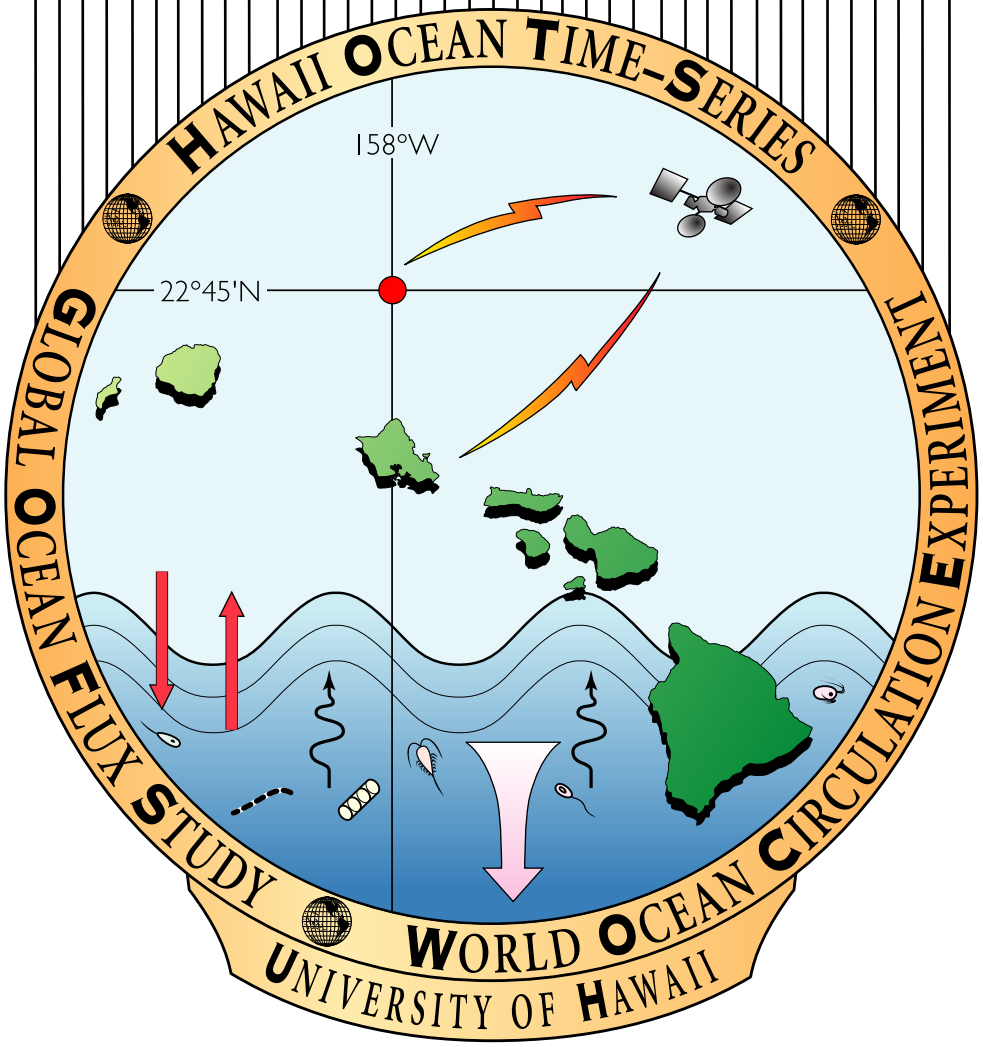
Hawaii Ocean Time-series Program

HOT 316



Hawaii Ocean Time-Series
HOT-**316**
KAHE Station Data Sheet

Station # 1 Date: 10/16/2019 (HST)
Cast # 1 Time: 12:38 (HST)
Operator(s): EG, TB, CF

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	Nuts	LLN/ LLP	Chl *a*	
1	**1000**	1	7.2						
2	**750**	2,3,4	8.1						
3	**500**	5	9.0						
4	**350**	6	10.7			4			
5	**250**	7	14.0			5			
6	**200**								
7	**175**							7	
8	**150**	8	19.5			8	8	8	
9	**125**							9	
10	**100**	9,10,11	22.4			10	10	10A-B	
11	**75**							11	
12	**45**	12	26.8	12	8	12	12	12	
13	**25**	13	27.3	13	2			13A-B	
14	**5**	14	27.5	14	3,4,5	14	14	14	
15	**5**	QC	27.6						
16									
17									
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-Series
HOT-**316**
KAHE Station Data Sheet

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

Date: 10/16/2019 (HST)
Time: 12:38 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	Nuts	LLN/ LLP	Chl *a*	
1	**1000**	1	7.2						
2	**750**	2,3,4	8.1						
3	**500**	5	9.0						
4	**350**	6	10.7			4			
5	**250**	7	14.0			5			
6	**200**								
7	**175**							7	
8	**150**	8	19.5			8	8	8	
9	**125**							9	
10	**100**	9,10,11	22.4			10	10	10A-B	
11	**75**							11	
12	**45**	12	26.8	12	~~1~~8	12	12	12	
13	**25**	13	27.3	13	2			13A-B	
14	**5**	14	27.5	14	3,4,5	14	14	14	
15	**5**	QC	27.6						
16									
17									
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-series
HOT-**316**
Primary Production Data Sheet

Station # 2 Date: 10/17/19 (HST)
Cast # 1 Time: 0200 (HST)
Operator(s): DS,BB,RT

Rosette Position	Desired Depth	Light Bottle	Chl *a* FCM	SF-S	SF-S O2	Temp	
1	**200**						
2	**200**						
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	26.9	
21	**5**	8-1	21	X			
22	**5**	8-2	22	X			
23	**5**	8-3	23	X			
24							

Notes: SF-S samples were not collected.

Hawaii Ocean Time-series
HOT-316
Primary Production Data Sheet

Station # 2 Date: 10/17/19 (HST)
Cast # 1 Time: 0200 (HST)
Operator(s): DS,BB,RT

Rosette Position	Desired Depth	Light Bottle	Chl *a* FCM	SF-S	SF-S O2	Temp	
1	**200**						
2	**200**						
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	2609	
21	**5**	8-1	21	X			
22	**5**	8-2	22	X			
23	**5**	8-3	23	X			
24							

Notes:

Hawaii Ocean Time-series
HOT-**316**
WOCE Deep Data Sheet

Station # 2 Date: 10/17/2019 (HST)
Cast # 2 Time: 6:49 (HST)
Operator(s): EG, TB, CF

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	DOC	Nutrient	Refrig. Si	
1	**4800**	15	6.8				1	1	
2	**4600**	16	6.9				2	2	
3	**4500**	17,18,19	6.7	3A-B	1,2,3	3ABC	3A-B	3A-B	
4	**4400**	20	6.4				4	4	
5	**4200**	21	6.5				5	5	
6	**4000**	22,23,24	7.0			6ABC	6A-B	6A-B	
7	**3800**	25	6.8				7	7	
8	**3600**	26	6.6				8	8	
9	**3400**	27	6.7				9	9	
10	**3200**	28	6.8				10	10	
11	**3000**	29,30,31	7.6	11	4	11ABC	11A-B	11A-B	
12	**2800**	32	6.9				12	12	
13	**2600**	33	7.1				13	13	
14	**2400**	34	7.2				14	14	
15	**2200**	35	7.1				15	15	
16	**2000**	36,37,38	7.9	16	5	16ABC	16A-B	16A-B	
17	**1800**	39	7.3				17	17	
18	**1600**	150	7.6				18	18	
19	**1400**	41	7.8				19	19	
20									
21	**1000**	43	8.5				21	21	
22	**750**	44	8.9				22	22	
23	**500**	45	11.0				23	23	
24	**5**	46	27.0				24		

Notes: Lost Niskin Bottle #20

Hawaii Ocean Time-series
HOT-**316**
WOCE Deep Data Sheet

Station # 2 Date: 10/17/2019 (HST)
Cast # 2 Time: 6:49 (HST)
Operator(s): EG, TB, CF

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	DOC	Nutrient	Refrig. Si	
1	**4800**	15	6.8				1	1	
2	**4600**	16	6.9				2	2	
3	**4500**	17,18,19	6.7	3A-B	1,2,3	3ABC	3A-B	3A-B	
4	**4400**	20	6.4				4	4	
5	**4200**	21	6.5				5	5	
6	**4000**	22,23,24	7.0			6ABC	6A-B	6A-B	
7	**3800**	25	6.8				7	7	
8	**3600**	26	6.6				8	8	
9	**3400**	27	6.7				9	9	
10	**3200**	28	6.8				10	10	
11	**3000**	29,30,31	7.6	11	4	11ABC	11A-B	11A-B	
12	**2800**	32	6.9				12	12	
13	**2600**	33	7.1				13	13	
14	**2400**	34	7.2				14	14	
15	**2200**	35	7.1				15	15	
16	**2000**	36,37,38	7.9	16	5	16ABC	16A-B	16A-B	
17	**1800**	39	7.3				17	17	
18	**1600**	150	7.6				18	18	
19	**1400**	41	7.8				19	19	
~~20~~	~~**1200**~~	~~42~~					20	20	
21	**1000**	43	8.5				21	21	
22	**750**	44	8.9				22	22	
23	**500**	45	11.0				23	23	
24	**5**	46	27.0				24		

Lost Niskin Bottle #20

Notes:

Bottle #16 oxygen (Niskin 2) had a bubble

Bottle 16-30 low water [illegible] had a bubble.

Hawaii Ocean Time-series
HOT-**316**
PO Shallow Data Sheet

Station #	2	Date:	10/17/2019 (HST)
Cast #	3	Time:	13:26 (HST)
Operator(s):	EG, TB, CF		

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	DOC	Nutrient	Refrig. Si	Replicate Depths
1	**1020**	47,48,49	8.0	1	8	1	1A-B	1A-B	**1000**
2	**985**	50	8.2				2	2	
3	**940**	51	7.7				3	3	
4	**895**	52	7.9				4	4	
5	**849**	53	7.9				5	5	
6	**804**	54	8.3				6	6	
7	**761**	55,56,57	8.3	7	2	7	7	7	**750**
8	**717**	58	8.1				8	8	
9	**683**	59	8.2				9	9	
10	**648**	60	8.3				10	10	
11	**595**	61	8.7	11	3	11	11	11	**600**
12	**532**	62	9.0				12 A-B	12A-B	**525**
13	**494**	63,64,65	10.2	13	4	13	13	13	**500**
14	**449**	66	10.3				14	14	**450**
15	**382**	67	11.6	15AB	5,6	15	15		**350**
16	**320**	68	12.7				16		
17	**270**	69	14.0	17	7	17	17		**250**
18	**225**	70.71,72	15.9				18		
19	**180**	73	17.5				19A-B		**150**
20	**115**	74	20.3				20		
21	**75**	75	21.4				21		
22	**65**	76	22.3				22		
23	**55**	77	23.3				23		
24	**5**	78	27.0				24		

Notes:

Hawaii Ocean Time-series
HOT-**316**
PO Shallow Data Sheet

Station # 2
Cast # 3
Operator(s): EG, TB, CF

Date: 10/17/2019 (HST)
Time: 13:20 (HST)

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ Alk	pH	DOC	Nutrient	Refrig. Si	Replicate Depths
1	**1020**	47,48,49	8.0	1	8	1	1A-B	1A-B	**1000**
2	**985**	50	8.2				2	2	
3	**940**	51	7.7				3	3	
4	**895**	52	7.9				4	4	
5	**849**	53	7.9				5	5	
6	**804**	54	7.9				6	6	
7	**761**	55,56,57	8.3	7	2	7	7	7	**750**
8	**717**	58	8.1				8	8	
9	**683**	59	8.2				9	9	
10	**648**	60	8.3				10	10	
11	**595**	61	8.7	11	3	11	11	11	**600**
12	**532**	62	9.0				12 A-B	12A-B	**525**
13	**494**	63,64,65	10.2	13	4	13	13	13	**500**
14	**449**	66	10.3				14	14	**450**
15	**382**	67	11.6	15AB	5,6	15	15		**350**
16	**320**	68	12.7				16		
17	**270**	69	14.0	17	7	17	17		**250**
18	**225**	70.71,72	15.9				18		
19	**180**	73	17.5				19A-B		**150**
20	**115**	74	20.3				20		
21	**75**	75	21.4				21		
22	**65**	76	22.3				22		
23	**55**	77	23.3				23		
24	**5**	78	27.0				24		

Notes:

Hawaii Ocean Time-series

HOT- **316**

Particulate Silica Data Sheet

Station #	2	Date:	10/17/2019 (HST)
Cast #	4	Time:	15:45 (HST)
Operator(s):	DS, TB, BB	Pre-screen mesh size:	none
Blank #	**B1, B2, B3**		

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	DNA			
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	X			
8	**75**							
9	**45**	13	4	9				
10	**45**				X			
11	**25**	14,15	4,4	11A-B				
12	**25**				X			
13	**5**				X			
14	**5**	16	4	14				
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT- **316**
Particulate Silica Data Sheet

Station # 2 Date: 10/17/19 (HST)
Cast # 4 Time: 1545 (HST)
Operator(s): DS, TB, BB Pre-screen mesh size: none
Blank # **B1, B2, B3**

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	DNA			
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	X			
8	**75**							
9	**45**	13	4	9				
10	**45**				X			
11	**25**	14,15	4,4	11A-B				
12	**25**				X			
13	**5**				X			
14	**5**	16	4	14				
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT-**316**
BEACH Shallow Data Sheet (1/2)

Station # 2 Date: 10/17/19 (HST)
Cast # 5 Time: 2000 (HST)
Operator(s): Ds,tb,bb

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ ALK	Quay DIC	Keeling DIC	SF-S	pH	DOC
1	**1000**	79	8.1						
2	**O_2 min**	80	8.5						
3	**Sal min**	81	10.2						
4	**200**	82	16.5	4				1	4
5	**175**	83	17.6						5
6	**165**	84	18.3						
7	**150**	85	18.6	7				2	7
8	**130**								
9	**125**	86	19.6						9
10	**115**	87	20.3						
11	**110**								
12	**100**	88,89,96	21.1	12				3	12
13	**90**								
14	**85**	91	21.7						
15	**75**	92	23.5	15				4	15
16	**60**								16
17	**45**	93	26.8	17				5	17
18	**35**								18
19	**25**	94	26.9	19				6	19
20	**25**				20		20A-B		
21	**15**								21
22	**5**	95	27.1	22A-B				7,8	22
23	**5**				23	23A-B			
24	**5**						24A-B		

Notes:
Keeling 23A @ 2141
Keeling 23B @ 2145

Hawaii Ocean Time-series
HOT-**316**
BEACH Shallow Data Sheet (2/2)

Station # 2 Date: 10-17/19 (HST)
Cast # 5 Time: 2000 (HST)
Operator(s): Ds,tb,bb

Rosette Position	Desired Depth	Nutrient	LLN	LLP				
1	**1000**							
2	**O_2 min**							
3	**Sal min**							
4	**200**	4						
5	**175**	5	5	5				
6	**165**		6					
7	**150**	7	7A-B	7				
8	**130**		8					
9	**125**	9A-B	9	9				
10	**115**		10	10				
11	**110**		11					
12	**100**	12	12A-B	12				
13	**90**		13					
14	**85**		14	14				
15	**75**	15	15	15				
16	**60**	16	16	16				
17	**45**	17A-B	17	17				
18	**35**	18	18					
19	**25**	19	19	19				
20	**25**							
21	**15**	21	21					
22	**5**	22	22A-B	22				
23	**5**							
24	**5**							

Notes:

Hawaii Ocean Time-series
HOT-**316**
BEACH Shallow Data Sheet (1/2)

Station # 2 Date: 10/17/19 (HST)
Cast # 5 Time: 2000 (HST)
Operator(s): Ds,tb,bb

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DIC/ ALK	Quay DIC	Keeling DIC	SF-S	pH	DOC
1	**1000**	79	8.1						
2	**O_2 min**	80	8.5						
3	**Sal min**	81	10.2						
4	**200**	82	16.5	4				1	4
5	**175**	83	17.6						5
6	**165**	84	18.3						
7	**150**	85	18.6	7				2	7
8	**130**								
9	**125**	86	19.6						9
10	**115**	87	20.3						
11	**110**								
12	**100**	88,89,96	21.1	12				3	12
13	**90**								
14	**85**	91	21.7						
15	**75**	92	23.5	15				4	15
16	**60**								16
17	**45**	93	26.8	17				5	17
18	**35**								18
19	**25**	94	26.9	19				6	19
20	**25**				20		20A-B		
21	**15**								21
22	**5**	95	27.1	22A-B				7,8	22
23	**5**				23	23A-B			
24	**5**						24A-B		

Notes: Keeling 23A 2141
23B 2145

Hawaii Ocean Time-series
HOT-**316**
Open Data Sheet

Station # 2 Date: 10/17/19 (HST)
Cast # 6 Time: 2300 (HST)
Operator(s): Ds,tb,bb

Rosette Position	Desired Depth	SF-S	DNA					
1	**1000**							
2	**Sal Min**							
3	**500**							
4	**175**		X					
5	**150**		X					
6	**125**		X					
7	**100**		X					
8	**25**	8 A,B						
9	**5**	9 A,B						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT-**316**
Open Data Sheet

Station # 2 Date: 10/17/2019 (HST)
Cast # 6 Time: 2300 (HST)
Operator(s): Ds,[redacted],bb
rt

Rosette Position	Desired Depth	SF-S	DNA					
1	**1000**							
2	**Sal Min**							
3	**500**							
4	**175**		X					
5	**150**		X					
6	**125**		X					
7	**100**		X					
8	**25**	8 A,B						
9	**5**	9 A,B						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series

HOT- **316**

Gas Array Experiment Data Sheet

Station #	2	Date:	10/18/19 (HST)
Cast #	7	Time:	0200 (HST)
Operator(s):	CF,TB,EG		

Rosette Position	Desired Depth	15N2	SF-S				
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	5	8-1					
20	5	8-2					
21	**5**	8-3					
22	**5**		22A,B				
23							
24							

Notes:

Hawaii Ocean Time-series
HOT- **316**
MC Data Sheet

Station #	2	Date:	10/18/2019 (HST)
Cast #	8	Time:	5:13 (HST)
Operator(s):	EG, TB, CF		

Rosette Position	Desired Depth	DNA	SFS	MC	O2 SF-S	Temp.		
1	**1020**							
2	**Sal min-450**							
3	**275**	X						
4	**250**	X						
5	**225**	X						
6	**200**	X						
7	**175**			1				
8	**150**			2				
9	**125**			3				
10	**100**			4				
11	**75**			5				
12	**45**			6				
13	**25**			7				
14	**25**		14AB					
15	**15**				127,128,129	27.0		
16	**5**		16AB					
17	**5**			8				
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT- **316**
MC Data Sheet

Station # 2 Date: 10/18/2019 (HST)
Cast # 8 Time: 0513 (HST)
Operator(s): EG, TB, CF

Rosette Position	Desired Depth	DNA	SFS	MC	O2 SF-S	Temp.		
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	**100**			4				
11	**75**			5				
12	**45**			6				
13	**25**			7				
14	**25**		14AB					
15	**15**				127.128.129	27.0		
16	**5**		16AB					
17	**5**			8				
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series

HOT- **316**

PC/PN Data Sheet

Station #	2	Date:	10/18/2019	(HST)
Cast #	9	Time:	6:00	(HST)
Operator(s):	EG, CF	Pre-screen mesh size:	202 um	
Blank #'s	**___B1___**	**___B2___**	**___B3___**	

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S		
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	**100**	9	4	10			
11	**75**	10	4	11			
12	**45**	11	4	12			
13	**25**	12,13	4,4	13 A, B			
14	**25**				14 A,B		
15	**5**	14	4	15			
16	**5**				16 A,B		
17							
18							
19							
20							
21							
22							
23							
24							

Notes: Carboy #4 leaked; Stopped filtration Carboy #3&6; Carboy #3 filtered 10-1.6=8.4L (deep red color); Carboy #6 filtered 10-1.5=8.5 L (orange in color)

Hawaii Ocean Time-series
HOT- **316**
PC/PN Data Sheet

Station # 2 Date: 10/18/2019 (HST)

Cast # 9 Time: 6:00 (HST)

Operator(s): EG, CF Pre-screen mesh size: 202 um

Blank #'s **B1** **B2** **B3**

Rosette Position	Desired Depth	Carboy #	Total Volume	Sample #	SF-S		
1	**1000**						
2	**Sal Min**						
3	**350**	1	10	3			
4	**350**	2	10	4			
5	**250**	3	10	5	~10L ~1.6L		
6	**200**	4	10	6			
7	**175**	5	10	7			
8	**150**	6	10	8	~1.5L		
9	**125**	7,8	4,4	9A-B			
10	**100**	9	4	10			
11	**75**	10	4	11			
12	**45**	11	4	12			
13	**25**	12,13	4,4	13 A, B			
14	**25**				14 A,B		
15	**5**	14	4	15			
16	**5**				16 A,B		
17							
18							
19							
20							
21							
22							
23							
24							

Stopped filtration Carboy #3 & 6
#3 filtered - 8.4L
Bred
#6 filtered - 8.5L
Orange

Notes: Carboy #4 leaking

Hawaii Ocean Time-series

HOT- **316**

Particulate Phosphorus Data Sheet

Station # 2 Date: 10/18/19 (HST)

Cast # 10 Time: 11:03 (HST)

Operator(s): EG, TB, CF 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		
1	**1000**								
2	**Sal**								
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	**100**	9	4	10					
11	**75**	10	4	11					
12	**45**	11	4	12					
13	**25**	12,13	4,4,	13 A-B					
14	**25**				14 A.B				
15	**15**					124,125,126	27.1		
16	**5**	14	4	16					
17	**5**				17 A,B				
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-series
HOT- **316**
Particulate Phosphorus Data Sheet

Station # 2 Date: 10/18/19 (HST)

Cast # 10 Time: 11:03 (HST)

Operator(s): EG, ~~EB~~ TB, CF 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		
1	**1000**								
2	**Sal**								
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	**100**	9	4	10					
11	**75**	10	4	11					
12	**45**	11	4	12					
13	**25**	12,13	4,4,	13 A-B					
14	**25**				14 A.B				
15	**15**					124.125.126	27.1°		
16	**5**	14	4	16					
17	**5**				17 A,B				
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-series

HOT- **316**

ATP Data Sheet

Station # 2 Date: 10/18/2019 (HST)

Cast # 11 Time: (HST)

Operator(s): RT,DS,BB Pre-screen mesh size: 202um

Blank #'s 28, 29, 30

Rosette Position	Desired Depth	ATP Tube #'s	Volume Filtered	Carboy #	SF-S	DNA	
1	**1000**						
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**				15A,B		
16	**5**	25 - 27	3x1	13			
17	**5**				17AB		
18							
19							
20							
21							
22							
23							
24							

Notes:

Hawaii Ocean Time-series
HOT- **316**
ATP Data Sheet

Station # 2 Date: 10/18/2019 (HST)
Cast # 11 Time: (HST)
Operator(s): Pre-screen mesh size: 202um
Blank #'s 28, 29, 30

Rosette Position	Desired Depth	ATP Tube #'s	Volume Filtered	Carboy #	SF-S	DNA	
1	**1000**						
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	~~14~~ 12			
15	**25**				15A.B		
16	**5**	25 - 27	3x1	~~16~~ 13			
17	**5**				17AB		
18							
19							
20							
21							
22							
23							
24							

Notes:

Hawaii Ocean Time-series
HOT-**316**
OPEN CAST Data Sheet

Station #	2	Date:	10/18/19 (HST)
Cast #	12	Time:	1700 (HST)
Operator(s):	BB,DS,RT		

Rosette Position	Desired Depth	SW	SF-S	O2 SF-S	Temp		
1	**1000**						
2	**800**	2					
3	**600**	3					
4	**Sal Min**						
5	**400**	5					
6	**300**	6					
7	**200**	7					
8	**175**	8					
9	**150**	9					
10	**125**	10					
11	**100**	11					
12	**75**	12					
13	**45**	13					
14	**25**	14					
15	**25**		15A,B				
16	**15**			130,131,132	27.1		
17	**5**		17A,B				
18	**5**	18					
19							
20							
21							
22							
23							
24							

Notes

Hawaii Ocean Time-series
HOT-**316**
OPEN CAST Data Sheet

Station # 2 Date: 10/18/19 (HST)
Cast # 12 Time: 1700 (HST)
Operator(s): BB, DS, RT

Rosette Position	Desired Depth	SW	SF-S	O2 SF-S	Temp		
1	**1000**						
2	**800**	2					
3	**600**	3					
4	**Sal Min**						
5	**400**	5					
6	**300**	6					
7	**200**	7					
8	**175**	8					
9	**150**	9					
10	**125**	10					
11	**100**	11					
12	**75**	12					
13	**45**	13					
14	**25**	14					
15	**25**		15A,B				
16	**15**			130.131.132	27.1		
17	**5**		17A,B				
18	**5**	18					
19							
20							
21							
22							
23							
24							

Notes

~~**Niskin 16 O2 samples not filled**~~

Hawaii Ocean Time-series
HOT-**316**
HPLC & Chl *a*. Bottle Data Sheet

Station #	2	Date:	10/18/19 (HST)
Cast #	13	Time:	2000 (HST)
Operator(s):	DS,RT,BB		

