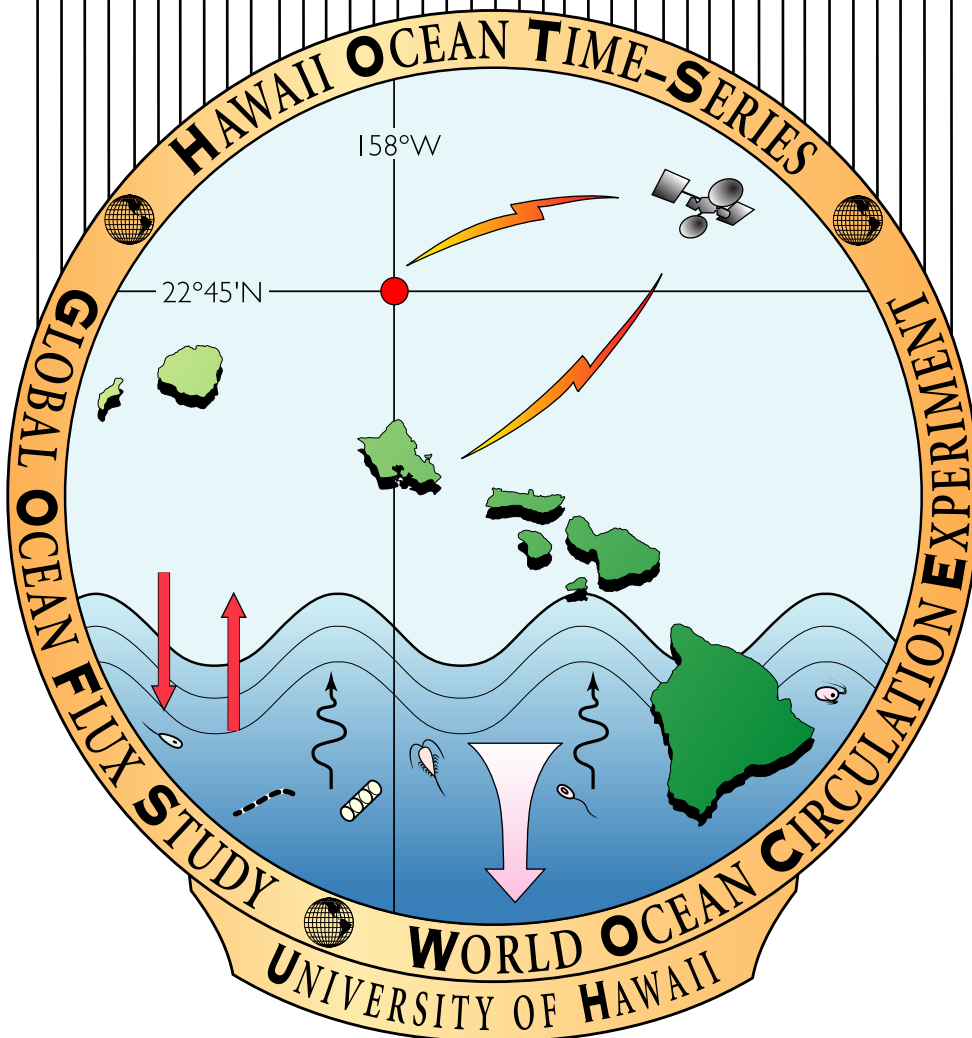


Hawaii Ocean Time-series Program

HOT 311



Hawaii Ocean Time-Series

HOT-311

KAHE Station Data Sheet

Station # 1
 Cast # 1
 Operator(s): DS, TC, TB, CF

Date: 5/1/2019 (HST)
 Time: 13:32 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	Nuts	LLN/LLP	Chl <i>a</i>	
1	1000	1	7.4						
2	750	2,3,4	8.5						
3	500	5	9.2						
4	350	6	11.4			4			
5	250	7	16.6			5			
6	200								
7	175							7	
8	150	8	21.7			8	8	8	
9	125							9	
10	100	9,10,11	22.9			10	10	10A-B	
11	75							11	
12	45	12	24.3	12	1	12	12	12	
13	25	13	24.9	13	2			13A-B	
14	5	14	25.3	14	3,4,5	14	14	14	
15	5	QC	25.3						
16									
17									
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-Series

HOT-311

KAHE Station Data Sheet

Station # 1
 Cast # 1
 Operator(s): DS, TC, TB, CF

Date: 5/1/2019 (HST)
 Time: 13:32 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	Nuts	LLN/LLP	Chl <i>a</i>	
1	1000	1	7.4						
2	750	2,3,4	8.5						
3	500	5	9.2						
4	350	6	11.4			4			
5	250	7	16.6			5			
6	200								
7	175							7	
8	150	8	21.7			8	8	8	
9	125							9	
10	100	9,10,11	22.9			10	10	10A-B	
11	75							11	
12	45	12	24.3	12	1	12	12	12	
13	25	13	24.9	13	2			13A-B	
14	5	14	25.3	14	3,4,5	14	14	14	
15	5	QC	25.3						
16									
17									
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-series

HOT-311

Primary Production Data Sheet

Station # 2
 Cast # 1
 Operator(s): DS, TC, CF

Date: 5/2/19 (HST)
 Time: 02:11 (HST)

Rosette Position	Desired Depth	Light Bottle	Chl <i>a</i> FCM	SF-S	SF-S O2	Temp	
1	200						
2	Sal min						
3	175		3A-B				
4	150		4A-B				
5	125	3-1	5	X			
6	125	3-2	6	X			
7	125	3-3	7	X			
8	100	4-1	8	X			
9	100	4-2	9	X			
10	100	4-3	10	X			
11	75	5-1	11	X			
12	75	5-2	12	X			
13	75	5-3	13	X			
14	45	6-1	14	X			
15	45	6-2	15	X			
16	45	6-3	16	X			
17	25	7-1	17	X			
18	25	7-2	18	X			
19	25	7-3	19	X			
20	15				^{121,122,123}	26.6	
21	5	8-1	21	X			
22	5	8-2	22	X			
23	5	8-3	23	X			
24	5						

Notes: 311-2-1-9 Chl A lost during filtering

Hawaii Ocean Time-series

HOT-311

Primary Production Data Sheet

Station # 2
 Cast # 1
 Operator(s): EG, TB, KKB

Date: 5/2/19 (HST)
 Time: _____ (HST)

Rosette Position	Desired Depth	Light Bottle	Chl <i>a</i> FCM	SF-S	SF-S O2	Temp
1	200					
2	Sal min					
3	175		3A-B			
4	150		4A-B			
5	125	3-1	5	X		
6	125	3-2	6	X		
7	125	3-3	7	X		
8	100	4-1	8	X		
9	100	4-2	9	X		
10	100	4-3	10	X		
11	75	5-1	11	X		
12	75	5-2	12	X		
13	75	5-3	13	X		
14	45	6-1	14	X		
15	45	6-2	15	X		
16	45	6-3	16	X		
17	25	7-1	17	X		
18	25	7-2	18	X		
19	25	7-3	19	X		
20	15				121,122,123	26.6
21	5	8-1	21	X		
22	5	8-2	22	X		
23	5	8-3	23	X		
24	5					

Notes: 311-2-1-9 Chl *a* lost during filtering

Hawaii Ocean Time-series

HOT-311

WOCE Deep Data Sheet

Station # 2

Date: 5/2/2019 (HST)

Cast # 2

Time: 5:19 (HST)

Operator(s): DS, TC, CF

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	DOC	Nutrient	Refrig. Si	
1	4800	15	3.9				1	1	
2	4600	16	3.9				2	2	
3	4500	17,18,19	4.7	3A-B	1,2,3	3ABC	3A-B	3A-B	
4	4400	20	4.1				4	4	
5	4200	21	4.0				5	5	
6	4000	22	4.0				6	6	
7	3800	23,24,25	4.5			7ABC	7A-B	7A-B	
8	3600	26	4.1				8	8	
9	3400	27	4.0				9	9	
10	3200	28	4.0				10	10	
11	3000	29,30,31	4.7	11	4	11ABC	11A-B	11A-B	
12	2800	32	4.1				12	12	
13	2600	33	4.1				13	13	
14	2400	34	4.4				14	14	
15	2200	35	4.5				15	15	
16	2000	150	4.7	16	5	16ABC	16A-B	16A-B	
17	1800	37,38,39	5.1				17	17	
18	1600	36	5.1				18	18	
19	1400	41	5.5				19	19	
20	1200	42	6.0				20	20	
21	1000	43	6.3				21	21	
22	750	44	7.1				22	22	
23	500	45	8.2				23	23	
24	5	46	23.8				24		

Notes:

Hawaii Ocean Time-series

HOT-~~309~~11

WOCE Deep Data Sheet

Station # 2
 Cast # 1
 Operator(s): DS, TC, CF

Date: 5/2/2019 (HST)
 Time: 5:19 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	DOC	Nutrient	Refrig. Si
1	4800	15	3.9				1	1
2	4600	16	3.9				2	2
3	4500	17,18,19	4.7	3A-B	1,2,3	3ABC	3A-B	3A-B
4	4400	20	4.1				4	4
5	4200	21	4.0				5	5
6	4000	22	4.0				6	6
7	3800	23,24,25	4.5			7ABC	7A-B	7A-B
8	3600	26	4.1				8	8
9	3400	27	4.0				9	9
10	3200	28	4.0				10	10
11	3000	29,30,31	4.7	11	4	11ABC	11A-B	11A-B
12	2800	32	4.1				12	12
13	2600	33	4.1				13	13
14	2400	34	4.4				14	14
15	2200	35	4.5				15	15
16	2000	36 150	4.7	16	5	16ABC	16A-B	16A-B
17	1800	37,38,39	5.1				17	17
18	1600	38 36	5.1				18	18
19	1400	41	5.5				19	19
20	1200	42	6.0				20	20
21	1000	43	6.3				21	21
22	750	44	7.1				22	22
23	500	45	8.2				23	23
24	5	46	23.8				24	

Notes:

Hawaii Ocean Time-series

HOT-311

PO Shallow Data Sheet

Station # 2
 Cast # 3
 Operator(s): DS, TC, CF

Date: 5/2/2019 (HST)
 Time: 10:57 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	DOC	Nutrient	Refrig. Si	Replicate Depths
1	1020	47,48,49	7.8	1	1	1	1A-B	1A-B	1020
2	943	50	7.8				2	2	
3	904	51	7.7				3	3	
4	865	52,53,54	7.8				4	4	
5	800	55	7.8				5	5	
6	735	56	7.9	6	2	6	6	6	750
7	682	57	8.2				7	7	
8	629	58	8.3				8	8	
9	575	59	8.5	9	3	9	9	9	600
10	527	60	8.9				10A-B	10A-B	525
11	490	61	9.1	11	4	11	11	11	500
12	456	62,63,64	10.0				12	12	
13	447	65	9.9				13	13	
14	399	66	10.8				14		
15	355	67	12.0	15A,	5,6	15	15		350
16	306	68,69,70	13.5				16		
17	245	71	16.5	17	7	17	17		250
18	196	72	19.2				18		
19	132	73	21.6				19A,B		150
20	125	74	21.9				20		
21	116	75	22.2				21		
22	67	76	23.1				22		
23	26	77	24.0				23		
24	5	78	24.2				24		

Notes:

Hawaii Ocean Time-series

HOT-311

PO Shallow Data Sheet

Station # 2

Date: 5/2/2019 (HST)

Cast # 3

Time: 10:57 (HST)

Operator(s): DS, TC, CF

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	DOC	Nutrient	Refrig. Si	Replicate Depths
1	1020	47,48,49	7.8	1	1	1	1A-B	1A-B	1020
2	943	50	7.8				2	2	
3	904	51	7.7				3	3	
4	865	52,53,54	7.8				4	4	
5	800	55	7.8				5	5	
6	735	56	7.9	6	2	6	6	6	750
7	682	57	8.2				7	7	
8	629	58	8.3				8	8	
9	575	59	8.5	9	3	9	9	9	600
10	527	60	8.9				10A-B	10A-B	525
11	490	61	9.1	11	4	11	11	11	500
12	456	62,63,64	10.0				12	12	
13	447	65	9.9				13	13	
14	399	66	10.8				14		
15	355	67	12.0	15A,	5,6	15	15		350
16	306	68,69,70	13.5				16		
17	245	71	16.5	17	7	17	17		250
18	196	72	19.2	17	7	17	18		
19	132	73	21.6				19A,B		150
20	125	74	21.9				20		
21	116	75	22.2				21		
22	67	76	23.1				22		
23	26	77	24.0				23		
24	5	78	24.2				24		

Notes:

Hawaii Ocean Time-series

HOT-311

PO Shallow Data Sheet

Station # 2
 Cast # 3
 Operator(s): DS, TC, CF

Date: 5/2/2019 (HST)
 Time: _____ (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/Alk	pH	DOC	Nutrient	Refrig. Si	Replicate Depths
1	1020	47,48,49		1	1	1	1A-B	1A-B	1020
2	943	50					2	2	
3	904	51					3	3	
4	865	52,53,54		4	4	4	4	4	750
5	800	55					5	5	
6	735	56		6	2	6	6	6	750
7	682	57					7	7	
8	629	58		8	3	8	8	8	600
9	575	59		9	3	9	9	9	600
10	527	60					10A-B	10A-B	525
11	490	61		11	4	11	11	11	500
12	456	62,63,64					12	12	
13	447	65					13	13	
14	399	66		14AB	5,6	14	14		350
15	355	67		15AB	5,67	15	15		350
16	306	68,69,70					16		250
17	245	71		17	7	17	17A-B		150
18	196	72					18		
19	132	73					19AB		150
20	125	74					20		
21	116	75					21		
22	67	76					22		
23	26	77					23		
24	5	78					24		

Notes:

Hawaii Ocean Time-series

HOT- **311**

PC/PN Data Sheet

Station # 2 Date: 5/2/2019 (HST)
 Cast # 4 Time: 14:07 (HST)
 Operator(s): _____ Pre-screen mesh size: 202 um
 Blank #'s B1 B2 B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	DNA	AC/KTK	JW
1	1000						
2	Sal Min						
3	350	1	10	3			
4	350	2	10	4			
5	250	3	10	5			
6	200	4	10	6			
7	175	5	10	7			
8	150	6	10	8			
9	125						X
10	125	7,8	4,4	10A-B			
11	125					X	
12	100	9	4	12		X	
13	75						X
14	75	10	4	14		X	
15	75				X		
16	50						X
17	45	11	4	17		X	
18	45				X		
19	25	12,13	4,4	19A-B			
20	25				X		
21	25					X	
22	25						X
23	5	14	4	23		X	
24	5				X		

Notes: PC:PN sample 10B and 19A filtered quickly- filter torn
 PC:PN sample 12- filter was torn- filtered slower than 10B and 19A
 PC:PN Sample 3 spilled about 300ml

Hawaii Ocean Time-series

HOT- **311**

PC/PN Data Sheet

Station # 2 Date: 5/2/2019 (HST)
 Cast # 4 Time: 14:07 (HST)
 Operator(s): _____ Pre-screen mesh size: 202 um
 Blank #'s B1 B2 B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	DNA	AC/KTK	JW
1	1000						
2	Sal Min						
3	350	1	10	3			
4	350	2	10	4			
5	250	3	10	5			
6	200	4	10	6			
7	175	5	10	7			
8	150	6	10	8			
9	125						X
10	125	7,8	4,4	10A-B			
11	125					X	
12	100	9	4	12		X	
13	75						X
14	75	10	4	14		X	
15	75				X		
16	50						X
17	45	11	4	17		X	
18	45				X		
19	25	12,13	4,4	19A-B			
20	25				X		
21	25					X	
22	25						X
23	5	14	4	23		X	
24	5				X		

PC:PN SAMPLE 10B ÷ 19A
 Filtered quickly - Filter torn Notes:

PC:PN Sample 12 - Filter was torn - filtered slower than 10B ÷ 19A

Hawaii Ocean Time-series

HOT- 311

Particulate Phosphorus Data Sheet

Station # 2 Date: 5/2/19 (HST)
 Cast # 5 Time: 17:04 (HST)
 Operator(s): EG, TB, KKB Pre-screen mesh size: 202 um
 Blank #'s B1 B2 B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S	O2 SF-S	Temp	JW
1	1000							
2	Sal min							
3	350	1	10	3				
4	350	2	10	4				
5	250	3	10	5				
6	200	4	10	6				
7	175	5	10	7				
8	150	6	10	8				
9	125	7,8	4,4	9A-B				
10	125							X
11	100	9	4	11				
12	75							X
13	75	10	4	13				
14	50							X
15	50							X
16	45	11	4	16				
17	25	12,13	4,4	17A-B				
18	25				18 A,B			
19	25							X
20	25							X
21	25							X
22	15					124,125,126	24.5	
23	5	14	4	23				
24	5				24 A,B			

**Notes: PPO4 sample #7 big tear- filtered very fast
 PPO4 sample #16 split in half-filtered very fast**

2019

Hawaii Ocean Time-series

HOT- 311

Particulate Phosphorus Data Sheet

Station # 2 Date: 5/2/19 (HST)
 Cast # 5 Time: 17:04 (HST)
 Operator(s): EG, TB, KKB Pre-screen mesh size: 202 um
 Blank #'s B1 B2 B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S	O2 SF-S	Temp	JW
1	1000							
2	Sal min							
3	350	1	10	3				
4	350	2	10	4				
5	250	3	10	5				
6	200	4	10	6				
7	175	5	10	7				
8	150	6	10	8				
9	125	7,8	4,4	9A-B				
10	125							X
11	100	9	4	11				
12	75							X
13	75	10	4	13				
14	50							X
15	50							X
16	45	11	4	16				
17	25	12,13	4,4	17A-B				
18	25				18 A,B			
19	25							X
20	25							X
21	25							X
22	15					124,125,126	24.5°C	
23	5	14	4	23				
24	5				24 A,B			

Notes:

PP04 Sample # 7 big tear - filtered super-fast
 PP04 sample # 16 split in half - filtered super fast

Hawaii Ocean Time-series
HOT-311
 BEACH Shallow Data Sheet (1/2)

Station # 2
 Cast # 6
 Operator(s): EG, TB, KKB

Date: 5/2/19 (HST)
 Time: 20:21 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ALK	Quay DIC	Keeling DIC	SF-S	pH	DOC
1	1000	79	7.1						
2	O ₂ min	80	8.2						
3	Sal min	81	10.1						
4	200	82	18.7	4				1	4
5	175	83	20.0						5
6	165	84	20.4						
7	150	85	20.9	7				2	7
8	130								
9	125	86	21.9						9
10	115	87	22.2						
11	110								.
12	100	88,89,90	22.4	12				3	12
13	90								
14	85	91	22.7						
15	75	92	22.9	15				4	15
16	60								16
17	45	93	23.8	17				5	17
18	35								18
19	25	94	24.1	19				6	19
20	25				20		20A-B		
21	15								21
22	5	95	24.3	22A-B				7,8	22
23	5				23	23A-B			
24	5						24A-B		

Notes: Keeling

Hawaii Ocean Time-series

HOT-311

BEACH Shallow Data Sheet (2/2)

Station # 2
 Cast # 6
 Operator(s): EG, TB, KKB

Date: 5/2/19 (HST)
 Time: 20:21 (HST)

Rosette Position	Desired Depth	Nutrient	LLN	LLP	Urea (Car. F)			
1	1000							
2	O ₂ min							
3	Sal min							
4	200	4			4			
5	175	5	5	5	5			
6	165		6					
7	150	7	7A-B	7	7			
8	130		8					
9	125	9A-B	9	9	9AB			
10	115		10	10				
11	110		11					
12	100	12	12A-B	12	12			
13	90		13					
14	85		14	14				
15	75	15	15	15	15			
16	60	16	16	16	16			
17	45	17A-B	17	17	17AB			
18	35	18	18		18			
19	25	19	19	19	19			
20	25							
21	15	21	21		21			
22	5	22	22A-B	22	22			
23	5							
24	5							

Notes:

Hawaii Ocean Time-series

HOT-311

Open Data Sheet

Station # 2

Date: 5/2/19 (HST)

Cast # 7

Time: 23:09 (HST)

Operator(s): TB, EG, KKB

Rosette Position	Desired Depth	SF-S	DNA	AC/KTK	JW			
1	1000							
2	Sal Min							
3	175		X					
4	150		X					
5	125				X			
6	125		X					
7	100		X					
8	75				X			
9	50				X			
10	25				X			
11	25	11A,B						
12	25			X				
13	25			X				
14	25			X				
15	25			X				
16	25			X				
17	25			X				
18	25			X				
19	25			X				
20	25			X				
21	25			X				
22	25			X				
23	25			X				
24	5	24A,B						

Notes:

Hawaii Ocean Time-series

HOT-311

Open Data Sheet

Station # 2

Date: 5/2/19 (HST)

Cast # 7

Time: _____ (HST)

Operator(s): TB, EG, KKB

Rosette Position	Desired Depth	SF-S	DNA	AC/KTK	JW			
1	1000							
2	Sal Min							
3	175		X					
4	150		X					
5	125				X			
6	125		X					
7	100		X					
8	75				X			
9	50				X			
10	25				X			
11	25	11A,B						
12	25			X				
13	25			X				
14	25			X				
15	25			X				
16	25			X				
17	25			X				
18	25			X				
19	25			X				
20	25			X				
21	25			X				
22	25			X				
23	25			X				
24	5	12A,B						

Notes:

Hawaii Ocean Time-series

HOT- 311

Gas Array Experiment Data Sheet

Station # 2
 Cast # 8
 Operator(s): TC, DS, CF

Date: 5/3/19 (HST)
 Time: 2:10 (HST)

Rosette Position	Desired Depth	15N2	SF-S	AC/KTK			
1	1020						
2	Sal min						
3	125	3-1					
4	125	3-2					
5	125	3-3					
6	100	4-1					
7	100	4-2					
8	100	4-3					
9	75	5-1					
10	75	5-2					
11	75	5-3					
12	45	6-1					
13	45	6-2					
14	45	6-3					
15	25	7-1					
16	25	7-2					
17	25	7-3					
18	25		18A,B				
19	25			X			
20	5	8-1					
21	5	8-2					
22	5		22A,B				
23	5	8-3					
24							

Notes:

Hawaii Ocean Time-series

HOT- 311

Gas Array Experiment Data Sheet

Station # 2
 Cast # 8
 Operator(s): TB, EG, KKB

Date: 5/3/19 (HST)
 Time: 2:10 (HST)

Rosette Position	Desired Depth	15N2	SF-S	AC/KTK			
1	1020						
2	Sal min						
3	125	X 3-1					
4	125	X 3-2					
5	125	X 3-3					
6	100	X 4-1					
7	100	X 4-2					
8	100	X 4-3					
9	75	X 5-1					
10	75	X 5-2					
11	75	X 5-3					
12	45	X 6-1					
13	45	X 6-2					
14	45	X 6-3					
15	25	X 7-1					
16	25	X 7-2					
17	25	X 7-3					
18	25		18A,B				
19	25			X			
20	5	X 8-1					
21	5	X 8-2					
22	5		22A,B				
23	5	X 8-3					
24							

Notes:

Hawaii Ocean Time-series

HOT- 311

OPEN Data Sheet

Station # 2
 Cast # 9
 Operator(s): TC, DS, CF

Date: 5-3-2019 (HST)
 Time: 4:59 (HST)

Rosette Position	Desired Depth	DNA	SFS	O2 SF-S	Temp.	MC	AC/KTK	JW
1	1020							
2	Sal min							
3	275	X						
4	250	X						
5	225	X						
6	200	X						
7	175					1		
8	150					2		
9	125					3		
10	125							X
11	100					4		
12	75							X
13	75					5		
14	50							X
15	50							X
16	45					6		
17	25					7		
18	25		18AB					
19	25							X
20	25							X
21	25						X	
22	15			127,128,129	24.2			
23	5		23B					
24	5					8		

Notes:

Hawaii Ocean Time-series

HOT- 311

OPEN Data Sheet

Station # 2
 Cast # 9
 Operator(s): TC, DS, CF

Date: 5-3-2019 (HST)
 Time: 4:59 (HST)

Rosette Position	Desired Depth	DNA	SFS	O2 SF-S	Temp.	MC	AC/KTK	JW
1	1020							
2	Sal min							
3	275	X						
4	250	X						
5	225	X						
6	200	X						
7	175					X 1		
8	150					X 2		
9	125					X 3		
10	125							X
11	100					X 4		
12	75							X
13	75					X 5		
14	50							X
15	50							X
16	45					X 6		
17	25					X 7		
18	25		18AB					
19	25							X
20	25							X
21	25						X	
22	15			127,128,129	24.2			
23	5		23B					
24	5					X 8		

Notes:

Hawaii Ocean Time-series

HOT- 311

Particulate Silica Data Sheet

Station # 2 Date: 5/3/2019 (HST)
 Cast # 10 Time: 8:02 (HST)
 Operator(s): DS, TC, CF Pre-screen mesh size: none
 Blank # B1, B2, B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S	AC/KTK	JW	
1	1000							
2	Sal min							
3	175	7	4	3				
4	150	8	4	4				
5	125	9,10	4,4	5A-B				
6	100	11	4	6				
7	75	12	4	7				
8	45	13	4	8				
9	25	14,15	4,4	9A-B				
10	25				10AB			
11	25						X	
12	25						X	
13	25						X	
14	25						X	
15	25						X	
16	25						X	
17	25						X	
18	25						X	
19	25						X	
20	25					X		
21	25					X		
22	25					X		
23	5				23AB			
24	5	16	4	21				

Notes:

Hawaii Ocean Time-series

HOT- 311

Particulate Silica Data Sheet

Station # 2 Date: 5/3/2019 (HST)
 Cast # 10 Time: 8:02 (HST)
 Operator(s): DS, TC, CF Pre-screen mesh size: none
 Blank # B1, B2, B3

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S	AC/KTK	JW	
1	1000							
2	Sal min							
3	175	7	4	3				
4	150	8	4	4				
5	125	9,10	4,4	5A-B				
6	100	11	4	6				
7	75	12	4	7				
8	45	13	4	8				
9	25	14,15	4,4	9A-B				
10	25				10AB			
11	25						X	
12	25						X	
13	25						X	
14	25						X	
15	25						X	
16	25						X	
17	25						X	
18	25						X	
19	25						X	
20	25					X		
21	25					X		
22	25					X		
23	5				²³ 20AB			
24	5	16	4	21				

Notes:

Hawaii Ocean Time-series

HOT- **311**

OPEN Data Sheet

Station # 2
 Cast # 11
 Operator(s): TC, DS, CF

Date: 5/3/2019 (HST)
 Time: 10:58 (HST)

Rosette Position	Desired Depth	SF-S	AB	JW			
1	1000						
2	Sal Min						
3	DCM		X				
4	25	4AB					
5	25		X				
6	25			X			
7	25			X			
8	25			X			
9	25			X			
10	25			X			
11	25			X			
12	5	12AB					
13	5		X				
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

Notes:

Hawaii Ocean Time-series

HOT- 311

OPEN Data Sheet

Station # 2
 Cast # 11
 Operator(s): TC, DS, CF

Date: 5/3/2019 (HST)
 Time: 10:58 (HST)

Rosette Position	Desired Depth	SF-S	AB	JW			
1	1000						
2	Sal Min						
3	DCM		X				
4	25	4AB					
5	25		X				
6	25			X			
7	25			X			
8	25			X			
9	25			X			
10	25			X			
11	25			X			
12	5	12AB					
13	5		X				
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

Notes:

Hawaii Ocean Time-series

HOT- 311

ATP Data Sheet

Station # 2 Date: 5/3/2019 (HST)
 Cast # 12 Time: 14:02 (HST)
 Operator(s): EG, TB, KKB Pre-screen mesh size: 202um
 Blank #'s 28, 29, 30

