MVP Data Processing Notes – 2015 Leg3

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NGCC • CCGS

AMUNDSEN

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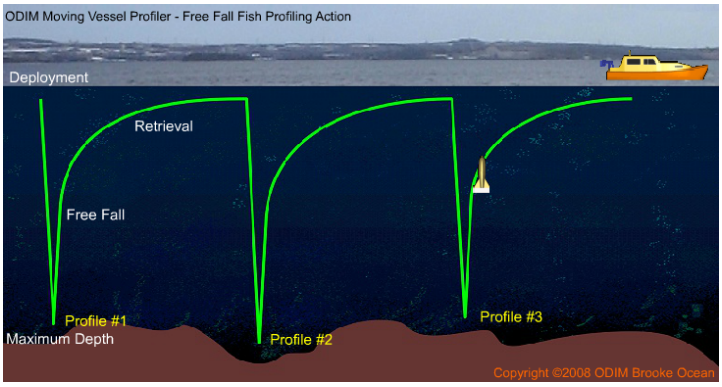
1. Introduction

The Canadian research icebreaker CCGS *Amundsen* is equipped with a Moving Vessel Profiler™ (MVP). It is a multi-purpose instrument for aiding in the collection of both shallow and deep-water datasets. The MVP's primary function is to allow accurate data collection without the need to stop the vessel.

The system includes a computer-controlled smart winch and deployment system that allows the free fall fish to be deployed while the vessel is underway.

The fish is equipped with several sensors to record data on temperature, salinity, fluorescence, sound velocity, dissolved oxygen and transmittance.



Down cast (free fall) and up cast (low recovery)

Winch operation

Fish (Sensors platform)

Table 1: Instruments and probes

Instrument	Company	Unit	Serial number	Calibration date
Temperature	AML	°C	7416	2015-01
Conductivity	AML	mS/cm	7416	2015-01
Pressure	AML	Db	7416	2015-01
Sound velocity	AML	m/s	7417	2015-01
Pressure	AML	db	7417	2015-01
Dissolved Oxygen	AML	%	7439	2015-04-01
Fluorescence	WetLabs	ug/L	FLRTD-678	2014-12-17
Transmittance	WetLabs	%	1049DR	2014-12-18

Table 2: Instruments and probes

Instrument	Company	Measurement	Specification	
Micro CTD	AML	Temperature	Range (°C)	-2 to +32
			Initial Accuracy (°C)	0.005
			Resolution (°C)	0.001
		Conductivity	Range (mS/cm)	2 to 70
			Initial Accuracy (mS/cm)	0.01
			Resolution (mS/cm)	0.0015
		Pressure	Range (m)	0 to 6000
			Initial Accuracy (%FS)	0.05
			Resolution (%FS)	0.005
Micro SV	AML	Sound velocity	Range (m/s)	1375 to 1600
			Initial Accuracy (m/s)	0.05
			Resolution (m/s)	0.01
		Pressure	Range (m)	0 to 6000
			Initial Accuracy (%FS)	0.05
			Resolution (%FS)	0.005
Micro DO2	AML	Dissolved	Range (%)	0-100
		Oxygen	Response time (s)	>3
			Drift (%/month)	5
ECOFLO	WetLabs	Fluorescence	Range (ug/L)	0 to 125
			Sensitivity (ug/L)	0.062
			Wave length (nm)	470/695

C-Stars	WetLabs	Transmittance	Range (%)	0 to 100
			Path length (cm)	25

2. Processing protocol

The following treatment steps were performed using the script: Processing_Amundsen_MVP.m developed in Matlab in Amundsen Science offices.

A: Data reading

A1: Read TSG data

From processed TSG data (files *.int, see TSG processing report by the Amundsen Science technical team).

A2: Read CTD rosette data

From processed Rosette data (files *.int, see Rosette processing report by the Amundsen Science technical team).

A3: Read MVP data

From MVP raw data (files *.raw).

B: Flag and processing

The processing steps in section B are sequentially applied on each cast of a given MVP transect.

B.1: Calibration of the analogic inputs

MVP data from the transmissometer, fluorimeter and dissolved oxygen sensors are recorded in volts 0-5V. Calibration coefficients are applied in post processing to transform the volt values into the recognised units for these recorded variables. Calibration dates are given in table 1.

B.2: Averaging pressure

The SVP and CTD sensors both record pressure. Data from the two datasets are averaged to improve the accuracy of the variable.

B.3: Low pass filter (SBE data processing toolbox)

A Low pass filter is applied on the temperature, conductivity, sound velocity, transmittance, fluorescence and dissolved oxygen time series data. The time constant is

fixed at 0.2s to keep the accuracy of the measure and allow for further filtering on averaged bin performed in B8. For instance, with a free fall at ~3m/s, the filter does not affect a depth gap of one meter (3x0.2=0.6m).