Rosette Position	Desired Depth	Carboy #	Total Volume	HPLC	Chl *a*.	RK		
1	**1000**					X		
2	**1000**					X		
3	**Sal min**							
4	**175**	1	10	4	4			
5	**150**	2	10	5	5			
6	**135**	7	4	6	6A-B			
7	**125**	8,9	4,4	7A-B	7			
8	**115**	10	4	8	8			
9	**100**	11	4	9	9			
10	**85**	12	4	10	10			
11	**75**	13	4	11	11			
12	**60**	14	4	12	12A-B			
13	**45**	15,16	4,4	13A-B	13			
14	**25**	3	10	14	14			
15	**15**					X		
16	**15**					X		
17	**5**	4	10	17	17			
18								
19								
20								
21								
22								
23								
24								

Note:

Hawaii Ocean Time-series
HOT-**316**
WOCE Deep 2 Data Sheet

Station # 2 Date: 10/18/19 (HST)
Cast # 14 Time: 2355 (HST)
Operator(s): DS,RT,BB

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DNA				
1	**4800**	97	4.2					
2	**4000**	98	3.9					
3	**4000**			X				
4	**3000**	99	4.0					
5	**3000**			X				
6	**2000**	100	4.1					
7	**2000**			X				
8	**1000**			X				
9	**O2 min**	101	6.1					
10	**Sal min**	102	6.7					
11	**O2 max**	103	8.8					
12	**5**	104	21.3					
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT-**316**
WOCE Deep 2 Data Sheet

Station # 2 Date: 10/18/19 (HST)
Cast # 14 Time: 2355 (HST)
Operator(s): DS,RT,BB

Rosette Position	Desired Depth	Oxygen	Sample Temp.	DNA				
1	**4800**	97	4.2					
2	**4000**	98	3.9					
3	**4000**			X				
4	**3000**	99	4.0					
5	**3000**			X				
6	**2000**	100	4.1					
7	**2000**			X				
8	**1000**			X				
9	**O2 min**	101	6.1					
10	**Sal min**	102	6.7					
11	**O2 max**	103	8.8					
12	**5**	104	21.3					
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT- **316**
STATION 52 Data Sheet

Station # 52 Date: 10/19/2019 (HST)
Cast # 1 Time: 12:21 (HST)
Operator(s): DS, TB

Rosette Position	Desired Depth	DIC/TA	pH	ZL				
1	**200**							
2	**25**			X				
3	**5**	3A,B	1,2,3					
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series
HOT- **316**
STATION 52 Data Sheet

Station # 52 Date: 10/19/2019 (HST)
Cast # 1 Time: 12:21 (HST)
Operator(s): DS, TR

Rosette Position	Desired Depth	DIC/TA	pH	ZL				
1	**200**							
2	**25**			X				
3	**5**	3A,B	1,2,3					
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

Notes:

Hawaii Ocean Time-series

HOT- **316**

STATION Kaena Data Sheet

Station # 6 Date: 10/19/19 (HST)

Cast # 1 Time: 2000 (HST)

Operator(s): Ds,rt,bb

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 316
Chlorophyll Grab Sample Sheet

Date	Time (HST)	Location	GS #
10/16/2019	14:35	kahe	1
10/16/19	22:54	ACOA	2
10/17/19	9:30	"	3
10/17/19	15:16	"	4
10/18/19	2:30	"	5
"	9:56	"	6
"	14:41	"	7
"	21:06	"	8
10/19/19	7:02	"	9
10/19/19	15:07	"	10

Hawaii Ocean Time-series
HOT 316
Argos Fix Log Sheet

Array	Platform #	Platform #
Sediment Trap	84857	59100
PP/Gas Array	60484	50030 (78)
Wirewalker		51020 (77)

Date	Time	Platform	Position	Initials	Array Name
10/17	09:19	WW(77)	22° 39.286'N, 158° 01.843'W	TR	WWØ
10/17	10:06	ST(59100)	22° 40.041'N, 158° 00.952'W	TR	STØ
10/17	1505	PP	22°42.798'N, 158 9.802	FS-M	PPØ
	21:16	ST(59100)	22 41.860, 157 59.777		ST-1
		PP1	22°44579 158 3.708'		
10/19	13:30	59100	22°48.676, 157°57.688	FS-M	ST-2
10/19	13:30	50030	22°51.856, 157°54.131	FS-M	GA-1
10/19	13:30	51020	22°46.948, 157°58.564	FS-M	WW-1

Hawaii Ocean Time-series
HOT-316
In Situ Primary Production Data Sheet

Operators in: BW, TB, EG, CF
Operators Out: BW, RT, DS

Date in:	10/17/2019		Date out:	10/17/19	
Time in:	Start : 0450 Release: 0505	(HST)	Time out:	1832	(HST)

Incubation Depth		Insertion Time	Owner
125	✓		
100	✓		
75	✓		
45	✓		
25	✓		
5	✓		

Position in: 22° 42.798' N, 158° 4.802' W
Position out: 22° 44.785' N, 158° 3.568' W

Average weather condition during incubation: 18-22 knots from the east
Average sea state during incubation: 4-5 feet

Notes:

Begin Inoculation	0300	End Inoculation	1845
Filtration time	1700		

Hawaii Ocean Time-series
HOT-316
In Situ Primary Production Data Sheet

Operators in: BW, TB, EG, CF
Operators Out:
Date in: 10/17/2019 Date out: 10/17/19
Time in: Start : 4:50 (HST) Time out: ~~1841~~ 1832 (HST)
Release: 5:05

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

Insertion Time	Owner

Position in: 22° 42.798 N, 158° 4.802 W
Position out: 22° 44.785 N, 158° 3.568 W

Average weather condition during incubation: 18-22 knots from east
Average sea state during incubation: 4-5ft

Notes:

Begin Inoculation 0300 End Inoculation 1845
Filtration time

Hawaii Ocean Time-series
HOT-316 Sediment Trap Data Sheet

Deployment

Type of traps:	HOT 150m	Date:	10/17/2019
Operator(s):	BW,DS,RT,BB		
Position in:	22° 40.041 N, 158° 00.952 W		
Time in (HST):	1206		
Time relseased (HST):	1206		

Recovery

Operator(s):	TB, BW, EG	Date:	10/19/2019
Start recovery (HST):	7:31	Wind:	25 knots
Time out (HST):	7:46	Sea state:	6 ft.
Position out:	22° 49.495'N, 157° 57.417' W		

Comments:

Hawaii Ocean Time-series
HOT-316 Sediment Trap Data Sheet

Deployment

Type of traps:	HOT 150m	Date:	10/17/2019
Operator(s):	BW,DS,RT,BB		
Position in:	22 40.041 N, 158 00.952 W		
Time in (HST):	1206		
Time relseased (HST):	1206		

Recovery

Operator(s):	TB, BW, EG	Date:	10/19/2019
Start recovery (HST):	7:31	Wind:	26 knots
Time out (HST):	7:46	Sea state:	6 ft.
Position out:	22° 49.495'W 157° 57.417'W		

Comments:

Data Sheet for Sediment Trap Volumes

Cruise #: 316
Analyst: EG, BW

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

Depth: 150
meter

Trap Name	Interface	Height (cm) at Line #2 (Top Line)
A	35.5	40.6
B	34.6	39.5
C	33.5	38.5
D	34.5	39.6
E	33.1	38.1
F	35.9	40.9
G	33.6	38.4
H	34.3	39.6
I	34.4	39.6
J	36.1	41
K	35	40.1
L	36	41

Data Sheet for Sediment Trap Volumes

Cruise #: 316

Analyst: _____

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)	Interface
	150m		
A		40.6	35.5
B		39.5	34.6
C		38.5	33.5
D		39.6	34.5
E		38.1	33.1
F		40.9	35.9
G		38.4	33.6
H		39.6	34.3
I		39.6	34.4
J		41	36.1
K		40.1	35
L		41	36

Hawaii Ocean Time-series
HOT-316
In Situ Gas Array Data Sheet

Operators: EG, BW, TB, CF	**Operators: EG, BW, TB, CF**
Date Deployed : 10/18/2019	**Date Recovered: 10/19/2019**
Time (HST): 14:35	**Time (HST): 6:39**
Position In: 22° 45.985'N 158° 55.649'W	**Position Out: 22°52.345' N 157° 53.971'W**

Nitrogen Fixation Sample Processing Sheet

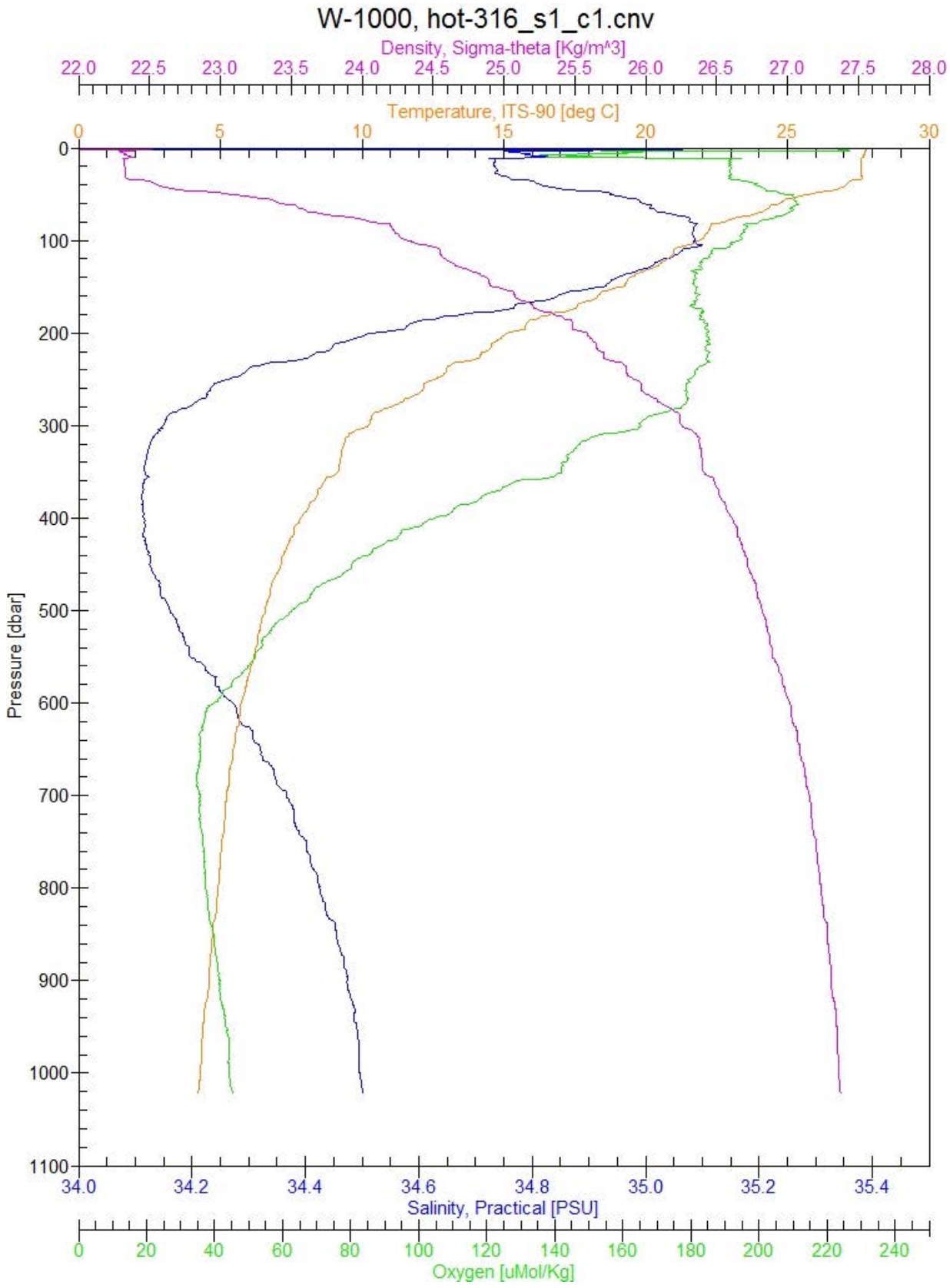
Sample ID	Date Spiked	Time Spiked	Date filtered	Time Filtered	15N Batch	Comments
3-1	**10/18**	**3:21**	**10/19**	**6:40**		
3-2				"		
3-3				"		
4-1				6:43		
4-2				"		
4-3				"		
5-1				6:44		
5-2				"		
5-3				7:32		
6-1				"		
6-2				"		
6-3				7:33		
7-1				"		
7-2				"		Filter looked clearer than most
7-3				7:35		
8-1				"		
8-2				8:18		
8-3		**3:29**		"		

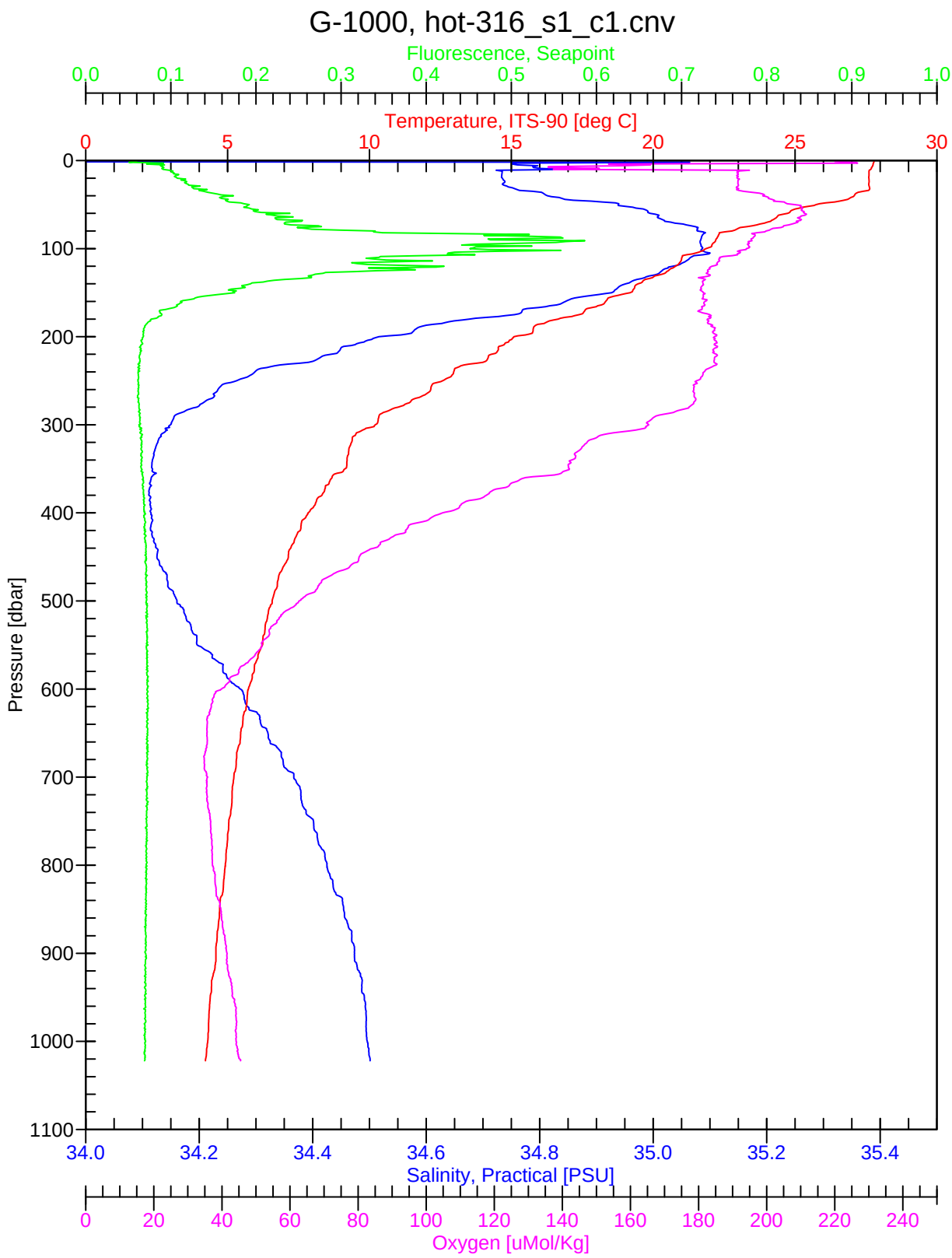
Hawaii Ocean Time-series
HOT-316
In Situ Gas Array Data Sheet

Operators: BW, TB, EG, CF	**Operators:** BW, TB, EG, CF
Date Deployed : 10/18/2019	**Date Recovered:** 10/19/2019
Time (HST): 14:35	**Time (HST):** 6:39
Position In: 22° 45.985 **158°** 50.649'W	**Position Out: 22°**52.345N **158°** 53.971'W

Nitrogen Fixation Sample Processing Sheet

Sample ID	Date Spiked	Time Spiked	Date filtered	Time Filtered	15N Batch	Comments
3-1 1	10/18	3:21	10/19	6:40		
3-2 2				|		
3-3 3				|		
4-1 4				6:43		
4-2 5				|		
4-3 6				|		
5-1 7				6:44		
5-2 8				|		
5-3 1				7:32		
6-1 2				|		
6-2 3				|		
6-3 4				7:33		
7-1 5				|		Filter looked clearer than most
7-2 6				|		
7-3 7				7:35		
8-1 8				|		
8-2 1				8:18		
8-3 2		3:29				