Rosette Position	Desired Depth	ATP Tube #'s	Volume Filtered	Carboy #	DNA	AC/KTK	
1	1020						
2	770				X		
3	500				X		
4	Sal min						
5	400				X		
6	350	1 - 3	3x2	1			
7	300				X		
8	250	4 - 6	3x2	2			
9	150	7 - 9	3x1	7			
10	125	10 - 12	3x1	8			
11	100	13 - 15	3x1	9			
12	75	16 - 18	3x1	10			
13	45	19 - 21	3x1	11			
14	25	22 - 24	3x1	12			
15	25						
16	25					X	
17	25					X	
18	25					X	
19	5	25 - 27	3x1	13			
20	5						
21							
22							
23							
24							

Notes: Missed collection of SF-S samples. Will be taken on S2C14 (HPLC cast)

Hawaii Ocean Time-series

HOT- 311

ATP Data Sheet

Station # 2 Date: 5/3/2019 (HST)
 Cast # 12 Time: 14:02 (HST)
 Operator(s): EG, KKB, TB Pre-screen mesh size: 202um
 Blank #'s 28, 29, 30

Rosette Position	Desired Depth	ATP Tube #'s	Volume Filtered	Carboy #	SF-S	DNA	AC/KTK
1	1020						
2	770					X ✓	
3	500					X ✓	
4	Sal min						
5	400					X ✓	
6	350	1 - 3	3x2	1			
7	300					X ✓	
8	250	4 - 6	3x2	2			
9	150	7 - 9	3x1	7			
10	125	10 - 12	3x1	8			
11	100	13 - 15	3x1	9			
12	75	16 - 18	3x1	10			
13	45	19 - 21	3x1	11			
14	25	22 - 24	3x1	12			
15	25				15AB		
16	25						X ✓
17	25						X ✓
18	25						X ✓
19	5	25 - 27	3x1	13			
20	5				20AB		
21							
22							
23							

Hawaii Ocean Time-series

HOT-311

OPEN CAST Data Sheet

Station # 2
 Cast # 13
 Operator(s): EG, TB, KKB

Date: 5/3/19 (HST)
 Time: 17:00 (HST)

Rosette Position	Desired Depth	SW	SF-S	O2 SF-S	Temp	AC/KTK	EG
1	1000						
2	800	2					
3	600	3					
4	Sal Min						
5	400	5					
6	300	6					
7	200	7					
8	175	8					
9	175						X
10	150	10					
11	150						X
12	125	12					
13	100	13					
14	75	14					
15	45	15					
16	25	16A, B					
17	25		17A,B				
18	25					X	
19	15			130,131,132	24.3		
20	5	20 A,B	20A,B				
21	5						
22							
23							
24							

Notes:

Hawaii Ocean Time-series

HOT-311

OPEN CAST Data Sheet

Station # 2
 Cast # 13
 Operator(s): EG, TB, KKB

Date: 5/3/19 (HST)
 Time: 17:00 (HST)

Rosette Position	Desired Depth	SW	SF-S	O2 SF-S	Temp	AC/KTK	EG
1	1000						
2	800	2					
3	600	3					
4	Sal Min						
5	400	5					
6	300	6					
7	200	7					
8	175	8					
9	175						X
10	150	10					
11	150						X
12	125	12					
13	100	13					
14	75	14					
15	45	15					
16	25	16A, B					
17	25		17A, B				
18	25					X	
19	15			130,131,132	24.3		
20	5	20 A, B	20A, B				
21	5						
22							
23							
24							

Notes:

Hawaii Ocean Time-series

HOT-311

HPLC & Chl *a*. Bottle Data Sheet

Station # 2
 Cast # 14
 Operator(s): EG, TB, KKB

Date: 5/3/19 (HST)
 Time: 20:00 (HST)

Rosette Position	Desired Depth	Carboy #	Total Volume	HPLC	Chl <i>a</i> .	SF-S	JW	AC/K TK
1	1000							
2	175	1	10	2	2			
3	150	2	10	3	3			
4	135	7	4	4	4			
5	125	8,9	4,4	5A-B	5A-B			
6	115	10	4	6	6			
7	100	11	4	7	7			
8	85	12	4	8	8			
9	75	13	4	9	9			
10	60	14	4	10	10			
11	45	15,16	4,4	11A-B	11A-B			
12	25	3	10	12	12	12AB		
13	25						X	
14	25						X	
15	25						X	
16	25						X	
17	25						X	
18	25						X	
19	25						X	
20	25						X	
21	25						X	
22	25							X
23	25							X
24	5	4	10	23	23	24AB		

Notes

Hawaii Ocean Time-series

HOT-311

WOCE Deep 2 Data Sheet

Station # 2

Date: 5/3/19 (HST)

Cast # 15

Time: 23:01 (HST)

Operator(s): EG, TB, KKB

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DNA	DH	CF	AC/KTK
1	4800	96	4.0				
2	4000	97	4.1				
3	4000				X		
4	4000			X			
5	4000					X	
6	3000	98	4.0				
7	3000			X			
8	2000	99	4.5				
9	2000			X			
10	1000			X			
11	O2 min	100	6.8				
12	O2 min					X	
13	Sal min	101	8.5				
14	250				X		
15	O2 max	102	23.8				
16	25						X
17	25						X
18	25						X
19	25						X
20	25						X
21	5	103	24.3				
22	5					X	
23							
24							

Notes:

Hawaii Ocean Time-series

HOT-311

WOCE Deep 2 Data Sheet

Station # 2

Date: 5/4/19 (HST)

Cast # 15

Time: 00:25:01 (HST)

Operator(s): EG, TB, KKB

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DNA	DH	CF	AC/KTK
1	4800	96	4.0				
2	4000	97	4.1				
3	4000				X		
4	4000			X			
5	4000					X	
6	3000	98	4.0				
7	3000			X			
8	2000	99	4.5				
9	2000			X			
10	1000			X			
11	O2 min	100	6.8				
12	O2 min					X	
13	Sal min	101	8.5				
14	250				X		
15	O2 max	102	23.8				
16	25						X
17	25						X
18	25						X
19	25						X
20	25						X
21	5	103	24.3				
22	5					X	
23							
24							

Notes:

Hawaii Ocean Time-series

HOT- 311

STATION 50 Data Sheet

Station # 50
 Cast # 1
 Operator(s): DS, CF

Date: 5/4/2019 (HST)
 Time: 13:32 (HST)

Rosette Position	Desired Depth	DIC/TA	pH	AB	CS	CB		
1	200					X		
2	150					X		
3	145					X		
4	140					X		
5	135					X		
6	130					X		
7	125					X		
8	125			X				
9	120					X		
10	115					X		
11	110					X		
12	100					X		
13	100					X		
14	100				X			
15	75				X			
16	50					X		
17	25			X				
18	25				X			
19	5	19A,B	1,2,3					
20	5			X				
21	5					X		

Notes:

Hawaii Ocean Time-series

HOT- **311**

STATION 50 Data Sheet

Station # 50
 Cast # 1
 Operator(s): DS, CF

Date: 5/4/2019 (HST)
 Time: 1:32 (HST)

Rosette Position	Desired Depth	DIC/TA	pH	AB	CS	CB		
1	200					X		
2	150					X		
3	145					X		
4	140					X		
5	135					X		
6	130					X		
7	125					X		
8	125			X				
9	120					X		
10	115					X		
11	110					X		
12	100					X		
13	100					X		
14	100				X			
15	75				X			
16	50					X		
17	25			X				
18	25				X			
19	5	19A,B	1,2,3					
20	5			X				
21	5					X		

Notes:

Hawaii Ocean Time-series

HOT- 311

STATION Kaena Data Sheet

Station # 6
 Cast # 1
 Operator(s): EG, TB, KKB

Date: 5/4/19 (HST)
 Time: 21:45 (HST)

Rosette Position	Desired Depth	Chl a.				
1	2500					
2	2000					
3	1500					
4	1000					
5	500					
6	175	6				
7	150	7				
8	125	8				
9	100	9				
10	75	10				
11	45	11				
12	25	12				
13	5	13				
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

Notes:

Hawaii Ocean Time-series

HOT- 311

STATION Kaena Data Sheet

Station # 6
 Cast # 1
 Operator(s): EG, TB, KKB

Date: 5/4/19 (HST)
 Time: 21:40⁵ (HST)

Rosette Position	Desired Depth	Chl a.				
1	2500					
2	2000					
3	1500					
4	1000					
5	4500					
6	175	6				
7	150	7				
8	125	8				
9	100	9				
10	75	10				
11	45	11				
12	25	12				
13	5	13				
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

Notes:

Hawaii Ocean Time-series

HOT-311 Sediment Trap Data Sheet

Deployment

Type of traps:	HOT 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:41		
Time released (HST):	00:01		

Type of traps:	Grabowski 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:45		
Time released (HST):	00:01		

Type of traps:	Grabowski 175m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:50		
Time released (HST):	00:01		

Recovery

Operator(s):	BW, TC, DS	Date:	5/4/2019
Start recovery (HST):	8:00	Wind:	15-20 knots
Time out (HST):	8:23	Sea state:	4-5 ft
Position out:	23°01.9872'N 158°10.3949'W		

Comments:

Hawaii Ocean Time-series

HOT-311 Sediment Trap Data Sheet

Deployment

Type of traps:	HOT 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:41		
Time released (HST):	00:01		

Type of traps:	Grabowski 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:45		
Time released (HST):	00:01		

Type of traps:	Grabowski 175m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N 158°2.3923'00W	Sea State:	3-4ft
Time in (HST):	23:50		
Time released (HST):	00:01		

Recovery

Operator(s):		Date:	
Start recovery (HST):		Wind:	
Time out (HST):		Sea state:	
Position out:			
Weight on board (HST):			

Comments:

Hawaii Ocean Time-series

HOT-311 Sediment Trap Data Sheet

Deployment

Type of traps:	HOT 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	22°45.2355'N	Sea State:	3-4 ft
Time in (HST):	23:41	158°2.3923'00 W	
Time released (HST):	00:01		

Type of traps:	Grabowski 150m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	"	Sea State:	3-4 ft
Time in (HST):	23:45	23:45	
Time released (HST):	00:01		

Type of traps:	Grabowski 175m	Date:	5/1/19
Operator(s):	BW, EG, TB, KKB	Wind:	17.2
Position in:	"	Sea State:	3-4 ft
Time in (HST):	23:50		
Time released (HST):	00:01		

Recovery

Operator(s):	BW, TC, DS	Date:	5-4-2019
Start recovery (HST):	8:00	Wind:	15-20 kts
Time out (HST):	8:23	Sea state:	4-5 ft
Position out:	23°01.9872' N 158°10.3949' W		
Weight on board (HST):			

Comments:

Handwritten notes:
 22°45.2355' N 158°01.3923' W
 23:41
 00:01
 158°2.3923' 00 W

Data Sheet for Sediment Trap Volumes

Cruise #: 311

Analyst: DS, CF

- Directions: 1) Mark the traps with 2 lines
a) Line #1 is at the interface

Trap Name	Depth (m)	Height (cm) at Line #2 (Top Line)
A	150	37.8
B	150	38.0
C	150	38.4
D	150	39.0
E	150	39.0
F	150	38.2
G	150	37.7
H	150	38.9
I	150	38.8
J	150	37.5
K	150	38.2
L	150	38.2

Data Sheet for Sediment Trap Volumes

Cruise #: 311

Analyst: DS, CF

- Directions: 1) Mark the traps with 2 lines
a) Line #1 is at the interface

Trap Name	Depth (m)	Height (cm) at Line #2 (Top Line)
A	150	37.8
B	150	38.0
C	150	38.4
D	150	39.0
E	150	39.0
F	150	38.2
G	150	37.7
H	150	38.9
I	150	38.8
J	150	37.5
K	150	38.2
L	150	38.2

Hawaii Ocean Time-series HOT-311 In Situ Gas Array Data Sheet

Operators: DS, TC, CF	Operators:
Date Deployed : 5-3-19	Date Recovered:
Time (HST): 4:10	Time (HST):
Position In: 22° 44.3388 N 158° 00.7425 W	Position Out:

Nitrogen Fixation Sample Processing Sheet

Sample ID	Date Spiked	Time Spiked	Date filtered	Time Filtered	15N Batch	Comments
3-1	5-3-2019	3:42				
3-2		3:41				
3-3		3:40				
4-1		3:43				
4-2		3:43				
4-3		3:42				
5-1		3:45				
5-2		3:45				
5-3		3:44				
6-1		3:45				
6-2		3:45				
6-3		3:44				
7-1		3:44				
7-2		3:43				
7-3		3:42				
8-1		3:41				
8-2		3:41				
8-3		3:40				

Hawaii Ocean Time-series HOT-311 In Situ Gas Array Data Sheet

Operators: DS, TC, CF	Operators: DS, TC, BW, CF
Date Deployed : 5-3-19	Date Recovered: 5/4/2019
Time (HST): 4:10	Time (HST): 6:58
Position In: 22° 44.3388 N 158° 00.7425 W	Position Out: 22° 54.2999 N 158° 05.5829 W

Nitrogen Fixation Sample Processing Sheet

Sample ID	Date Spiked	Time Spiked	Date filtered	Time Filtered	15N Batch	Comments
3-1	5-3-2019	3:42	5-4-2019	7:01		These (*)samples were 'pre-filtered' through a piece of cotton (from new serological pipette)
3-2		3:41		7:01		*
3-3		3:40		7:01		*
4-1		3:43		7:01		*
4-2		3:43		7:01		*
4-3		3:42		7:01		*
5-1		3:45		7:01		*
5-2		3:45		7:01		*
5-3		3:44		8:17		
6-1		3:45		8:09		
6-2		3:45		7:59		
6-3		3:44		8:08		
7-1		3:44		8:06		
7-2		3:43		8:04		
7-3		3:42		8:03		
8-1		3:41		8:03		
8-2		3:41		8:29		
8-3		3:40		8:33		

Hawaii Ocean Time-series

HOT-311

In Situ Gas Array Data Sheet

Operators: DS, TC, CF	Operators: DS, TC, BW, CF
Date Deployed: 5-3-19	Date Recovered: 5-4-19
Time (HST): 4:10	Time (HST): 6:58
Position In: 22°44.3388 N 158°00.7125 W	Position Out: 22°54.2929 N 158°05.5829 W

Nitrogen Fixation Sample Processing Sheet

Sample ID	Date Spiked	Time Spiked	Date filtered	Time Filtered	15N Batch	Comments
3-1 1	3:42:12	5-3-19	5-4-19	7:01		Pre filtered through cotton from serological pipette
3-2 2	3:41:27					
3-3 3	3:40:48					
4-1 4	3:43:54					
4-2 5	3:43:35					
4-3 6	3:42:45					
5-1 7	3:45:57					
5-2 8	3:45:23					
5-3 1	3:44:43			8:17		
6-1 2	3:45:45			8:09		
6-2 3	3:45:08			7:59		
6-3 4	3:44:28			8:08		
7-1 5	3:44:08			8:06		
7-2 6	3:43:17			8:04		
7-3 7	3:42:33			8:03		
8-1 8	3:41:57			8:03		
8-2 3	3:41:10			8:29		
8-3 8	3:40:28			8:33		

H

Hawaii Ocean Time-series

HOT-309

In Situ Primary Production Data Sheet

Operators in: DS, CF, BW, TC
 Date in: 5/1/2019

Out: EG, TB, BW, KKB
 Time in: Start _____ (HST)
 Release 4:44

Date out: 5/2/2019

Time out: 19:23 (HST)

Incubation Depth	✓
125	✓
100	✓
75	✓
45	✓
25	✓
5	✓

Insertion Time	Owner
<u>4:20</u>	_____
↓	_____
↓	_____
↓	_____
↓	_____
<u>4:40</u>	_____

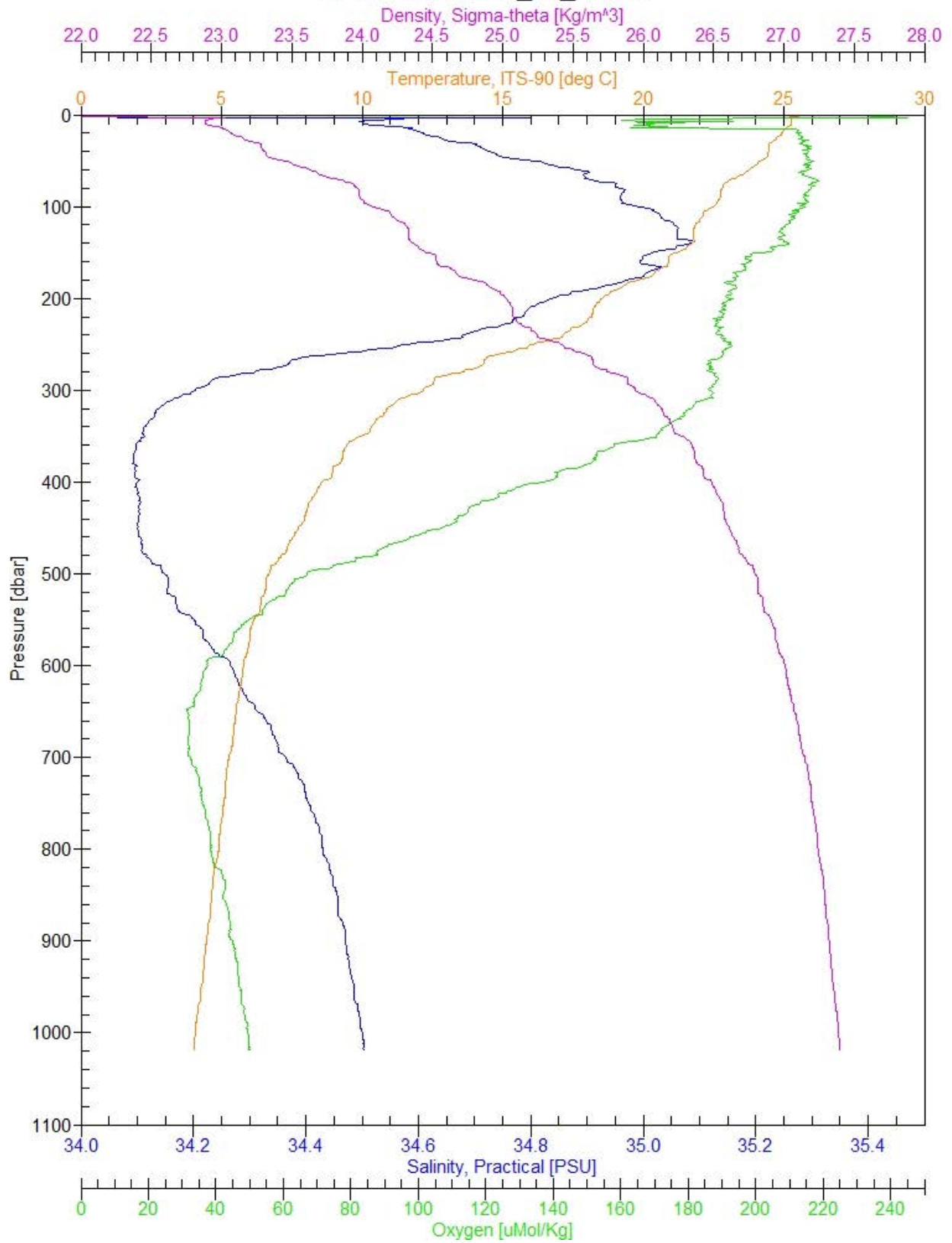
Position in: 22°44.6085 N, 158°03.1860 W
 Position out: 22°50.5617 N, 158°07.1375 W

Average weather condition during incubation: CALM - 3-4ft
 Average sea state during incubation: CALM 3-4ft

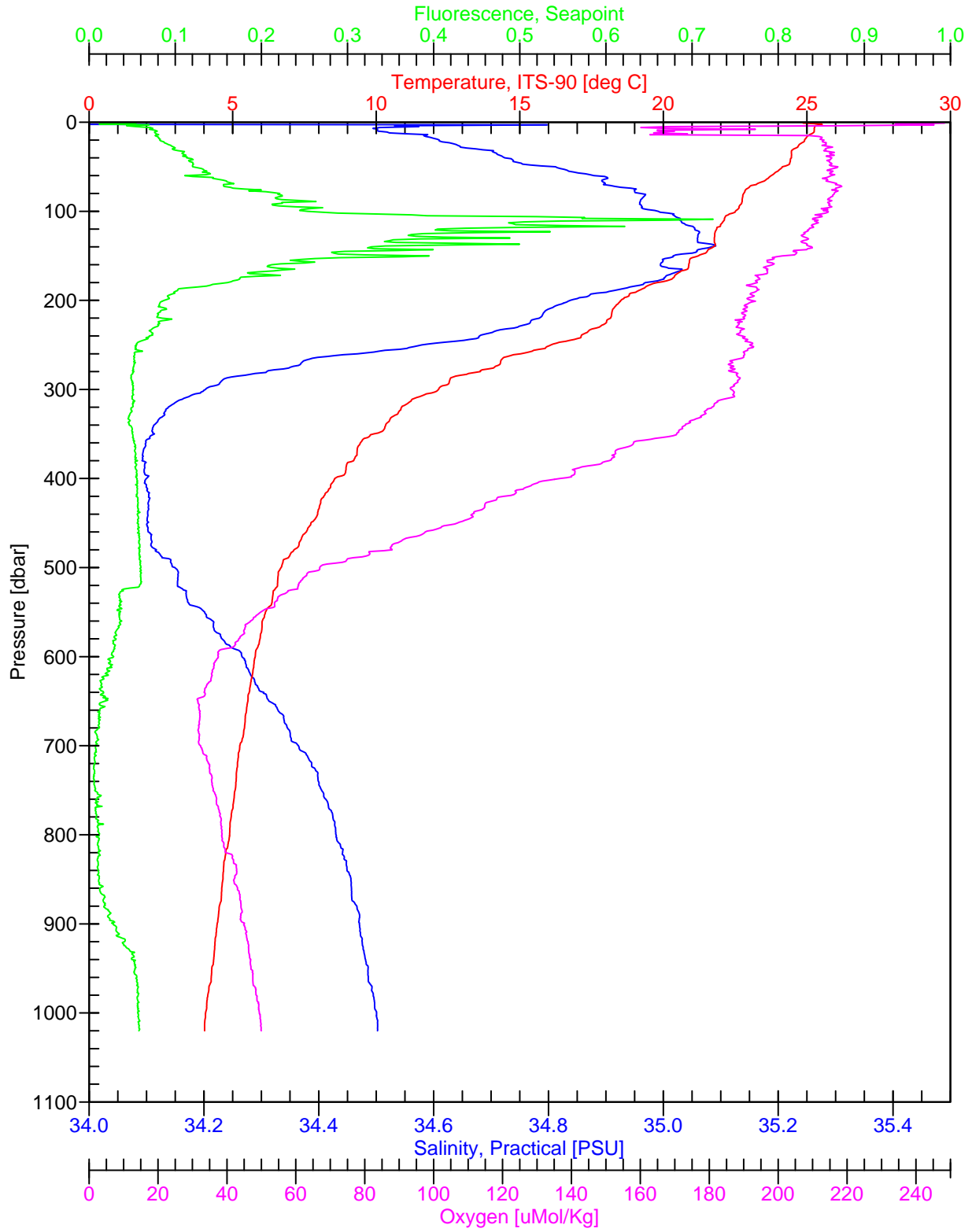
Notes:

