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5058.4
2	32.8	5054.0
3	65.6	5049.2
4	98.4	5040.3
5	164.1	5018.9
6	246.1	5007.9
7	328.1	4999.6
8	410.1	4996.1
9	492.2	4993.9
10	656.2	4992.0
11	820.3	4990.9
12	984.3	4990.4
13	1312.4	4986.3
14	1640.5	4978.4
15	1968.6	4965.1
16	2624.8	4926.5
17	3281.0	4901.5
18	3937.2	4896.9
19	4921.5	4902.0
20	6562.0	4918.3
21	8202.5	4940.9
22	9843.0	4959.8
23	13124.0	5011.8
24	16405.0	5067.7
25	19686.0	5126.6

CORRECTED BOTTOM DEPTH IS 3024 FATHOMS
LAYER DEPTH IS 0 FEET
SOUND VELOCITY AT SURFACE IS 5058.4 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5058.4
2	32.8	5054.0
3	65.6	5049.2
4	98.4	5040.3
5	164.1	5018.9
6	246.1	5007.9
7	328.1	4999.6
8	410.1	4996.1
9	492.2	4993.9
10	656.2	4992.0
11	820.3	4990.9
12	984.3	4990.4
13	1000.0	4990.2
14	1312.4	4986.3

16	1968.6	4965.1
17	2624.8	4934.5
18	3281.0	4901.5
19	3937.2	4896.9
20	4921.5	4902.0
21	6562.0	4918.3
22	8202.5	4940.9
23	9843.0	4959.8
24	13124.0	5011.8
25	16405.0	5067.7
26	18143.9	5098.9

AD-A110 891 OCEAN DATA SYSTEMS INC ROCKVILLE MD F/G 17/1
THE CAUSE OF SOUND SPEED PROFILE DIFFERENCES BETWEEN ICAPS AND --ETC(U)
MAY 80 J H LOCKLIN, B W SCAIFE N00014-79-C-0676
UNCLASSIFIED NL

4 of 4
AD A110891

END
DATE FILMED
3 82
DTIC

SIMAS1 TEST CASE A1 - HISTORICAL PROFILE ONLY, CONSTANT SALINITY DOWN TO 500 METERS.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.73 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4963.0
2	32.8	4960.7
3	65.6	4958.1
4	98.4	4954.1
5	164.1	4944.9
6	246.1	4937.3
7	328.1	4933.1
8	410.1	4932.2
9	492.2	4931.6
10	656.2	4931.0
11	820.3	4929.9
12	984.3	4929.9
13	1312.4	4929.9
14	1640.5	4932.1
15	1968.6	4935.8
16	2624.8	4946.4
17	3281.0	4953.5
18	3937.2	4955.7
19	4921.5	4934.2
20	6562.0	4922.7
21	8202.5	4939.2
22	9843.0	4962.1
23	13124.0	5015.2
24	16405.0	5073.8

CORRECTED BOTTOM DEPTH IS 2734 FATHOMS
LAYER DEPTH IS 0 FEET
SOUND VELOCITY AT SURFACE IS 4963.0 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4963.0
2	32.8	4960.7
3	65.6	4958.1
4	98.4	4954.1
5	164.1	4944.9
6	246.1	4937.3
7	328.1	4933.1
8	410.1	4932.2
9	492.2	4931.6
10	656.2	4931.0
11	820.3	4929.9
12	984.3	4929.9
13	1000.0	4929.9
14	1312.4	4929.9
15	1640.5	4932.1

17	2624.8	4946.4
18	3281	4 5
19	3937.2	4955.7
20	4921.5	4934.2
21	6562.0	4922.7
22	8202.5	4939.2
23	9843.0	4962.1
24	13124.0	5015.3
25	16405.0	5073.8

SIMAS' TEST CASE 81 - HISTORICAL PROFILE ONLY, CONSTANT SALINITY DOWN TO 500 METERS.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 36.47 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5057.8
2	32.8	5053.4
3	65.6	5048.7
4	98.4	5039.7
5	164.1	5018.3
6	246.1	5007.5
7	328.1	4999.4
8	410.1	4996.0
9	492.2	4993.8
10	656.2	4992.1
11	820.3	4991.2
12	984.3	4990.8
13	1312.4	4987.4
14	1640.5	4980.4
15	1968.6	4965.1
16	2624.8	4926.5
17	3281.0	4901.5
18	3937.2	4896.9
19	4921.5	4902.0
20	6562.0	4918.3
21	8202.5	4940.9
22	9843.0	4959.8
23	13124.0	5011.8
24	16405.0	5067.7
25	19686.0	5126.6