W-1000, hot-316_s1_c1.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]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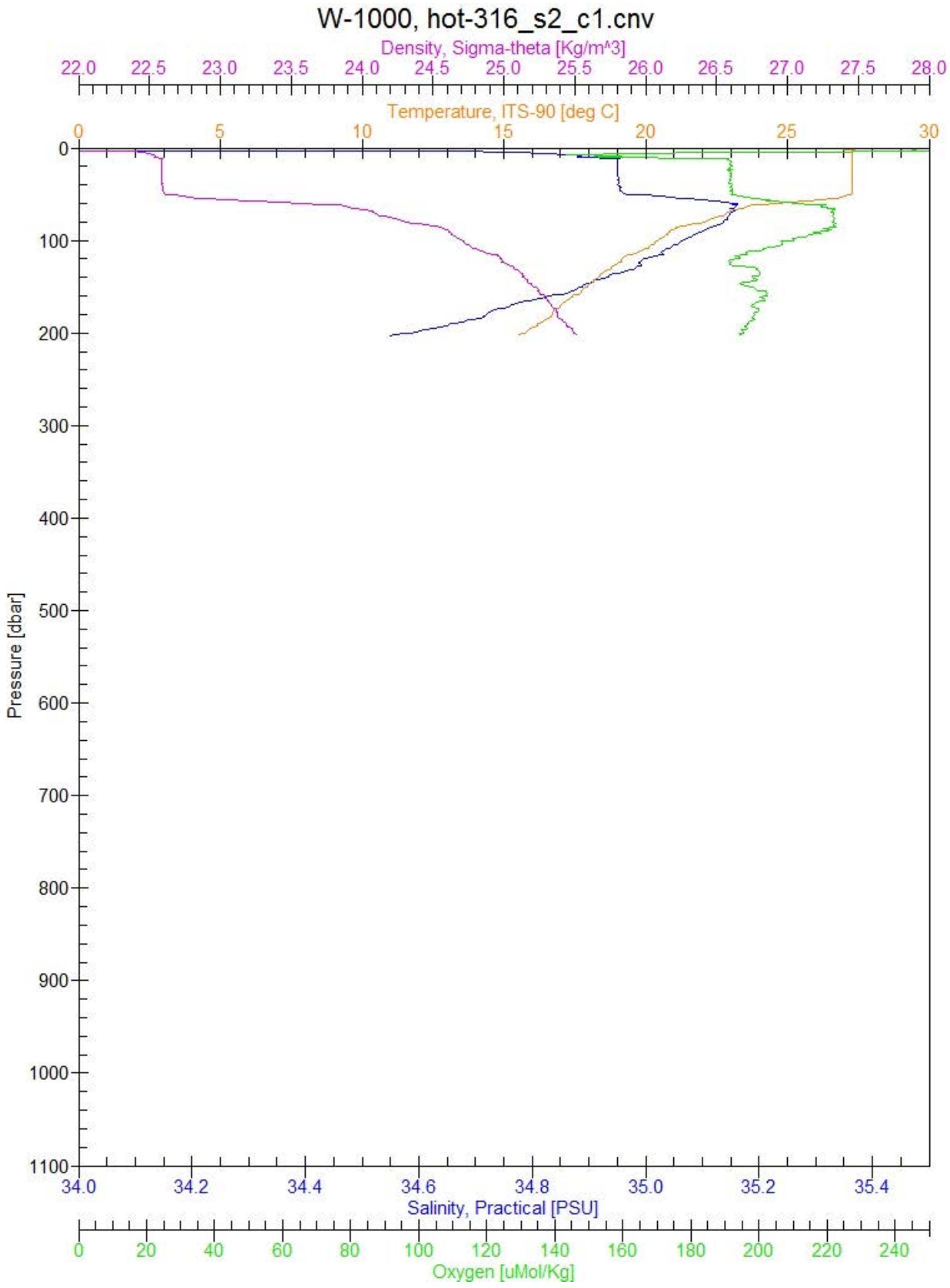
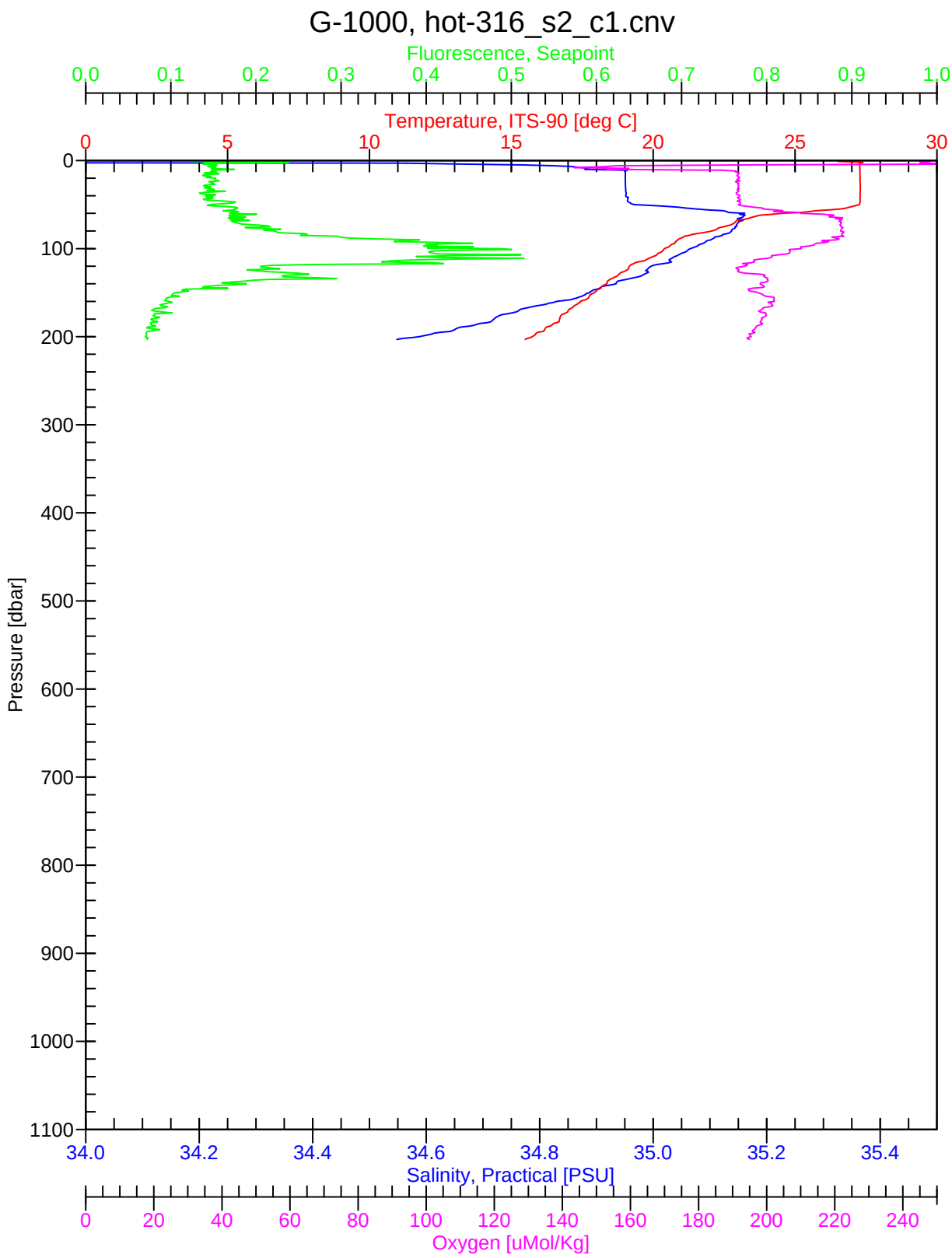
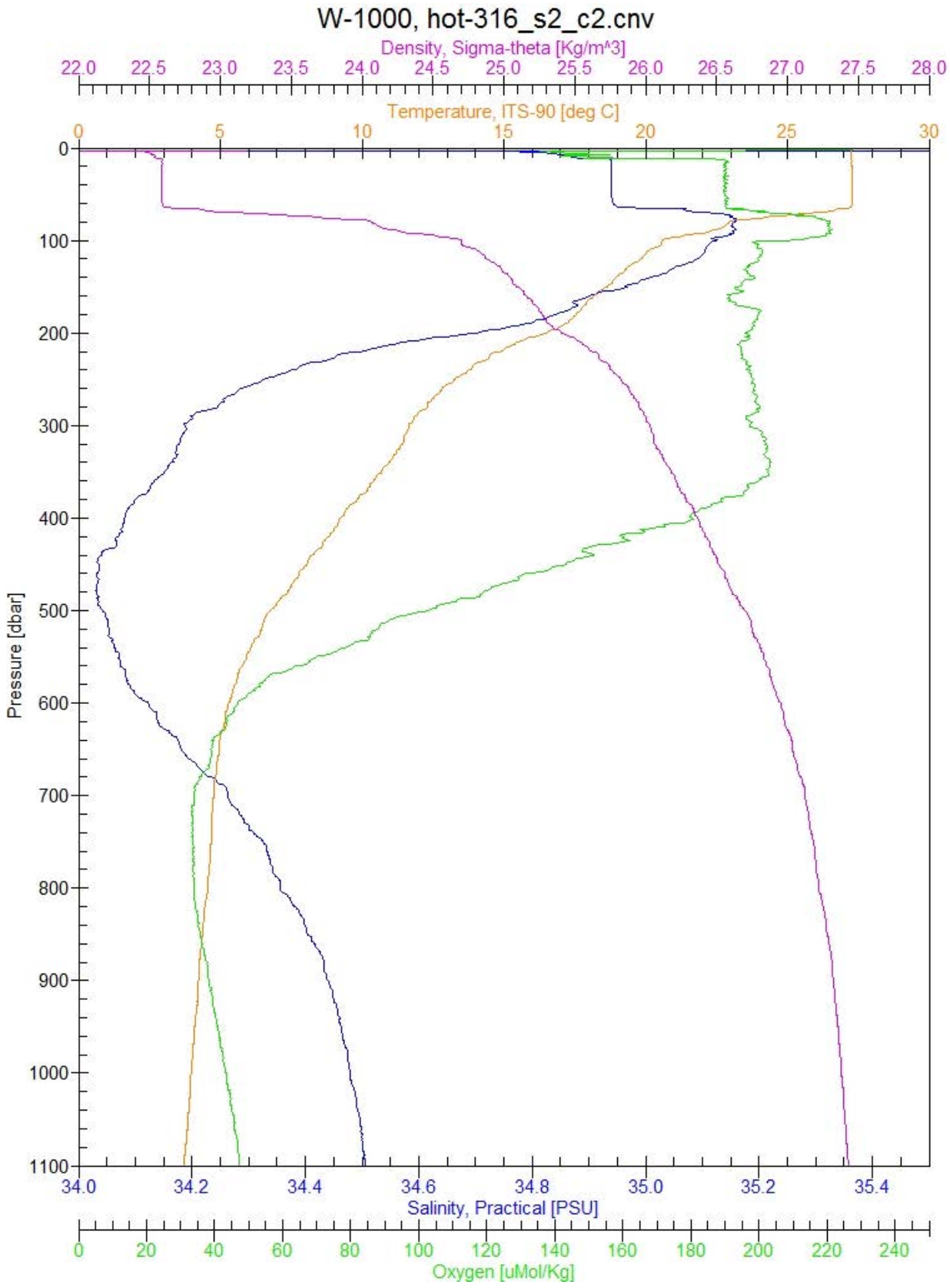
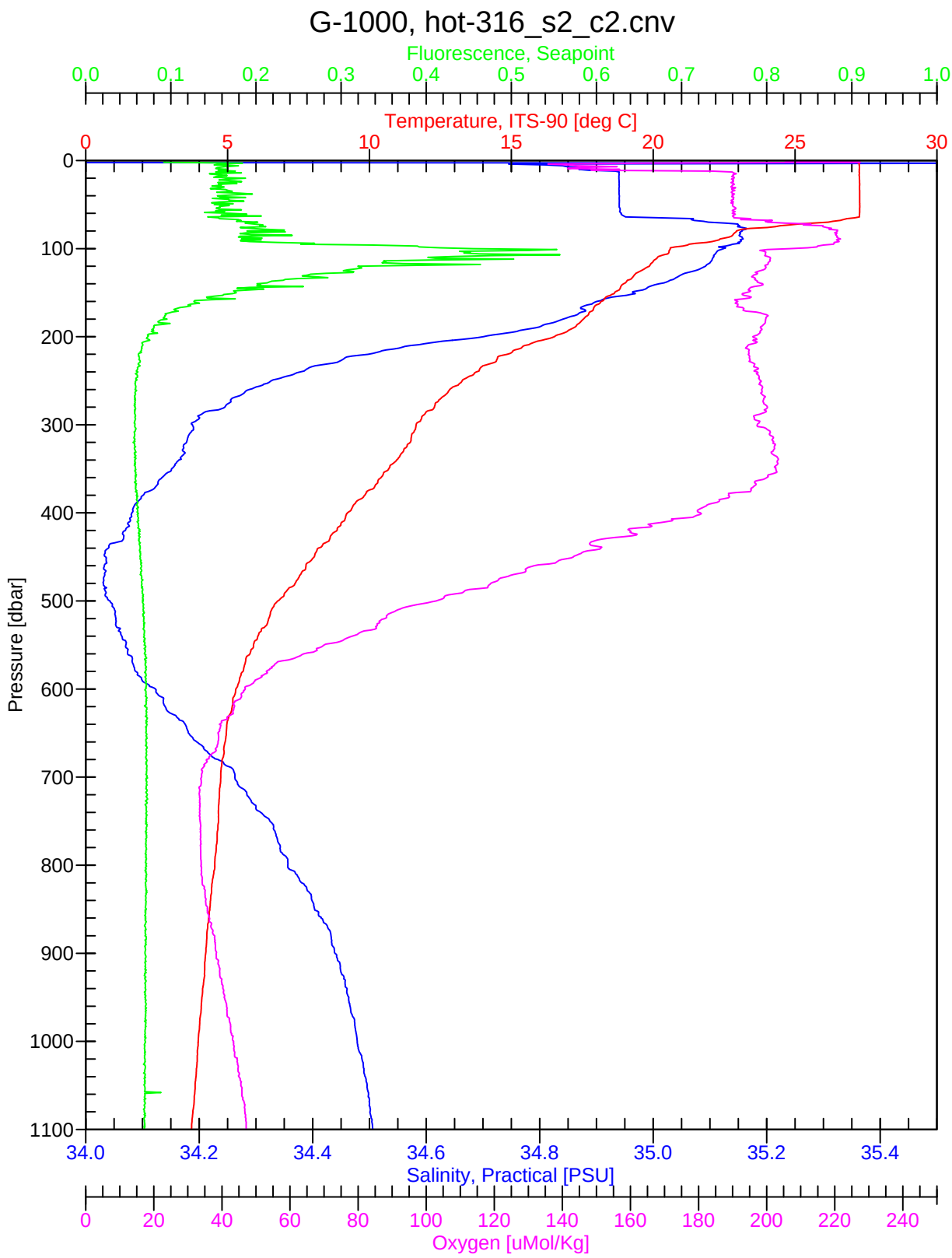
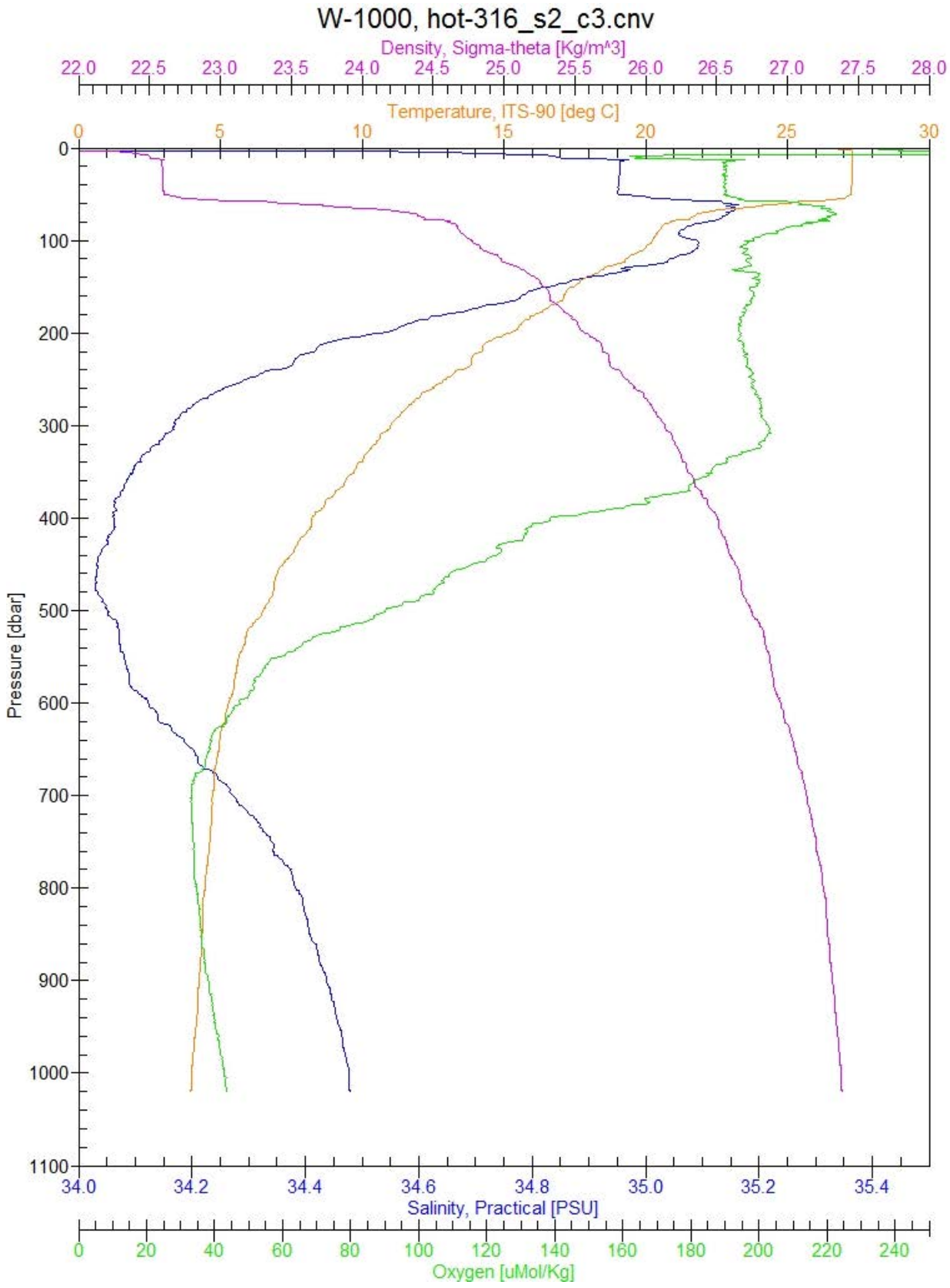
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

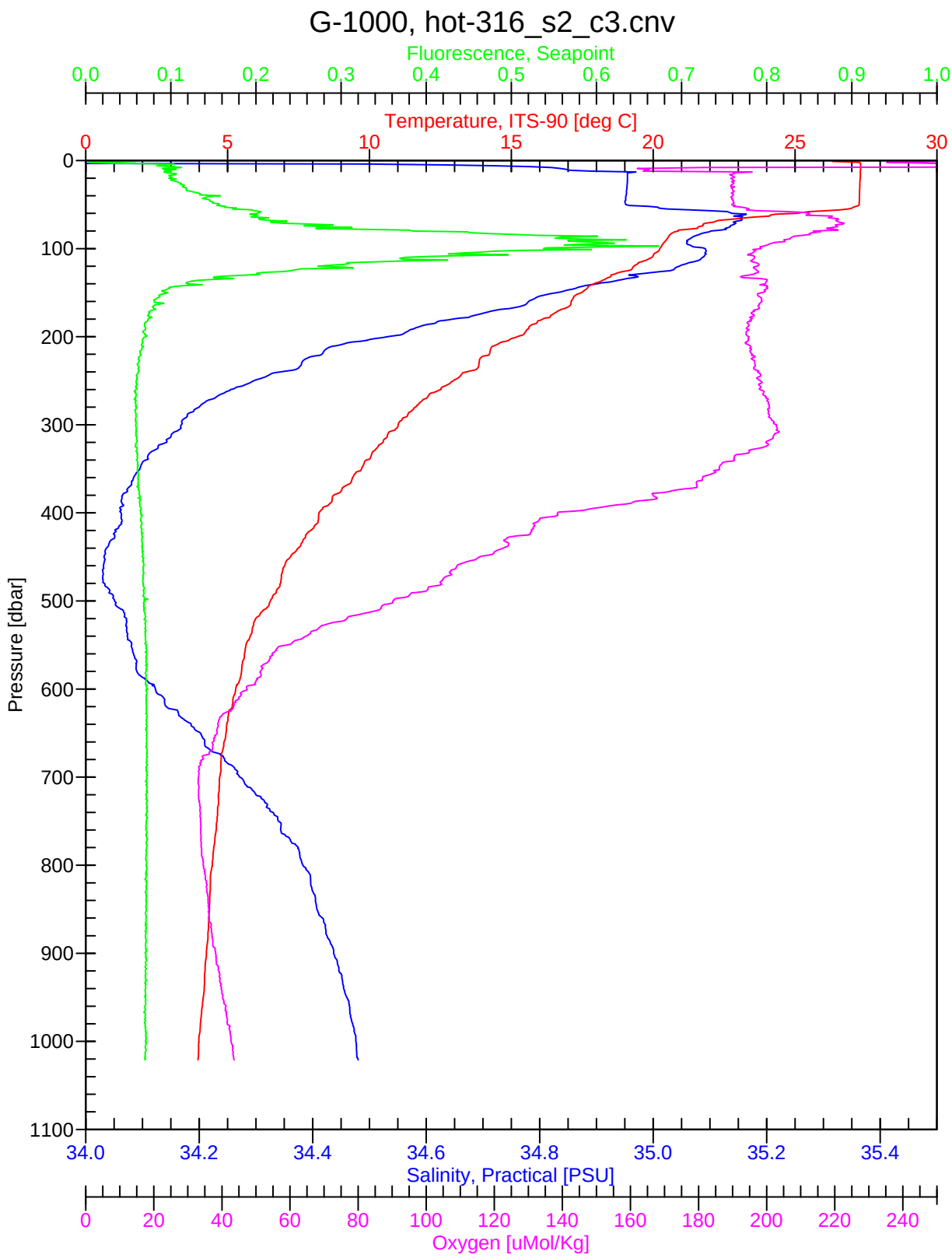

W-1000, hot-316_s2_c1.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]

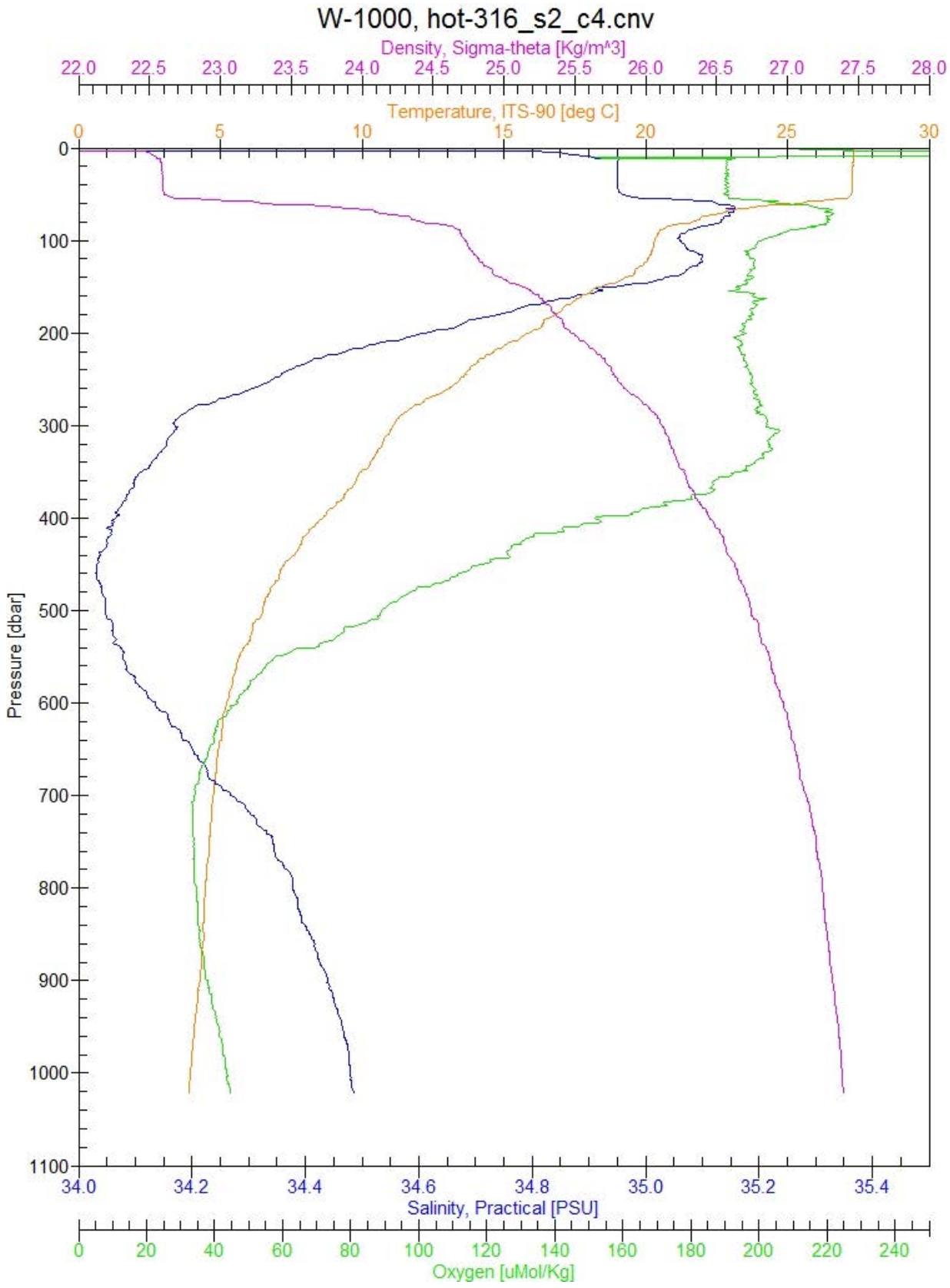

G-1000, hot-316_s2_c1.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

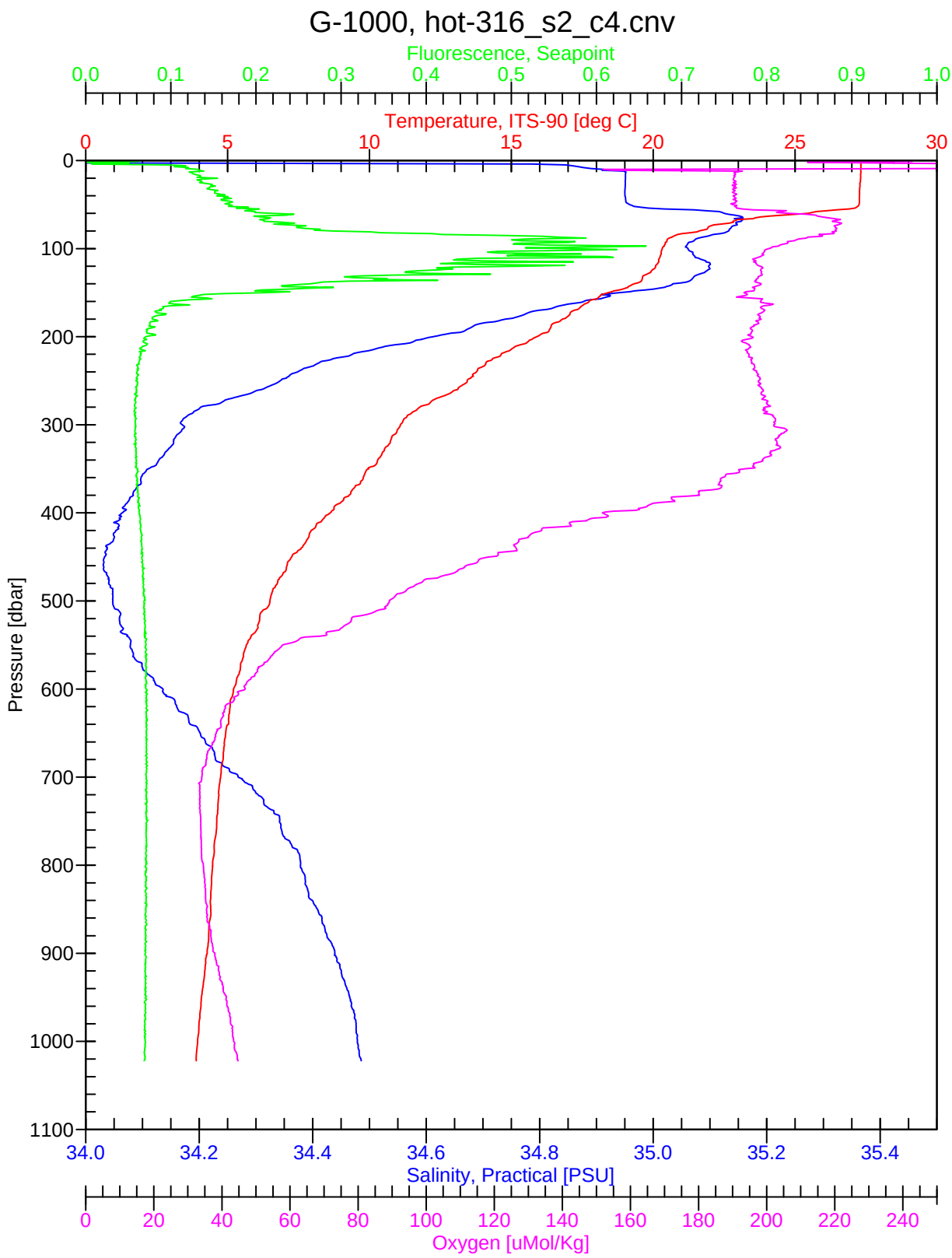

W-1000, hot-316_s2_c2.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]