Begin Inoculation 03:40-03:46 End Inoculation 03:46
 Filtration time 19:30-20:15

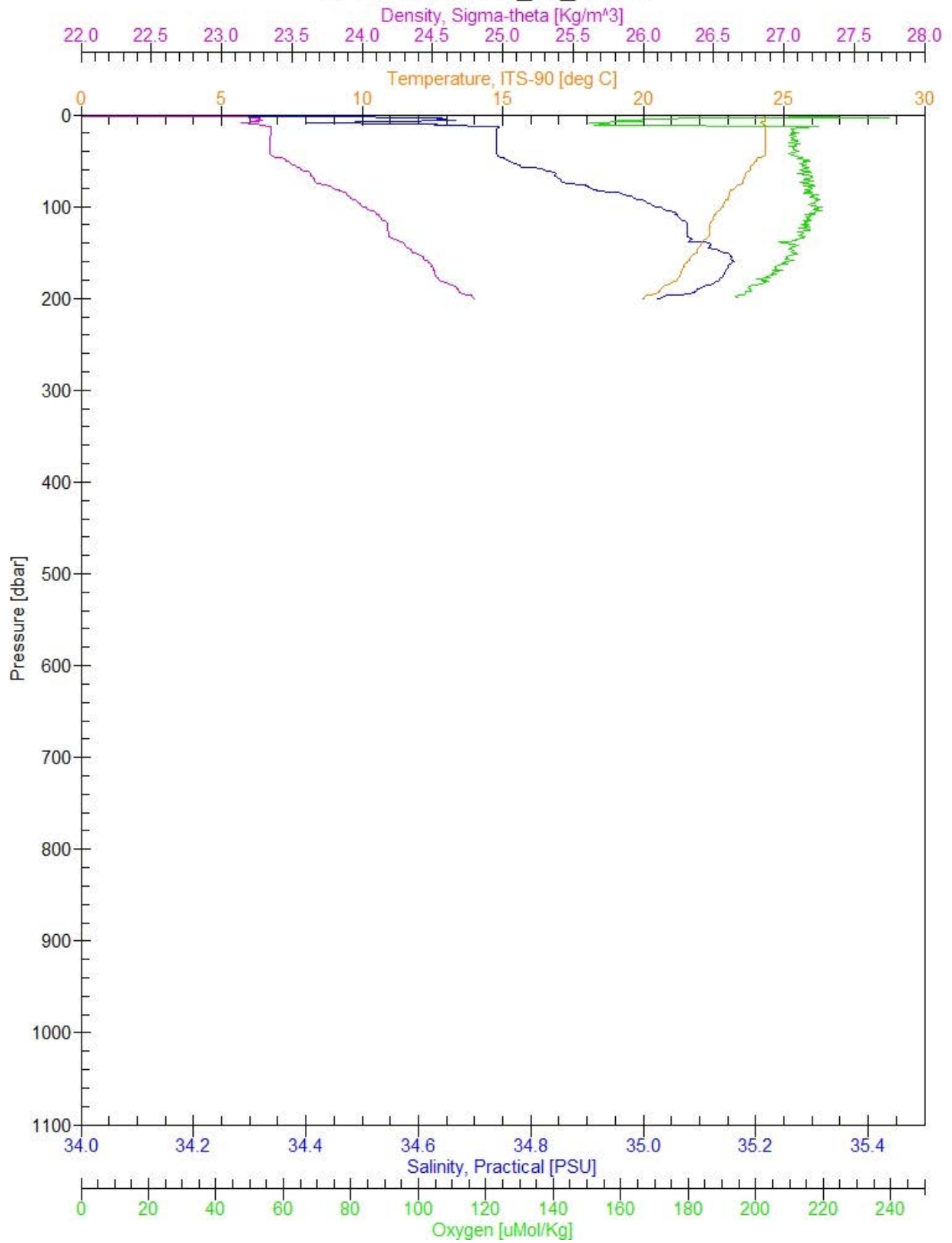
W-1000, hot-311_s1_c1.cnv



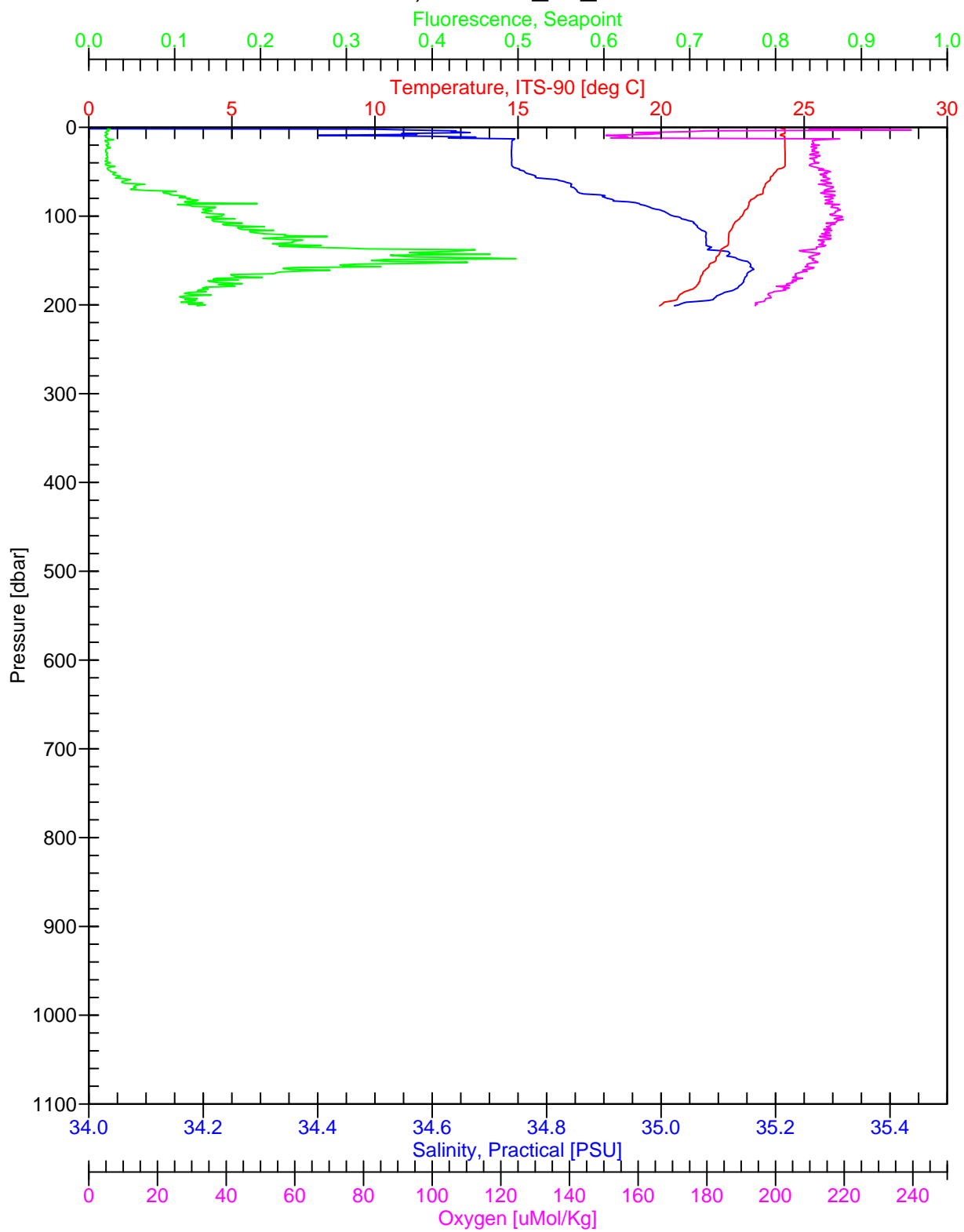
G-1000, hot-311_s1_c1.cnv



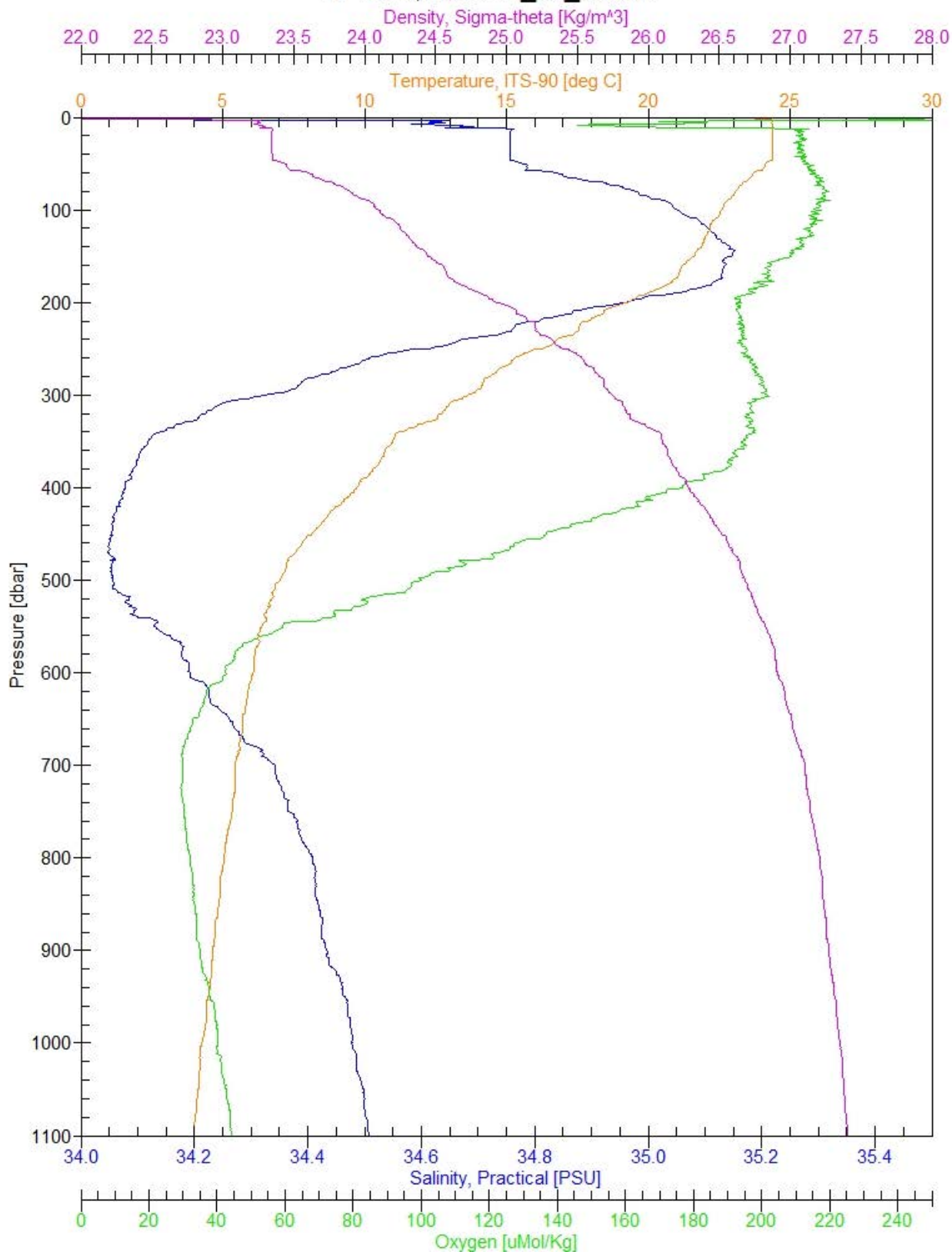
W-1000, hot-311_s2_c1.cnv



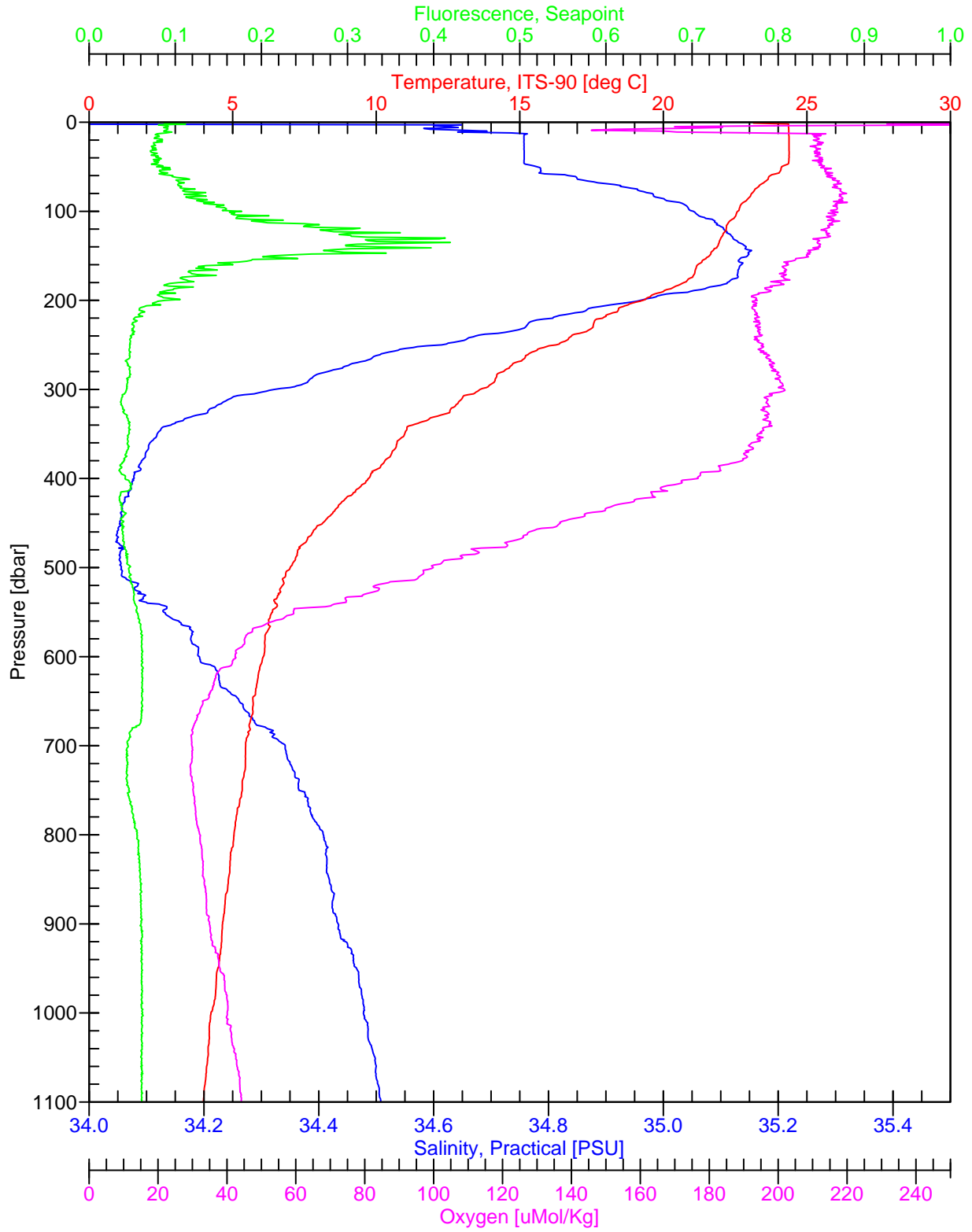
G-1000, hot-311_s2_c1.cnv



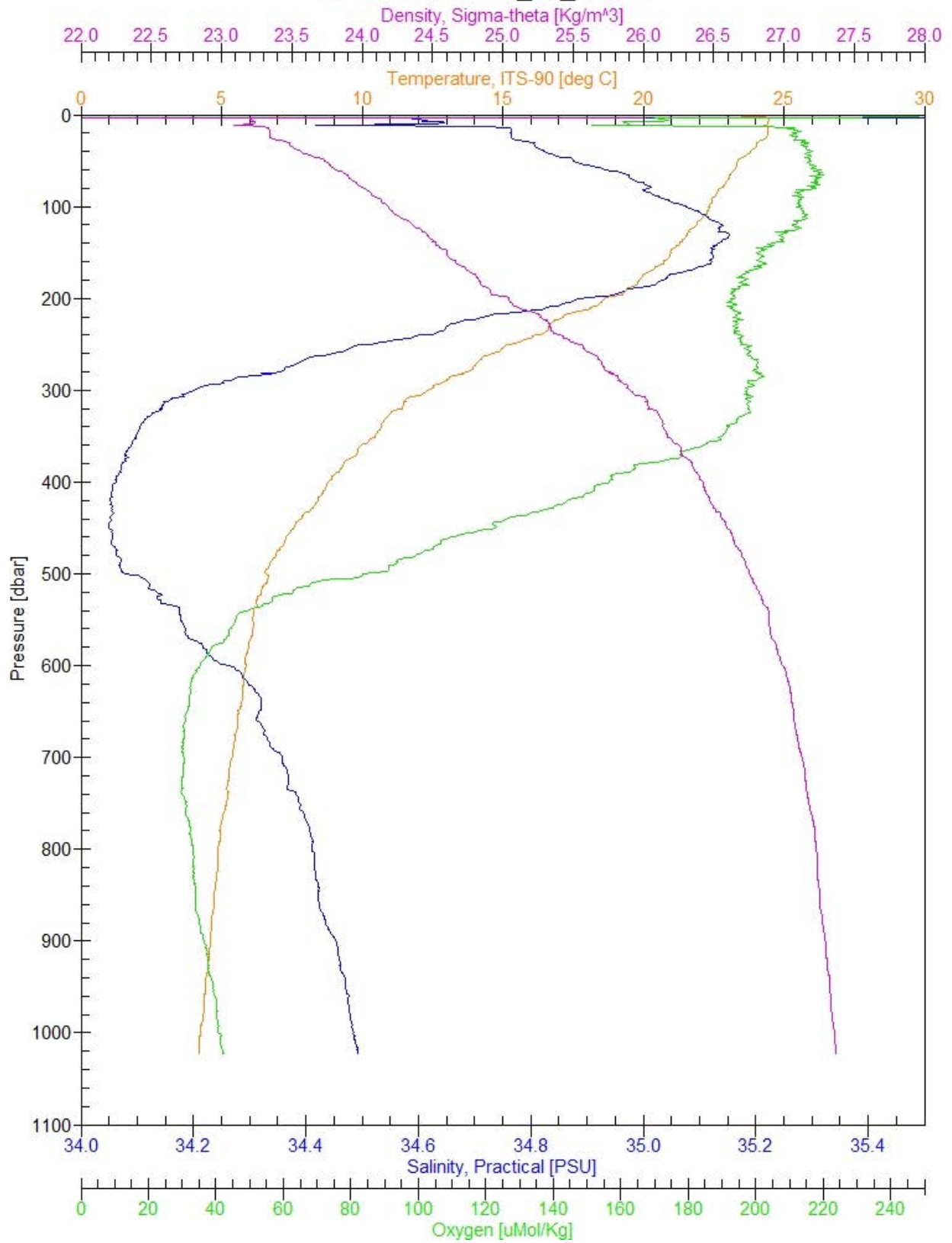
W-1000, hot-311_s2_c2.cnv



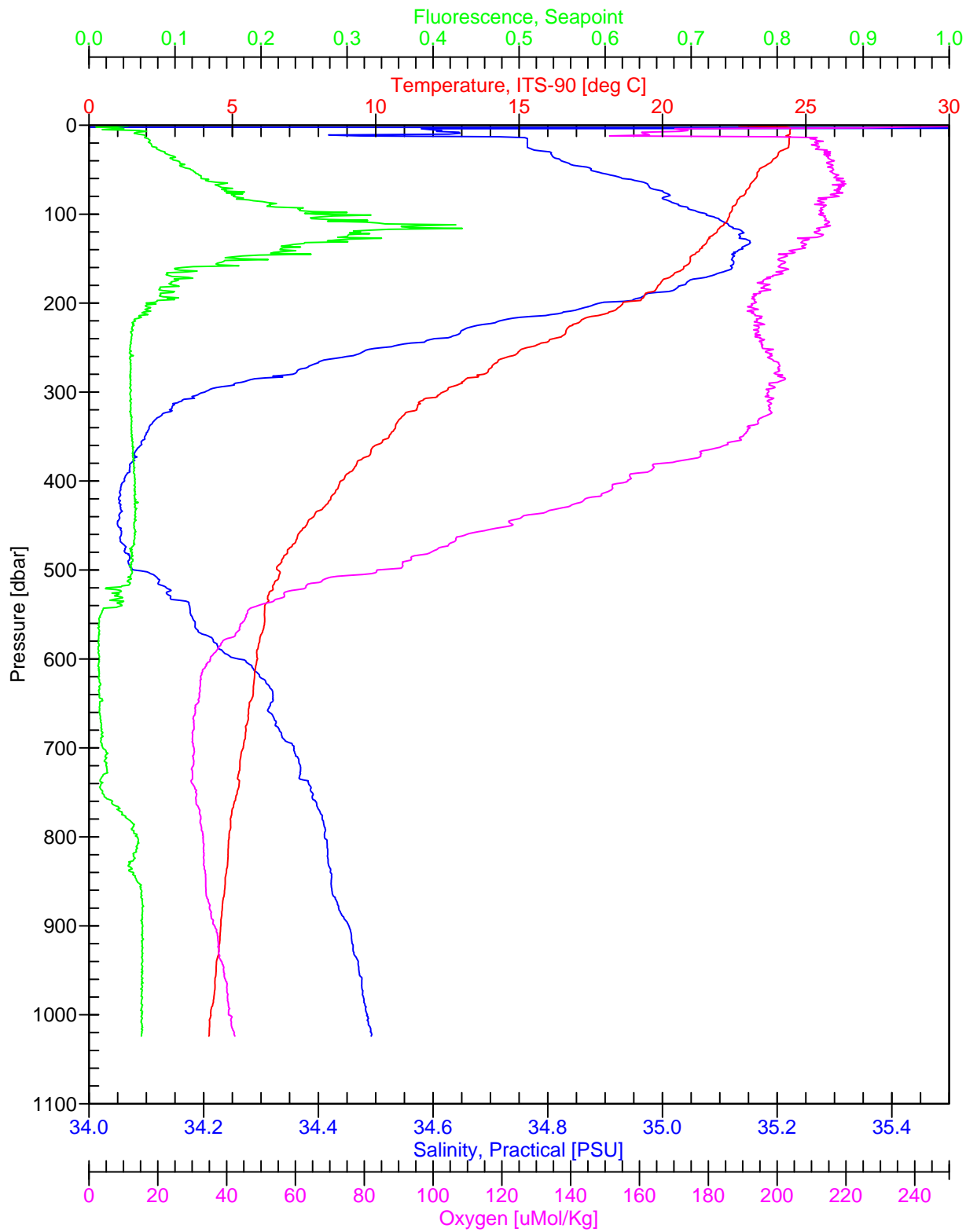
G-1000, hot-311_s2_c2.cnv



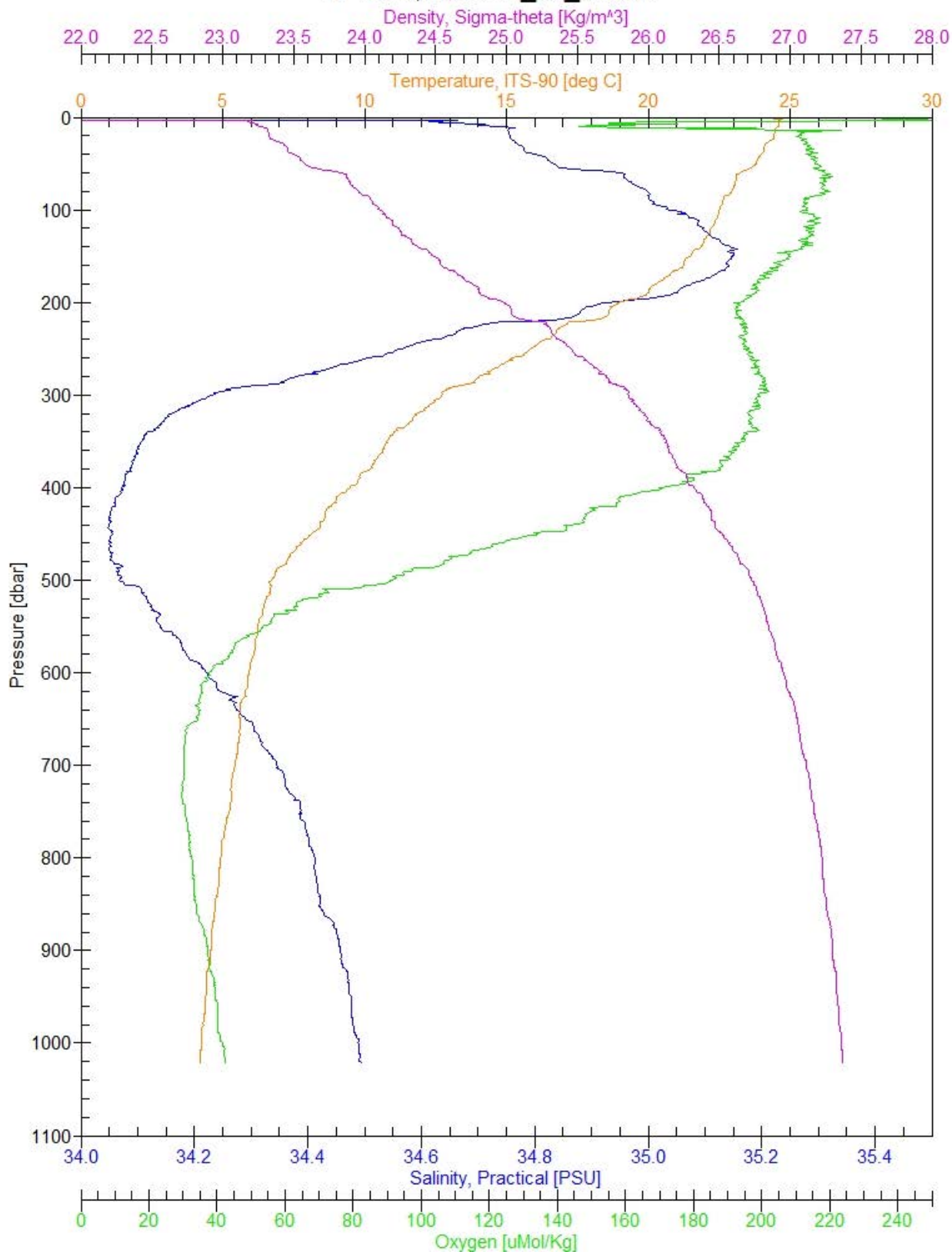
W-1000, hot-311_s2_c3.cnv



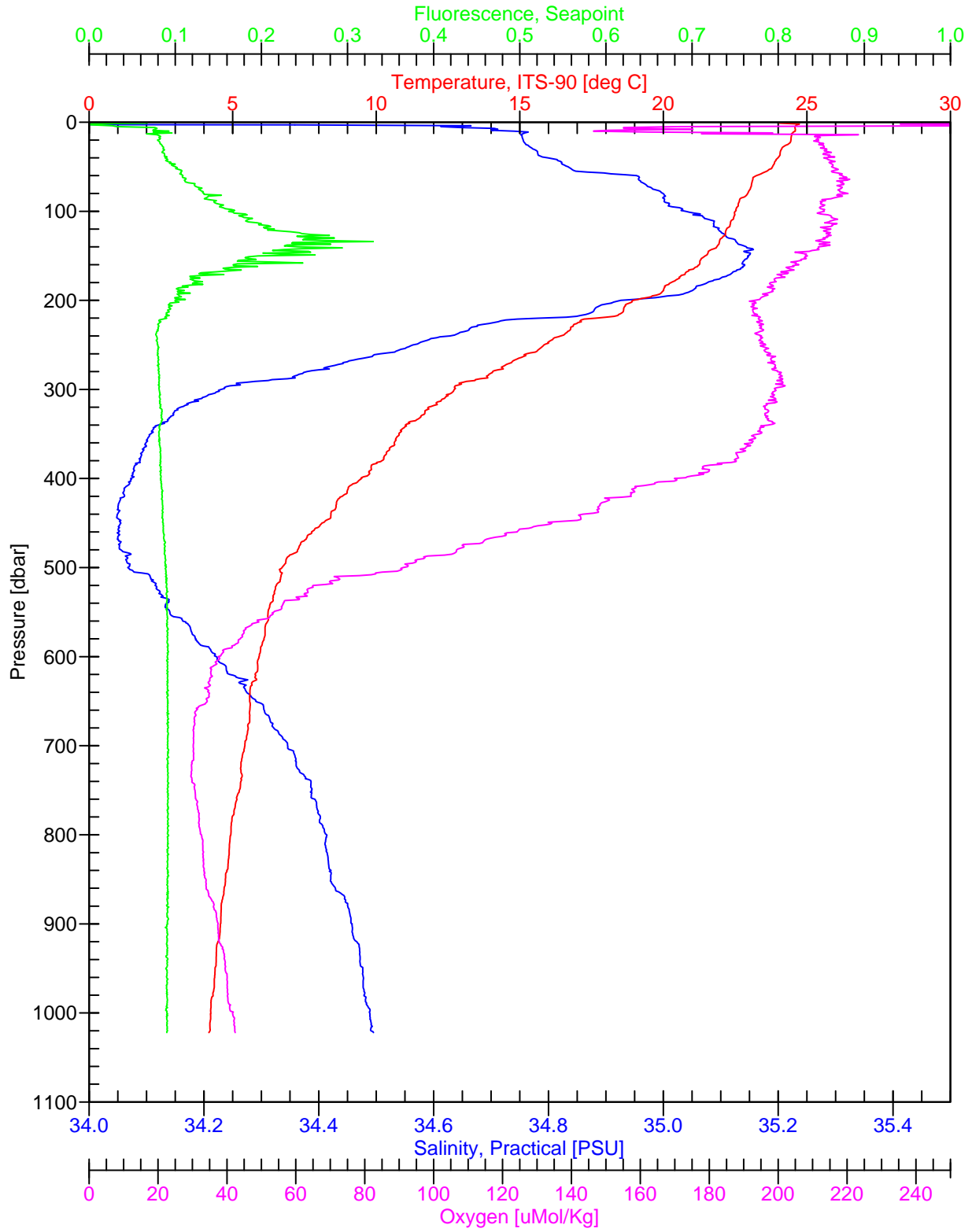
G-1000, hot-311_s2_c3.cnv



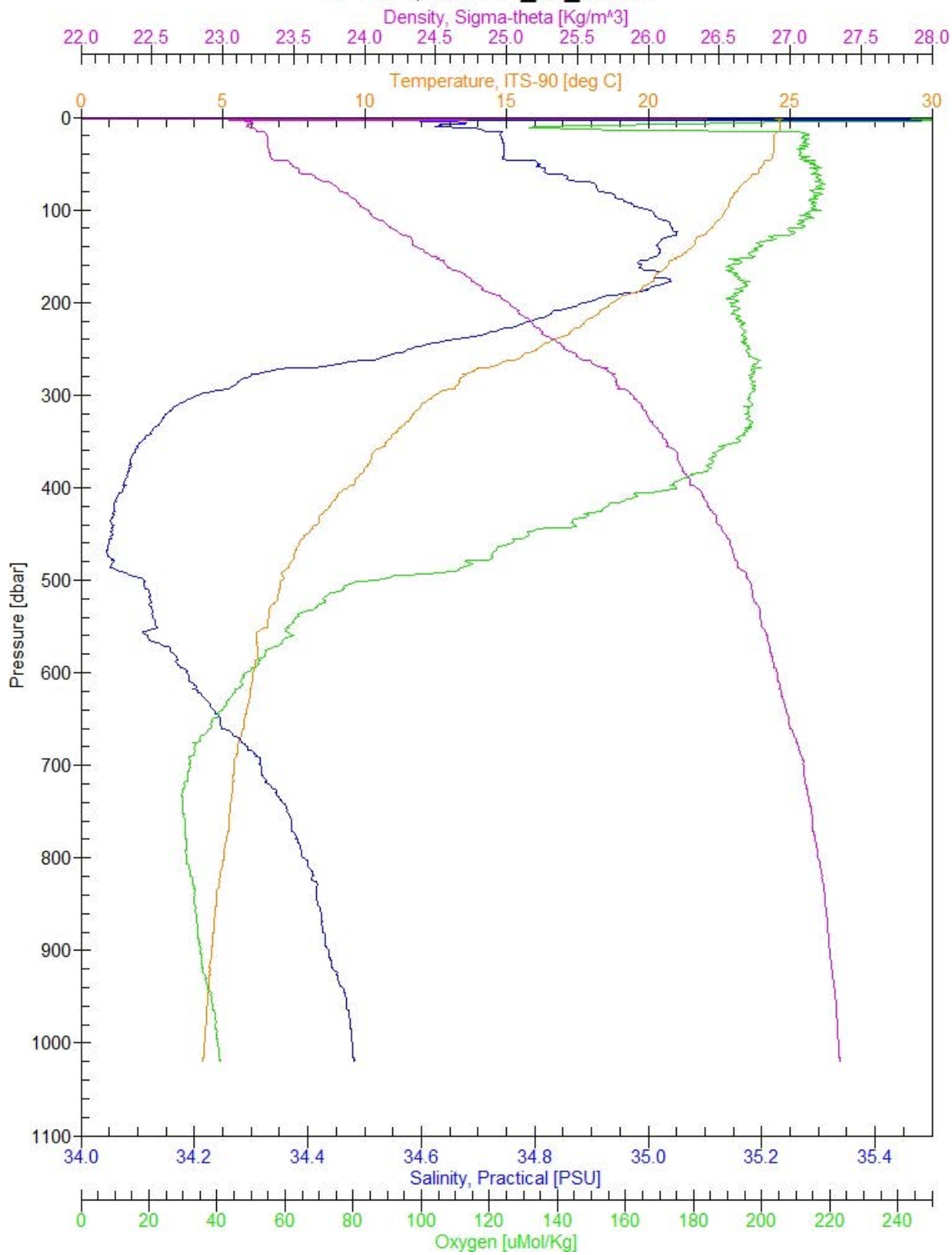
W-1000, hot-311_s2_c4.cnv



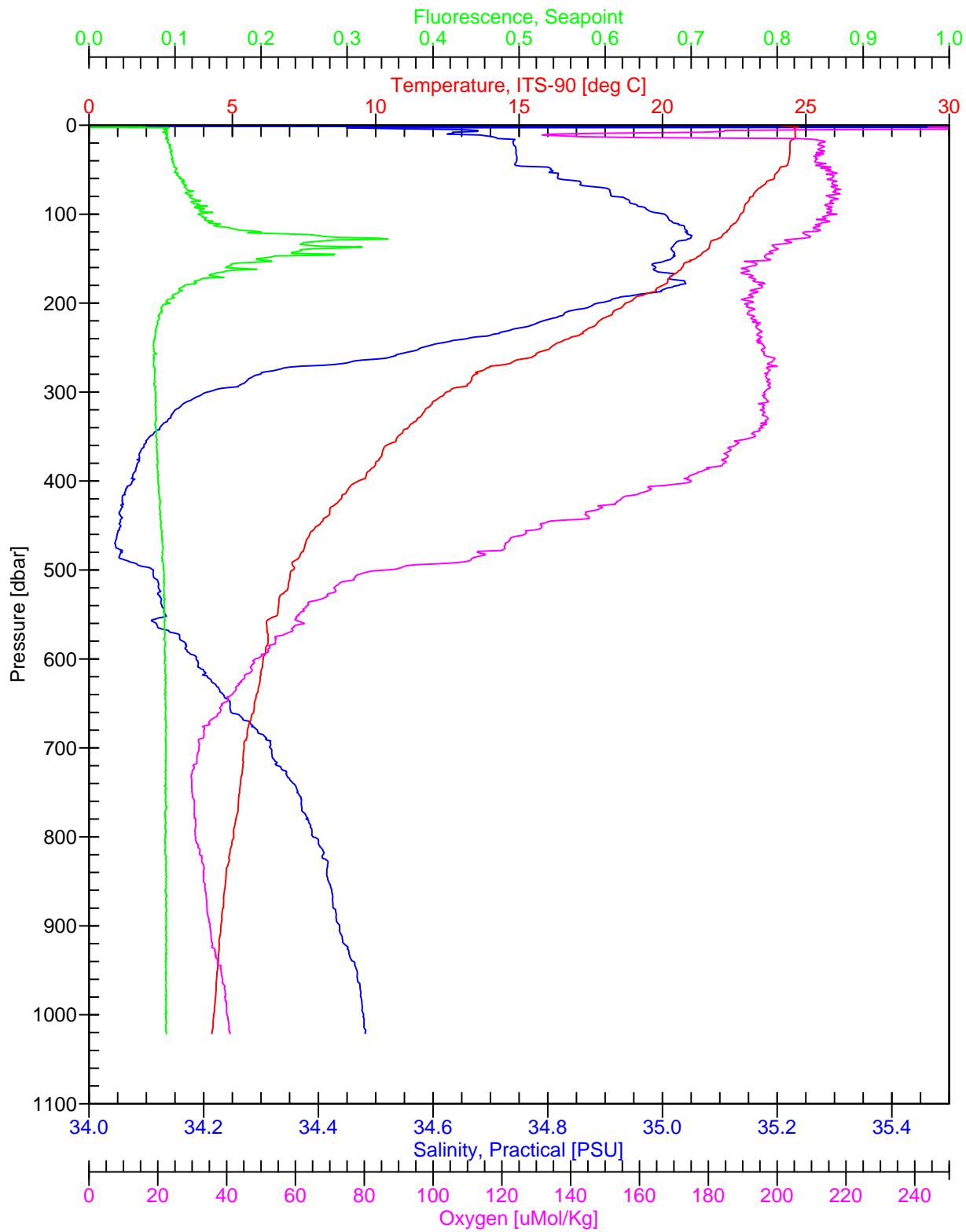
G-1000, hot-311_s2_c4.cnv



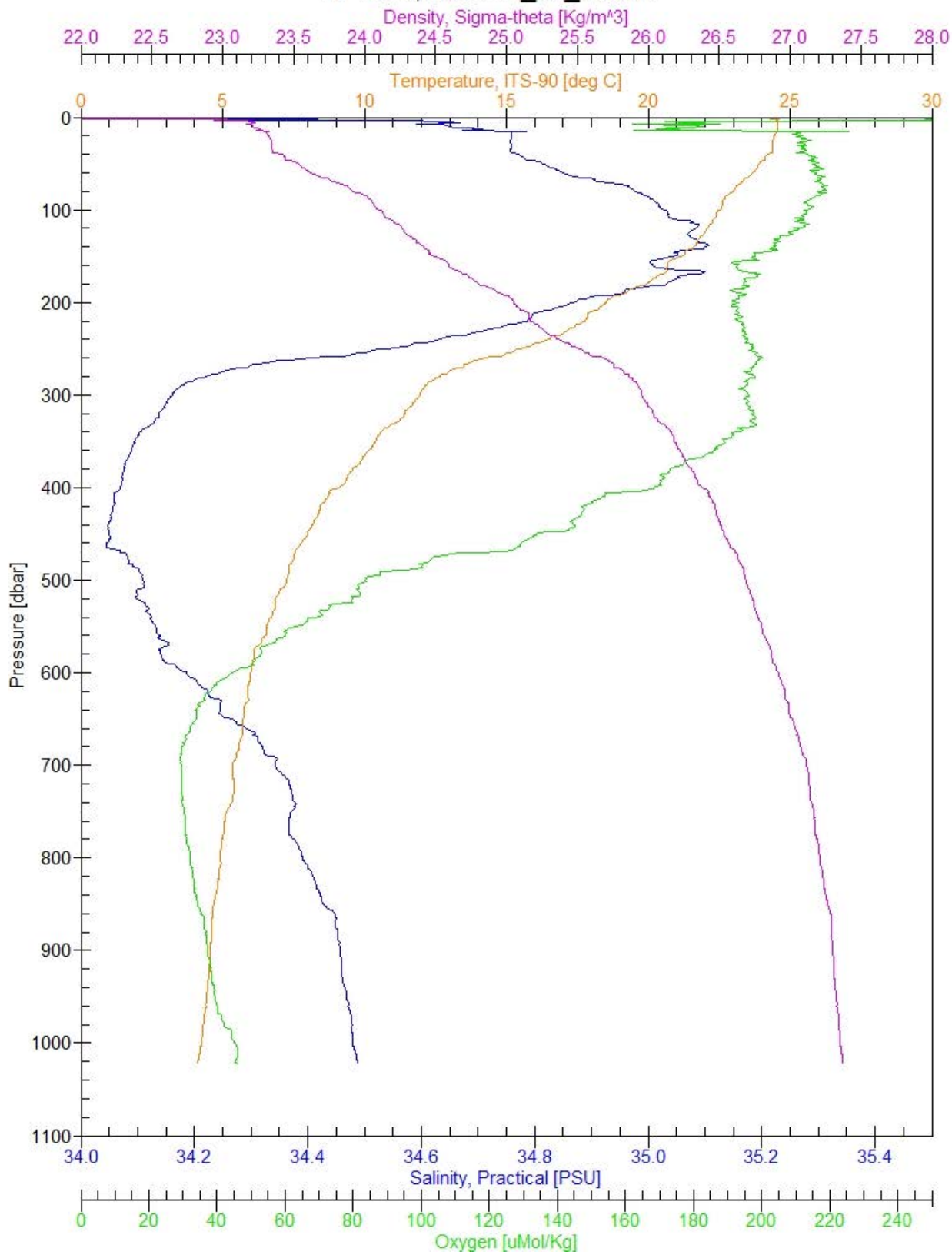
W-1000, hot-311_s2_c5.cnv



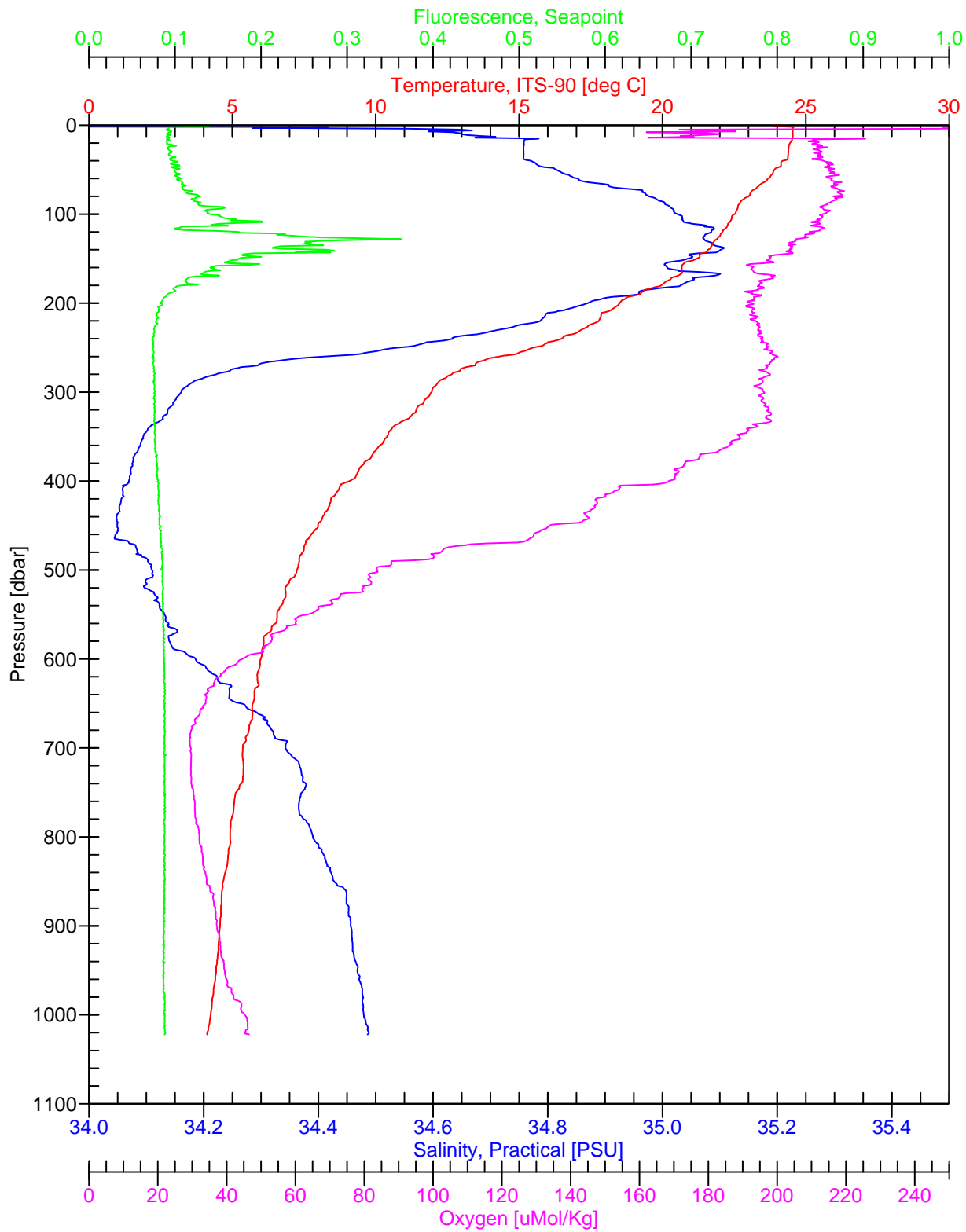
G-1000, hot-311_s2_c5.cnv



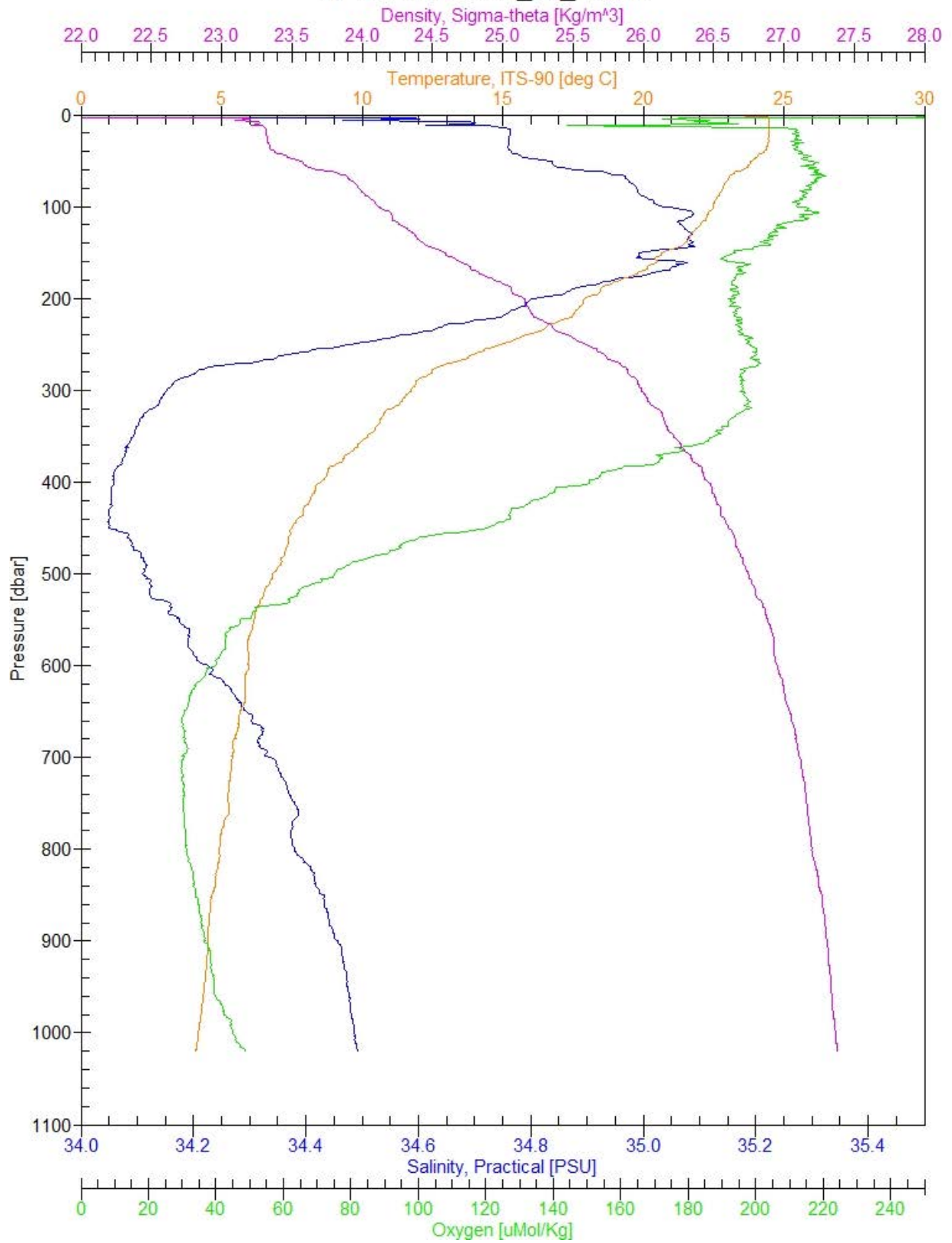
W-1000, hot-311_s2_c6.cnv



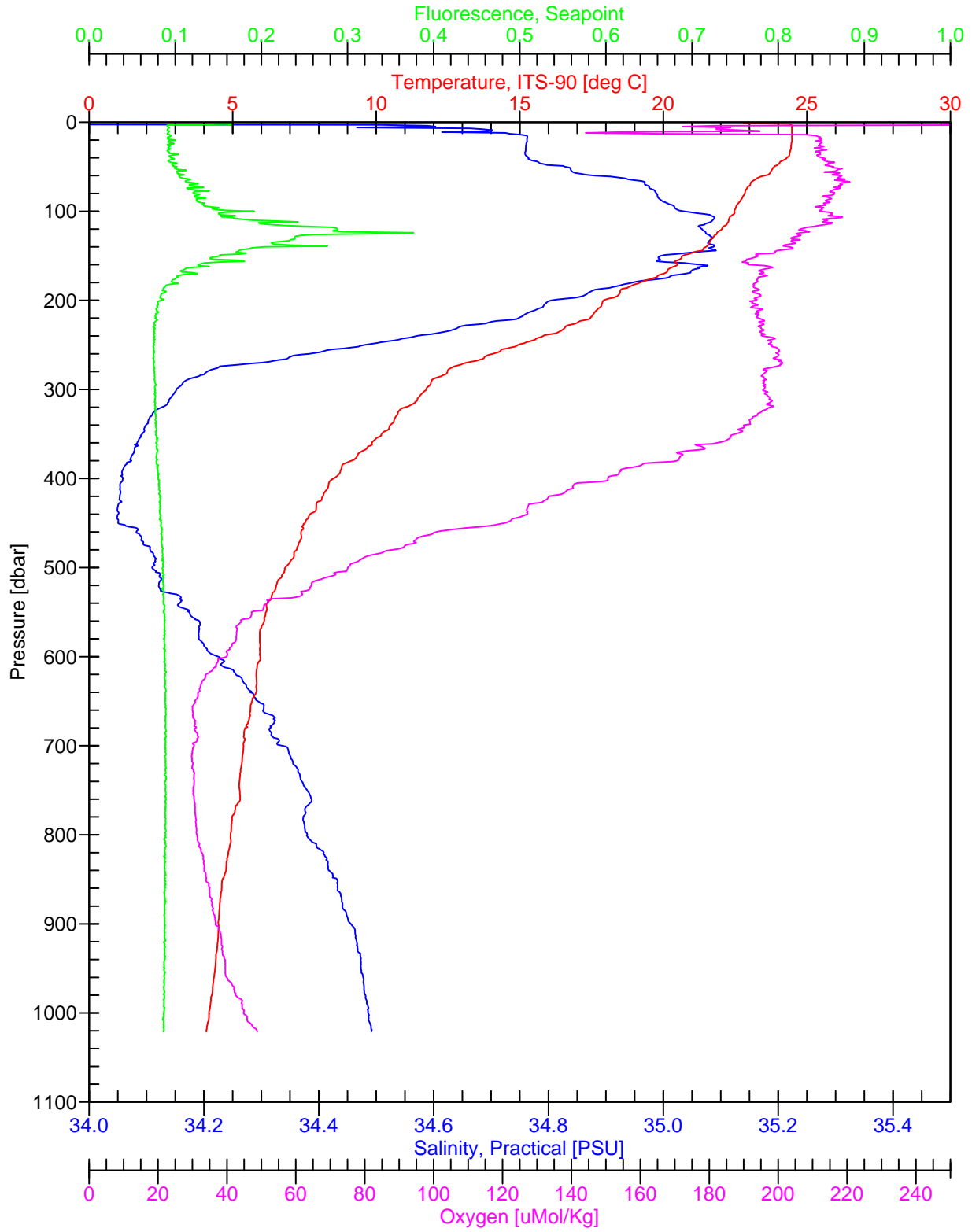
G-1000, hot-311_s2_c6.cnv



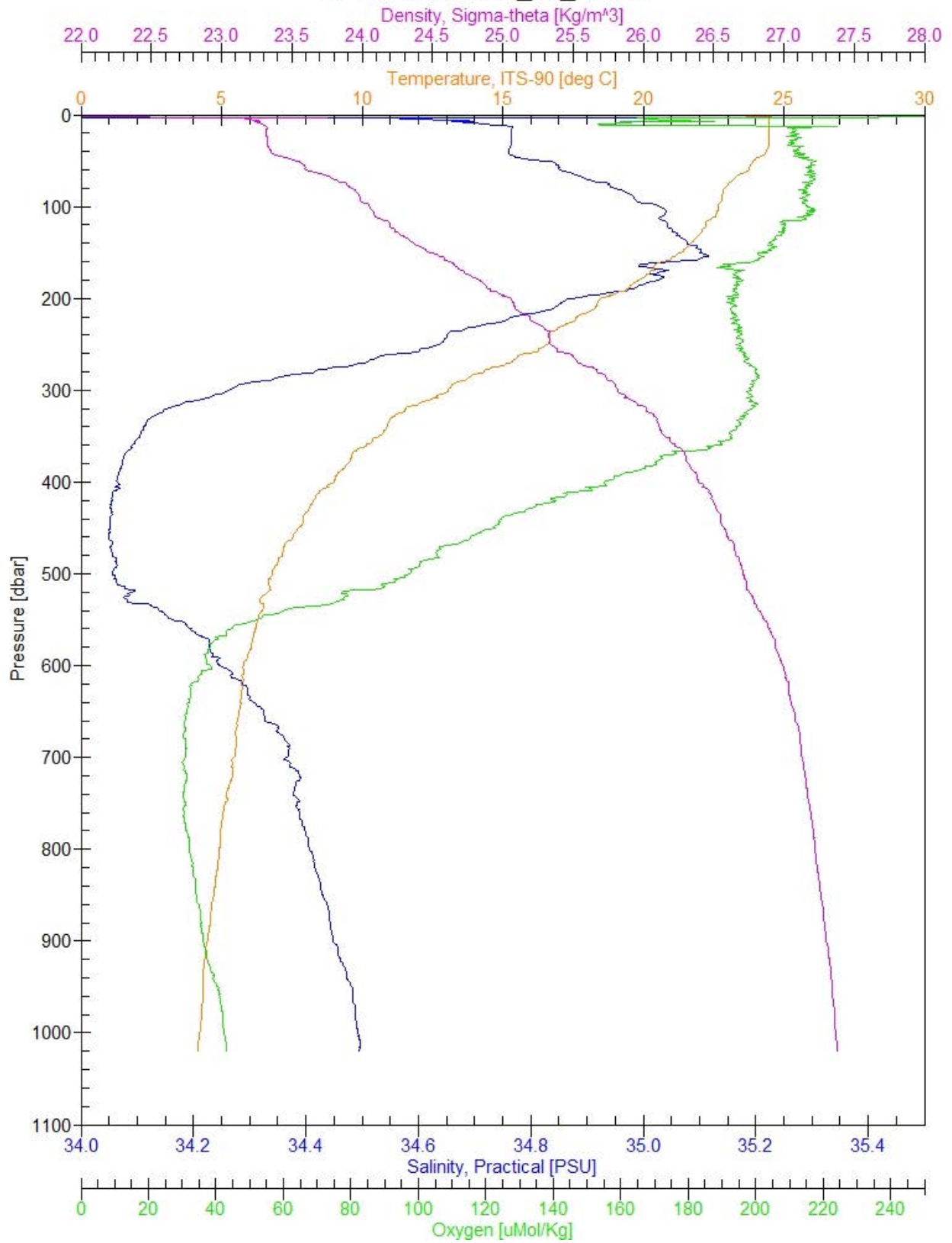
W-1000, hot-311_s2_c7.cnv



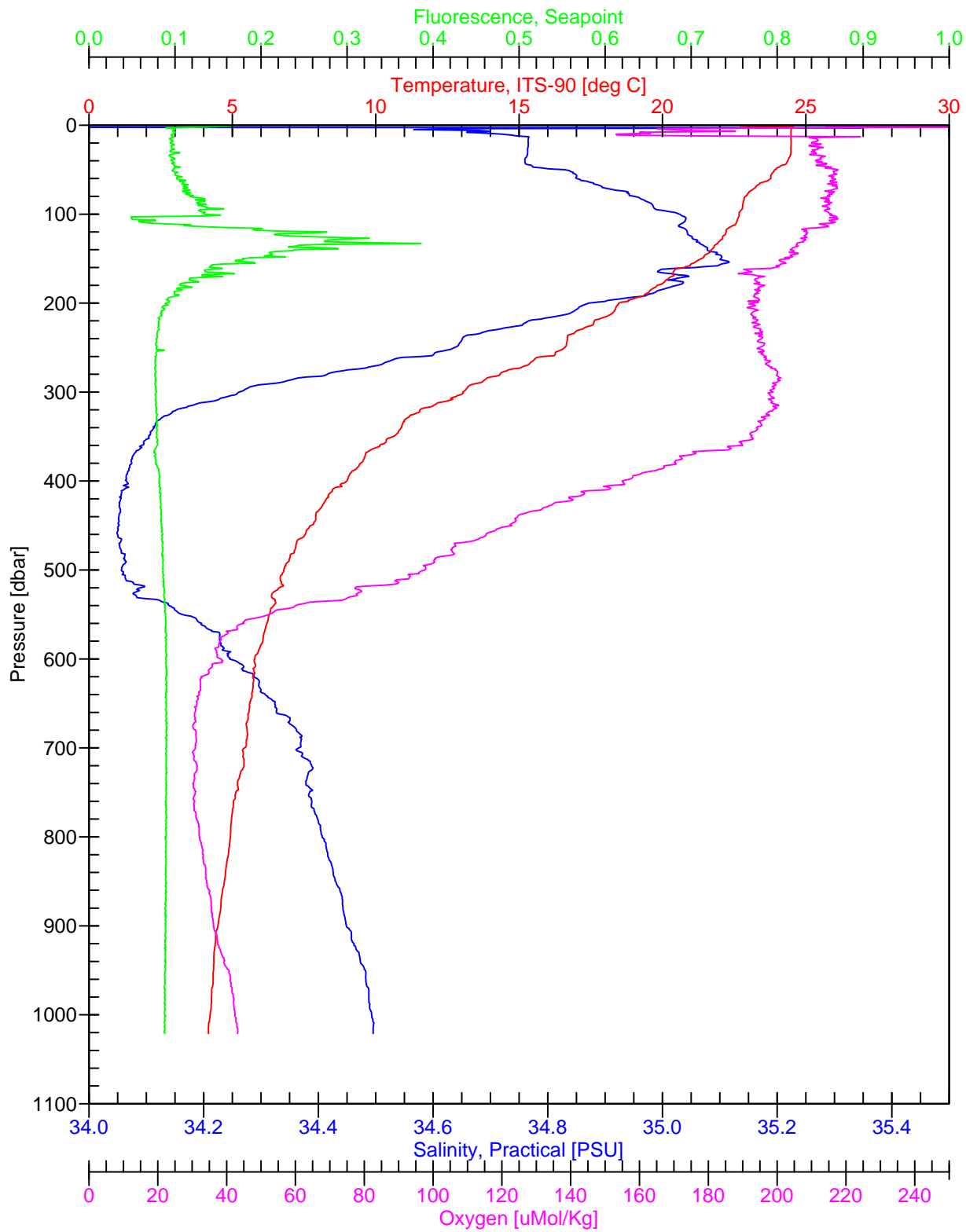
G-1000, hot-311_s2_c7.cnv



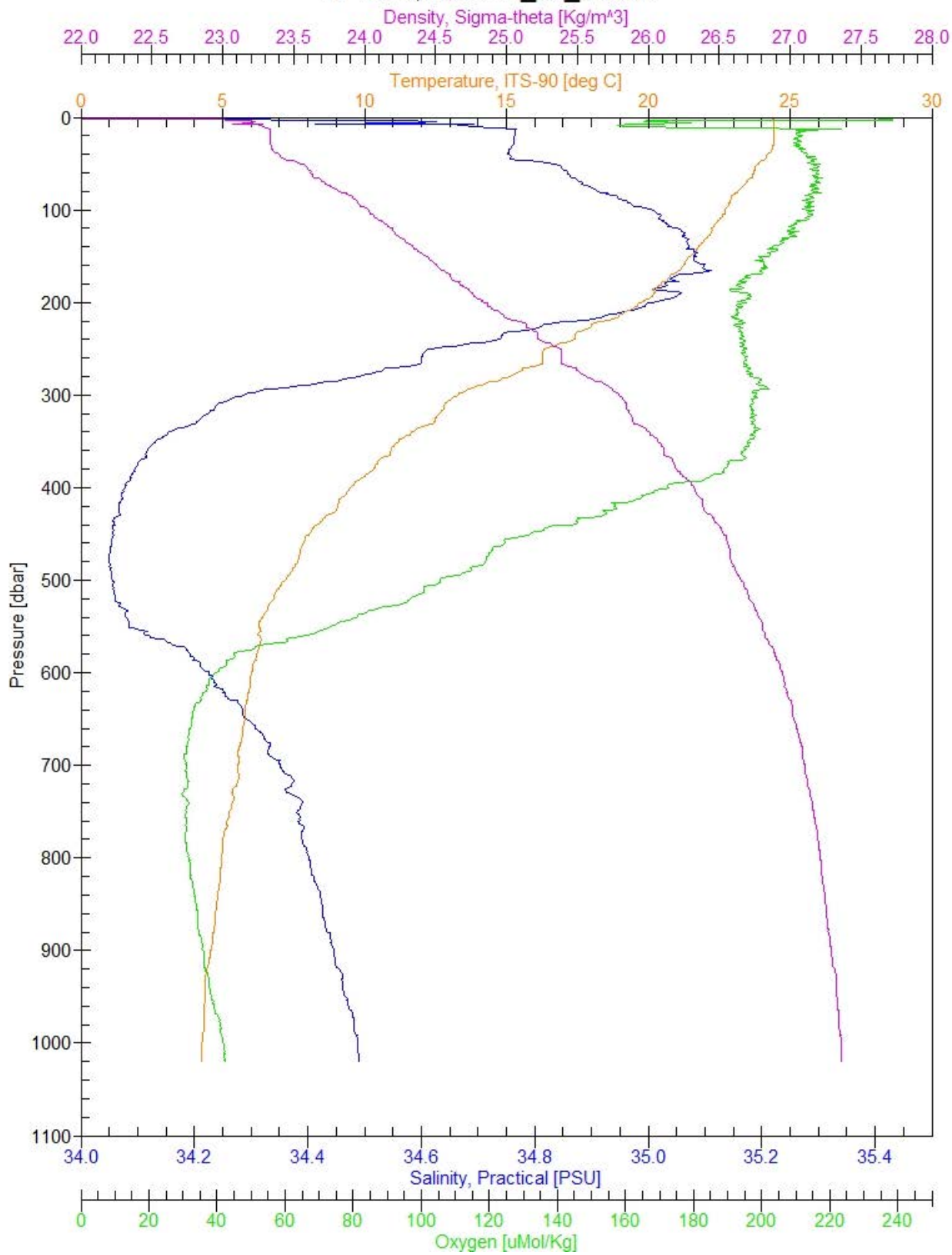
W-1000, hot-311_s2_c8.cnv



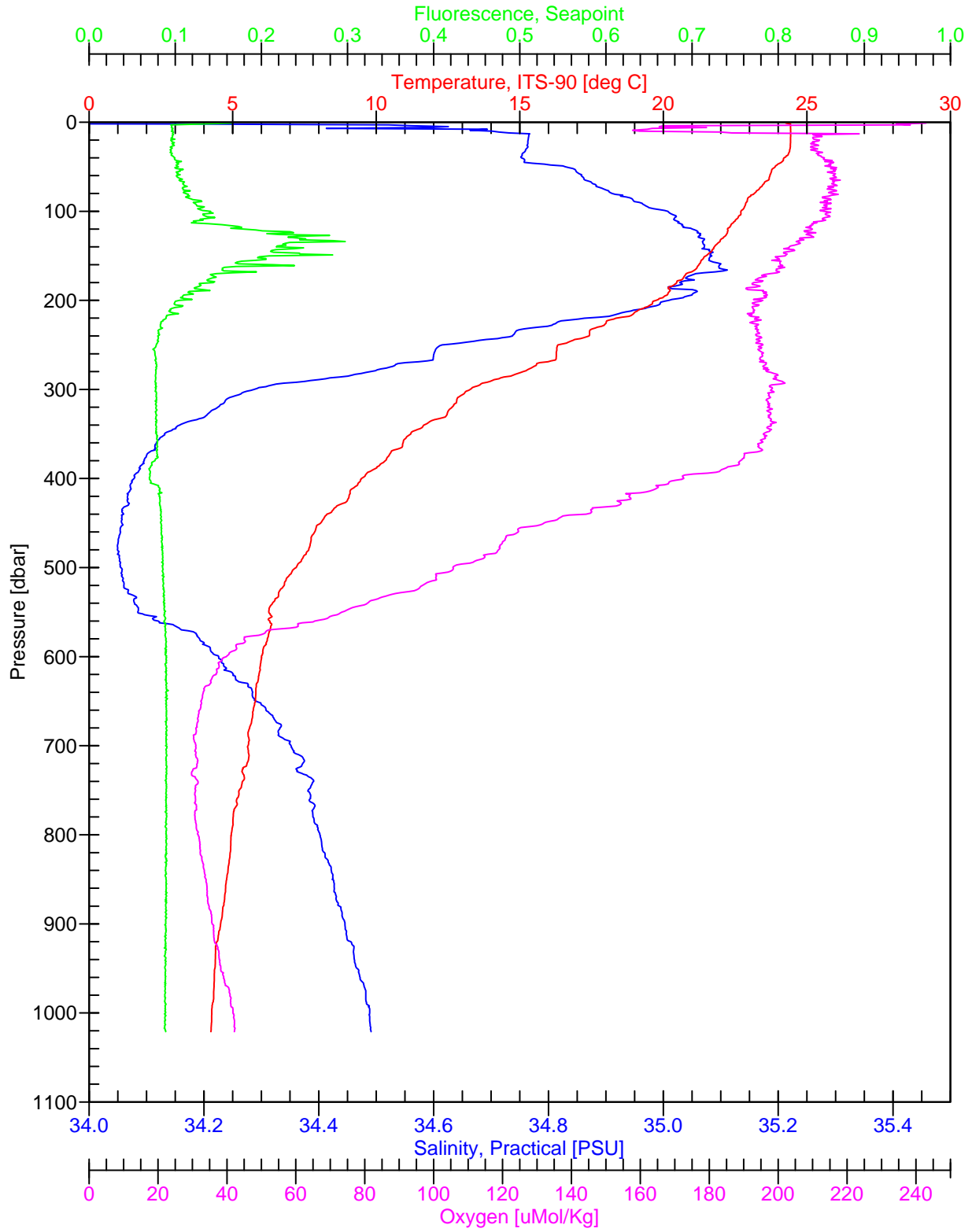
G-1000, hot-311_s2_c8.cnv



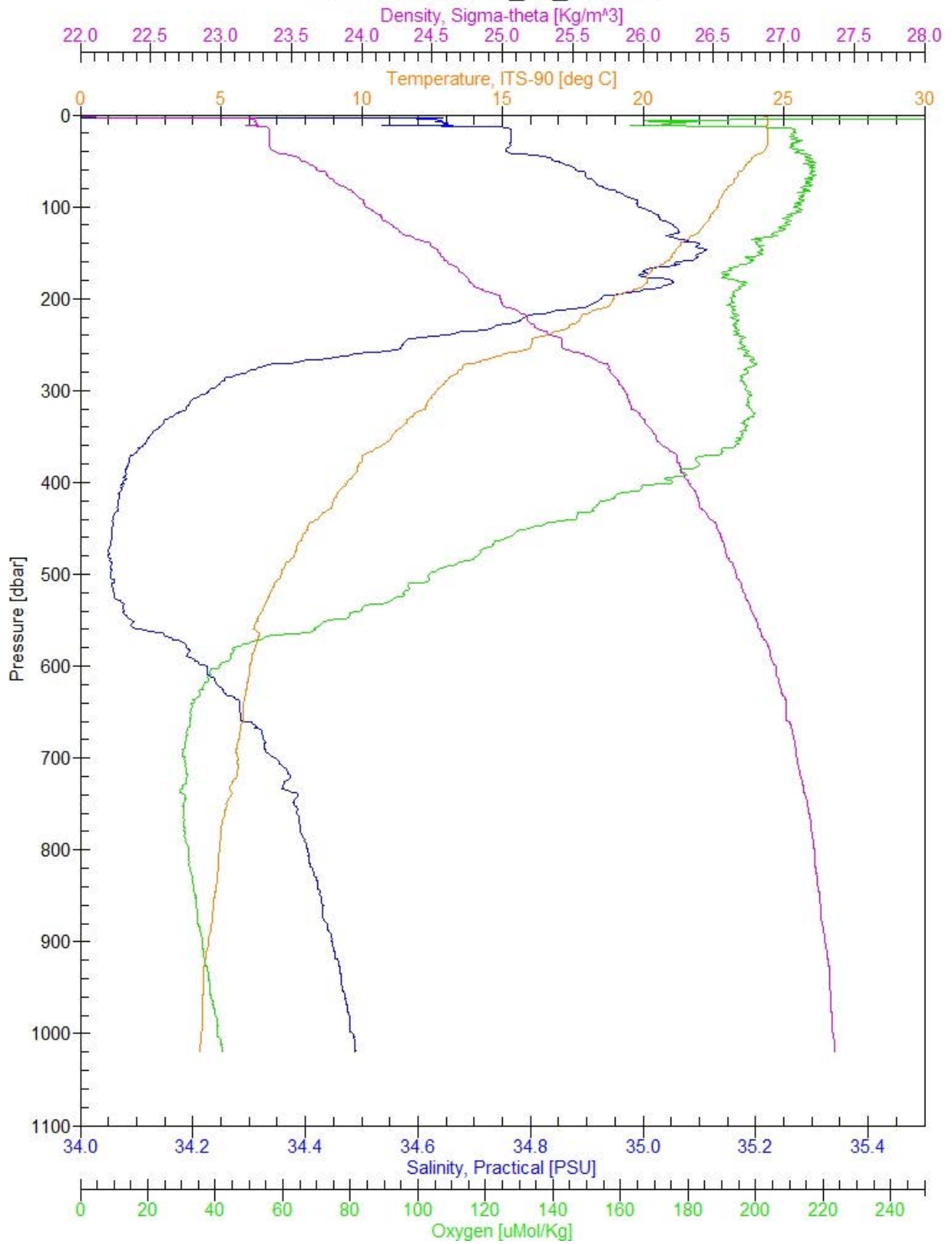
W-1000, hot-311_s2_c9.cnv



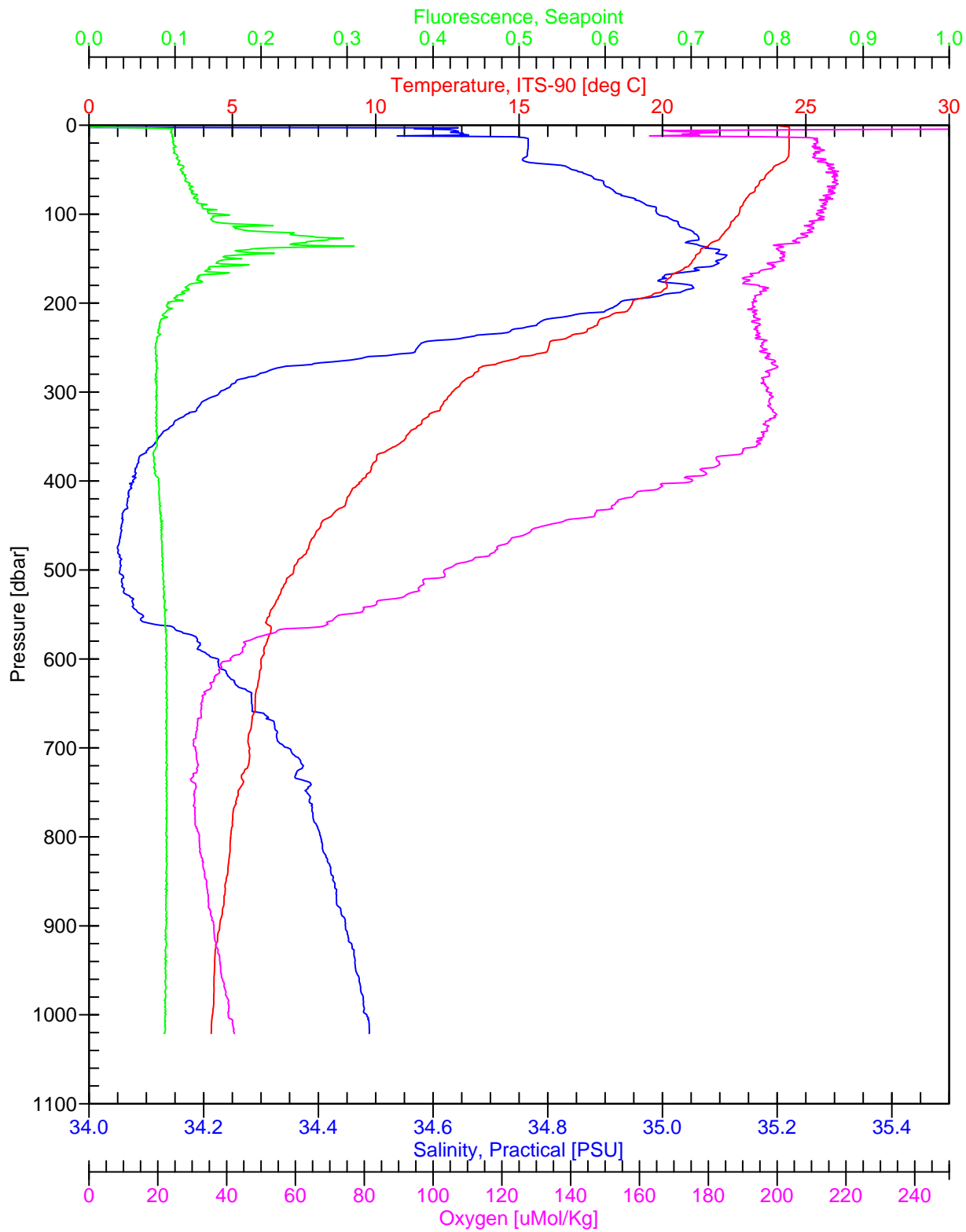
G-1000, hot-311_s2_c9.cnv



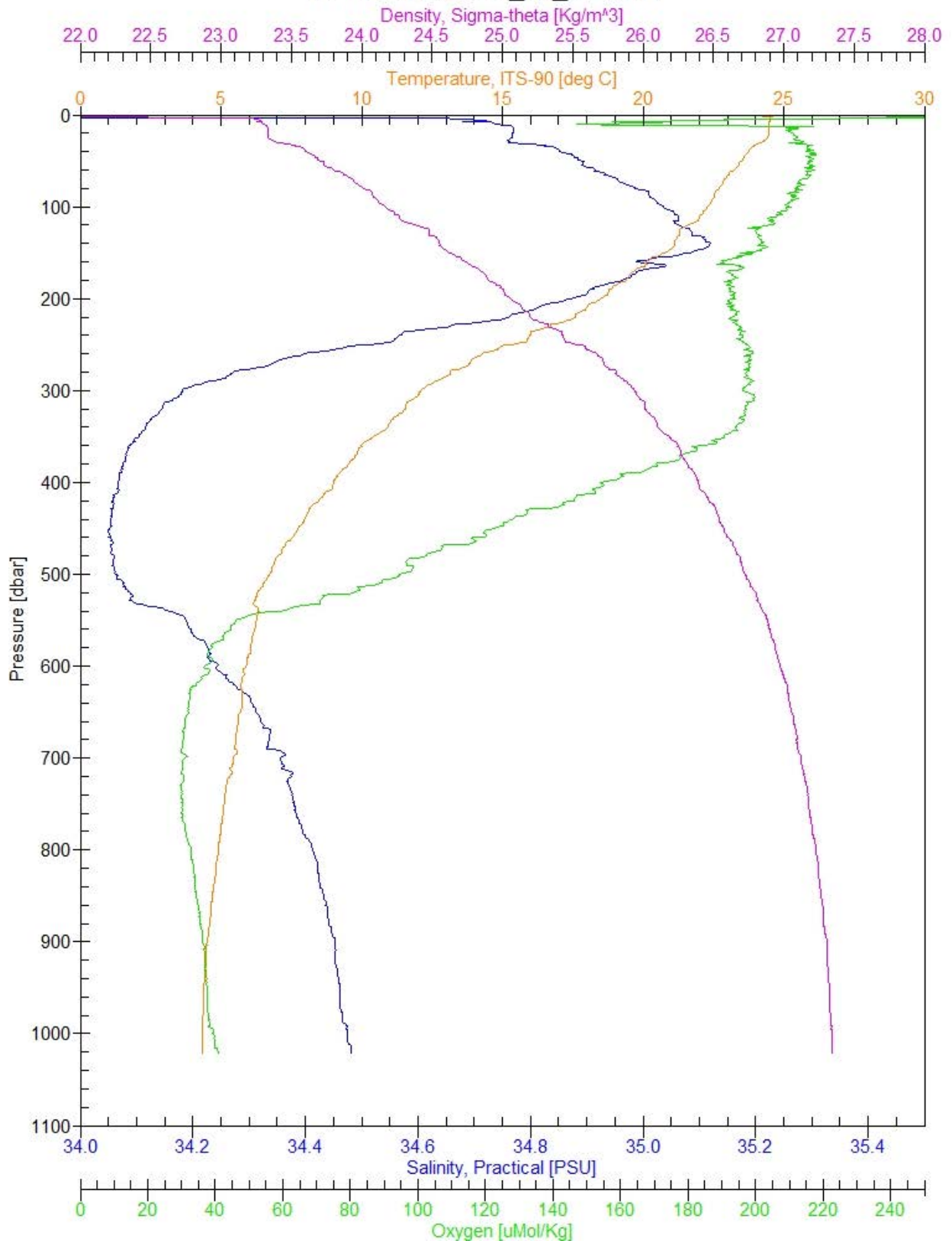
W-1000, hot-311_s2_c10.cnv



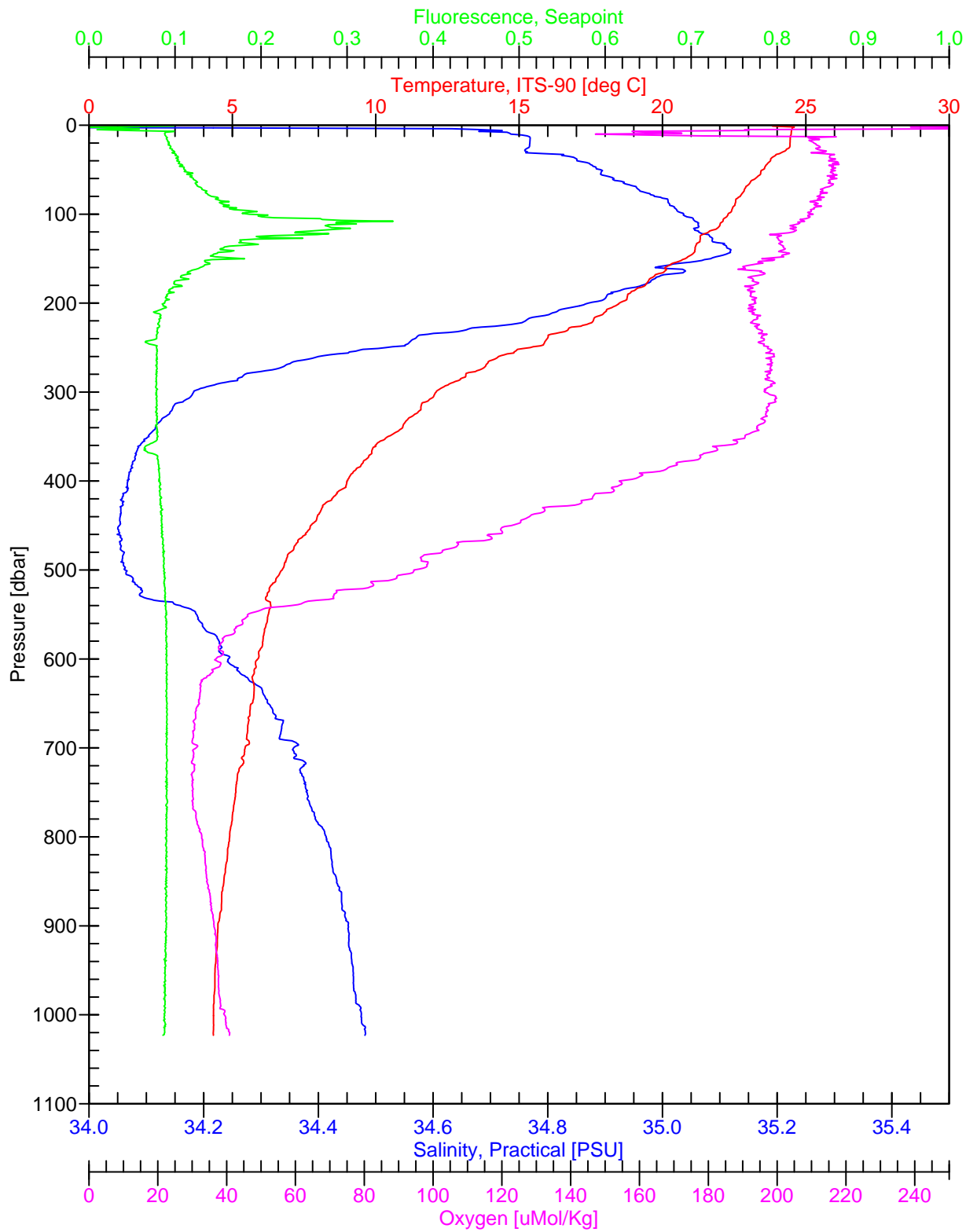
G-1000, hot-311_s2_c10.cnv



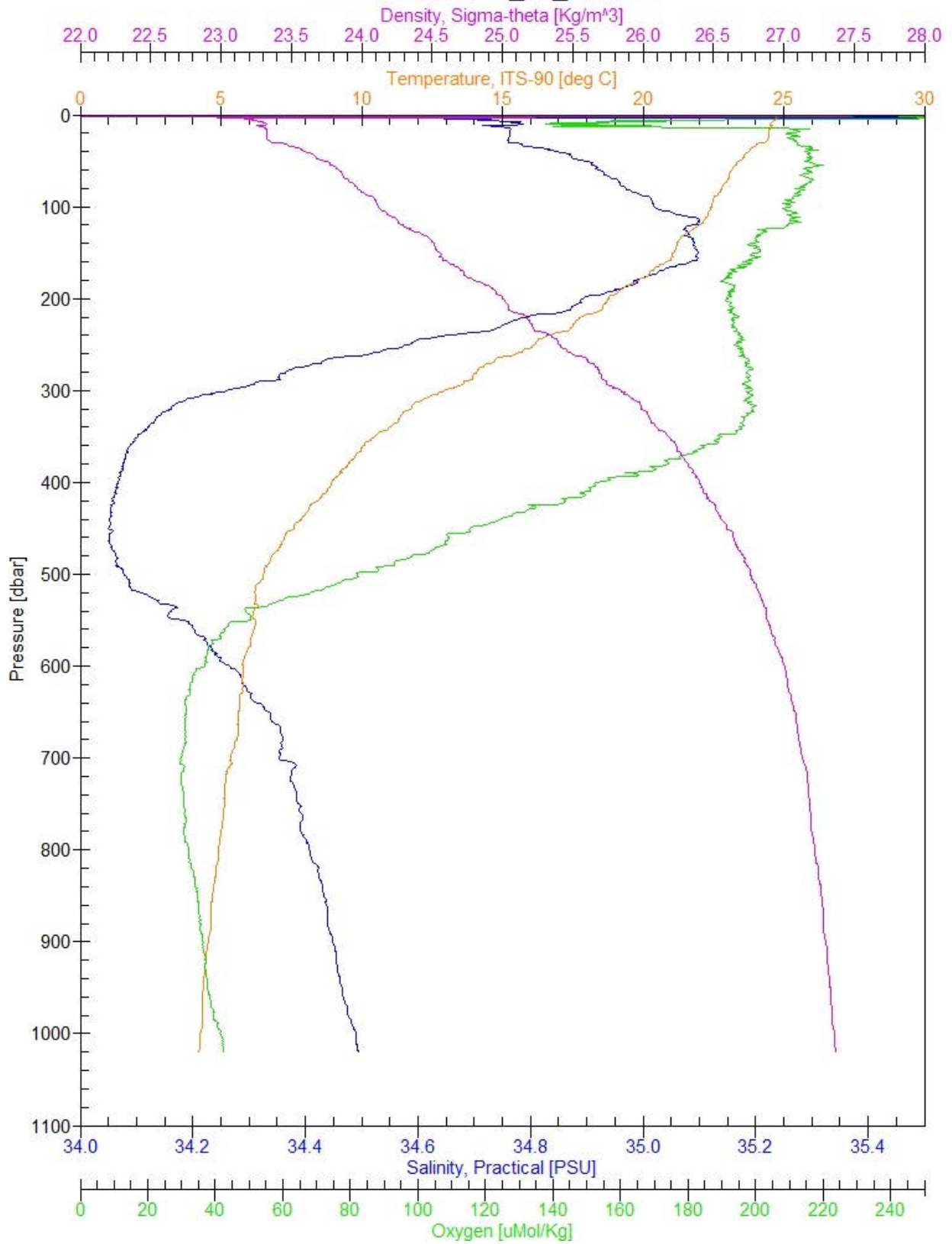
W-1000, hot-311_s2_c11.cnv



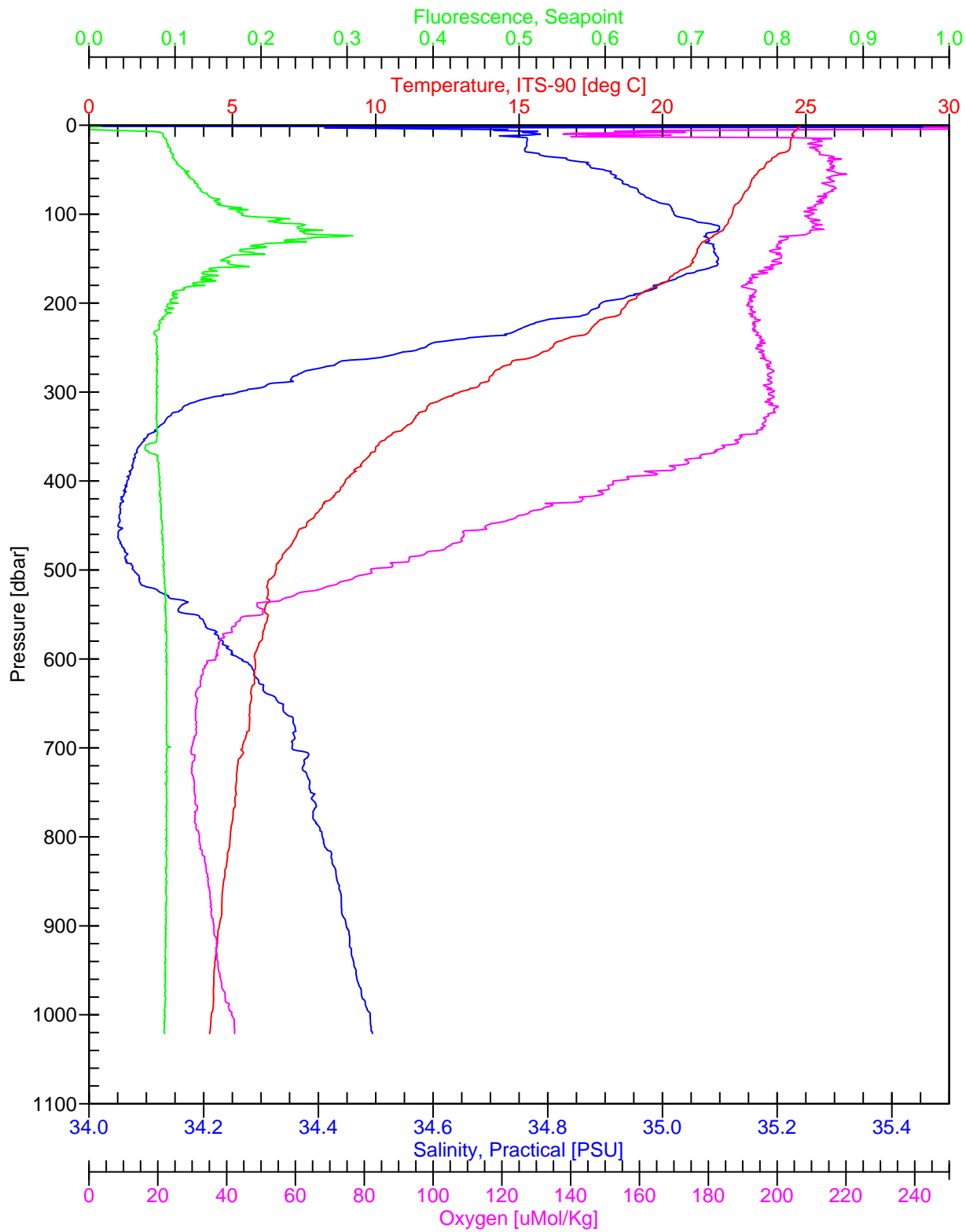
G-1000, hot-311_s2_c11.cnv



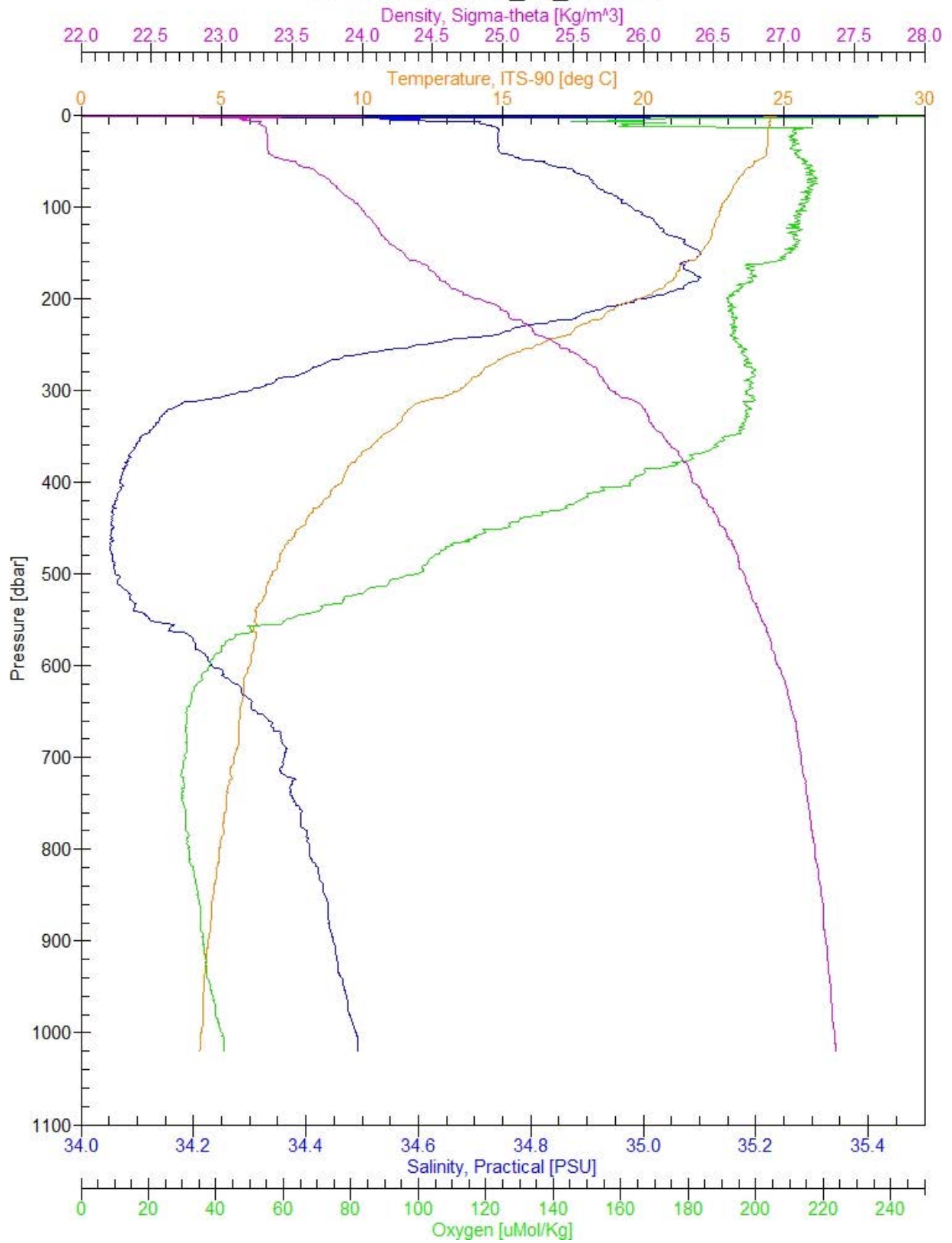
W-1000, hot-311_s2_c12.cnv



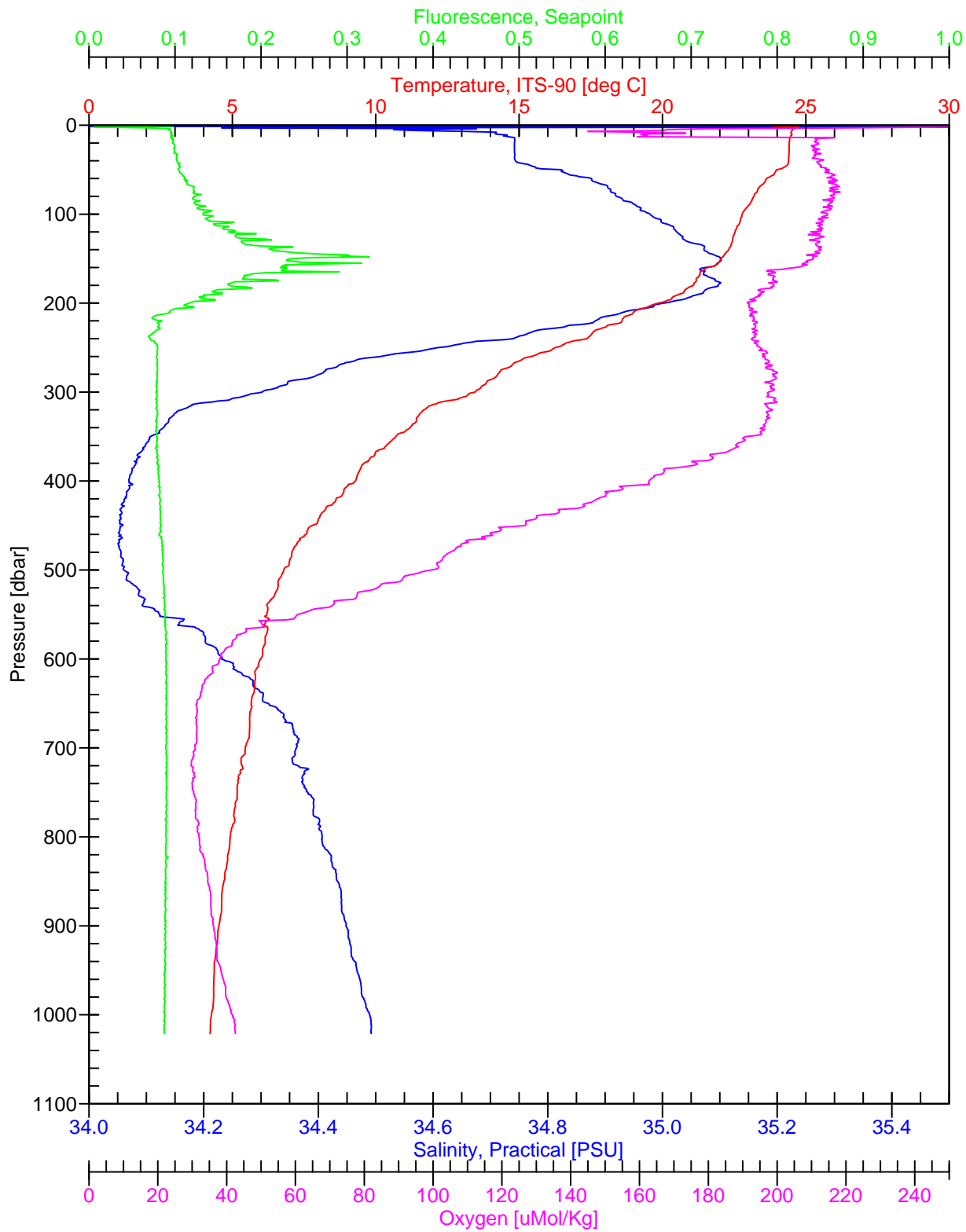
G-1000, hot-311_s2_c12.cnv



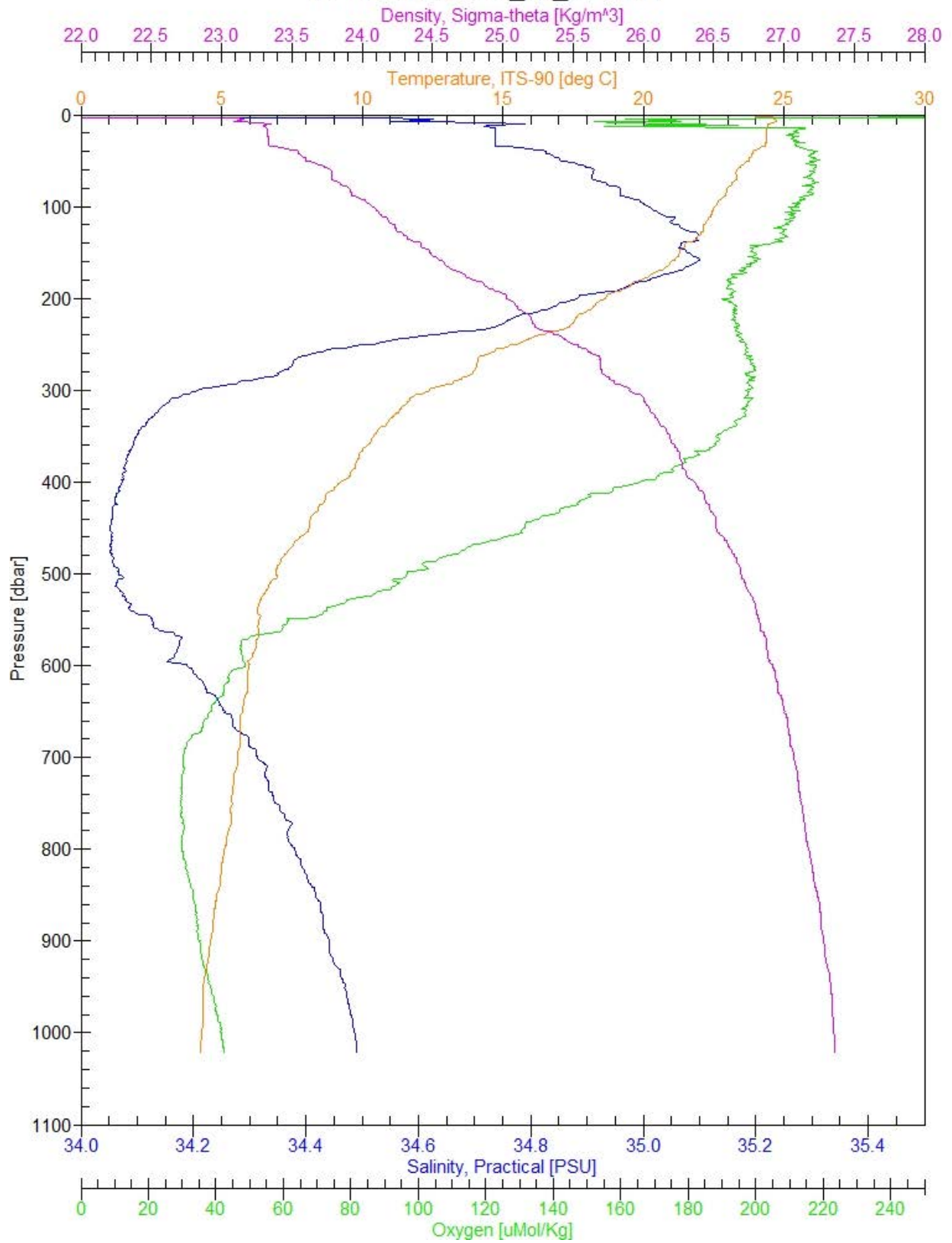
W-1000, hot-311_s2_c13.cnv



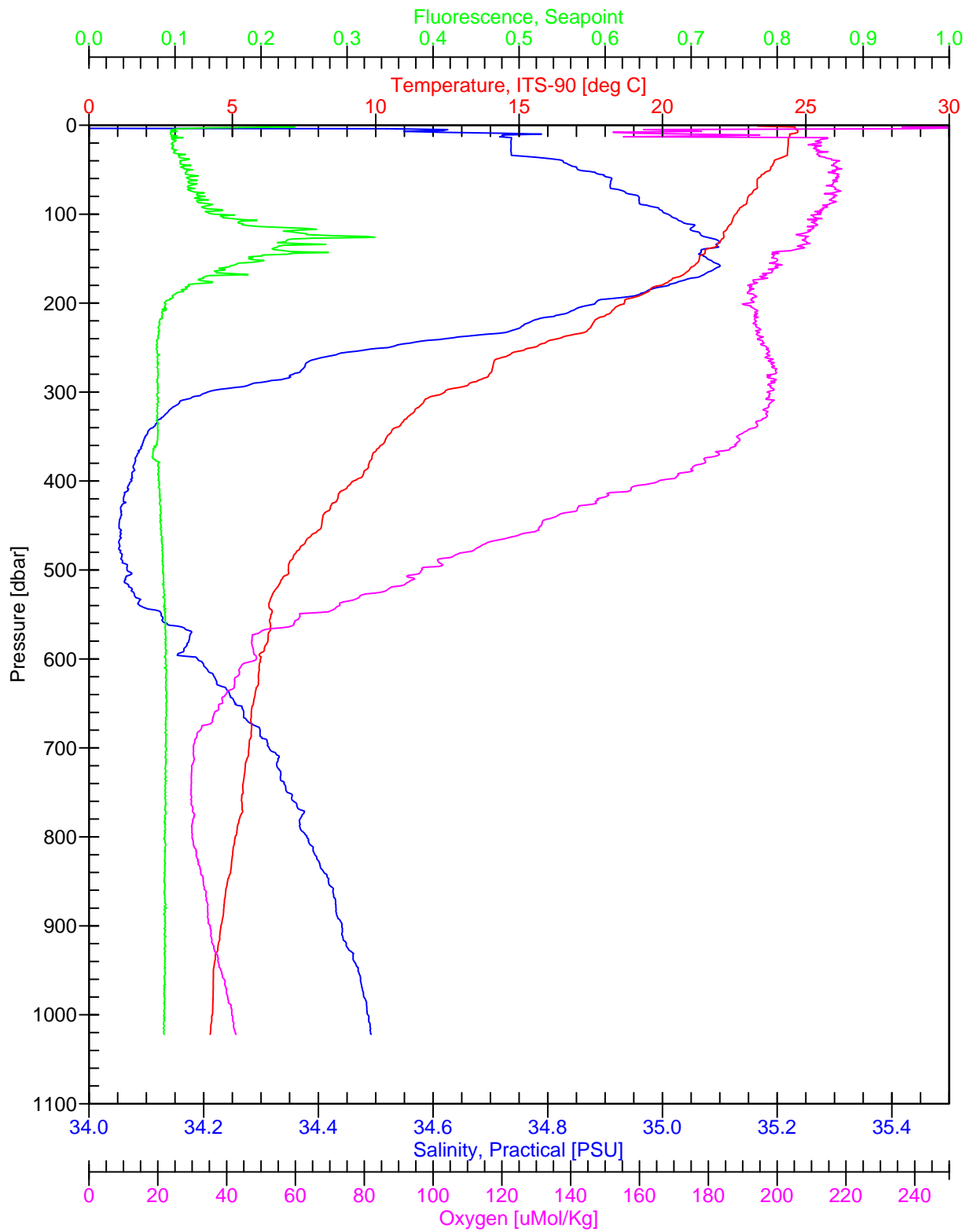
G-1000, hot-311_s2_c13.cnv



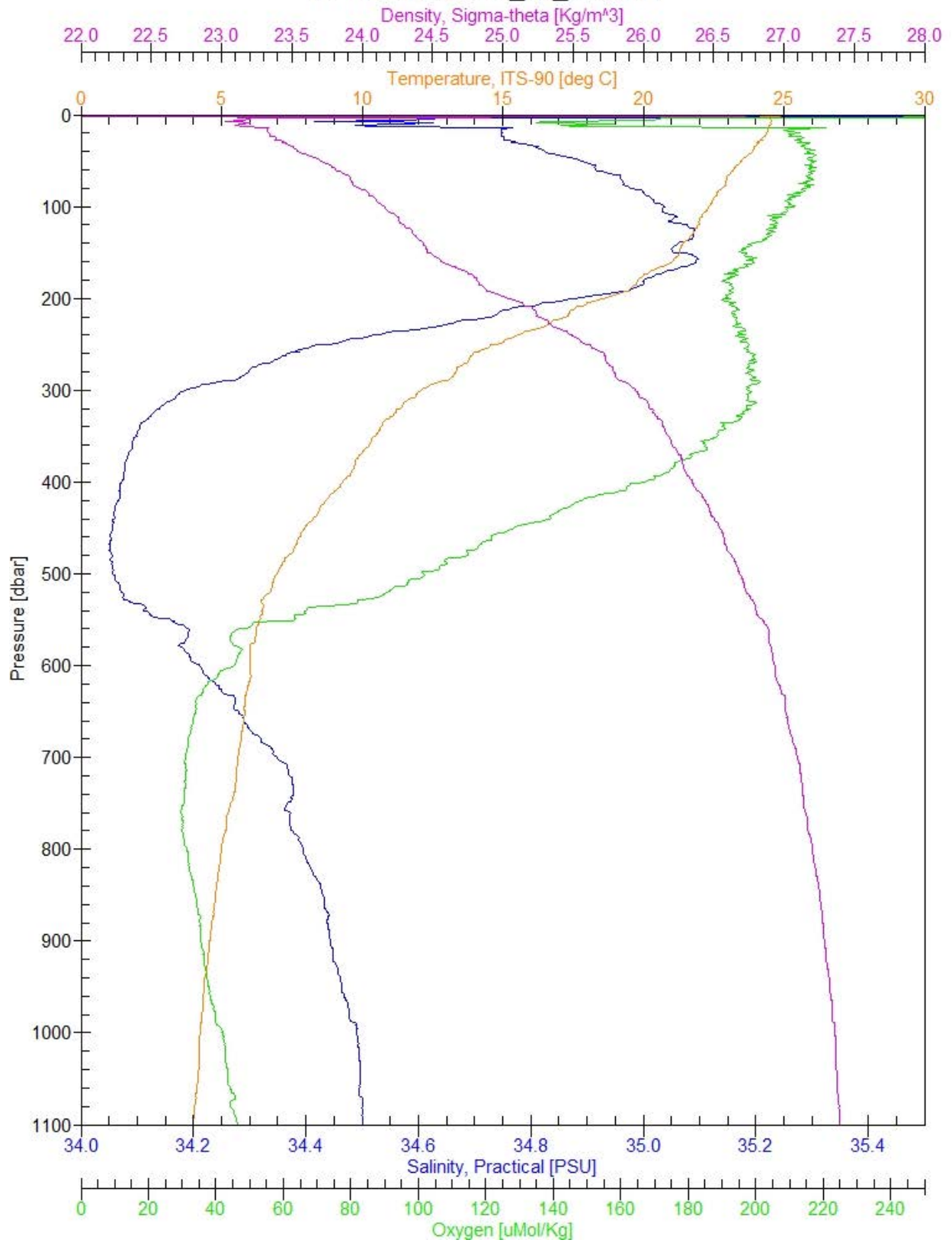
W-1000, hot-311_s2_c14.cnv



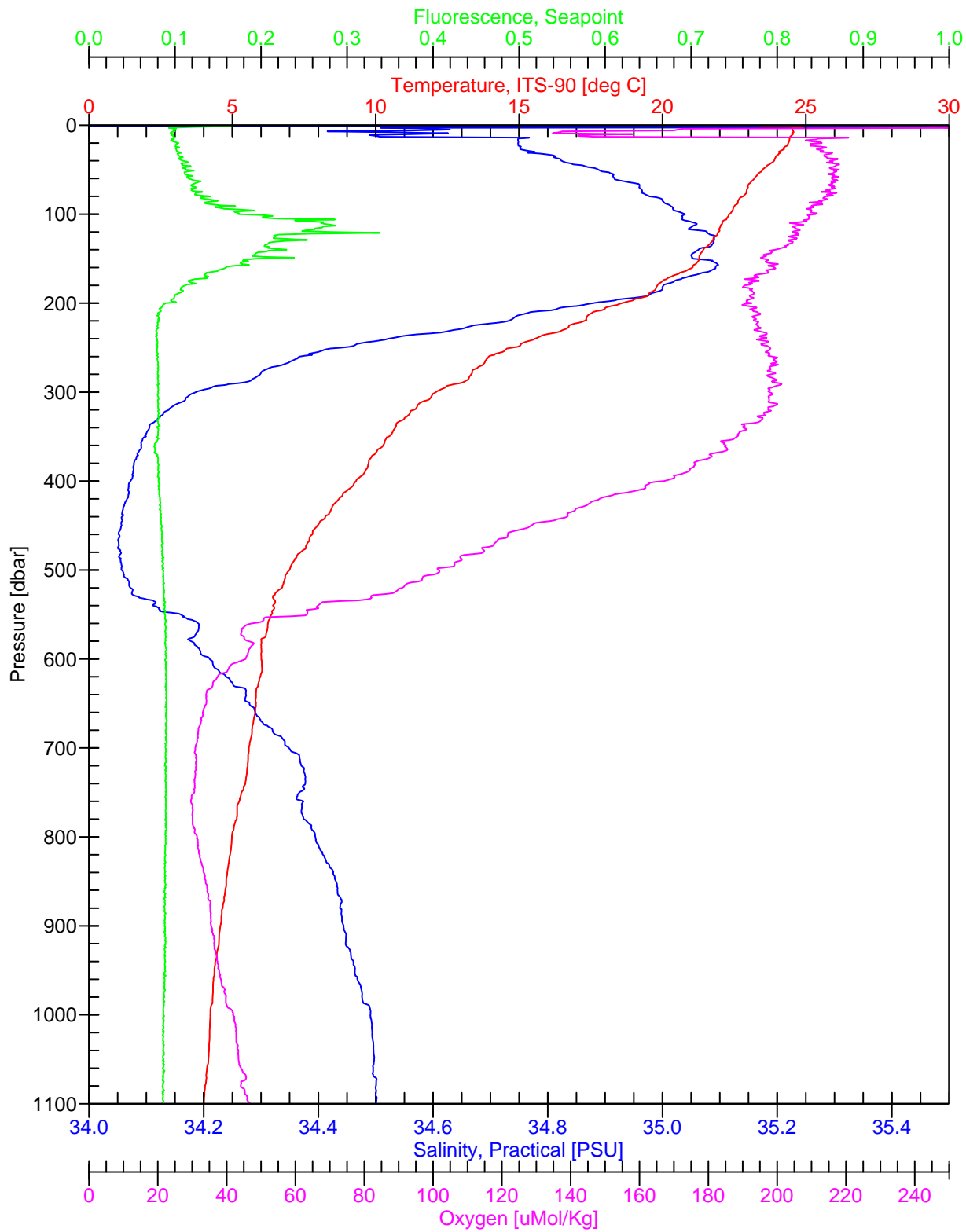
G-1000, hot-311_s2_c14.cnv



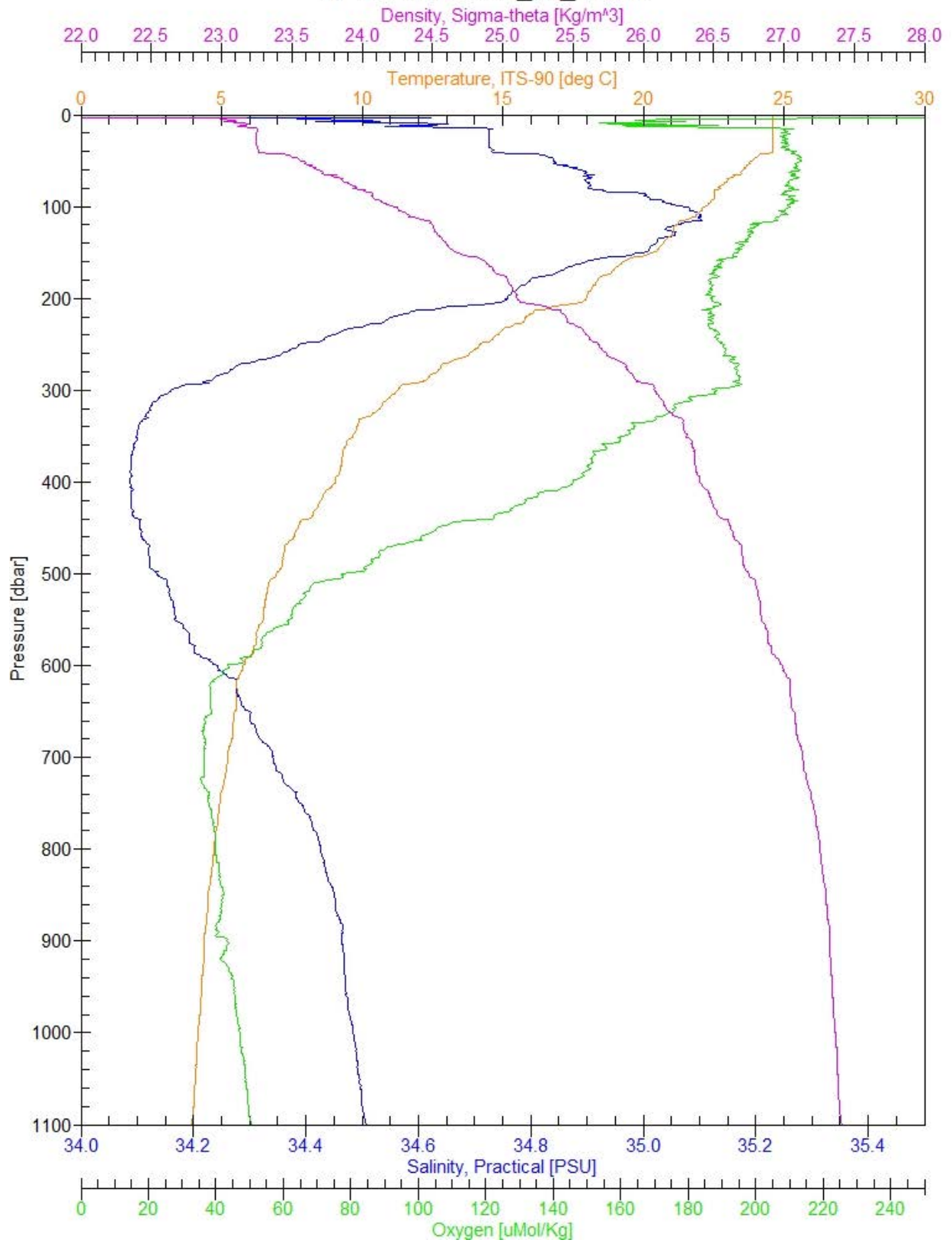
W-1000, hot-311_s2_c15.cnv



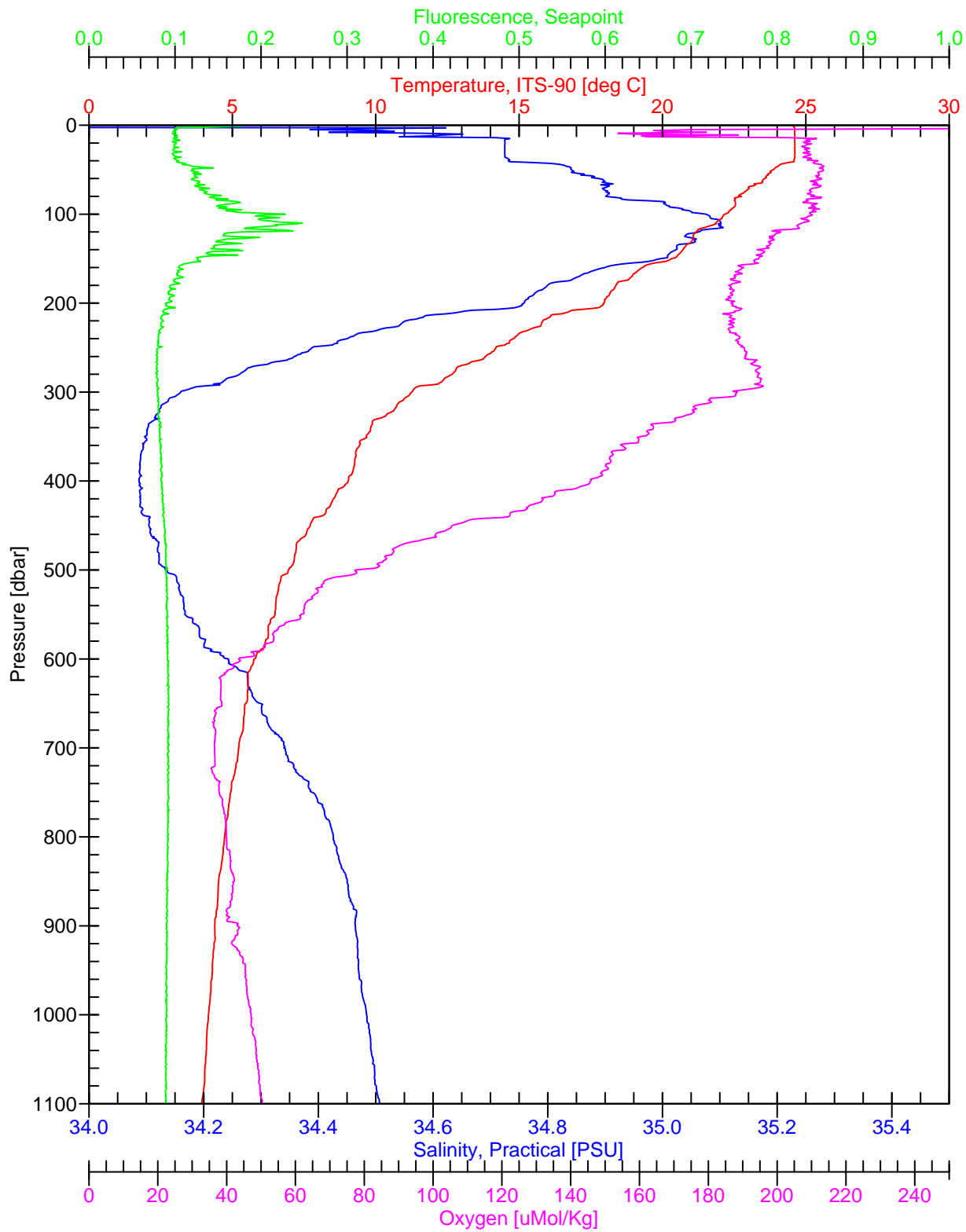
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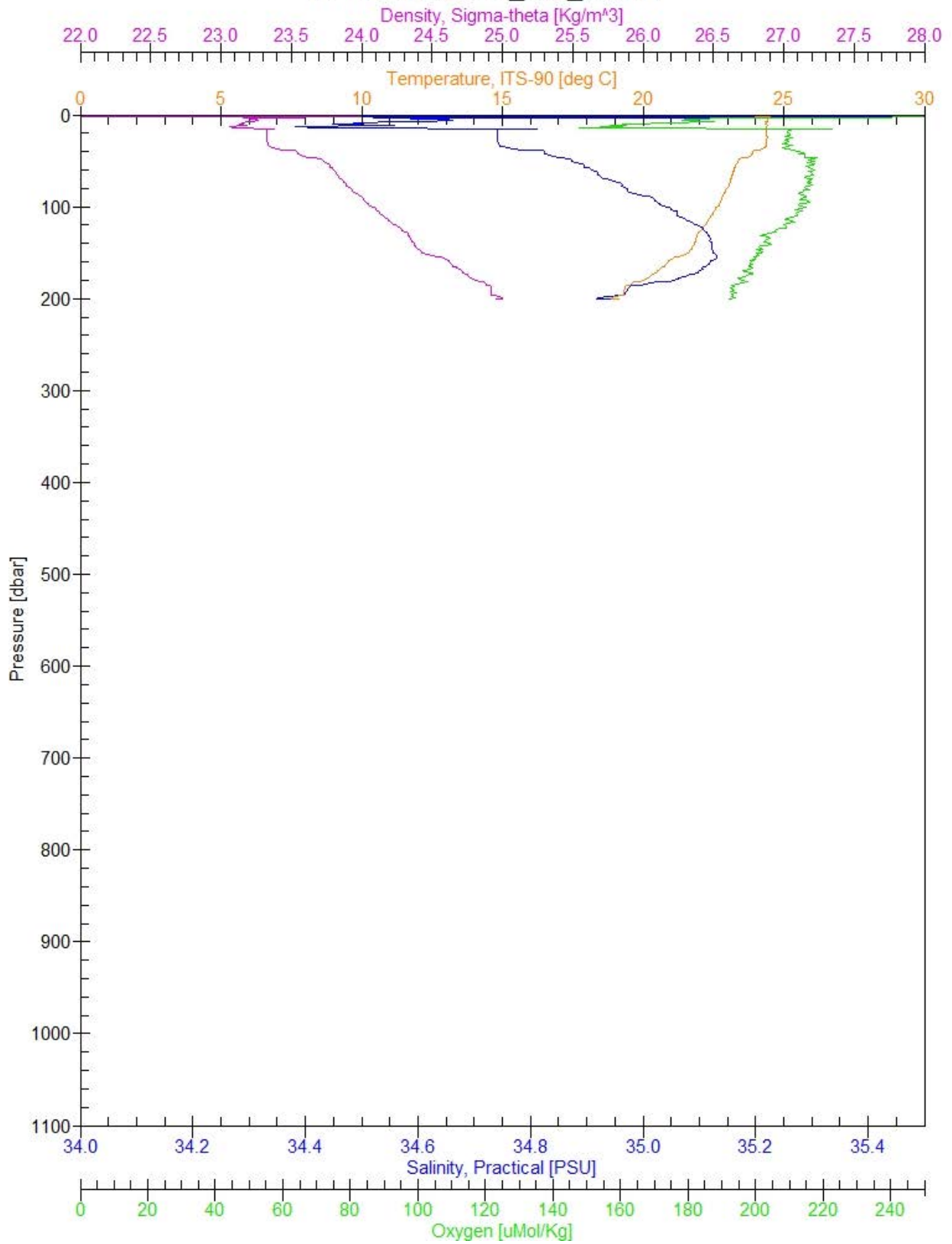
W-1000, hot-311_s6_c1.cnv



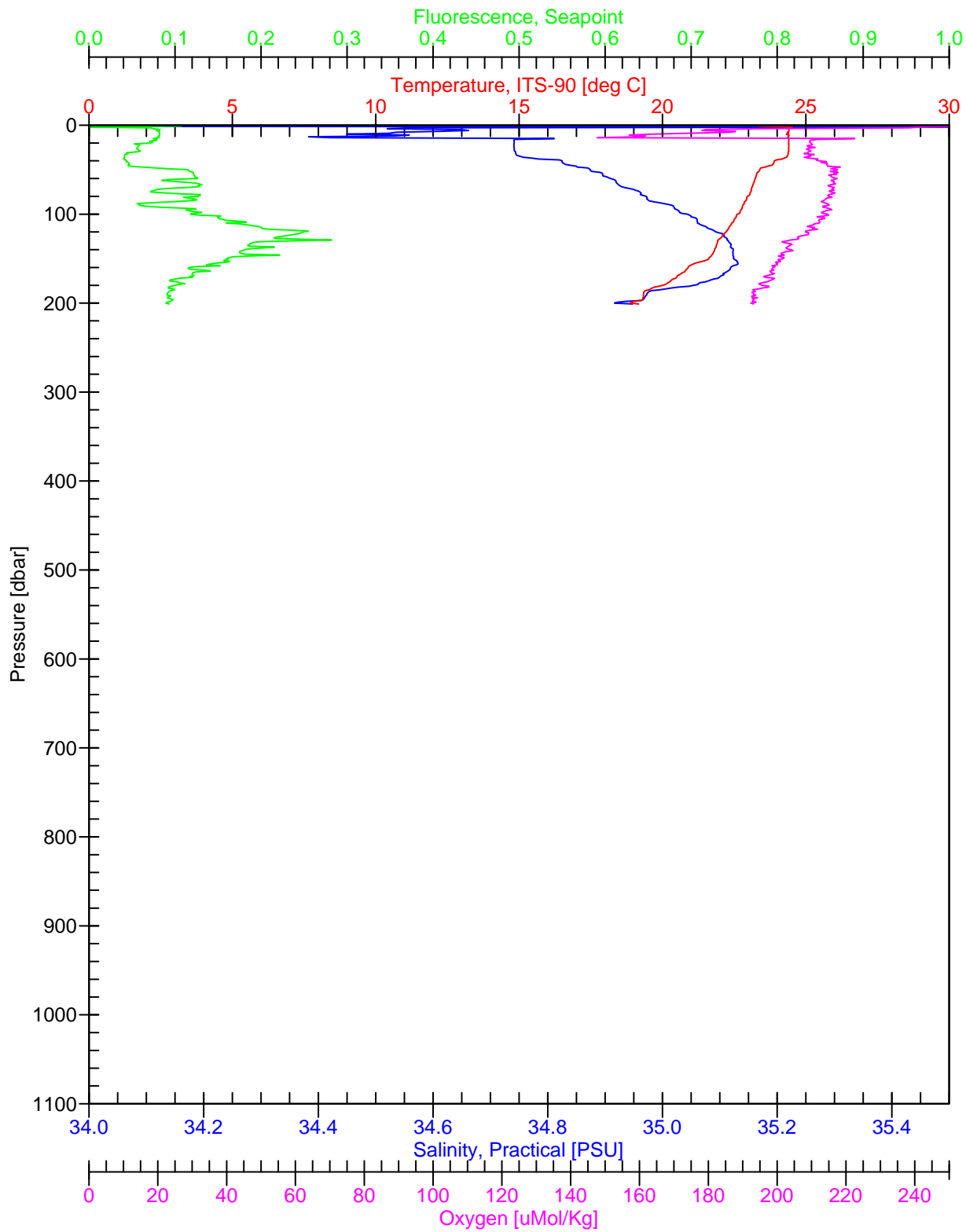
G-1000, hot-311_s6_c1.cnv



W-1000, hot-311_s50_c1.cnv



G-1000, hot-311_s50_c1.cnv



Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000695	12L	25.40	TR

- Pinger
 Altimeter
 Transmissometer
 ~~BEACH Sea Tech Fluorometer~~
 ~~OTG Seapoint Fluorometer~~
 ISUS
 PO Fluorometer

MLD: -
DCM: 109 db

Station: 1	Cast: 1
Latitude start: 21° 20.6009'	Longitude start: 158° 16.4099'