CORRECTED BOTTOM DEPTH IS 3024 FATHOMS
LAYER DEPTH IS 0 FEET
SOUND VELOCITY AT SURFACE IS 5057.8 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	5057.8
2	32.8	5053.4
3	65.6	5048.7
4	98.4	5039.7
5	164.1	5018.3
6	246.1	5007.5
7	328.1	4999.4
8	410.1	4996.0
9	492.2	4993.8
10	656.2	4992.1
11	820.3	4991.2
12	984.3	4990.8
13	1000.0	4990.6
14	1312.4	4987.4
15	1640.5	4980.4

16	1968.6	4965.1
17	2622.[illegible]	4[illegible].5
18	3281.0	4901.5
19	3937.2	4896.9
20	4921.5	4902.0
21	6562.0	4918.3
22	8202.5	4940.9
23	9843.0	4959.8
24	13124.0	5011.8
25	16405.8	5067.7
26	18143.9	5098.9

SIMASP TEST CASE A2 - MERGE.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 35.73 PPT.

NO.	DEPTH	VELOCITY
1	0.0	4963.2
2	32.8	4960.9
3	65.6	4958.3
4	98.4	4954.3
5	164.1	4945.2
6	246.1	4937.5
7	328.1	4933.3
8	410.1	4932.3
9	492.2	4931.7
10	656.2	4931.0
11	820.3	4929.7
12	984.3	4929.5
13	1312.4	4929.4
14	1640.5	4931.6
15	1968.6	4935.8
16	2624.8	4946.4
17	3281.0	4953.5
18	3937.2	4955.7
19	4921.5	4934.2
20	6562.0	4922.7
21	8202.5	4939.2
22	9843.0	4962.1
23	13124.0	5015.2
24	16405.0	5073.8

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	15.9
2	10.0	15.6
3	20.0	15.2
4	30.0	15.0
5	50.0	14.7
6	75.0	13.8
7	100.0	13.0
8	125.0	12.9
9	150.0	12.7
10	200.0	12.4
11	250.0	12.1
12	300.0	11.9
13	400.0	11.4
14	500.0	11.0

CORRECTED BOTTOM DEPTH IS 2734 FATHOMS
LAYER DEPTH IS 0 FEET
SOUND VELOCITY AT SURFACE IS 4956.3 FT/SEC

SIMAS GENERATED SOUND VELOCITY PROFILE

NO.	DEPTH	VELOCITY
1	0.0	4956.3
2	32.8	4954.0
3	65.6	4949.9
4	98.4	4948.4
5	164.1	4946.6
6	246.1	4937.9
7	328.1	4931.3
8	410.1	4930.7
9	492.2	4930.3
10	656.2	4929.8
11	820.3	4929.6
12	984.3	4929.6
13	1000.0	4929.5
14	1312.4	4928.8
15	1640.5	4930.6
16	1968.6	4935.8
17	2624.8	4946.4
18	3281.0	4953.5
19	3937.2	4955.7
20	4921.5	4934.2
21	6562.0	4922.7
22	8202.5	4939.2
23	9843.0	4962.1
24	13124.0	5015.2
25	16405.0	5073.8

SIMAS1 TEST CASE B2 - MERGE.

HISTORICAL PROFILE - THE NEAR-SURFACE AVERAGE SALINITY IS 36.47 PPT.

NO.	DEPTH	VELOCITY
1	0.0	5058.4
2	32.8	5054.0
3	65.6	5049.2
4	98.4	5040.3
5	164.1	5018.9
6	246.1	5007.9
7	328.1	4999.6
8	410.1	4996.1
9	492.2	4993.9
10	656.2	4992.0
11	820.3	4990.9
12	984.3	4990.4
13	1312.4	4986.3
14	1640.5	4978.4
15	1968.6	4965.1
16	2624.8	4926.5
17	3281.0	4901.5
18	3937.2	4896.9
19	4921.5	4902.0
20	6562.0	4918.3
21	8202.5	4940.9
22	9843.0	4959.8
23	13124.0	5011.8
24	16405.0	5067.7
25	19686.0	5126.6

INPUT DATA FOR BT - METRIC

NO.	DEPTH	TEMP
1	0.0	28.3
2	10.0	27.9
3	20.0	27.8
4	30.0	23.8
5	50.0	21.5
6	75.0	19.9
7	100.0	19.1
8	125.0	18.7
9	150.0	18.3
10	200.0	17.8
11	250.0	17.7
12	300.0	17.4
13	400.0	16.5
14	500.0	15.1

CORRECTED BOTTOM DEPTH IS 3024 FATHOMS
LAYER DEPTH IS 0 FEET