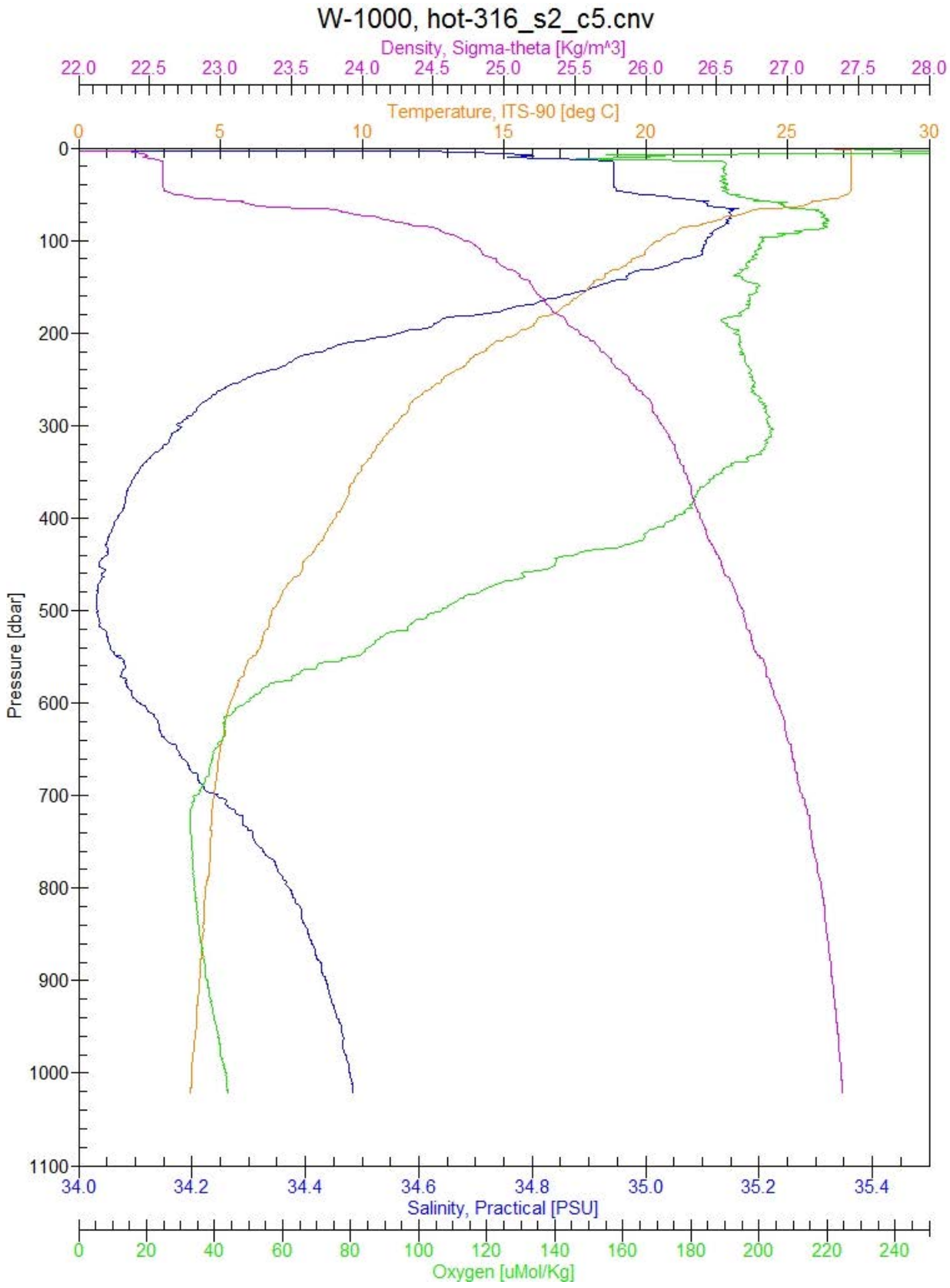

G-1000, hot-316_s2_c2.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

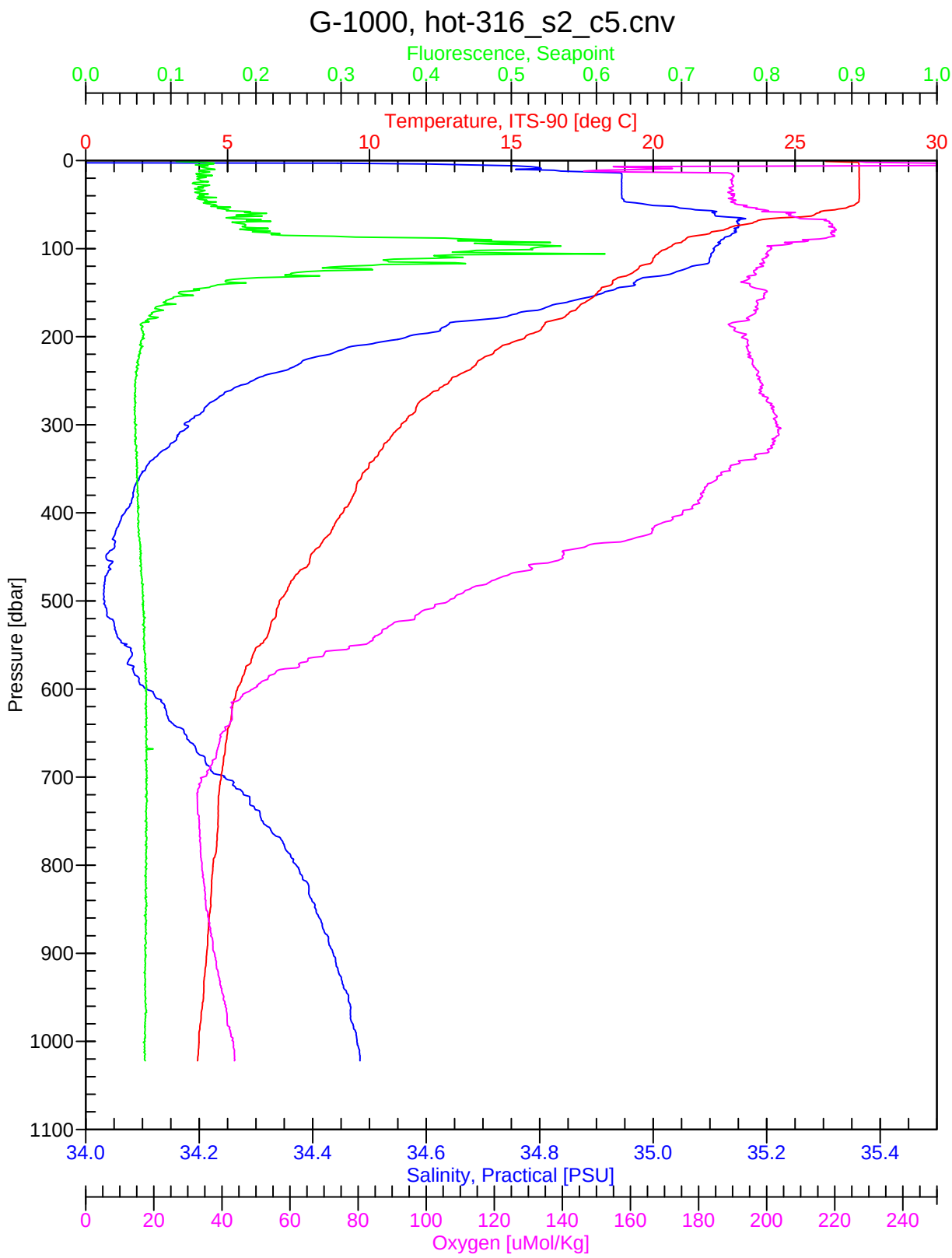

W-1000, hot-316_s2_c3.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

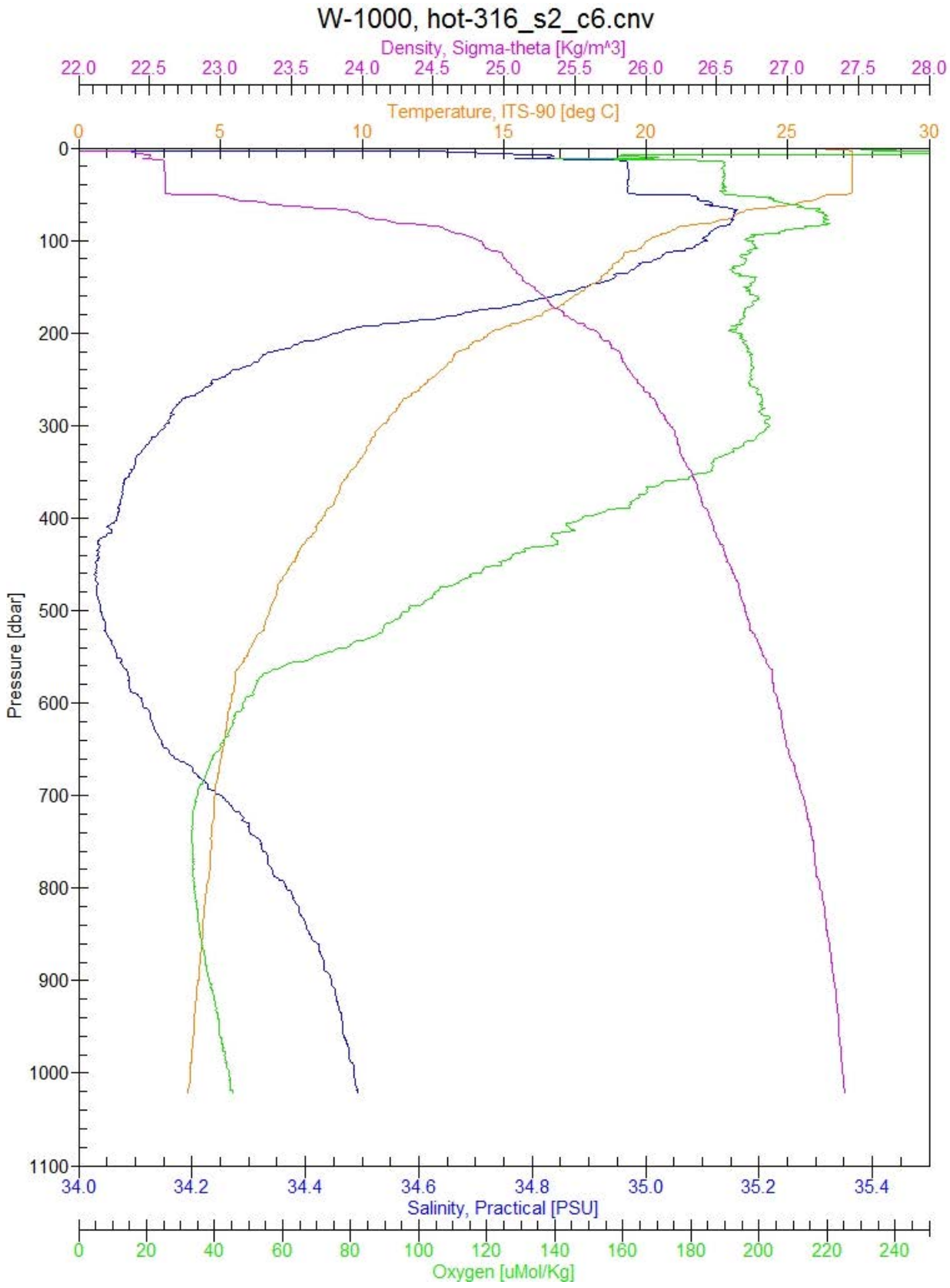

G-1000, hot-316_s2_c3.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

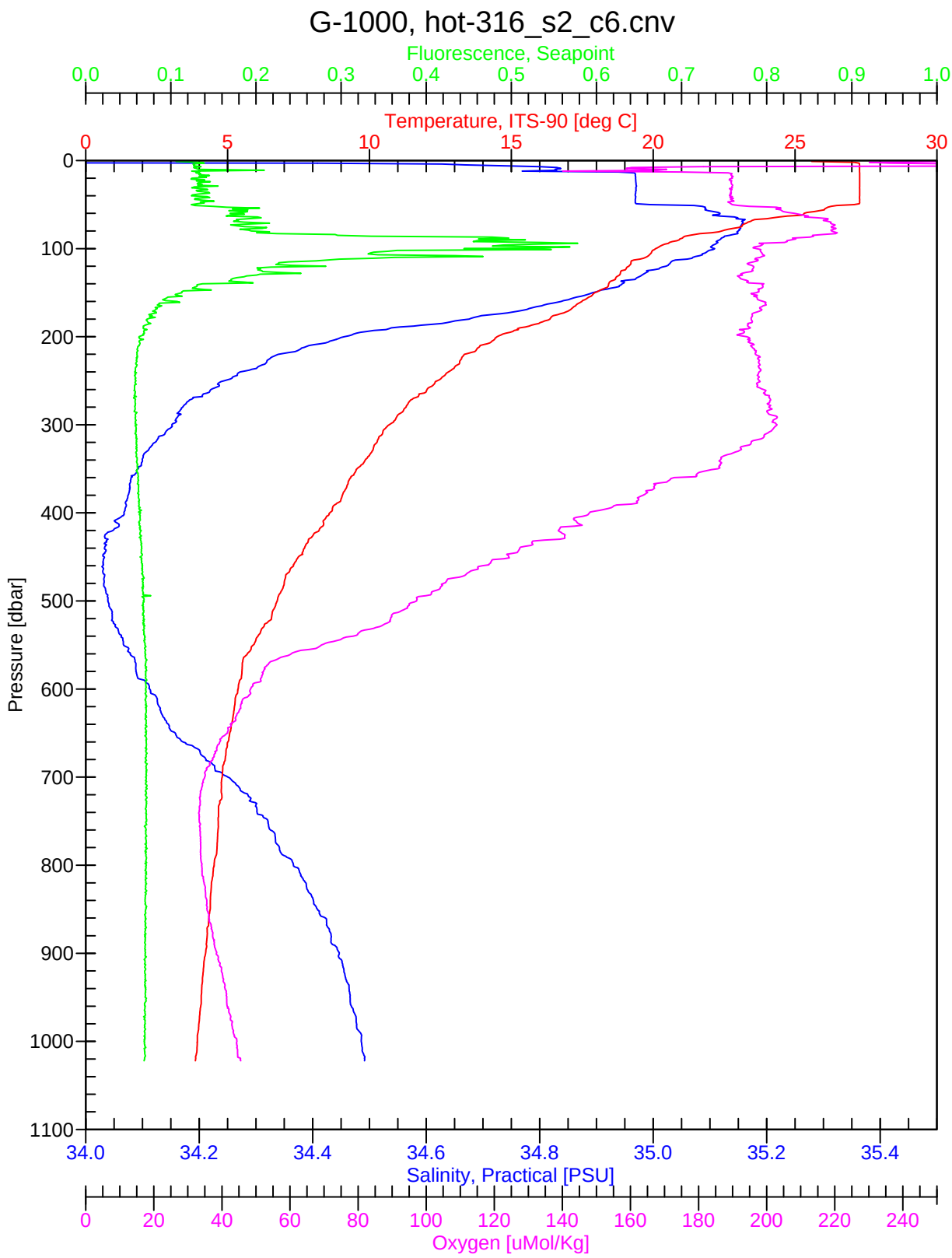

W-1000, hot-316_s2_c4.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

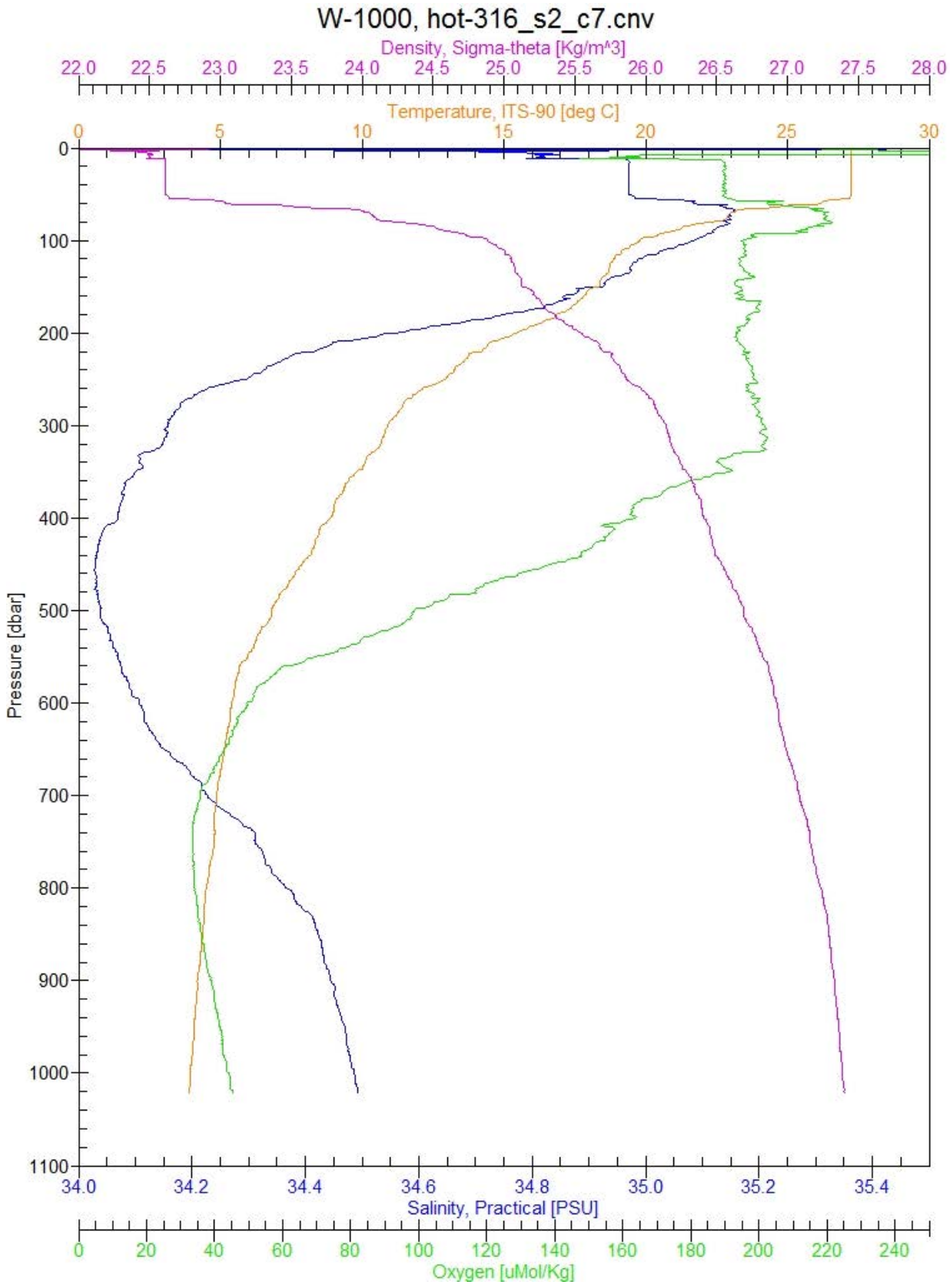

G-1000, hot-316_s2_c4.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

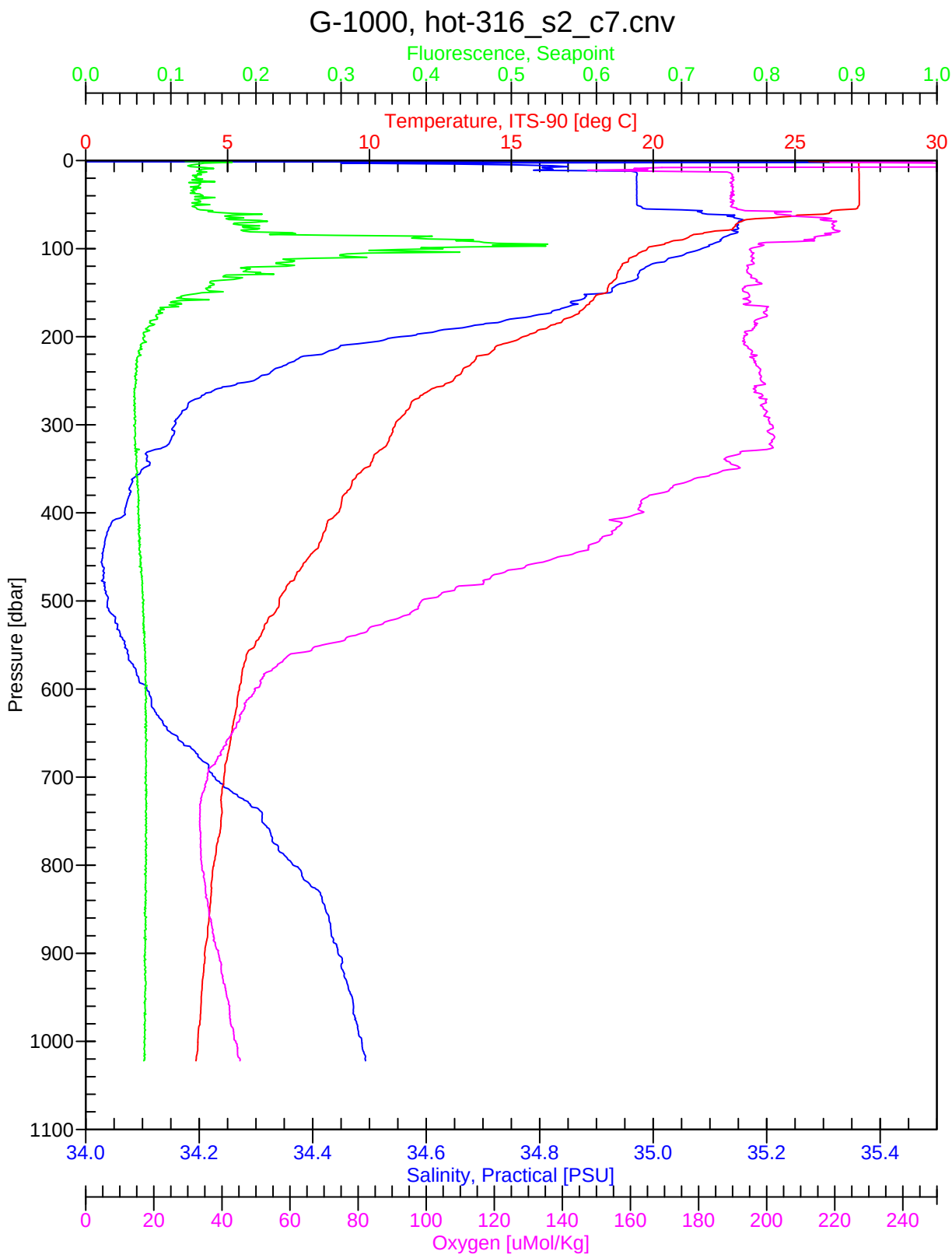

W-1000, hot-316_s2_c5.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

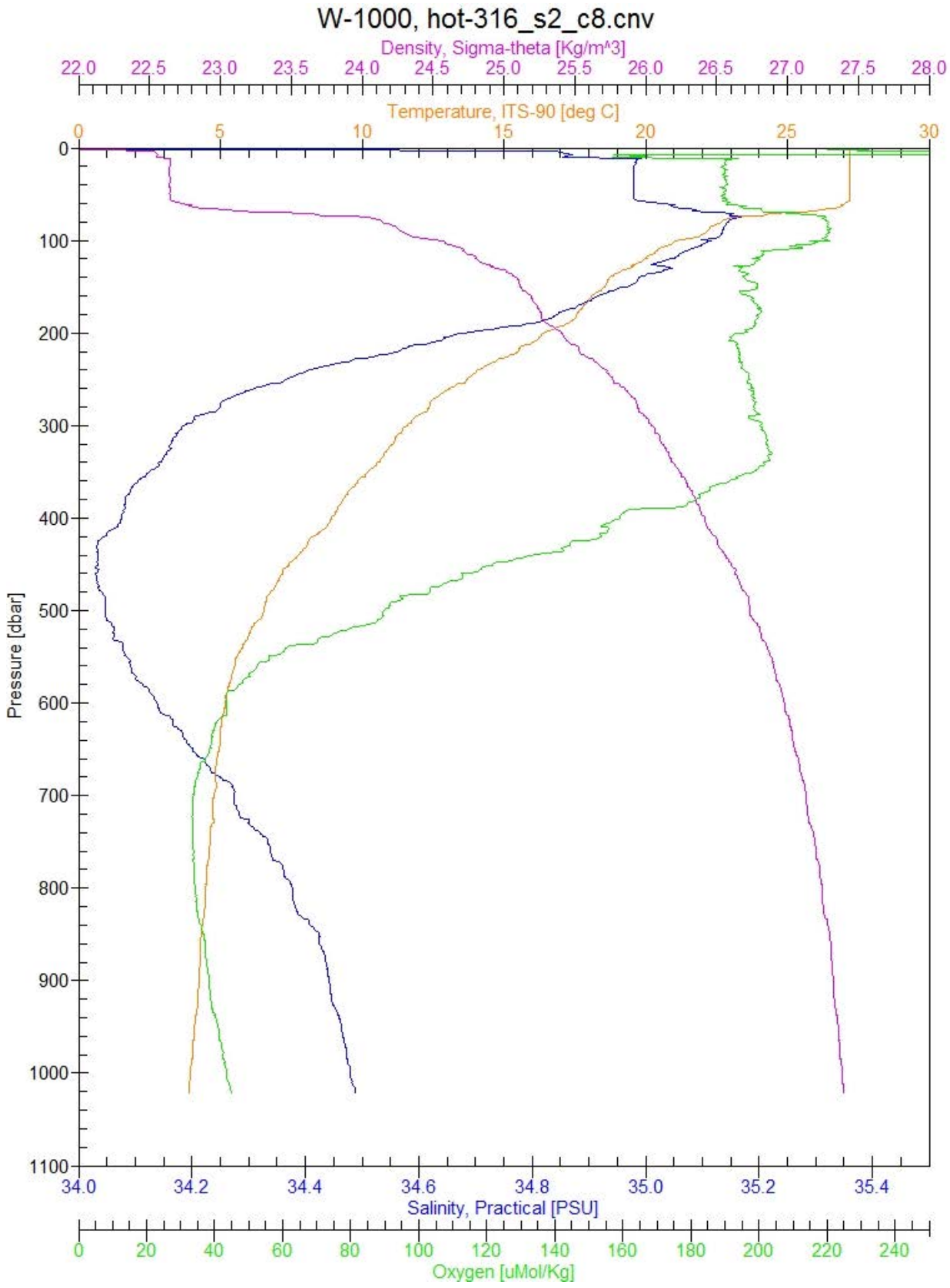

G-1000, hot-316_s2_c5.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

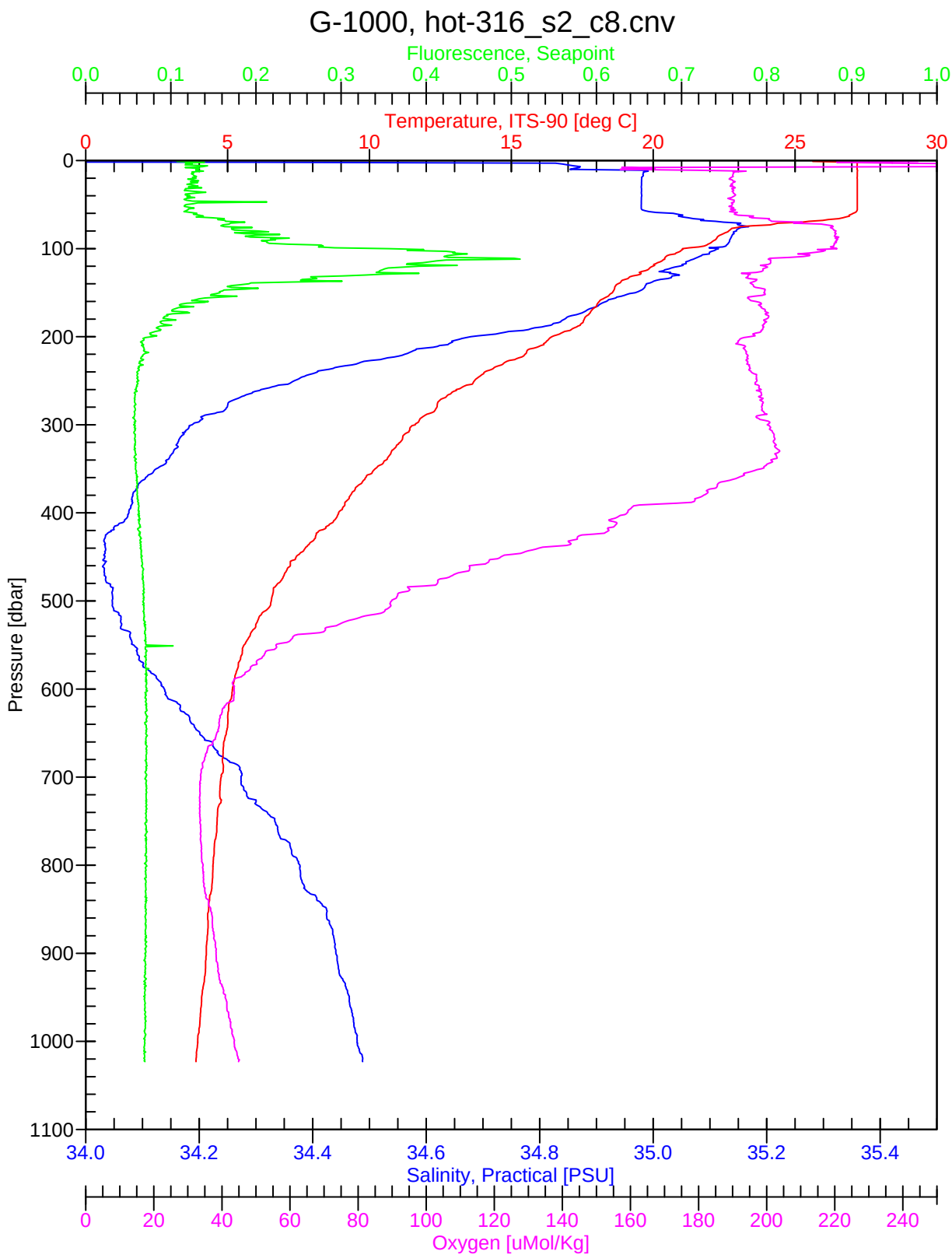

W-1000, hot-316_s2_c6.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

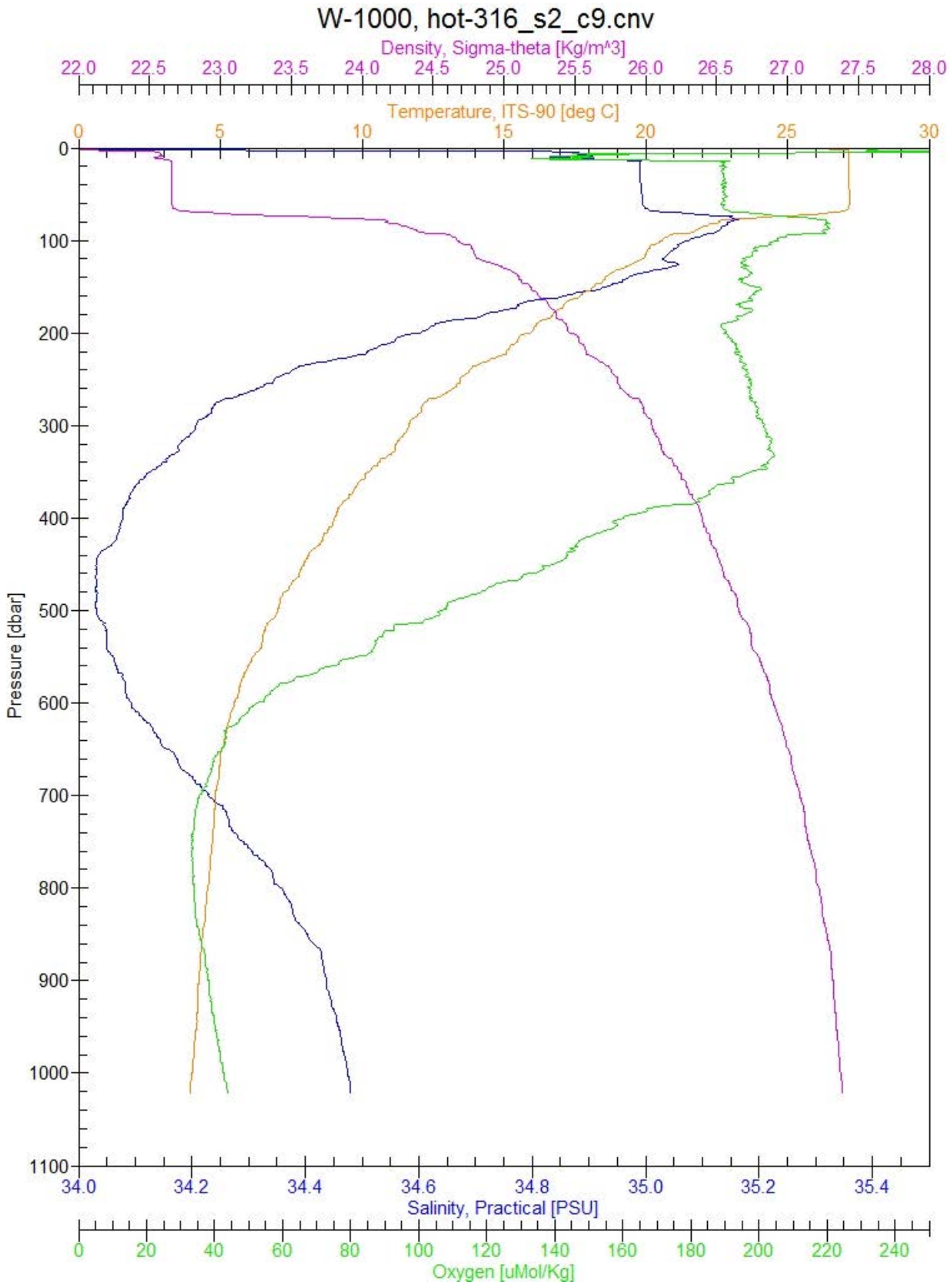

G-1000, hot-316_s2_c6.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

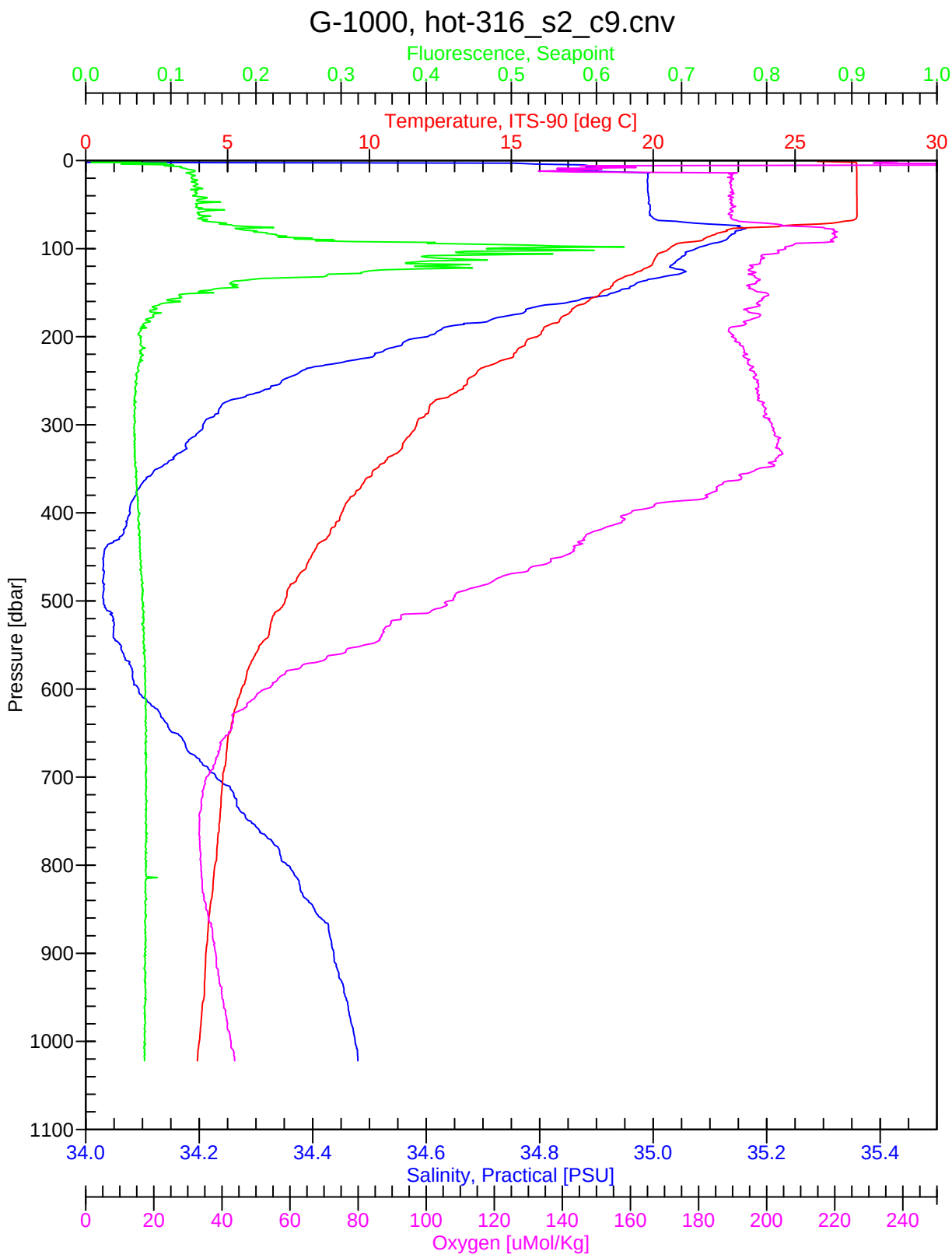

W-1000, hot-316_s2_c7.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]