end: 21° 20.6067'	end: 158° 16.3898'
Depth of water: 1565 meters	Date (GMT): 5 1 1 119
Pressure on Deck	Time:
Begin: 0.4402	Start Log: 23:32:05
End: 0.1336	In Water: 23:38:20
Max cast pressure: 1021 dbar	Out of Water: 00:52:59

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
2	00:09:10	00:09:30	750	750	
3	00:17:35	00:17:55	500	500	
4	00:23:47	00:24:07	350	350	
5	00:28:10	00:28:30	250	250	
6	00:31:44	00:32:04	201	200	
7	00:34:50	00:35:10	175	175	
8	00:38:03	00:38:23	150	150	
9	00:40:12	00:40:32	125	125	
10	00:42:00	00:42:20	124	100	
11	00:43:37	00:43:57	76	75	
12	00:45:32	00:45:52	46	45	
13	00:47:09	00:47:29	25	25	
14	00:48:55	00:49:15	5	5	
15	00:48:55	00:49:32	5	5	
16					FIRED FOR VACUUM TEST
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 1	Cast #: 1	Box #: 2
Salinity Sample Log Sheet			Cruise #: HOT- 311	Sampler: FQ, H	
Niskin #	Depth	Serial #	Comments		
1	1020	25			
2	750	26			
3	500	27			
4	350	28			
5	250	29			
6	200	30			
7	175	31			
8	150	32			
9	125	33			
10	100	34			
11	75	35			
12	45	36			
13	25	37			
14	5	38			
15	5	39			
16			FIRED, BUT DO NOT SAMPLE → DO VACUUM TEST		
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G-1000	12L	24.40	FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

Station: 2	Cast: 1
Latitude start: 22° 44.549 end: 22° 44.5410'	Longitude start: 158° 3.173 end: 158° 03.1824'
Depth of water: 4757 meters	Date (GMT): 5 12 19
Pressure on Deck	Time:
Begin: 0.35 End: 0.3247	Start Log: 12:03 In Water: 12:10 Out of Water: 12:46
Max cast pressure: 200 dbar	

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	12:20:45	12:21:15	200	200	
2		12:25:40	175	175	
3			175	175	
4			150	150	
5	12:29:19	12:29:00	125	125	
6			125	125	
7			125	125	
8			100	100	
9			100	100	
10			100	100	
11	39:40	35:10	75	75	
12			75	75	
13			75	75	
14	37:20	37:50	45	45	
15			45	45	
16			45	45	
17	39:25	39:55	25	25	
18			25	25	
19			25	25	
20	12:41:20	41:50	15	15	
21	12:43:00	43:30	5	5	
22			5	5	
23			5	5	
24			5	5	

Hawaii Ocean Time Series		Station #: 2	Cast #: 1	Box #: 2, 3
Salinity Sample Log Sheet		Cruise #: HOT-311		Sampler: TR, DF, OH
Niskin #	Depth	Serial #	Comments	
1	200	40		
2				
3	175	41		
4	150	42		
5	125	43		
6	125	44		
7	125	45		
8	100	46		
9	100	47		
10	100	48		
11	75	49		
12	75	50		
13	75	51		
14	45	52		
15	45	53		
16	45	54		
17	25	55		
18	25	56		
19	25	57		
20				
21	5	58		
22	5	59		
23	5	60		
24				

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G5000 GPS	12L	24.25	TR

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 FSUS
 PO Fluorometer

BOTTOM LAT/LONG
 22° 45.0082'N,
 158° 00.0211'W

MLD: 45
 DCM: 135
 O_{MIN}: 720
 S_{MIN}: 477

Station: 2	Cast: 2
Latitude start: 22° 45.0414'N end: 22° 45.0122'N	Longitude start: 158° 00.0192'W end: 158° 00.0357'W
Depth of water: 4739 meters	Date (GMT): 5 12 19
Pressure on Deck	Time:
Begin: 0.3614	Start Log: 15:18