B.4: Align sensor filter (SBE data processing toolbox)

The temperature and conductivity sensors do not have the same response time. This filter aligns data parameters by time, relative to pressure. This ensures that calculations of salinity and other derived parameters are made using measurements from the same parcel of water. The time offset corrections are the following:

- Temperature: + 0.200s
- Conductivity: + 0.025s

The comparison with and without the Low pass filter and Align sensor filter is presented in annex 5.

B.5: Loop edit filter (SBE data processing toolbox)

The Loop Edit processing tests the data for pressure slowdowns and reversals (typically caused by ship heave). It flags scans that fail these tests. Loop Edit filter marks also scans associated with an initial surface soak.

The thresholds for the tests are:

- Minimum velocity: 0.25m/s
- Surface soak depth: 8m
- Minimum soak depth: 5m
- Maximum soak depth: 20m

B.6: Flag out-of-range values

For pressure, latitude and longitude, temperature, conductivity, sound velocity, transmittance, fluorescence and dissolved oxygen values, the flag checks if the values are not out of range (see thresholds in section 3 “Processing characteristics”).

B.7: Flag of spiking values

For each measurement (temperature, conductivity, sound velocity, transmittance, fluorescence and dissolved oxygen), the flag checks spiking values (see thresholds in section 3 “Processing characteristics”) as follows:

$|V2 – (V3 + V1) / 2| - |V1 –V3| / 2 >$ threshold, where V1, V2 and V3 are 3 consecutive values.

B.8: Bin average filter (SBE data processing toolbox)

The Bin average filter averages data, using averaging intervals based on the pressure ranges. The bin sizes are fixed at one meter.

B.9: Calculation of the derived parameters

These calculations use pressure, temperature, and conductivity data to compute the following oceanographic parameters: salinity, sound velocity, density, freezing point, depth and DO2 saturation (sea water toolbox V3.2 from CSIRO).

B.10: Manual data check

A graphic toolbox allows the analyst to check, compare and flag the measurements for the following variables:

- Temperature profile: down cast, up cast and freezing point
- Salinity profile: both down and up casts
- Sound velocity profile: both down and up casts from measurements and down cast from derived value (calculated from pressure, salinity and temperature)
- Transmittance: both down and up casts
- Fluorescence: both down and up casts
- Dissolved oxygen: both down and up casts
- Density: both down and up casts
- d(density)/d(pressure): both down cast and up casts

See example in annex 6.

C: Correction and inter-comparison

The processing steps described in section C are applied on each MVP transect.

C.1: Transmittance maximum adjustment

Transmittance values of each MVP cast are adjusted with the transect maximum transmittance as follows:

Vcorrected = Vmeasured + (100-maximum).

C.2: Fluorescence minimum adjustment

The minimum fluorescence value for each MVP cast is determined. Then, the median of these minimum values is subtracted from fluorescence values of all casts:

Vcorrected = Vmeasured - minimum.

C.3: Dissolved oxygen adjustment

The data from the oxygen sensor collected during the MVP free fall (~4m/s) cannot be used in post-processing steps due to the slow time response of the sensor (>3s). To resolve this problem, the up cast measurements of oxygen are used. The up cast oxygen values are interpolated based on down cast pressure values, which is consistent with other post processing steps.

The oxygen sensor output also has a non-negligible drift with time. The calibration coefficients (measured before the cruise) are not sufficient to calibrate the sensor. A comparison with the oxygen sensor on the rosette is therefore required: the percentage of dissolved oxygen measured with the co-localised rosette is averaged between 150 and 250-meter depth. This value is then compared to the MVP up cast at the same depths and a constant error is calculated. This error adjustment is then applied on all MVP casts for all depths of each transect.

C.4: Rosette inter-comparison

- All rosettes done between 24 hours before the first cast and 24 hours after the last cast of the transect are detected.
- Each of these rosettes is associated to the nearest MVP cast for variables inter-comparison (rejected if the distance is greater than 10.8NM – Nautical Mile).
- The variable of each MVP profile are then plotted (down cast) with the profiles of the bordering rosette. In addition, mean and standard deviation of all MVP down cast profiles of each transect are plotted (for geographic variability visualisation). See plot for this leg in annex 1.

C.5: TSG inter-comparison

- The first 10 meters of MVP salinity and fluorescence records are averaged for each down cast and each up cast.
- TSG data are co-localised and averaged on 2 minutes
- Differences (MVP-TSG) are flagged if:
    1- MVP vertical standard deviation (on first 10 meter) > threshold
    2- TSG time series standard deviation (on 2 minutes) > threshold
    3- Difference > median (differences) +/- standard deviation (differences).
- Remaining differences (not flagged) are plotted and then a constant is selected and applied on all casts (for salinity and fluorescence).

See annex 2 for graph and section 3 Processing characteristics for thresholds.