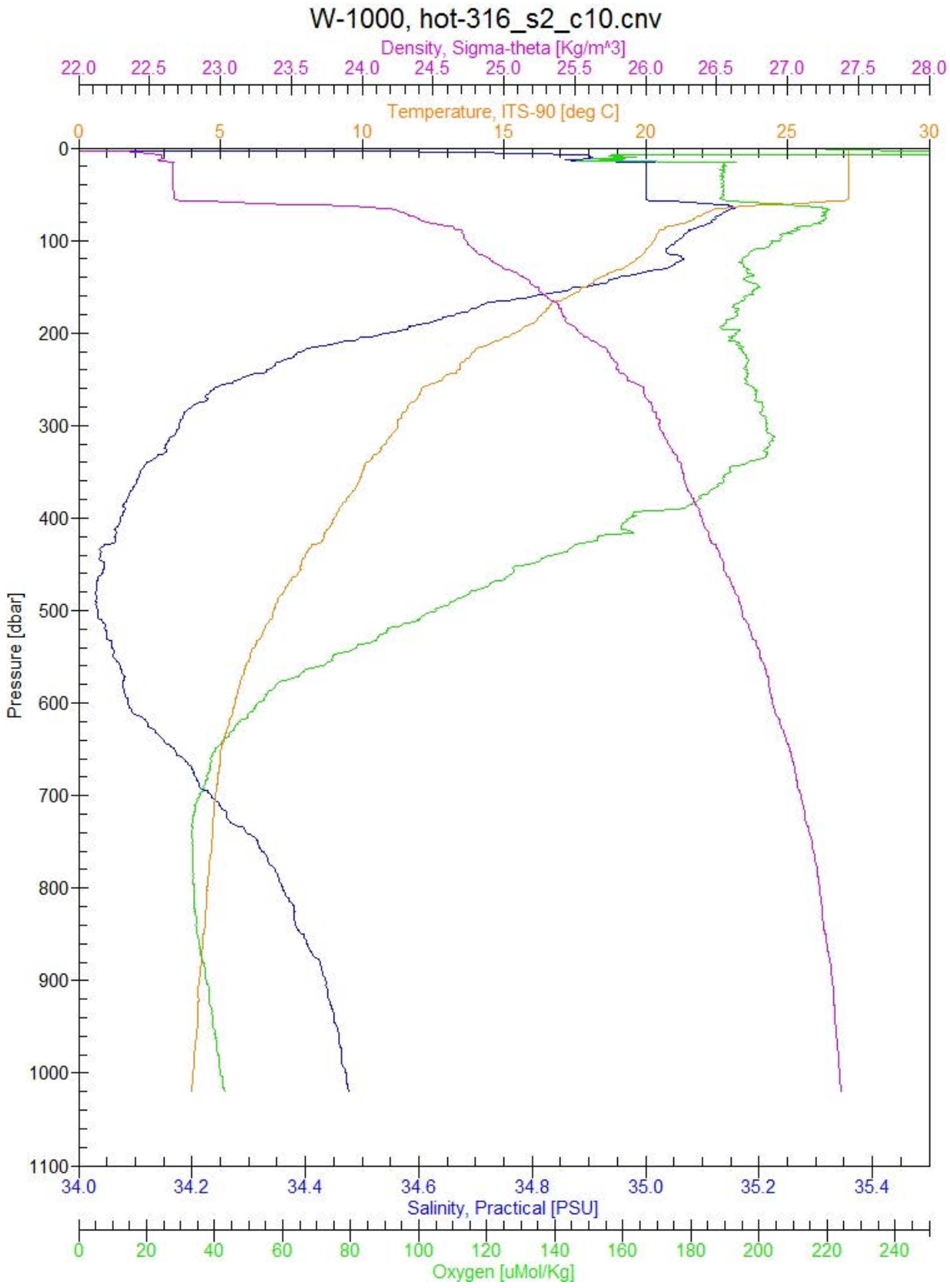

G-1000, hot-316_s2_c7.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

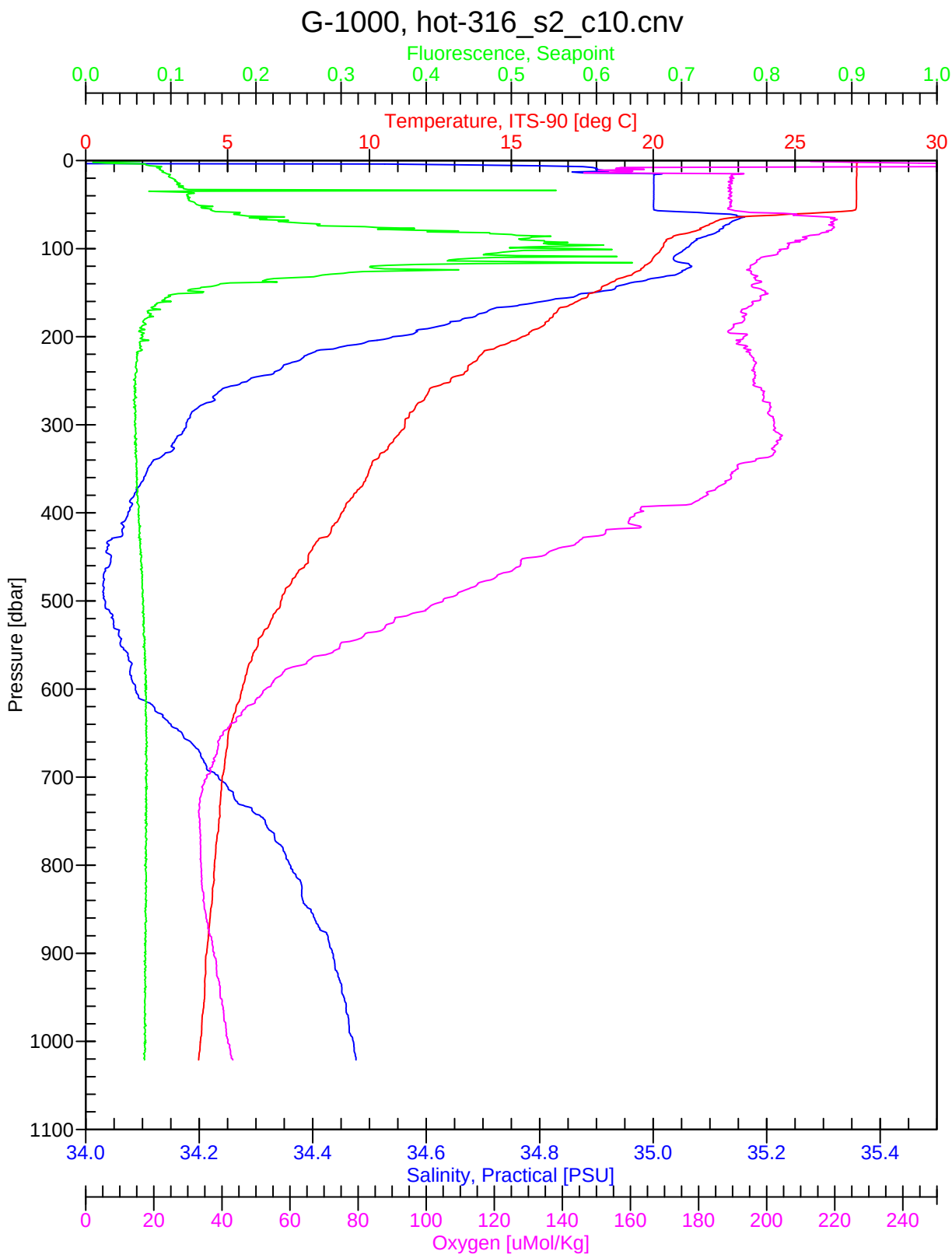

W-1000, hot-316_s2_c8.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

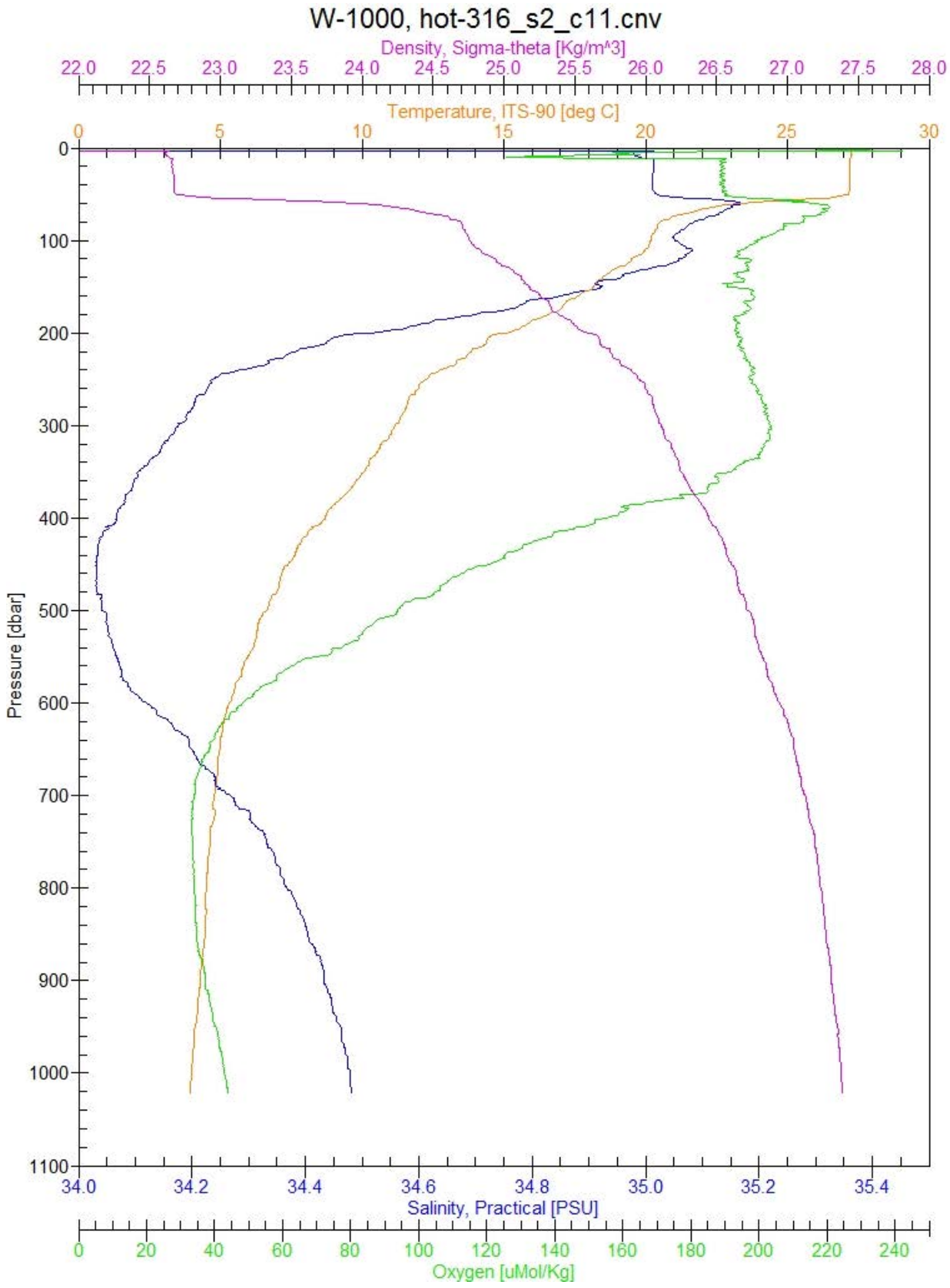

G-1000, hot-316_s2_c8.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

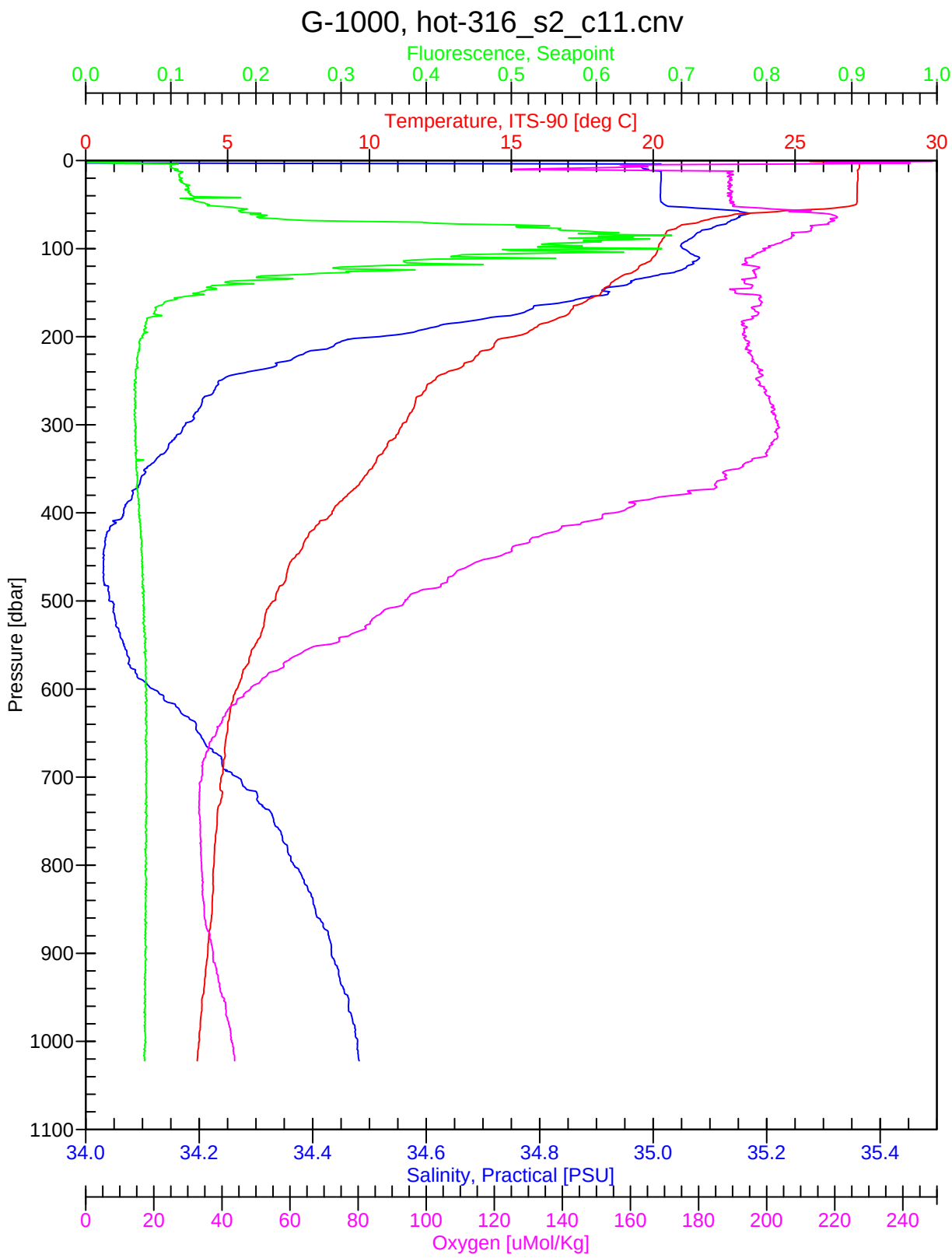

W-1000, hot-316_s2_c9.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

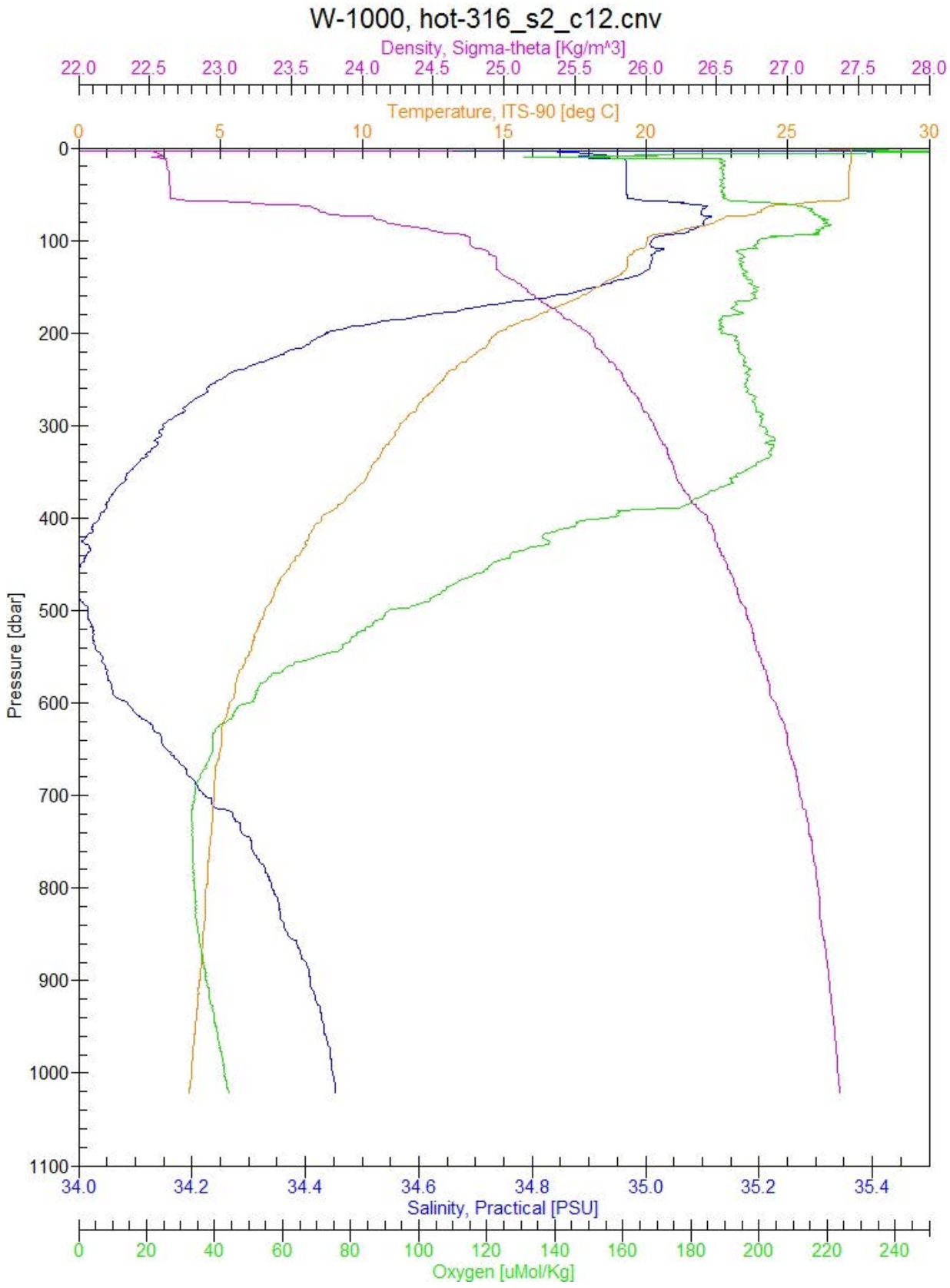

G-1000, hot-316_s2_c9.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

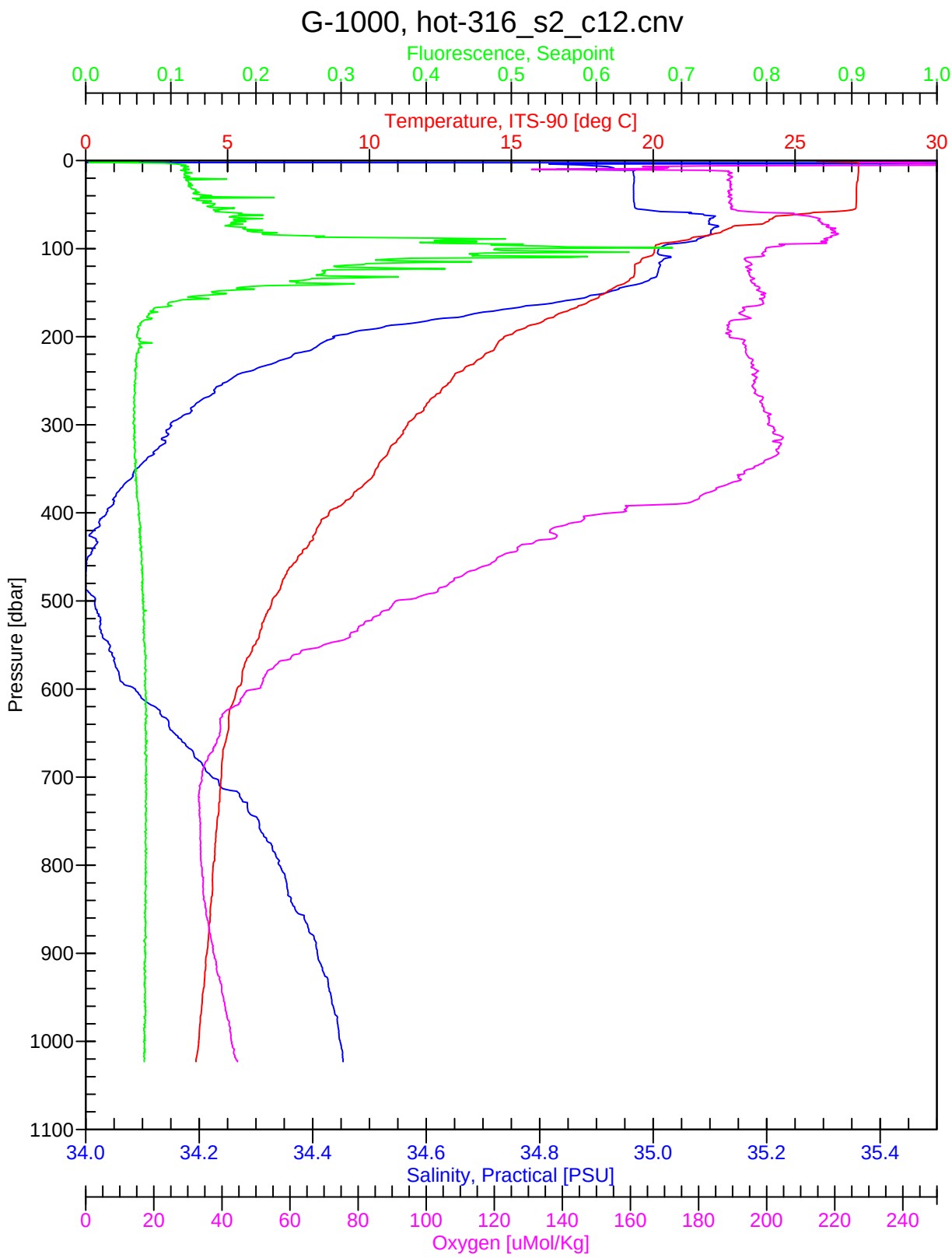

W-1000, hot-316_s2_c10.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

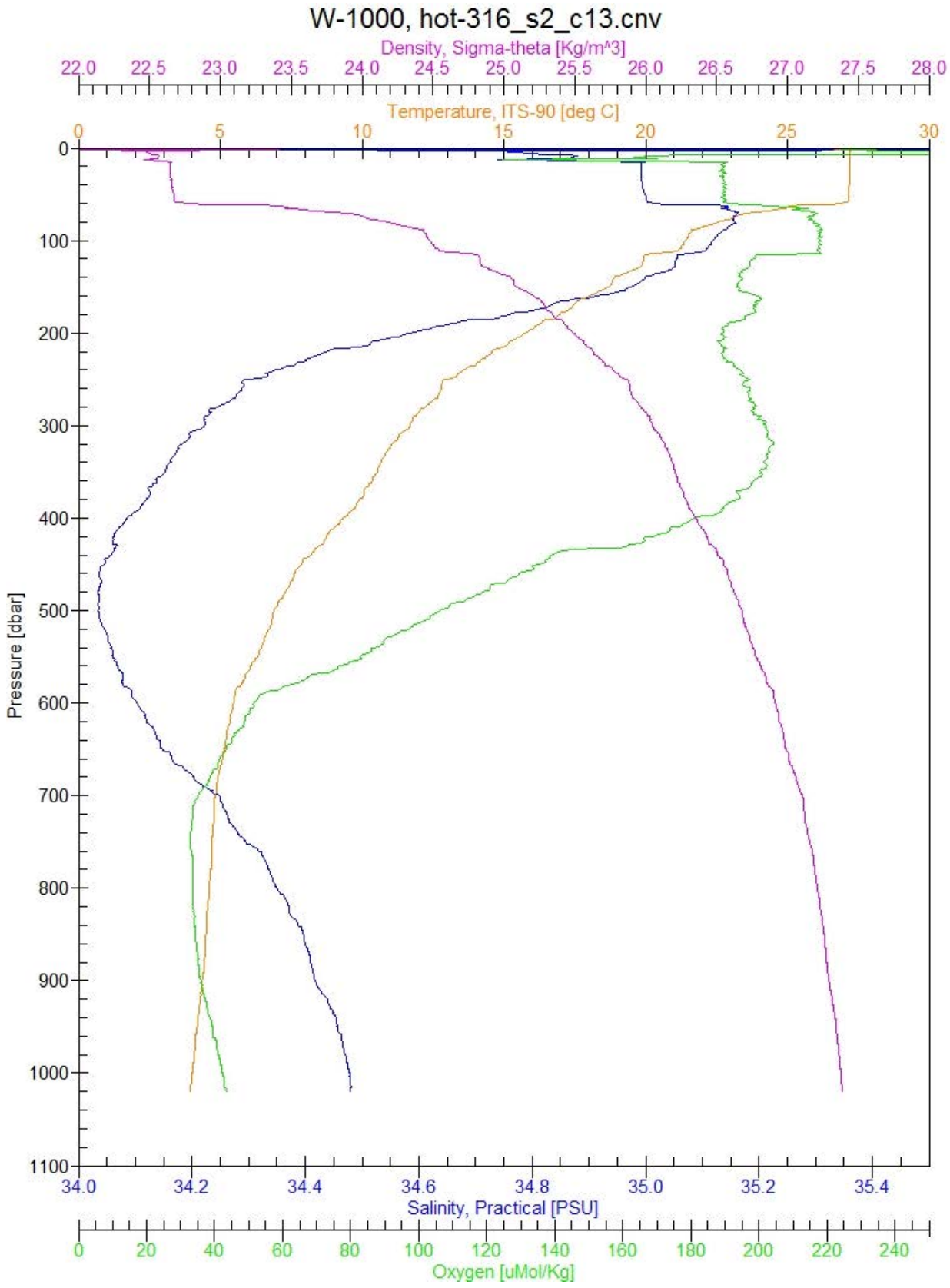

G-1000, hot-316_s2_c10.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

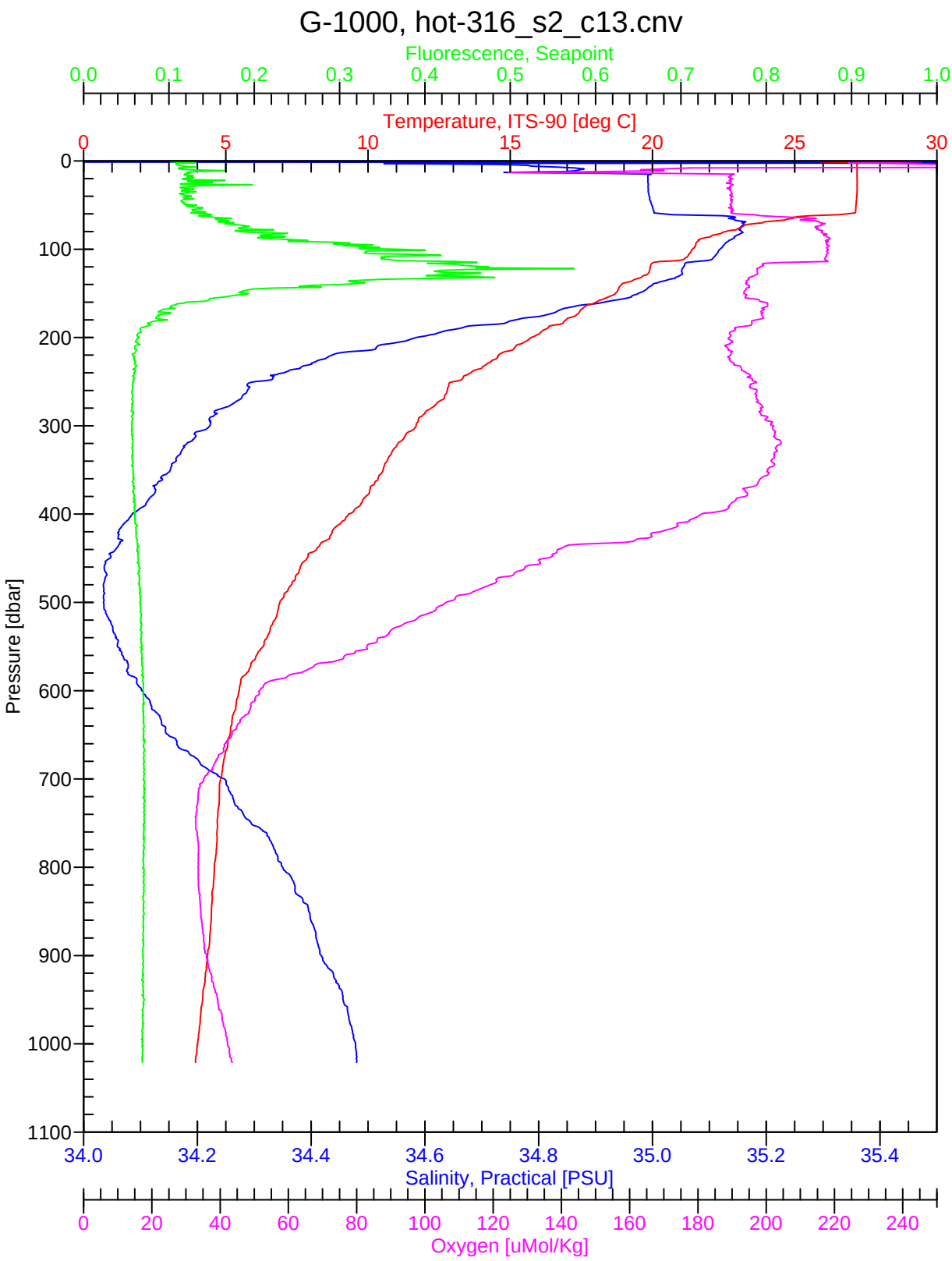

W-1000, hot-316_s2_c11.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

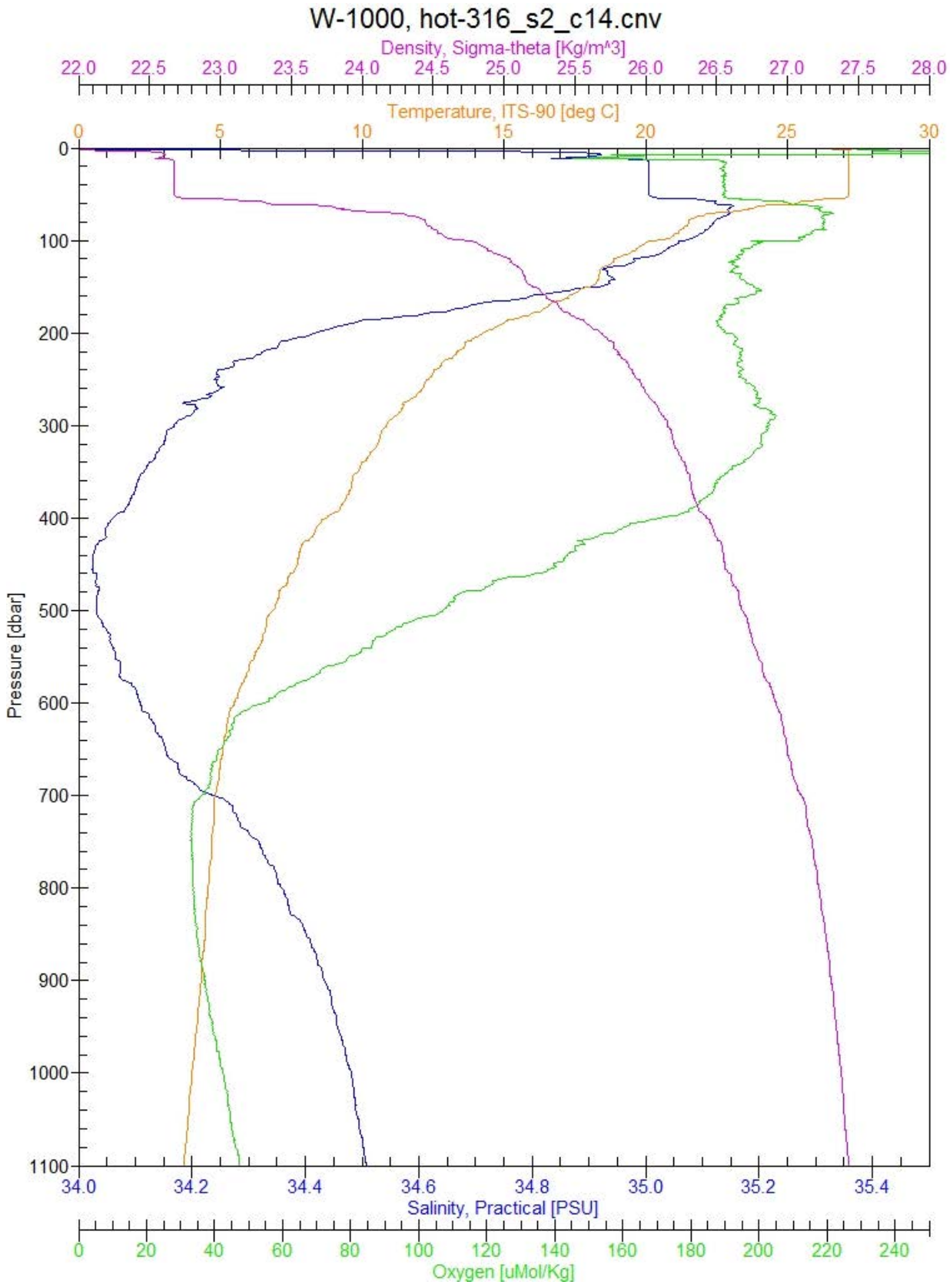

G-1000, hot-316_s2_c11.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

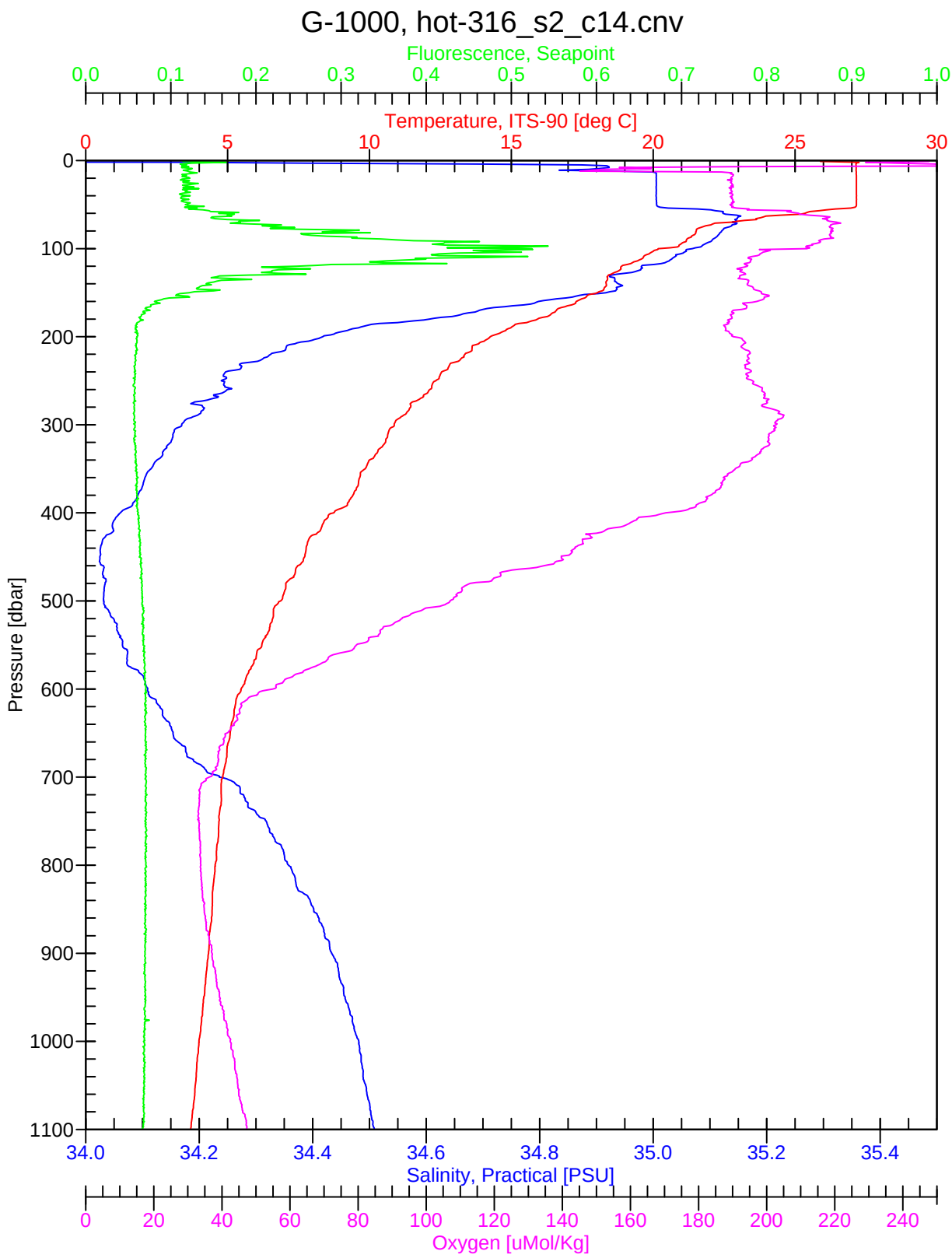

W-1000, hot-316_s2_c12.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

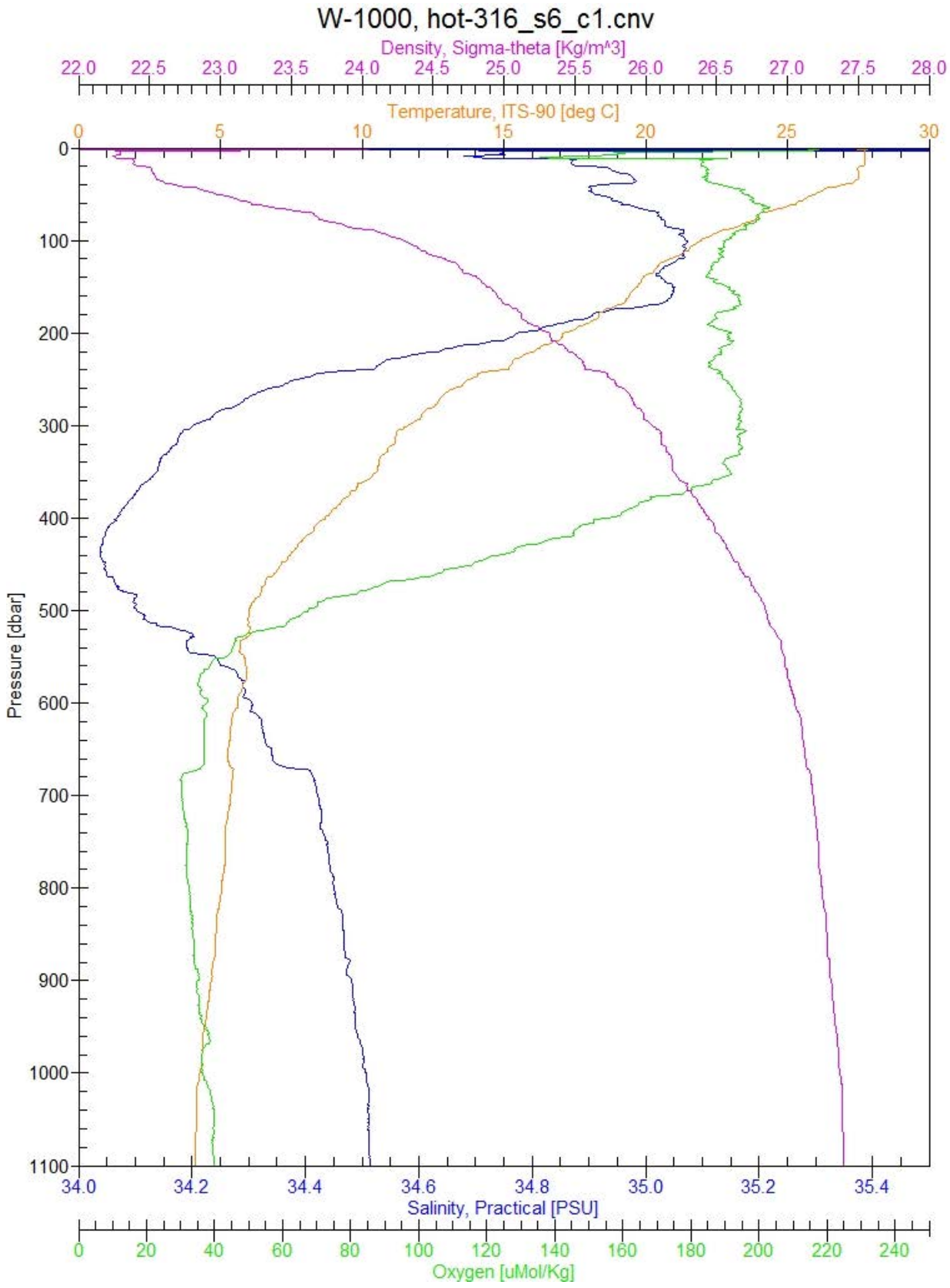

G-1000, hot-316_s2_c12.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

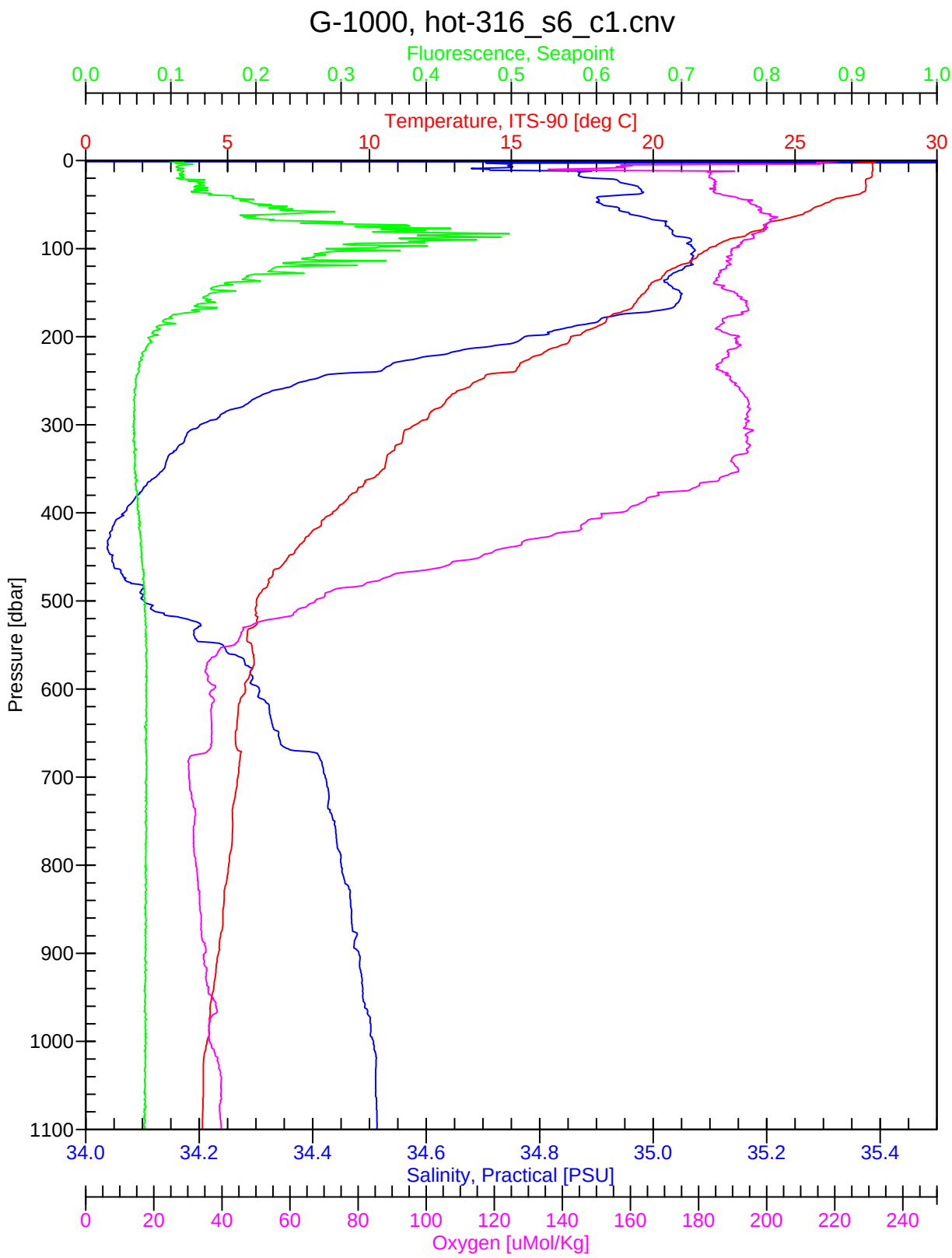

W-1000, hot-316_s2_c13.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240

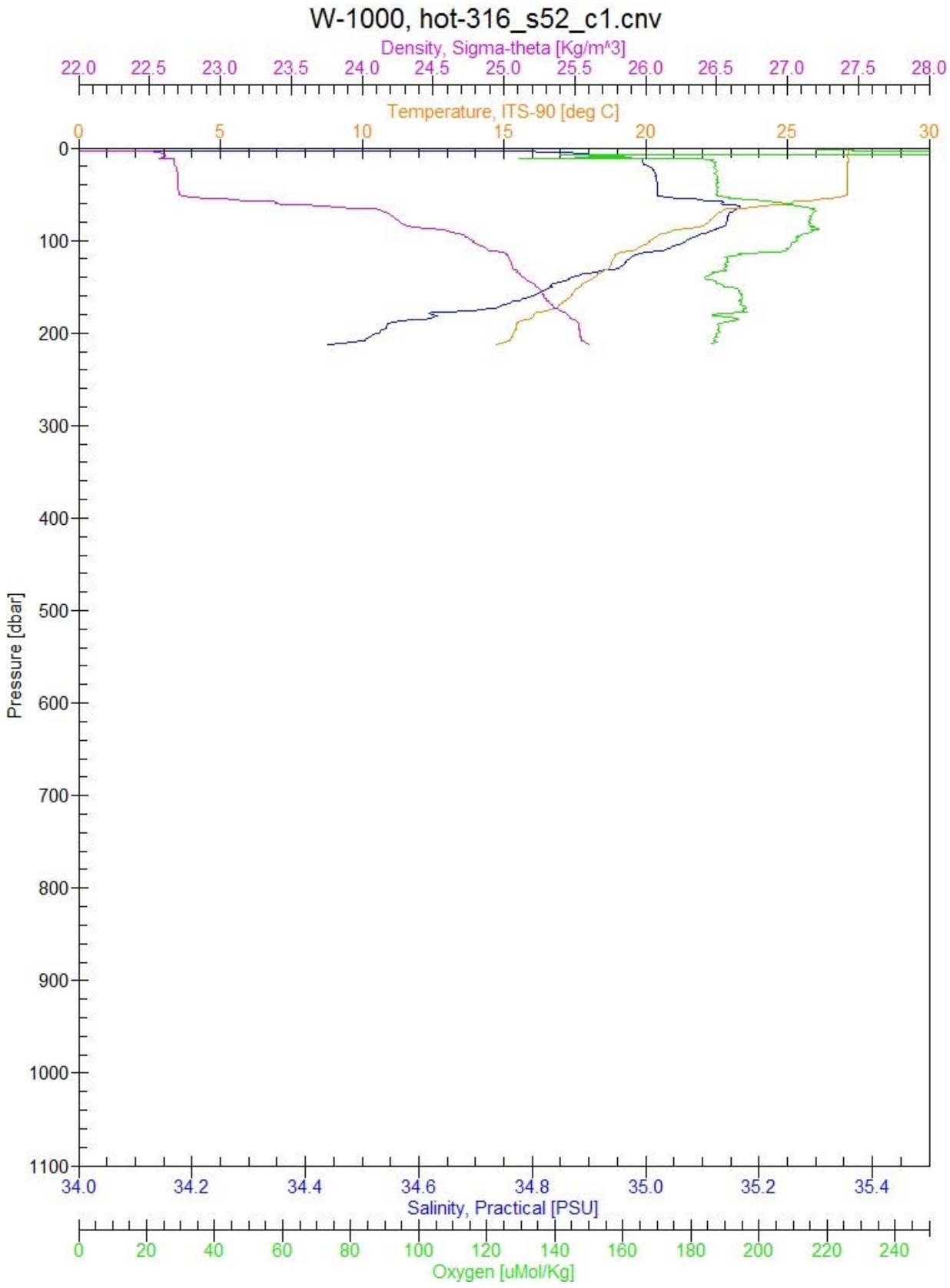

G-1000, hot-316_s2_c13.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

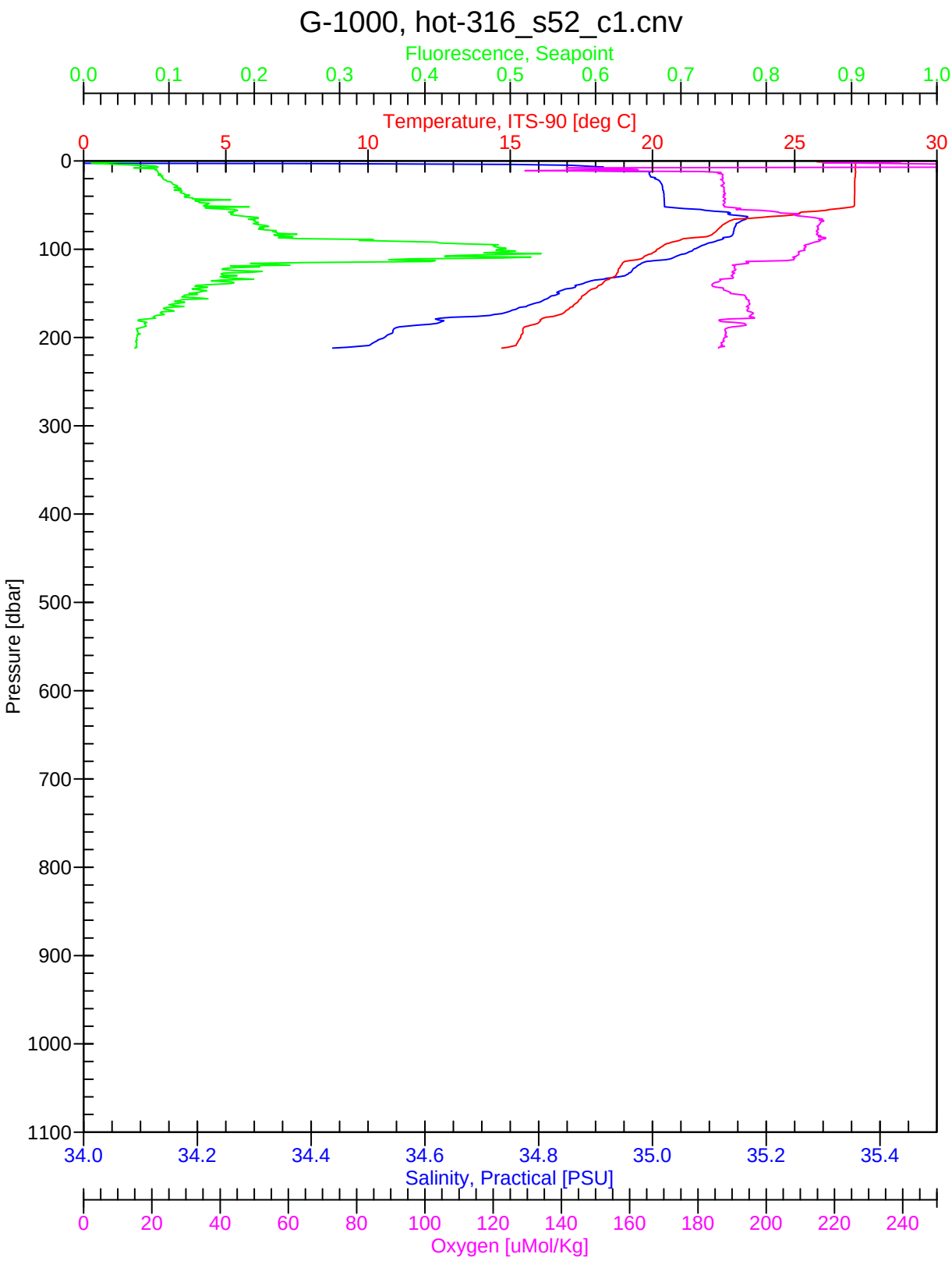

W-1000, hot-316_s2_c14.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]


G-1000, hot-316_s2_c14.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]


W-1000, hot-316_s6_c1.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Salinity, Practical [PSU]
0 20 40 60 80 100 120 140 160 180 200 220 240
Oxygen [uMol/Kg]


G-1000, hot-316_s6_c1.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]


W-1000, hot-316_s52_c1.cnv
Density, Sigma-theta [Kg/m^3]
22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0
Temperature, ITS-90 [deg C]
0 5 10 15 20 25 30
Pressure [dbar]
0 100 200 300 400 500 600 700 800 900 1000 1100
Salinity, Practical [PSU]
34.0 34.2 34.4 34.6 34.8 35.0 35.2 35.4
Oxygen [uMol/Kg]
0 20 40 60 80 100 120 140 160 180 200 220 240


G-1000, hot-316_s52_c1.cnv
Fluorescence, Seapoint
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Temperature, ITS-90 [deg C]
0
5
10
15
20
25
30
Pressure [dbar]
0
100
200
300
400
500
600
700
800
900
1000
1100
34.0
34.2
34.4
34.6
34.8
35.0
35.2
35.4
Salinity, Practical [PSU]
0
20
40
60
80
100
120
140
160
180
200
220
240
Oxygen [uMol/Kg]

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
61000	12L	27.92	FS.M

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

Station: 1	Cast: 1
Latitude start: 21 20.621 end: 21 20.624	Longitude start: 158 16.386 end: 158 16.389
Depth of water: 1517 meters	Date (GMT): 10/16/19
Pressure on Deck	Time:
Begin: 0.35 End: -0.40	Start Log: 22 38 In Water: 22:52
Max cast pressure: 1020 dbar	Out of Water: 23:53

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	23:17:30	18:20	1021	1020	
2	25:00	25:30	750	750	
3	30:40	31:30	500	500	
4	34:40	35:10	350	350	
5	37:25	37:55	250	250	
6	39:50	39:40	200	200	
7	40:25	40:55	175	175	
8	41:40	42:10	150	150	
9	48:00	43:30	125	125	
10	44:25	44:55	100	100	
11	45:55	46:30	75	75	
12	47:40	48:10	45	45	
13	48:50	49:20	25	25	
14	50:00	50:30	5	5	
15		40	5	5	
16				"	Fire all for testing no marks
17				"	
18				"	
19				"	
20				"	
21				"	
22				"	
23				"	
24				"	

Hawaii Ocean Time Series			Station #: 1	Cast #: 1	Box #: 5
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler:	
Niskin #	Depth	Serial #	Comments		
1	1020	97			
2	750	98			
3	500	99			
4	350	100			
5	250	101			
6	200	102			
7	175	103			
8	150	104			
9	125	105			
10	100	106			
11	75	107			
12	45	108			
13	25	109			
14	5	110			
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

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Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000 (GP)	12L	27.29	TR

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

Station: 2	Cast: 1
Latitude start: 22° 40.512' N end: 22° 40.594' N	Longitude start: 157° 59.800' W end: 157° 59.981' W