End: -0.3619	In Water: 15:20
Max cast pressure: 4907 dbar	Out of Water: 19:21

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	17:08:15	17:08:15	4806	4800	
2	17:13:44	17:13:59	4600	4600	
3	17:16:35	17:16:50	4500	4500	
4	17:19:59	17:20:19	4400	4400	
5	17:25:09	17:25:24	4202	4200	
6	17:30:10	17:30:30	4000	4000	
7	17:35:10	17:35:25	3801	3800	
8	17:40:50	17:41:20	3599	3600	
9	17:46:50	17:47:20	3401	3400	
10	17:52:20	17:52:45	3199	3200	
11	17:57:45	17:58:10	3000	3000	
12	18:03:10	18:03:30	2800	2800	
13	18:08:30	18:08:55	2600	2600	
14	18:14:00	18:14:20	2400	2400	
15	18:19:24	18:19:47	2200	2200	
16	18:24:45	18:25:00	1997	2000	
17	18:30:45	18:31:10	1799	1800	
18	18:36:20	18:36:50	1600	1600	
19	18:42:10	18:42:30	1400	1400	
20	47:50	48:15	1200	1200	
21	53:00	53:20	997	1000	
22	18:59:05	18:59:30	750	750	
23	19:06:10	19:06:30	500	500	
24	19:18:30	19:18:39	5	5	

Station: <u>2</u>	Cast: <u>2</u>
Latitude: <u>22° 45.0271' N</u>	Longitude: <u>158° 00.0357' W</u>
Date: <u>5/2/19</u>	Time (GMT): <u>20:57</u>
Operator: <u>TR</u>	

$\delta\theta$	$\sigma\theta$	Depth
700	20.76	—
650	21.28	—
600	21.80	—
550	22.33	—
500	22.85	—
450	23.37	<u>26</u>
400	23.90	<u>67</u>
350	24.42	<u>125</u>
300	24.95	<u>196</u>
250	25.47	<u>245</u>
200	26.00	<u>306</u>
180	26.21	<u>355</u>
160	26.42	<u>399</u>
140	26.63	<u>456</u>
130	26.73	<u>490</u>
120	26.84	<u>527</u>
110	26.94	<u>575</u>
100	27.05	<u>629</u>
90	27.16	<u>735</u>
80	27.26	<u>865</u>
70	27.37	<u>1020</u>

S _{max}	<u>132</u>
S _{min}	<u>447</u>
S _{max}	_____
S _{min}	<u>659 (Feature)</u>

O _{max}	<u>65</u>
O _{min}	<u>738</u>
O _{max}	_____
O _{min}	_____
O _{max}	_____

F _{max}	<u>116</u>
F _{min}	_____
F _{max}	_____
F _{min}	_____
F _{max}	_____

Bottle	Depth
1	<u>1020</u>
2	<u>943</u>
3	<u>904</u>
4	<u>865</u>
5	<u>800</u>
6	<u>735</u>
7	<u>682</u>
8	<u>629</u>
9	<u>575</u>
10	<u>527</u>
11	<u>490</u>
12	<u>456</u>
13	<u>447</u>
14	<u>399</u>
15	<u>355</u>
16	<u>306</u>
17	<u>245</u>
18	<u>196</u>
19	<u>132</u>
20	<u>125</u>
21	<u>116</u>
22	<u>67</u>
23	<u>26</u>
24	<u>5</u>

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G-1000GBS	12L	24.45	TR

- Pinger
 Altimeter
 Transmissometer
 ~~BEACH Sea Tech Fluorometer~~
 ~~OTG Seapoint Fluorometer~~
 ~~ISUS~~
 PO Fluorometer

MLD: 25
 DCM: 116
 S_{MIN} : 447
 O_{MIN} : 738

Station: 2	Cast: 3
Latitude start: 22° 45.0271' N end: 22° 45.0193' N	Longitude start: 158° 00.0357' W end: 158° 00.0412' W
Depth of water: 4740 meters	Date (GMT): 5 1 2 19
Pressure on Deck	Time:
Begin: 0.5405 End: 0.0194	Start Log: 20:56 In Water: 20:57
Max cast pressure: 1023 dbar	Out of Water: 22:14

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
2	21:27:50	21:28:05	944	943	
3	21:29:50	21:30:05	906	904	
4	21:32:10	21:32:25	864	865	
5	21:34:25	21:34:50	800	800	
6	21:37:15	21:37:40	735	735	O_{MIN}
7	21:39:30	21:39:50	682	682	
8	41:40	42:00	629	629	
9	21:43:45	21:44:15	575	575	
10	21:45:50	46:20	529	527	
11	47:50	47:20	490	490	
12	49:45	50:15	455	456	
13	51:00	51:30	447	447	S_{MIN}
14	53:10	53:35	400	399	
15	55:05	55:25	355	355	
16	57:20	57:40	305	306	
17	21:59:47	22:00:05	245	245	
18	22:01:45	22:02:00	196	196	
19	22:04:10	22:04:25	132	132	S_{MAX}
20	22:05:05	22:05:20	125	125	
21	22:05:57	22:06:15	116	116	DCM (F_{MAX})
22	22:08:15	22:08:30	67	67	O_{MAX}
23	22:10:12	22:10:27	27	26	
24	22:12:43	22:12:59	5	5	

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GYS	12L	24.76	TR/FJS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

MLD: 24
 DCM: 134
 S_{min}: 440

Station: 2	Cast: 4
Latitude start: 22° 45.0846' N end: 22 45.1170	Longitude start: 158° 00.0256' W end: 158 0.011
Depth of water: 4740 meters	Date (GMT): 5 13 119
Pressure on Deck	Time:
Begin: 0.4136	Start Log: 00:06:00
End: 0.25	In Water: 00:07:12
Max cast pressure: 1020 dbar	Out of Water: 01:26

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	00:43:20	00:43:35	1020	1020	
2	56:30	57:00	440	440	S _{min}
3	59:30	00:00	350	350	}
4		10	350	350	
5	3:05	3:35	250	250	
6	5:50	6:20	200	200	
7	7:50	8:20	175	175	
8	9:55	10:25	149	150	
9	12:15	12:45	125	125	}
10		55	125	125	
11		05	125	125	
12	14:55	15:25	100	100	
13	16:45	17:15	75	75	}
14		25	75	75	
15		35	75	75	
16	19:10	19:40	49	50	
17	20:25	20:55	45	45	}
18		05	45	45	
19	22:20	22:50	25	25	}
20		00	25	25	
21		10	25	25	
22		20	25	25	}
23	24:25	55	5	5	
24		05	5	5	}

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GRS	12L	24.62	FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

MLD: 20m
 DCM: 128m
 O₂ min: 73m
 S₂ min: 470m

Station: 2	Cast: 5
Latitude start: 2144.271 end: 2144.277	Longitude start: 1585.589 end: 1585.581
Depth of water: 4764 meters	Date (GMT): 513119
Pressure on Deck	Time:
Begin: 0.40 End: 0.10	Start Log: 3:04 In Water: 3:09 Out of Water: 4:14
Max cast pressure: 1020 dbar	

Trip/ Niskin	Time	Confirm	Pressure	Target Depth	Comments
	stopped	tripped			
1	03:35:00	03:35:35	1019.7	1020	
2	48:10	48:40	470	470	S-min
3	51:30	52:00	350	350]
4		10	350	350	
5	54:40	55:10	252	250	
6	56:55	57:25	200	200	
7	59:35	59:05	177	175	
8	2:00:20	50	150	150	
9	1:50	2:20	125	125]
10		30	125	125	
11	3:30	4:00	100	100	
12	5:15	5:45	75	75]
13		55	75	75	
14	7:00	7:30	50	50]
15		40	50	50	
16	8:10	8:40	45	45	
17	9:35	10:05	25	25]
18		15	25	25	
19		25	25	25	
20		35	25	25	
21		45	25	25	
22	11:25	11:55	15	15	
23	12:55	13:25	5	5]
24		35	5	5	

Hawaii Ocean Time Series			Station #: 2	Cast #: 5	Box #: 7
Salinity Sample Log Sheet			Cruise #: HOT-311	Sampler: FP/SB	
Niskin #	Depth	Serial #	Comments		
1	1020	155			
2	470	156	S-min		
3	350	157			
4	350	158			
5	250	159			
6	200	160			
7	175	161			
8	150	162			
9	125	163			
10	—	—			
11	100	164			
12	—	—			
13	75	165			
14	—	—			
15	—	—			
16	45	166	* NOT ENOUGH WATER - FP		