Depth of water: 4735 meters	Date (GMT): 10 / 17 / 19
Pressure on Deck	Time:
Begin: 0.24 End: 0.20	Start Log: 11:59 In Water: 12:00
Max cast pressure: 202 dbar	Out of Water: 12:26

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	12:08:57	12:09:20	201	200	
2	↓	:27	201	200	
3	12:10:30	12:10:50	176	175	
4	12:11:45	12:12:05	150	150	
5	12:12:53	12:13:13	125	125	
6		:18	↓	125	
7		:23	↓	125	
8	12:14:16	12:14:36	100	100	
9		:41	↓	100	
10		:46	↓	100	
11	12:15:41	12:16:06	75	75	
12		:11	↓	75	
13		:16	↓	75	
14	12:17:20	12:17:40	45	45	
15		:45	↓	45	
16		:50	↓	45	
17	12:18:35	12:18:55	25	25	
18		19:00	↓	25	
19		19:05	↓	25	
20	12:19:40	12:20:00	16	15	
21	12:20:28	12:20:48	5	5	
22		:53	↓	5	
23		:58	↓	5	
24					

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Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
65000	12L	27.29	FS-M

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

Station: 2	Cast: 2
Latitude start: 2245.042 end: 2246.533	Longitude start: 15759.956 end: 15759.771
Depth of water: 4730 meters	Date (GMT): 10/17/19
Pressure on Deck	Time:
Begin: 0.40 End: -0.35	Start Log: 16:43 In Water: 16:49
Max cast pressure: 4777 dbar	Out of Water: 20:26

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1		18:29:30	4778	4800	
2	18:32:40	33:12	4597	4600	
3	35:35	36:05	4500	4500	
4	38:30	39:00	4400	4400	
5	43:05	43:35	4200	4200	
6	47:40	48:10	3999	4000	
7	52:20	52:50	3800	3800	
8	57:10	57:40	3602	3600	
9	2:00	2:30	3401	3400	
10	6:45	7:15	3202	3200	
11	11:35	12:05	2999	3000	
12	16:15	16:45	2800	2800	
13	21:05	21:35	2601	2600	
14	25:55	26:25	2401	2400	
15	30:55	31:25	2200	2200	
16	36:00	36:30	2001	2000	
17	40:45	41:15	1800	1800	
18	45:35	46:05	1602	1600	
19	50:20	50:50	1400	1400	
20	55:05	55:35	1201	1200	Bottle lost - no sample
21	59:55	00:25	999	1000	
22	5:40	6:10	752	750	02-min
23	11:55	12:25	476	475	<-min
24	23:10	23:50	5	5	

Hawaii Ocean Time Series			Station #: 2	Cast #: 2	Box #: 7
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: DF, FP, FSM	
Niskin #	Depth	Serial #	Comments		
1	4777	145			
2	4600	146			
3	4500	147			
4	4400	148			
5	4200	149			
6	4000	150			
7	3800	151			
8	3600	152			
9	3400	153			
10	3200	154			
11	3000	155			
12	2800	156			
13	2600	157			
14	2400	158			
15	2200	159			
16	2000	160			
17	1800	161			
18	1600	162			
19	1400	163			
20	1200	164	No sample		
21	1000	165			
22	750	166			
23	475	167			
24	5	168			

Hawaii Ocean Time Series			Station #: 2	Cast #: 2	Box #: 8
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: DF, FP, FS-M	
Niskin #	Depth	Serial #	Comments		
1	4777	169	T		
2	4600	170	D		
3	4500	171	U		
4	4400	172	P		
5	4200	173	L		
6	4000	174	I		
7	3800	175	C		
8	3600	176	A		
9	3400	177	T		
10	3200	178	E		
11	3000	179	S		
12	2800	180			
13	2600	181			
14	2400	182			
15	2200	183			
16	2000	184			
17	1800	185			
18	1600	186			
19	1400	187			
20	1200	188	No Sample		
21	1000	189			
22	750	190			
23	475	191			
24	5	192			

Hawaii Ocean Time Series			Station #: 2	Cast #: 2	Box #: 9
Salinity Sample Log Sheet			Cruise #: HOT-		Sampler: DF, FP, FS-M
Niskin #	Depth	Serial #	Comments		
1	4777	193			
2	4600	194			
3	4500	195			
4	4400	196			
5	4200	197			
6	4000	198			
7	3800	199			
8	3600	200			
9	3400	201			
10	3200	202			
11	3000	203			
12	2800	204			
13	2600	205			
14	2400	206			
15	2200	207			
16	2000	208			
17	1800	209			
18	1600	210			
19	1400	211			
20	1200	212	No sample		
21	1000	213			
22	750	214			
23	475	215			
24	5	216			

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Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6-1000	12L	27.39	#5-M

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

Station: 2	Cast: 3
Latitude start: 22 49.999 end: 22 45.013	Longitude start: 158 0.00 end: 158 0.054
Depth of water: 4735 meters	Date (GMT): 10 11 7 19
Pressure on Deck	Time:
Begin: 0.60 End: −0.20	Start Log: 23:12 In Water: 23:16
Max cast pressure: 1010 dbar	Out of Water: 00:23

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	23:39:05	39:35	1021	1020	
2	41:10	41:40	985	985	
3	42:55	43:25	940	940	
4	44:45	45:15	896	895	
5	46:50	47:20	849	849	
6	48:35	49:05	804	804	
7	50:40	51:10	762	761	
8	52:70	53:00	717	717	
9	53:55	54:25	683	683	
10	55:30	56:00	648	648	
11	57:20	57:50	595	595	
12	59:25	59:55	533	532	
13	01:00	01:30	494	494	
14	2:35	3:05	448	449	
15	4:50	5:20	382	382	