17	25	167			
18	—	—			
19	—	—			
20	—	—			
21	—	—			
22	—	—			
23	5	168			
24	—	—			

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6-1000	12L	24.52	FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

Station: 2	Cast: 6
Latitude start: 22 47.333 end: 22 47.397	Longitude start: 158 4.368 end: 158 4.334
Depth of water: 4757 meters	Date (GMT): 5 13 119
Pressure on Deck	Time:
Begin: 0.35 End: 0.20	Start Log: 6:08 In Water: 6:21 Out of Water: 7:33
Max cast pressure: 1020 dbar	

Trip/ Niskin	Time	Confirm	Pressure	Target Depth	Comments
	stopped	tripped			
1	6:47:15	47:45	1021	1020	
2	55:25	55:55	699	700	02-min
3	1:50	2:20	451	450	5-min
4	8:25	8:55	200	200	
5	10:30	11:00	176	175	
6	11:50	12:20	166	165	
7	13:20	13:50	150	150	
8	15:00	15:30	131	130	
9	16:05	16:35	125	125	
10	17:40	18:10	115	115	
11	18:55	19:25	110	110	
12	20:05	20:35	100	100	
13	21:25	21:55	90	90	
14	22:25	22:55	85	85	
15	23:40	24:10	75	75	
16	25:05	25:35	60	60	
17	26:35	27:05	45	45	
18	27:40	28:10	35	35	
19	28:40	29:10	25	25	
20		20	25	25	
21	30:00	30:30	15	15	
22	31:15	31:45	5	5	
23		55	5	5	
24		05	5	5	

Hawaii Ocean Time Series			Station #: 2	Cast #: 6	Box #: 8
Salinity Sample Log Sheet			Cruise #: HOT-311	Sampler: FP, SB	
Niskin #	Depth	Serial #	Comments		
1	1020	169			
2	700	170	02 min		
3	450	171	5-min		
4	200	172			
5	175	173			
6	165	174			
7	150	175			
8	130	176			
9	125	177			
10	115	178			
11	110	179			
12	100	180			
13	90	181			
14	85	182			
15	75	183			
16	60	184			
17	45	185			
18	35	186			
19	25	187			
20	25	188			
21	15	189			
22	5	190			
23	5	191			
24	—	—			

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G-1000	12L	24.41	FS-M

Station: 2	Cast: 7
Latitude start: 22 46.763 end: 22 46.778	Longitude start: 158 3.229 end: 158 3.224
Depth of water: 4752 meters	Date (GMT): 5 13 119
Pressure on Deck	Time:
Begin: 0.40 End: 0.10	Start Log: 9:09 In Water: 9:15 Out of Water: 10:24
Max cast pressure: 1020 dbar	

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	09:42:10	09:42:40	1019	1020	
2	59:30	00:00	427	425	S-Min
3	7:00	7:30	173	175	
4	9:00	9:30	148	150	
5	10:50	11:20	124	125	}
6		30	124	125	
7	12:50	13:20	101	100	
8	14:40	15:10	76	75	
9	16:30	17:00	50	50	
10	18:15	18:45	25	25	}
11			25	25	
12			25	25	
13			25	25	
14			25	25	
15			25	25	
16			25	25	
17			25	25	
18			25	25	
19			25	25	
20			25	25	
21			25	25	
22			25	25	
23			25	25	
24	21:35	22:05	5	5	

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000	12L	2445	FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

MLD: 45
 DCM: 133
 S_{MIN}: 450

Station: 2	Cast: 8
Latitude start: 22° 44.309	Longitude start: 158° 00.7736
Latitude end: 22° 44.2928	Longitude end: 158° 00.7736
Depth of water: 4740 meters	Date (GMT): 5 13 199
Pressure on Deck	Time:
Begin: 0.45	Start Log: 11:57
End: 0.1072	In Water: 12:10
Max cast pressure: 1020 dbar	Out of Water: 13:15