16	6:50	7:20	319	320	
17	8:40	9:10	270	270	
18	10:20	10:50	225	225	
19	11:55	12:25	180	180	
20	13:50	14:20	116	115	
21	15:15	15:45	75	75	
22	16:10	16:40	64	65	
23	17:05	17:35	55	55	
24	18:50	19:20	5	5	

Hawaii Ocean Time-Series

HOT - 316

Station:	2	Cast:	3
Latitude:		Longitude:	
Date:		Time (GMT):	
Operator:			

$\delta\theta$	$\sigma\theta$	Depth
700	20.76	
650	21.28	
600	21.80	
550	22.33	
500	22.85	55
450	23.37	~~65~~
400	23.90	65
350	24.42	75
300	24.95	115
250	25.47	180
200	26.00	270
180	26.21	310
160	26.42	382
140	26.63	449
130	26.73	494
120	26.84	531
110	26.94	595
100	27.05	648
90	27.16	717
80	27.26	804
70	27.37	985

S_{max}	
S_{min}	
S_{max}	
S_{min}	

O_{max}	
O_{min}	
O_{max}	
O_{min}	
O_{max}	

F_{max}	
F_{min}	
F_{max}	
F_{min}	
F_{max}	

Bottle	Depth
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

Hawaii Ocean Time Series			Station #: 2	Cast #: 3	Box #: 10
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler:	
Niskin #	Depth	Serial #	Comments		
1	1020	217			
2	985	218			
3	940	219			
4	895	220			
5	849	221			
6	804	222			
7	761	223			
8	717	224			
9	683	225			
10	648	226			
11	595	227			
12	532	228			
13	494	229			
14	449	230			
15	382	231			
16	320	232			
17	270	233			
18	225	234			
19	180	235			
20	115	236			
21	75	237			
22	65	238			
23	55	239			
24	5	240			

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GB	12L	27.45	TR

- ☐ Pinger
- ☑ Altimeter
- ☑ Transmissometer
- ☐ BEACH Sea Tech Fluorometer
- ☐ OTG Seapoint Fluorometer
- ☐ JSUS
- ☑ PO Fluorometer
- ☐

DCM: 92 db
MLD: 53 db
S_{MIN}: 460 db

Station: 2	Cast: 4
Latitude start: 22° 44.695' N end: 22° 45.400' N	Longitude start: 157° 58.169' W end: 157° 58.295' W
Depth of water: 4717 meters	Date (GMT): 10 / 18 / 19
Pressure on Deck	Time:
Begin: 0.53 End: 0.91	Start Log: 01:37 In Water: 01:46
Max cast pressure: 1022 dbar	Out of Water: 02:43

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	02:09:05	02:09:25	1021	1020	
2	02:20:50	02:21:10	460	460	S_{MIN}
3	02:27:35	02:27:55	175	175	
4	02:29:25	02:29:45	149	150	
5	02:30:53	02:31:13	125	125	
6	02:32:35	02:32:55	100	100	
7	02:34:10	02:34:30	73	75	]
8		:35	↓	75	]
9	02:36:25	02:36:45	45	45	]
10		:50	46	45	]
11	02:38:06	02:38:26	25	25	]
12		:31	↓	25	]
13	02:39:50	02:40:10	5	5	]
14		:15	↓	5	]
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 4	Box #: 11
Salinity Sample Log Sheet			Cruise #: HOT- 316		Sampler: LK, FP, TR
Niskin #	Depth	Serial #	Comments		
1	1020	241			
2	460	242	SMIN		
3	175	243			
4	150	244			
5	125	245			
6	100	246			
7	75	247			
8	75	248			
9	45	249			
10	45	250			
11	25	251			
12	25	252			
13	5	253			
14	5	254			
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
BEACH	12L	27.20	LK

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

Station: 002	Cast: 5
Latitude start: 22° 46.049'N end: 22° 46.861'N	Longitude start: 158° 1.038'W end: 155° 0.715'W
Depth of water: 4725 meters	Date (GMT): 10 / 18 / 19
Pressure on Deck	Time:
Begin: 0.40	Start Log: 05:50
End: 0.10	In Water: 05:58
Max cast pressure: 1020 dbar	Out of Water: 07:04

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	06:21:40	06:22:00	1020	1000	
2	06:27:50	06:28:10	750	750	O_2 min
3	06:33:30	06:33:50	499	500	sal min
4	06:40:20	06:40:40	201	200	
5	06:41:50	06:42:10	175	175	
6	06:43:00	06:43:20	165	165	
7	06:44:15	06:44:35	151	150	
8	06:45:25	06:45:45	130	130	
9	06:46:25	06:46:45	124	125	
10	06:47:45	06:48:05	114	115	
11	06:48:40	06:49:00	109	110	
12	06:49:55	06:50:15	102	100	
13	06:51:20	06:51:40	89	90	
14	06:52:15	06:52:35	85	85	
15	06:53:30	06:53:50	74	75	
16	06:55:00	06:55:20	60	60	
17	06:56:30	06:56:50	45	45	
18	06:57:35	06:57:55	35	35	
19	06:58:40	06:59:00	26	25	
20	06:58:40	06:59:10	25	25	
21	06:59:55	07:00:15	16	15	
22	07:01:05	07:01:25	5	5	
23	07:01:05	07:01:35	5	5	
24	07:01:05	07:01:45	5	5	

Hawaii Ocean Time Series			Station #: 2	Cast #: 5	Box #: 11,12
Salinity Sample Log Sheet			Cruise #: HOT-316	Sampler: LK, TR	
Niskin #	Depth	Serial #	Comments		
1	1000	255			
2	750	256			
3	500	257			
4	200	258			
5	175	259			
6	165	260			
7	150	261			
8	130	262			
9	125	263			
10	115	264			
11	110	265			
12	100	266			
13	90	267			
14	85	268			
15	75	269			
16	60	270			
17	45	271			
18	35	272			
19	25	273			
20					
21	15	274			
22	5	275			
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GPS	12L	27.12	TR

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

MLD: 50db
DCM: 94db

Station: 2	Cast: 6
Latitude start: 22° 46.910' N end: 22° 47.544' N	Longitude start: 157° 57.718' W end: 157° 57.634' W
Depth of water: 4706 meters	Date (GMT): 10 / 18 / 19
Pressure on Deck	Time:
Begin: 0.46 End: 0.52	Start Log: 09:18 In Water: 09:21
Max cast pressure: 1022 dbar	Out of Water: 10:15:35

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	09:44:10	09:44:30	1021	1020	
2	09:54:40	09:54:59	500	500	5 min
3		55:04	501	500	
4	10:01:50	10:02:10	175	175	
5	10:03:00	10:03:20	150	150	
6	10:04:04	10:04:24	126	125	
7	10:05:06	10:05:26	101	100	
8	10:07:05	10:07:25	25	25	
9	10:08:04	10:08:24	4	5	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 6	Box #: 12
Salinity Sample Log Sheet			Cruise #: HOT- 316		Sampler: LK, TR
Niskin #	Depth	Serial #	Comments		
1	276 ↔	1020			
2	277 ↔	500	SMIN		
3		X			
4		X			
5		X			
6		X			
7		X			
8		X			
9	278 ↔	5			
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

HOT- 316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
Gas Array	12L	27.10	LK/TR

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

MLD: 54 db
DCM: 94 db

Station: 2	Cast: 7
Latitude start: 22° 47.066'N end: 22° 47.251'N	Longitude start: 157° 56.016'W end: 157° 56.191'W
Depth of water: 4689 meters	Date (GMT): 10 / 18 / 19
Pressure on Deck	Time:
Begin: 0.45	Start Log: 11:53
End: -0.15	In Water: 11:56
Max cast pressure: 1021 dbar	Out of Water: 12:48

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	12:17:30	12:17:50	1019	1020	
2	12:28:45	12:29:05	451	450	Sal min
3	12:35:30	12:35:50	125	125	
4	12:35:30	12:36:05	125	125	
5	12:35:30	12:36:19	124	125	
6	12:37:15	12:37:35	99	100	
7	12:37:15	12:37:55	100	100	
8	12:37:15	12:38:11	99	100	
9	12:39:10	12:39:30	75	75	
10	12:39:10	12:39:40	75	75	
11	12:39:10	12:39:00	75	75	
12	12:41:10	12:41:30	45	45	
13	12:41:10	12:41:40	45	45	
14	12:41:10	12:41:55	44	45	
15	12:42:50	12:43:10	25	25	
16	12:42:50	12:43:25	24	25	
17	12:42:50	12:43:45	24	25	
18	12:42:50	12:44:00	25	25	
19	12:44:45	12:45:05	4	5	
20	12:44:45	12:45:15	4	5	
21	12:44:45	12:45:25	4	5	
22	12:44:45	12:45:40	5	5	
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 7	Box #: 12,13
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: FS-M, DF	
Niskin #	Depth	Serial #	Comments		
1	1020	279			
2	450	280	SMIN		
3	125	281			
4	125	282			
5	125	283			
6	100	284			
7	100	285			
8	100	286			
9	75	287			
10	75	288			
11	75	289			
12	45	290			
13	45	291			
14	45	292			
15	25	293			
16	25	294			
17	25	295			
18	X	X			
19	5	296			
20	5	297			
21	5	298			
22	X	X			
23	X	X			
24	X	X			

HOT- 316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6 1000	12 L	27.19	FS-M

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

Station: 2	Cast: 8
Latitude start: 22 45.822 end: 22 45.848	Longitude start: 157 57.387 end: 157 58.085
Depth of water: 4712 meters	Date (GMT): 10 1 18 119
Pressure on Deck	Time:
Begin: 0.40 End: 0.10	Start Log: 15:02 In Water: 15:13
Max cast pressure: 1021 dbar	Out of Water: 16:27

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	15:43:75	44:05	1021	1020	
2	55:45	56:15	449	450	
3	00:25	00:55	276	275	
4	2:15	2:45	252	250	
5	4:05	4:35	226	225	
6	5:45	6:15	200	200	
7	7:35	8:05	175	175	
8	9:25	9:55	150	150	
9	11:25	11:55	127	125	
10	13:10	13:40	101	100	
11	15:00	15:30	75	75	
12	17:10	17:40	45	45	
13	18:55	19:25	26	25	]
14		35	26	25	]
15	20:15	20:45	15	15	
16	21:45	22:15	5	5	]
17		25	5	5	]
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 8	Box #: 13
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: DF, FSM	
Niskin #	Depth	Serial #	Comments		
1	1020	299			
2	450	300			
3					
4					
5					
6					
7					
8					
9					
10					
11	75	301			
12					
13					
14					
15					
16					
17	5	302			
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6 1000	12 L	27.11	FS-M

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

Station: 2	Cast: 9
Latitude start: 22 46.065 end: 22 46.555	Longitude start: 157 58.631 end: 157 58.370
Depth of water: 4712 meters	Date (GMT): 10/18/19
Pressure on Deck	Time:
Begin: 0.50 End: -0.15	Start Log: 18:00 In Water: 18:03
Max cast pressure: 1021 dbar	Out of Water: 19:04

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	18:26:55	27:25	1020	1020	
2	38:20	38:50	477	475	5-min
3	41:45	42:15	351	350	]
4		25	351	350	]
5	44:45	45:15	250	250	
6	46:35	47:05	201	200	
7	48:00	48:30	175	175	
8	49:20	49:50	151	150	
9	50:40	51:10	125	125	
10	52:05	52:35	100	100	
11	43:45	44:15	75	75	
12	55:35	56:05	45	45	
13	57:05	57:35	24	25	]
14		45	24	25	]
15	58:45	59:15	5	5	]
16		25	5	5	]
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 9	Box #: 13,14
Salinity Sample Log Sheet			Cruise #: HOT-316	Sampler: DF, FSM, FP	
Niskin #	Depth	Serial #	Comments		
1	1010	303			
2	450	304			
3	350	305			
4	350	306			
5	250	307			
6	200	308			
7	175	309			
8	150	310			
9	125	311			
10	100	312			
11	75	313			
12	45	314			
13	25	315			
14					
15	5	316			
16					
17					
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6 1000	12L	27.19	FS-M

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

Station: 2	Cast: 10
Latitude start: 22 45.901 end: 22.46.472	Longitude start: 157 58.529 end: 157.58.769
Depth of water: 4710 meters	Date (GMT): 10 118 119
Pressure on Deck	Time:
Begin: 0.50 End: -0.07	Start Log: 20:58 In Water: 21:03
Max cast pressure: 1021 dbar	Out of Water: 22:03

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	21:26:35	27:05	1020	1020	
2	37:40	38:10	481	480	5-min
3	41:00	41:30	349	350	]
4		40	349	350	]
5	43:45	44:15	250	250	
6	45:37	46:07	200	200	
7	47:21	47:51	174	175	
8	48:50	49:20	152	150	
9	50:21	50:51	125	125	
10	51:59	52:29	99	100	
11	53:34	54:04	75	75	
12	55:07	55:37	45	45	
13	56:27	56:57	25	25	]
14	11	57:07	25	25	]
15	57:53	58:23	15	15	
16	59:17	59:47	5	5	]
17		59:57	5	5	]
18					
19					* FORGOT TO MARK 2 BOTTLES SCANS
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 10	Box #: 14
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: DS, FP, FJ-M	
Niskin #	Depth	Serial #	Comments		
1	1020	317			
2	450	318			
3	350	319			
4	350	320			
5	250	321			
6	200	322			
7	175	323			
8	150	324			
9	125	325			
10	100	326			
11	75	327			
12	45	328			
13	25	329			
14	—	—			
15	—	—	331		
16	5	~~330~~	330 broke, used 331		
17	—	—			
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6/1000	12L	27.41	FS-M

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

Station: 2	Cast: 11
Latitude start: 22° 47.581 end: 22° 47.755	Longitude start: 157° 56.396 end: 157° 56.321
Depth of water: 4688 meters	Date (GMT): 10/19/19
Pressure on Deck	Time:
Begin: 0.5 End: +0.54	Start Log: 00:20 In Water: 00:21
Max cast pressure: 1021 dbar	Out of Water: 01:13

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	00:43:50	44:20	1021	1020	
2	00:49:30	00:49:50	771	770	
3	00:55:01	00:55:21	500	500	
4	00:56:37	00:56:57	449	450	5 min
5	00:58:05	00:58:25	399	400	
6	00:59:34	00:59:54	350	350	
7	01:01:15	01:01:35	300	300	
8	01:02:55	01:03:15	249	250	
9	01:05:22	01:05:42	150	150	
10	01:06:22	01:06:42	124	125	
11	01:07:25	01:07:45	101	100	
12	01:08:28	01:08:48	75	75	
13	01:09:34	01:09:54	46	45	
14	01:10:27	01:10:47	25	25	
15		:52	↓	25	
16	01:11:28	01:11:48	5	5	
17		:53	↓	5	
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 11	Box #: 14/15
Salinity Sample Log Sheet			Cruise #: HOT- 316		Sampler: FP, LK, TR
Niskin #	Depth	Serial #	Comments		
1	1020	332			
2	—	—			
3	—	—			
4	450	333	5-min		
5	—	—			
6	350	334			
7	—	—			
8	250	335			
9	150	336			
10	125	337			
11	100	338			
12	75	339			
13	45	340			
14	25	341			
15	—	—			
16	5	342			
17	—	—			
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GPS	12L	27.30	TR/LK

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

Station: 2	Cast: 12
Latitude start: 22° 46.358' N end: 22° 46.697' N	Longitude start: 157° 57.428' W end: 157° 57.693' W
Depth of water: 4749 meters	Date (GMT): 10 / 19 / 19
Pressure on Deck	Time:
Begin: 0.45	Start Log: 02:58
End: -0.12	In Water: 03:02
Max cast pressure: 1022 dbar	Out of Water: 04:03

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	03:24:45	03:25:05	1022	1020	
2	03:30:05	03:30:25	800	800	
3	03:34:50	03:35:10	601	600	
4	03:38:40	03:39:00	449	450	Sal min
5	03:40:25	03:40:55	399	400	
6	03:43:19	03:43:39	301	300	
7	03:46:12	03:46:32	200	200	
8	03:47:52	03:48:12	176	175	
9	03:49:25	03:49:45	150	150	
10	03:50:55	03:51:15	125	125	
11	03:52:34	03:52:54	101	100	
12	03:54:10	03:54:30	76	75	
13	03:55:58	03:56:18	45	45	
14	03:57:25	03:57:45	25	25	
15		:50	↓	25	
16	03:58:37	03:58:57	15	15	
17	03:59:39	03:59:59	5	5	
18		04:00:05	↓	5	
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 12	Box #:
Salinity Sample Log Sheet			Cruise #: HOT- 316		Sampler: 15
Niskin #	Depth	Serial #	Comments		
1	1020	343			
2	X				
3	X				
4	450	344	Sal mvn		
5	X				
6	X				
7	X				
8	X				
9	X				
10	X				
11	X				
12	75	345	sal max		
13	X				
14	X				
15	X				
16	X				
17	5	346			
18	X				
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G1000GPS	12L	27.12	LK, TR

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

Station: 2	Cast: 13
Latitude start: 22°44.728'N end: 22°45.1088'N	Longitude start: 157°58.109'W end: 157°57.9643
Depth of water: 4749 meters	Date (GMT): 10/19/19
Pressure on Deck	Time:
Begin: 0.4	Start Log: 05:51
End: 0.0	In Water: 05:55
Max cast pressure: 1020 dbar	Out of Water: 06:53

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	06:18:35	06:18:55	1020	1020	
2	06:18:35	06:19:10	1020	1020	
3	06:30:00	06:30:20	474	475	Sal min
4	06:36:35	06:37:00	175	175	
5	06:38:00	06:38:20	149	150	
6	06:39:10	06:39:30	135	135	
7	06:40:10	06:40:30	124	125	
8	06:41:10	06:40:30	115	115	
9	06:42:55	06:43:15	100	100	
10	06:44:10	06:44:30	85	85	
11	06:45:10	06:45:30	75	75	
12	06:46:25	06:46:45	59	60	
13	06:47:40	06:48:00	44	45	
14	06:49:10	06:49:30	25	25	
15	06:50:20	06:50:50	15	15	]
16	06:50:20	06:51:00	15	15	]
17	06:51:45	06:52:05	5	5	
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 13	Box #: 15
Salinity Sample Log Sheet			Cruise #: HOT-316	Sampler: CK, TR	
Niskin #	Depth	Serial #	Comments		
1	X				
2	X				
3	475	347	Sal min		
4	175	348			
5	150	349			
6	135	350			
7	125	351			
8	115	352			
9	100	353			
10	85	354			
11	75	355			
12	60	356			
13	45	357			
14	25	358			
15	X				
16	X				
17	5	359			
18					
19					
20					
21					
22					
23					
24					

HOT-316

Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G5000GPS	12L	27.10	TR/LK FS-M

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

11:34:55
22° 45.810' N
158° 00.142

7m off Bottom

Station: 2	Cast: 14
Latitude start: 22°45.085'N end: 22°45.885'N	Longitude start: 158° 0.031'W end: 158° 0.614'W
Depth of water: 4773 meters	Date (GMT): 10/19/19
Pressure on Deck	Time:
Begin: 0.5 End: -0.40	Start Log: 09:50 In Water: 09:57
Max cast pressure: 4801 dbar	Out of Water: 13:12

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	11:34:55	11:34:55	4801	4800	
2	11:50:55	11:51:15	4000	4000	
3	11:50:55	11:51:28	4000	4000	
4	11:50:55	11:51:40	4000	4000	
5	12:10:05	12:10:25	2999	3000	
6	12:10:05	12:10:36	2999	3000	
7	12:28:28	12:28:48	1999	2000	
8	12:28:28	12:29:00	2000	2000	
9	12:47:00	12:47:20	999	1000	
10	51:20	51:50	800	800	O_2 min
11	58:00	58:30	476	475	Sal min
12	5:55	6:25	80	80	O_2 max
13	8:25	8:55	5	5	
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 2	Cast #: 14	Box #: 15, 16
Salinity Sample Log Sheet			Cruise #: HOT- 316	Sampler: DF, FS-M	
Niskin #	Depth	Serial #	Comments		
1	4800	360			
2	4000	361			
3	X				
4	3000	362			
5	X				
6	2000	363			
7	X				
8	X				
9	800	364	O_2 min		
10	475	365	sal min		
11	80	366	O_2 max		
12	5	367			
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

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Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
6200	12L	27.18	FS-M

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

Station: 52	Cast: 1
Latitude start: 22 41.645 end: 22 41.75	Longitude start: 157 57.775 end: 157 57.753
Depth of water: 4768 meters	Date (GMT): 10/19/19
Pressure on Deck	Time:
Begin: 0.45 End: 0.60	Start Log: 22:21 In Water: 22:26
Max cast pressure: 211 dbar	Out of Water: 23:26

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	22:18:25	18:35	211	210	No salinity
2	22:30	23:00	25	25	samples
3	23:40	24:10	5	5	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

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Hawaii Ocean Time-Series CONSOLE LOG

Cast type	Bottle type	SST	Operator
G5000	12L	27.10	TR/LK

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

• 07:09 • 8M OFF BOTTOM
• 21° 50.949' N
• 158° 21.829' W

Station: 6	Cast: 1
Latitude start: 21° 50.828' N end: 21° 51.074' N	Longitude start: 158° 21.844' W end: 158° 21.853' W
Depth of water: 2066 meters	Date (GMT): 10 / 20 / 19
Pressure on Deck	Time:
Begin: 0.38 End: -0.16	Start Log: 06:06 In Water: 06:13
Max cast pressure: 2492 dbar	Out of Water: 08:10

Trip/ Niskin	Time stopped	Confirm tripped	Pressure	Target Depth	Comments
1	07:09:15	07:09:15	2492	2500	
2	07:18:45	07:19:05	2000	2000	
3	07:28:58	07:29:18	1499	1500	
4	07:39:15	07:39:45	1001	1000	
5	07:49:30	07:49:50	500	500	
6	07:56:35	07:56:55	175	175	
7	07:57:44	07:58:04	150	150	
8	07:58:52	07:59:12	125	125	
9	08:00:08	08:00:33	100	100	
10	08:01:56	08:02:16	75	75	
11	08:03:40	08:04:00	45	45	
12	08:05:02	08:05:22	25	25	
13	08:06:26	08:06:46	5	5	
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Hawaii Ocean Time Series			Station #: 6	Cast #: 1	Box #: 16
Salinity Sample Log Sheet			Cruise #: HOT- 316		Sampler: TR, LK
Niskin #	Depth	Serial #	Comments		
1	2500	368			
2	2000	369			
3	1500	370			
4	1000	371			
5	500	372			
6	175	373			
7	150	374			
8	125	375			
9	100	376			
10	75	377			
11	45	378			
12	25	379			
13	5	380			
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

HOT-316 OC-1910A

CTD configuration

CTD: 91361 (Beta)
Deck Unit: 112060 (secondary)
Pressure: 75434
Carousel: 1261 (new)
T_1: 1416 T_2: 5519
C_1: 4687 C_2: 2959
O_1: 1601 O_2: 43262
$Pump_1$: 968 $pump_2$: 494
Flurometer: 3831
Altimeter: 7769
Bucket Thermometer: 3638
Transmissometer: 1432 DR

Cruise Participants:

B. Brenes
T. Burrell
D. Sadler (chief sci)
D. Fitzgerald
C. Funkey
L. Knor
T. Rohrer
F. Santiago-Mandujano
E. Grabowski
R. Tabata
B. Watkins
F. Pacheco
P. A'hearn (MarineTech, OSU)

October 15, 2019
Loading day

2100 Safety briefing by the captain

290 Ω, Black Conductor
TAPE = 8694.0

HOT-316 16 October 2019

1600 All science party aboard

1630 Fire drill, abandon ship drill

1800 Depart from Pier 35

2038 Arrived at Kahe Sta.

2050 Start weight cast to 500 m
1400 lb in air
1200 lb in water

2103 At 500 m

2116 End of weight cast

2135 Start Hyperpro from the backdeck

2215 End hyperpro

2238 Start SICI, G1000 GPS
Rosette weight 1250 lb in air, 650 lb in water

2333 Raining on station
Pinger signal OK

2353 End of cast, 15 marks OK

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0005 Transit to ALOHA station

0010 Stopped to finish sampling.

0040 Resume transit.

0816 ARRIVE AT EDGE OF ALOHA CIRCLE

0905 BEGIN WIREWALKER DEPLOYMENT
22° 39.273' N, 158° 01.856' W

0918 END WIREWALKER DEPLOYMENT
22° 39.286' N, 158° 01.843' W

0919 TRANSITING 1 NM NE

0941 BEGIN SEDIMENT TRAP ARRAY DEPLOYMENT
22° 40.012' N, 158° 01.022' W

1006 END ST ARRAY DEPLOYMENT
22° 40.041' N, 158° 00.952

1010 TRANSITING 1 NM NE

1200 BEGIN S2C1, G1000 GPS
22° 40.512' N, 157° 59.800' W

1226 END S2C1, 23 MARKS OK

Secondary fluorescence maximum at 130 dbar, underneath the main 100 dbar max.

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1450 Start PP deployment

1505 PP array deployed.
22 42.798° N, 158° 4.802' W

1530 Deploying sea glider

1538 Glider deployed
22° 43.322' N, 158° 4.162' W

1553 Brake confirmed w/ 5.1 volts that glider is ok (via phone call).
Transit to Moffat center

1643 Start S2C2 65000 DPS.

CTD only reached ~5 dbar after soaking, ship rolling and wire went under ship, the rosette hit the bottom of the ship when the CTD was being lifted

Large C-differences, ~ 0.0006 S/m

Salinity min from secondary sensors in proc pc ~ 33.9 while primary ~ 34.1
Secondary C-coeffs were entered with an error

1829 30 m off the bottom, could not go deeper because wire tension reached 3000 lb
22° 45.592' N, 157° 59.900' W.

Max wire tension during upcast 3500 lb

Ballister bottle BB.O lost

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2026 End of cast, 24 marks OK
One Bullister bottle lost (20) when rosette hit bottom of the ship during deployment.
Bullister bottle B80 lost at sea

Bottles 12, 13, 14, 19 have red paint on top of bottle and cap. Bottle 12 hose clamp broke, all bottles displaced down.

Bottle 15 had some organic material in the upper layers

Replaced Bullister bottle 20 (B80) with B26

Lifted all displaced bottles to the right height in the rosette.

2312 Stat S2C3 G1000 GPS

18 October 2019

0023 End of cast. One extra mark at 8956. It Needs to be removed.

6 ft swells.

0137 BEGIN S2C4, G1000GPS, PS: CAST
(CASTS REARRANGED DUE TO LATE START)

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02:43 END S2C4, 14 MARKS OK

03:24 TRANSIT TO PP ARRAY

04:14 PP ARRAY HOOKED IN @ 22°44.7848 N
158° 03.568 W

04:32 PP ANCHOR ON DECK @ 22° 44.9731 N
158° 03.4080 W

05:50 START S2C5, G1000GPS
22° 46.049' N, 158° 01.038' W

07:04 END S2C5, 24 MARKS OK

08:35 BEGIN NET TOW
22° 46.702' N, 157° 58.576' W
(2nd Net Tow cancelled due to time constraint)

09:05 END NET TOW

09:18 BEGIN S2C6, G1000GPS
22° 46.910' N, 157° 57.718' W

10:15 END S2C6, 9 MARKS OK

11:56 start S2C7, G1000GPS
22° 47.066' N, 157° 56.016' W

12:48 END S2C7, 22 MARKS OK

1418 start Gas array deployment

salinity bottle 330 broke during sampling, needs replacement!

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1435 Deployed Gas array
22 45.985'N, 157 55.649'W

1502 Start S2C8, G1000 GPS

1627 End of cast, 17 marks OK

1800 Start S2C9, G1000 GPS

1904 End of cast, 16 marks OK

2058 Start S2 C10, G1000 GPS

Most CTD casts only reaching ~ 3-4 dbar after soaking because of heavy ship rolling.

2103 End of cast. 2 marks missing at 25 dbar, one extra mark at 5 dbar.

2235 Start net tow

2301 End net tow, start second

2328 End net tow

2338 Start hyperpro

19 oct 2019

0007 End hyperpro cast

Check calibration of C-sensor
SN 3162 the calibration sheet
on board is old, NOV 2017

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0017 Squall on station

0020 Start S2 C11, G 1000 GPS
22° 47.581' N, 157° 56.386' W

01:13 END S2C11, 17 MARKS OK

02:58 START S2C12, G1000GPS
restarted ACQ1 computer after COM37 port error message before deployment.
22° 46.358' N 157° 57.428' W

Large salinity/conductivity differences.
~0.03 PSU/~0.003 S/m

0403 End of cast.

The large C-differences seem to be caused by the primary sensor, which showed a sal-min less than 34.0. Secondary sensor shows sal-min of ~34.1 same as in previous casts.

Will replace C-sensor 4687 with SN 3984

Possible that conductivity cell was broken when CTD/Rosette was landed harshly on deck. Due to ship's roll and lack of clearance by the Oceanus' squirt boom, the CTD/Rosette has had multiple impacts both to the side and bottom of the frame.

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05:55 START S2C13
22°44.728'N 157°58.103' W
salinity difference <0.001

06:53 END S2, C13, 17 MARKS OK

07:21 transit to pump tanks
-TANKS WERE FULL AND VENTING INTO SHIP. ENGINEERS WERE UNABLE TO TELL EXACTLY HOW FULL BEFOREHAND, SO WE HAD TO LEAVE ALOHA CIRCLE TO THE E TO PUMP. THIS DELAYED NET TOW AND DEEP CAST.

08:55 BEGIN NET TOW
22° 44.743' N, 157° 56.538' W

09:20 END NET TOW

09:54 START S2C14, 4500D deep cast
22° 45.085'N 158°0.031' W

11:34 TARGET DEPTH REACHED, 4801 DB, 7m off Bottom
22° 45.810' N, 158° 00.142' W

1312 End of cast, 13 mars OK

1329 Start optics cast

1503 End optics cast.

1520 Transit to recover gas array

1623 Recovering gas array
22° 52.345' N, 157° 53.971' W

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1639 completed gas array recovery.

1645 Transit to recover sed. traps

1731 BEGIN SED TRAP Recovery
22° 49.368'N
157° 57.516'W

1746 END SED TRAP RECOVERY
22° 49.495'N
157° 57.417'W

1749 TRANSIT TO WIRE WALKER

1826 BEGIN WIRE WALKER Recovery
22° 47.767'N
157° 58.381'W

Swell about 7 ft, 3ft seas.

1838 End wirewalker recovery

1850 Transit to WHOTS mooring

2133 Start hyperprocast

2207 End hyperprocast

2221 Start SS2 CI 6200 GPS

2243 At the surface end cycle 1, start cycle 2

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2253 At the surface, end cycle 2, start 3

2307 " " " end cycle 3, start cycle 4

2312 " " " end cycle 4, start cycle 5

2326 End of cast, 3 marks OK

Transmissometer calibration

Dark: 0.02564
Clear: 4.325

20 October 2019

0055 Left station 52

05:55 ARRIVE STATION 6

06:06 BEGIN S6C1, G5000GPS
21° 50.828' N, 158° 21.844' W

07:09 Target depth reached (2492 db), 8m off the bottom. 21°50.949'N 158°21.829'W

08:10 END S6C1, 13 MARKS OK

08:56 TRANSIT TO HONOLULU

16:16:00 thermosal clock 23 sec fast
16:16:23

HOT-316 20 October 2019

1747 Back in Pier 35