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	12:41:40	42:10	1020	1020	
2	12:54:35	12:54:50	451	450	S-MIN
3	13:02:50	13:03:05	125	125	}
4		13:03:13	126	125	
5		13:03:25	126	125	
6	13:04:46	13:05:01	100	100	}
7		13:05:09	100	100	
8		13:05:17	100	100	
9	13:06:30	13:06:45	75	75	}
10		13:06:54	75	75	
11		13:07:01	75	75	
12	13:08:56	13:09:11	45	45	}
13		13:09:18	45	45	
14		13:09:23	45	45	
15	13:11:03	13:11:18	25	25	}
16		13:11:24	25	25	
17		13:11:30	25	25	
18		13:11:36	25	25	
19		13:11:45	25	25	
20	13:13:17	13:13:32	5	5	}
21		13:13:39	5	5	
22		13:13:47	5	5	
23		13:13:54	5	5	
24		13:14:07	5	5	

Hawaii Ocean Time Series		Station #: 2	Cast #: 2	Box #: 9
Salinity Sample Log Sheet		Cruise #: HOT-311		Sampler: SB/FP
Niskin #	Depth	Serial #	Comments	
1	1020	196		
2		197	5-min	
3	125	198		
4	125	199		
5	125	200		
6	100	201		
7	100	202		
8	100	203		
9	75	204		
10	75	205		
11	75	206		
12	45	207		
13	45	208		
14	45	209		
15	25	210		
16	25	211		
17	25	212		
18	—	—		
19	—	—		
20	5	213		
21	5	214		
22	—	—		
23	5	215		
24	—	—		

Hawaii Ocean Time-Series CONSOLE LOG

Cast type G-1000 GPS	Bottle type 12L	SST 24.36	Operator TR
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- Pinger
 Altimeter
 Transmissometer
 ~~BEACH Sea-Tech Fluorometer~~
 ~~OTG Seapoint Fluorometer~~
 ISUS
 PO Fluorometer

MLD: 33
 DCM: 133
 S_{MIN}: 477

Station: 2	Cast: 9
Latitude start: 22° 44.3342' N end: 22° 44.3950' N	Longitude start: 158° 00.2765' W end: 158° 00.2151' W
Depth of water: 4739 meters	Date (GMT): 5 13 119
Pressure on Deck	Time:
Begin: 0.3535	Start Log: 14:57
End: 0.1832	In Water: 14:59
Max cast pressure: 1021 dbar	Out of Water: 16:10

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
2	15:38:25	15:38:40	477	477	S _{MIN}
3	15:44:17	15:44:32	275	275	
4	15:46:44	15:47:01	251	250	
5	15:48:38	15:48:53	226	225	
6	15:50:25	15:50:40	200	200	
7	15:51:56	15:52:11	175	175	
8	15:53:45	15:54:00	150	150	S _{MAX}
9	15:55:42	15:55:57	125	125]
10	↓	15:56:05	125	125	
11	15:57:33	15:57:48	101	100]
12	15:59:43	15:59:58	75	75	
13	↓	16:00:06	75	75]
14	16:01:34	16:01:49	50	50	
15	↓	16:01:56	50	50]
16	16:02:32	16:02:47	46	45	
17	16:04:28	16:04:43	25	25]
18	↓	16:04:50	25	25	
19	↓	16:04:58	27	25]
20	↓	16:05:14	25	25	
21	↓	16:05:20	26	25]
22	16:06:27	16:06:42	25	15	
23	16:07:59	16:08:15	5	5	
24	↓	16:08:20	7	5	

Hawaii Ocean Time Series		Station #: 2	Cast #: 9	Box #: 9, 10
Salinity Sample Log Sheet		Cruise #: HOT-311		Sampler: TR, DF, OH
Niskin #	Depth	Serial #	Comments	
1	1020	216		
2	477	217	SMIN	
3				
4				
5				
6				
7				
8	150	218		
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23	5	219		
24				

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GPS	12L	24.39	TR

- Pinger
 Altimeter
 Transmissometer
 ~~BEACH Sea Tech Fluorometer~~
 ~~OTG Seapoint Fluorometer~~
 ~~ISUS~~
 PO Fluorometer

MLD: 35
 DCM: 135

Station: 2	Cast: 10
Latitude start: 22° 44.5119' N end: 22° 44.5025' N	Longitude start: 158° 00.0797' W end: 158° 00.0970' W
Depth of water: 4734 meters	Date (GMT): 5 13 19
Pressure on Deck	Time:
Begin: 0.4019 End: 0.0092	Start Log: 18:00 In Water: 18:02
Max cast pressure: 1020 dbar	Out of Water: 18:59

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	18:26:05	18:26:20	1020	1020	
2	18:37:35	18:38:00	476	475	S _{MIN}
3	18:44:55	18:45:15	177	175	
4	18:46:50	18:47:05	150	150	
5	18:48:30	18:48:45	125	125	
6	18:50:19	18:50:34	99	100	
7	18:51:45	18:52:00	75	75	
8	18:53:32	18:53:47	45	45	
9	18:54:07	18:55:23	25	25	
10	↓	18:55:33	25	25	
11		18:55:41	25	25	
12		18:55:47	25	25	
13		18:55:53	25	25	
14		18:55:58	25	25	
15		18:56:02	25	25	
16		18:56:15	25	25	
17		18:56:20	25	25	
18		18:56:25	25	25	
19		18:56:30	25	25	
20		18:56:35	25	25	
21		18:56:40	25	25	
22		18:56:45	25	25	
23	18:57:53	18:58:08	5	5	
24	↓	18:58:15	5	5	

Hawaii Ocean Time-Series CONSOLE LOG

Cast type G-1000 GPS	Bottle type 12L	SST 24.61	Operator TR
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- Pinger
- Altimeter
- Transmissometer
- BEACH Sea Tech Fluorometer
- OTG Seapoint Fluorometer
- ISUS
- PO Fluorometer
-

OPEN CRST

MLD: 25
DCM: 115

Station: 2	Cast: 11
Latitude start: 22° 45.0207' N end: 22° 45.0320' N	Longitude start: 158° 00.0000' W end: 158° 59.8999' W
Depth of water: 4735 meters	Date (GMT): 5 / 3 / 19
Pressure on Deck	Time:
Begin: 0.4335	Start Log: 20:54
End: -0.0009	In Water: 20:58
Max cast pressure: 1022 dbar	Out of Water: 21:59

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments	
1	21:24:45	21:25:00	1020	1020		
2	21:37:40	21:38:00	452	452	S.M.N	
3	21:46:20	46:50	115	115	DCM	
4	50:15	50:45	25	25		
5		:00	↓	25		
6		:10		25		
7		:20		25		
8		:30		25		
9		:40		25		
10		:50		25		
11		51:00		25		
12	54:15	54:45		5	5	
13		54:55		5	5	
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

Hawaii Ocean Time Series		Station #: 2	Cast #: 11	Box #: 10
Salinity Sample Log Sheet		Cruise #: HOT- 311		Sampler: DF, TR, OH
Niskin #	Depth	Serial #	Comments	
1	1020	231		
2	452	232		
3	115	232		
X				
X				
X				
X				
X				
X				
X				
X				
X				
12	5	233		
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000 GFS	12L	24.90	TR/FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

MLD: 30
DCM: 124

Station: 2	Cast: 12
Latitude start: 22° 44.6530 end: 22 44.654	Longitude start: 157° 59.5065 end: 157 59.485
Depth of water: 4736 meters	Date (GMT): 5 14 119
Pressure on Deck	Time:
Begin: 0.3411 End: 0.10	Start Log: 5/3/19 23:59 In Water: 5/4/19 00:02 Out of Water: 01:16
Max cast pressure: 1020 dbar	

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	00:31:35	00:31:55	1019	1020	
2	00:38:00	00:38:15	771	770	
3	45:00	45:30	500	500	
4	47:30	48:00	451	450	
5	50:15	50:45	402	400	
6	52:25	52:55	350	350	
7	54:50	55:20	299	300	
8	57:55	58:25	250	250	
9	1:50	2:20	151	150	
10	3:40	4:10	125	125	
11	5:40	6:10	100	100	
12	7:30	8:00	74	75	
13	9:55	10:25	46	45	
14	12:00	10	25	25	
15		20	25	25	
16		30	25	25	
17		40	25	25	
18		50	25	25	
19	14:15	14:45	5	5	
20		55	5	5	
21					
22					
23					
24					

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6-1000	12L	25.02	FS-M

Station: 2	Cast: 13
Latitude start: 22 44.6288 end: 22 44.594	Longitude start: 157 59.2227 end: 157 59.1064
Depth of water: 4739 meters	Date (GMT): 5 14 19
Pressure on Deck	Time:
Begin: 0.45 End: 0.20	Start Log: 02:53 In Water: 02:57 Out of Water: 04:14
Max cast pressure: 1020 dbar	

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

 MLD : 45m
 DCM : 150m
 OMZ:
 SMZ : 460m

Trip/ Niskin	Time	Confirm	Pressure	Target Depth	Comments
	stopped	tripped			
1	03:24:59	03:25:40	1019.7	1020	
2	31:15	31:45	800	800	
3	37:00	37:30	600	600	
4	41:20	41:50	461	460	S-Min
5	44:00	44:30	401	400	
6	47:55	48:25	300	300	
7	54:00	54:30	261	200	
8	56:10	56:40	176	175]
9		50	176	175	
10	58:20	58:50	150	150]
11		00	150	150	
12	00:20	00:50	124	125	
13	2:30	3:00	101	100	
14	4:40	5:10	76	75	
15	6:55	7:25	45	45	
16	8:50	9:20	26	25]
17		30	26	25	
18		40	26	25	
19	10:30	11:00	15	15	
20	12:10	12:40	5	5]
21		50	5	5	
22					
23					
24					

Hawaii Ocean Time Series		Station #:	2	Cast #:	13	Box #:	11
Salinity Sample Log Sheet		Cruise #:	HOT-351		Sampler:	FP/50	
Niskin #	Depth	Serial #	Comments				
1	1020	245					
2	_____	_____					
3	_____	_____					
4	460	246	S-min				
5	}						
6							
7							
8							
9							
10							
11							
12	125	247					
13	}						
14							
15							
16							
17							
18							
19							
20	5	248					
21	_____	_____					
22							
23							
24							

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000	12L	24.81	FS-M

Station: 2	Cast: 14
Latitude start: 22 45.9085 end: 22 45.9074	Longitude start: 158 0.0293 end: 158 0.0266
Depth of water: 4729 meters	Date (GMT): 5 14 119
Pressure on Deck	Time:
Begin: 0.42 End: 0.20	Start Log: 05:54 In Water: 5:58 Out of Water: 7:03
Max cast pressure: 1021 dbar	

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	6:23:50	24:20	1020	1020	
2	42:10	42:40	175	175	
3	44:05	44:35	150	150	
4	45:35	46:05	134	135	
5	46:50	47:20	125	125	
6	48:15	48:45	115	115	
7	49:45	50:15	100	100	
8	51:30	52:50	85	85	
9	53:40	54:10	75	75	
10	55:25	55:55	60	60	
11	57:15	57:45	45	45	
12	59:00	59:30	25	25	
13		40	25	25	
14		50	25	25	
15		.	25	25	
16		.	25	25	
17			25	25	
18			25	25	
19			25	25	
20			25	25	
21			25	25	
22			25	25	
23			25	25	
24	2:00	2:30	5	5	

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G 5000	12L	24.64	FS-M

Station: 2	Cast: 15
Latitude start: 2245.0100 end: 2244.970	Longitude start: 15759.997 end: 15759.990
Depth of water: 4742 meters	Date (GMT): 5 14 19
Pressure on Deck	Time:
Begin: 0.45 End: -0.20	Start Log: 08:54 In Water: 09:01 Out of Water: 12:41
Max cast pressure: 4806 dbar	

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OTG Seapoint Fluorometer
 ISUS
 PO Fluorometer

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1		10:45	4806	4800	
2	11:02:15	2:45	4000	4000	}
3		55	4000	4000	
4		05	4000	4000	
5		15	4000	4000	
6	23:40	24:10	3000	3000	
7		20	3000	3000	
8	45:45	46:15	2001	2000	}
9		25	2001	2000	
10	8:15	8:45	1002	1000	
11	14:10	14:40	776	775	O ₂ min]
12		50	776	775	O ₂ min]
13	21:45	22:15	476	475	5 min
14	27:55	28:25	251	250	
15	34:15	34:45	51	50	O ₂ max
16	26:30	27:00	25	25	}
17		10	25	25	
18		20	25	25	
19		30	25	25	
20		40	25	25	
21	39:00	39:30	5	5	}
22		40	5	5	
23					
24					

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G200GPS	12L	24.40	TR/FS-M

- Pinger
 Altimeter
 Transmissometer
 BEACH Sea Tech Fluorometer
 OFG Seapoint Fluorometer
 ISUS
 PO Fluorometer

MLD: 35
DCM: 125

Station: 50	Cast: 1
Latitude start: 22° 47.0439' N end: 22 47.056	Longitude start: 157° 53.0145' end: 157 52.983
Depth of water: 4688 meters	Date (GMT): 5 14 19
Pressure on Deck	Time:
Begin: 0.3108	Start Log: 23:29
End: 0.30	In Water: 23:32
Max cast pressure: 201 dbar	Out of Water: 00:49

Trip/ Niskin	Time	Confirm	Pressure	Target Depth	Comments
	stopped	tripped			
1	00:30:42	00:31:02	199	200	
2	00:32:42	00:32:57	151	150	
3	00:33:45	00:34:00	146	145	
4	00:34:26	00:34:41	141	140	
5	00:35:10	00:35:25	135	135	
6	00:35:53	00:36:09	131	130	
7	00:36:40	00:36:55	124	125]
8	↓	00:37:00	125	125	
9	00:37:29	00:37:44	119	120	
10	00:38:08	00:38:23	115	115	
11	00:38:52	00:39:07	110	110	
12	00:39:44	00:40:00	100	100]
13	↓	00:40:05	100	100	
14	↓	00:40:12	101	100	
15	00:41:27	00:41:42	76	75	
16	00:43:00	00:43:50	50	50	
17		45:50	24	25]
18		00	24	25	
19	47:20	47:50	6	5]
20		00	6	5	
21		10	6	5	
22					
23					
24					

HOT 311

KM 1907

CTD Configuration:

CTD: 91361 (BETA)

Deck Unit: 712060 (secondary)

Pressure: 75434

Carousel: 1261 (New)

T₁: 1416 T₂: 5519C₁: 4687 C₂: 2959O₁: 1601 O₂: 3761Pump₁: 968 Pump₂: 494Fluorometer: 3831 → RMD, ^{INSTALLED}
3025

Altimeter: 7769

for S2C4

Bucket Thermometer: 3622

Transmissometer: 1366

Cruise Participants:

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Amy Zimmerman (scientist/U. Chicago)

Sara Bower (undergrad/UH) J. Diehl - OTG

Anamica Bedi (gradstudent/UH) J. Koch - OTG

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Kendra Turk-Kubo (scientist/UCSC)

Jacob Waldbauer (scientist/U. Chicago)

B. Watkins

April 30, 2019

Equipment loading

Wire Tape 409.0

263 Ω Clear Conductor

30 m cut from the CTD wire

Transmissometer Calibration (Air)

Open: 4.87302 V

Blocked Path: 0.01832

18:45 SET ALQ1

18:51 DEPART VH

19:40 SAFETY MEET

20:27 FIRE / ABAND

21:30 ARRIVE ST

21:51 WEIGHT T

AIR V

WATER

22:19 END WEIG

22:40 BEGIN HYPER

23:15 END HYPER

23:32 BEGIN S

AIR

WA

← PROBLEMS

00:52 END S1 C

01:07 BEGIN TRANS

01:39 PRINTER

→ will m

INSTALL

07:51 ADCP: STR

13-15m.

DO Sensor difference $\sim 9 \mu\text{mol/kg}$ at surface. ~ 5 at depth
Fluorometer change (drop) $\sim 522 \text{ db}$. Gradually came
back to ~ 0.05 , which is consistent with upcast. Again
on upcast around $\sim 235 \text{ db}$.

Printer A not working - need
to troubleshoot in the lab.

HOT-311 / KM1907

May 1, 2019

18:45 SET ALQ1 AND PROC1 CLOCKS TO CURRENT UTC TIME

18:51 DEPART UH MARINE CENTER

19:40 SAFETY MEETING

20:27 FIRE / ABANDON SHIP DRILL

21:30 ARRIVE STATION KAHE

21:51 WEIGHT TEST CAST to 500m (ZERO TENSION \Rightarrow 125 lbs)

AIR WEIGHT: 1280 lbs

WATER WEIGHT: 990 lbs

22:19 END WEIGHT TEST CAST

22:40 BEGIN HYPERPRO - $21^{\circ} 20.58' N$ 23:15 END HYPERPRO - $158^{\circ} 16.40' W$ 23:32 BEGIN S1C1, 61000GPS, $21^{\circ} 20.009' N$, $158^{\circ} 16.4099' W$

AIR WEIGHT: 1000 lbs

WATER WEIGHT: 315 lbs

~~← Problems w/ fluorometer. (see previous page)~~00:52 END S1C1, 24 MARKS OK May 2, 2019

01:07 BEGIN TRANSIT TO STATION ALOHA

01:39 PRINTER \rightarrow PRINTER A NOT WORKING \rightarrow will not communicate with PC.INSTALLED PRINTER B \rightarrow working correctly07:51 ADCP: STRONG NORTH-WEST FLOW (NO. 9 Knts, wh 300)
13-15m.

08:30 STAP

1000 Se
22

1025 BEGI
22°

1037 END
22°

1203 Sta
22

1246 END

14:15 BEGIN
22

14:44 END
22

14:45 TRANS

15:19 BEGIN
22

17:08 REACHE
22

NOTE:

DEPTH

WINCH

brake

WITH

HOT-311/KM1907

MAY 2ND 19

- 08:30 START SEDIMENT TRAPS deployment
- 1000 Sed traps deployed.
22° 45.2355' N, 158° 02.3923' W
- 1025 BEGIN WIRE-WALKER DEPLOYMENT FP
22° 45.2588' N, 158° 01.3156' W
- 1037 END WIRE-WALKER DEPLOYMENT FP
22° 45.2576' N, 158° 01.3147' W
- 1203 Start Sta 2 cast ↓ G-1000 GPS.
22° 44.549' N, 158° 03.1824' W
- 1246 END S2C1, 24 MARKS OK
- 14:15 BEGIN PRIMARY PRODUCTIVITY ARRAY DEPLOYMENT
22° 44.5983' N, 158° 03.1897' W
- 14:44 END PP ARRAY DEPLOYMENT
22° 44.6085' N, 158° 03.1860' W
- 14:45 TRANSIT TO STATION CENTER FOR DEEP CAST
- 15:19 BEGIN S2C2 - WOCE DEEP CAST, G5000 GPS.
22° 45.0414' N, 158° 00.0192' W
- 17:08 REACHED MAX DEPTH, 4807 db, 8 m from bottom
22° 45.0082', 158° 00.0211' W

NOTE: FLUOROMETER CONTINUES TO HAVE PROBLEMS AT DEPTH IN THE LOW END OF ITS RANGE. (0-0.05 v)
WINCH IS LEVEL WINDING correctly, but brake is making noise.
WITH 5000m out, WIRE at drum base is very rusty.

19:21 END

20:57 BEGIN

22:14 END

22:33 BEGIN

23:01 END

23:16 BEGIN

23:32 FLU
RM

23:55 END H

00:07 BEGIN

22

Need to order spare fluorometer
cables.

01:10 FLU

a

01:26 END

02:18 Rep
still

HOT-311 / KM1907

May 2, 2019

- 19:21 END S2C2, 24 Marks OK.
22° 45.0122' N, 158° 00.0357' W
- 20:57 BEGIN S2C3, WOCE SHALLOW CAST, 61000 GPS
22° 45.0271' N, 158° 00.0357' W
- 22:14 END S2C3, 24 MARKS OK.
22° 45.0193' N, 158° 00.0412' W
- 22:33 BEGIN NET TOW
22° 45.0248' N, 158° 00.0137' W
- 23:01 END NET TOW
- 23:16 BEGIN HYPERPRO
22° 44.9879' N, 157° 59.8801' W
- 23:32 Fluorometer - showed bad signal.
RMVD SN 3831, INSTALLED SN 3095
- 23:55 END HYPERPRO

MAY 3, 2019

- 00:07 BEGIN S2C4, PC/PN CAST, 61000 GPS
22° 45.0846' N, 158° 00.0256' W
- 01:10 Fluorescence offsets at 180-200 dbar
and 40 to 140 dbar upcast
- 01:26 End of cast, 24 marks OK
- 02:18 Replaced Fluorometer case
STILL USING SN 3095 (FLUORO)

	GMT	
	0219	TV
	0304	ST
		FI
		at
	0414	End
	0500	BEGIN 22
	0523	END
	0608	ST FI cl
	0733	End F
	0757	BEGIN
	0823	END 2
	0828	BEGIN 22
	0855	END O

HOT 311

3 May 2019

GMT

0219

Transit to pump tanks.

0304

Start S2C5, 61000 GRS.

Fluorometer giving a bad trace again
at ~ 250 and above 160 dba upcast

0414

End of cast, 24 marks OK

0500

BEGIN OF PP RECOVERY - FP

22° 50.5617'N 158° 07.1375'W

0523

END OF PP RECOVERY - FP

0608

Start S2C6 6-1000 GRS

Fluorometer secured with an additional
clamp, it was loosely secured on rosette.

0733

End of cast, 24 marks OK.

Fluorescence trace OK up and downcast

0757

BEGIN OF NET TOW #1

22° 47.3212'N 158° 04.2004'W

0823

END OF NET TOW #1

22° 47.0890'N 158° 03.7180'W

0828

BEGIN OF NET TOW #2

22° 47.0620'N 158° 03.677'W

0855

END OF NET TOW #2

2-11-19

0909

S-

1024

E

1035

TW

1210

S

V

S

F

T

M

13:15

END

14:10

BEG

14:27

END

14:59

BEG

16:10

END

18:02

BEG

HOT-311

3 May 2019

- 0909 Start SZC7, 61000 GPS.
- 1024 End of cast, 24 marks OK.
- 1035 Transit to pump ship's tanks
- 1210 Start SZC8, 6-1000 GPS

Possibly bas fluorescence downcast
at 110-115 dbar.

SZC7, LADCP ERROR 2. ERROR IN BACKGROUND
FUNCTION. ← (NORMAL TO SEE THIS ERROR)

→ Transmissometer shows same feature at this depth, so
may be real feature/data.

- 13:15 END SZC8, 24 MARKS OK.
- 14:10 BEGIN GAS ARRAY DEPLOYMENT
22° 44.3107' N, 158° 00.7626' W
- 14:27 END GAS ARRAY DEPLOYMENT
22° 44.3388' N, 158° 00.7425' W
- 14:59 BEGIN SZC9, OPEN CAST, 61000 GPS
22° 44.3342' N, 158° 00.2765' W
- 16:10 END SZC9, 24 MARKS OK
- 18:02 BEGIN SZC10, PARTICULATE SILICA CAST
22° 44.5119' N, 158° 00.0797' W

18:59 END

19:06 TRANS

20:34 ARRIVE

20:58 BEGIN

22°

21:59 END S

22:13 BEGIN

22

22:43 END

22°

22:48 BEG

22:48 22°

23:17 END

22

00:02 BEGIN

22

NOIS

01:16 END

02:57 STAR

04:14 END

The clip in Ballister bottle 3
needs to be replaced. It lost
its spring.

HOT-311

MAY 3, 2019

18:59 END S2C10, 24 MARKS OK.
 $22^{\circ}44.5025'N, 158^{\circ}00.0970'W$

19:06 TRANSIT TO PUMP TANKS

20:34 ARRIVE STATION CENTER

20:58 BEGIN S2C11, OPEN CAST, G1000 GPS
 $22^{\circ}45.0207'N, 158^{\circ}00.000'W$

21:59 END S2C11, 13 MARKS OK.

22:13 BEGIN NET TOW #1
 $22^{\circ}44.9876'N, 157^{\circ}59.9542'W$

22:43 END NET TOW #1
 $22^{\circ}44.8540'N, 157^{\circ}59.8526'W$

22:48 BEGIN NET TOW #2

22:48 $22^{\circ}44.8215'N, 157^{\circ}59.8123'W$

23:17 END NET TOW #2

$22^{\circ}44.6331'N, 157^{\circ}59.5651'W$

00:02 BEGIN S2C12, ATPCAST, G1000 GPS
 $22^{\circ}44.6530, 157^{\circ}59.5065$

MAY 4, 2019

Noisy transducer signal 400 to 500 dba

01:16 End of cast, 20 marks OK

02:57 Start S2C13, G-1000 GPS

04:14 End of cast, 21 marks OK

0430 Tr

0554 St

0703 En

0758 BEGI

0830 En

0854 Sta

1045 8 W

22

1241 Ew

12:55 BEGIN

22

14:40 END C

14:44 BEGIN

16:00 ARRIVE

16:15-16:40

(W)

16:44 BEGIN F

22°

16:58 END RE

16:59 BEGIN T

HOT-311

4 May 2019

- 0430 Transit to pump ship's tanks
 0554 Start S2C14, 61000 GPS
 0703 End of cast, 24 marks OK
- 0758 BEGIN OF NET TOW #1
 22° 45.8473'N 158° 00.0092'W
- 0830 End net tow
- 0854 Start S2C15 65000 GPS
- 1045 8 m off the bottom
 22° 44.9777'N, 157° 59.9597'W
- 1241 End of cast, 22 marks OK
- 1255 BEGIN OPTICS CAST
 22° 44.9563'N, 157° 59.9203'W
- 14:40 END OPTICS CAST
- 14:44 BEGIN TRANSIT TO GAS ARRAY
- 16:00 ARRIVE GAS ARRAY - (RAIN SQUALLS PASSING THROUGH)
- 16:15-16:40 RECOVERY OF GAS ARRAY DELAYED DUE TO CONDITIONS
 (WINDS 26, GUSTS TO 30 KTS)
- 16:44 BEGIN RECOVERY OF GAS ARRAY
 22° 54.2999'N, 158° 05.5829'W
- 16:58 END RECOVERY OF GAS ARRAY
- 16:59 BEGIN TRANSIT TO SEDIMENT TRAP ARRAY

17:54 ARRIVE

18:00 BEGIN

18:23 END

18:25 BEGIN

18:55 ARRIVE

19:02 BEGIN

19:13 END

19:19 TRANSI

2218 Hy

2249 END

23:29 BEGIN

0049 EN

0212 TR

0740 Ar

HOT-311

MAY 4, 2019

- 17:54 ARRIVE SEDIMENT TRAP ARRAY
- 18:00 BEGIN SEDIMENT TRAP ARRAY RECOVERY
23° 01.9872' N, 158° 10.3949' W
- 18:23 END SEDIMENT TRAP ARRAY RECOVERY
- 18:25 BEGIN TRANSIT TO WIRE WALKER ARRAY
- 18:55 ARRIVE WIRE WALKER
- 19:02 BEGIN WIRE WALKER RECOVERY
23° 01.2162' N, 158° 08.4549' W
- 19:13 END WIRE WALKER RECOVERY
- 19:19 TRANSIT TO STATION 50
- 2218 HYPERPRO IN THE WATER
22° 47.0421' N, 157° 54.3228' W
- 2249 END HYPERPRO
- 23:29 BEGIN S50C1, WHOTS MOORING YOYO, G200 GPS
22° 47.0439' N, 157° 53.9145' W
5 cycles completed
- 5 May, 2019
- 0049 End of cast, 21 marks OK
- 0212 Transit to Kaena Sta
- 0740 Arrived at Kaena Sta

Alf

Yo

0748 Sta

0956 E

1010 Tra

1730 Ar

S-

Bk

HOT-211

5 May 2019

Altimeter seems to be loosely tied to
rosette frame. Adding a clamp.

0748 Start S6C1, 650006PS

0956 End of cast. 13 marks OK

1010 Transit to Pier 35

1730 Arrived at Pier 35.

Starboard side first to unload
Blue equipment van.