D: Final data format

Data profiles (down cast profiles only, excepted dissolved oxygen data) are saved in text format with the extension *.int. One folder per MVP transects and one file per cast are created.

Table 3: Data file format

Col	Content	Format	Units
1	Pressure	F12.2	dB
2	Temperature (ITS-90)	F12.2	deg C
3	Practical Salinity	F12.2	psu
4	Sound velocity	F12.2	m/s
5	Transmittance	F12.2	%
6	Fluorescence	F12.2	ug/L
7	Dissolved Oxygen	F12.2	mL/L
8	Absolute Salinity (TEOS-10)	F12.2	g/kg
9	Conservative Temperature (TEOS-10)	F12.2	deg C
10	In situ density (TEOS-10)	F12.2	kg/m^3
11	Potential density (TEOS-10)	F12.2	kg/m^3

NaN stands for: Not a Number. It indicates that no data was recorded or that the data was flagged and mistrusted.

3. Processing characteristics

This information is automatically generated from the processing program. The codes B6, C3, C5, etc. refer to the processing steps explained and detailed in the corresponding sections above. The Processing characteristics section provides the values for each parameter used during the treatments detailed in section B6, C3, C5, etc. Due to the absence of data, a treatment may not be applied.

3.1 Transect 1

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 1
Processing date: 05-Apr-2017

////////// Limits and Thresholds Settings //////////
B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature
B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike

C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////
------ Inter-comparison------
C1: Bias applied on Transmittance
Constant bias correction: -8.000 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.760 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: -3.055%
C5: Salinity bias statistics
Number of samples used (TSG) = 2
Median (bias)= 0.868
Mean (bias)= 0.868
Standard deviation (bias)= 0.002
Accuracy (bias)= 0.001
C5: Fluorescence bias statistic calculate
Number of samples used (TSG) = 49
Median (bias)= -0.003
Mean (bias)= -0.001
standard deviation (bias)= 0.023
Accuracy (bias)= 0.003
C5: Bias applied on Salinity
Constant bias correction: 0.000 psu
C5: Bias applied on Fluorescence
Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0003.raw	06-sept-15	13:33:54
2	1503001_0004.raw	06-sept-15	13:42:35
3	1503001_0005.raw	06-sept-15	13:48:43
4	1503001_0006.raw	06-sept-15	14:00:18
5	1503001_0007.raw	06-sept-15	14:08:21
6	1503001_0009.raw	06-sept-15	14:20:13
7	1503001_0010.raw	06-sept-15	14:27:17
8	1503001_0011.raw	06-sept-15	14:34:59
9	1503001_0012.raw	06-sept-15	14:45:12
10	1503001_0013.raw	06-sept-15	14:59:41
11	1503001_0014.raw	06-sept-15	15:09:33
12	1503001_0015.raw	06-sept-15	15:24:49
13	1503001_0016.raw	06-sept-15	15:41:12
14	1503001_0017.raw	06-sept-15	15:50:14
15	1503001_0018.raw	06-sept-15	15:58:14
16	1503001_0019.raw	06-sept-15	16:06:33
17	1503001_0020.raw	06-sept-15	16:16:25
18	1503001_0021.raw	06-sept-15	16:25:00
19	1503001_0022.raw	06-sept-15	16:34:22
20	1503001_0023.raw	06-sept-15	16:46:33
21	1503001_0024.raw	06-sept-15	16:55:02
22	1503001_0026.raw	06-sept-15	17:05:17
23	1503001_0027.raw	06-sept-15	17:14:53
24	1503001_0028.raw	06-sept-15	17:26:35
25	1503001_0029.raw	06-sept-15	17:35:41
26	1503001_0030.raw	06-sept-15	17:46:05
27	1503001_0031.raw	06-sept-15	17:56:17
28	1503001_0032.raw	06-sept-15	18:05:04
29	1503001_0033.raw	06-sept-15	18:14:13
30	1503001_0034.raw	06-sept-15	18:22:57
31	1503001_0035.raw	06-sept-15	18:30:37
32	1503001_0036.raw	06-sept-15	18:43:06

3.2 Transect 2

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 2
Processing date: 12-Apr-2017
////////// Limits and Thresholds Settings //////////
B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature
B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////

------ Inter-comparison------

C1: Bias applied on Transmittance

Constant bias correction: -8.450 %

C2: Bias applied on Fluorescence

Constant bias correction: -0.820 ug/l

C3: Bias applied on Dissolved oxygen

Constant bias correction: 0.000%

C5: Salinity bias statistics

Number of samples used (TSG) = 90

Median (bias)= -0.003

Mean (bias)= 0.012

Standard deviation (bias)= 0.051

Accuracy (bias)= 0.005

C5: Fluorescence bias statistic calculate

Number of samples used (TSG) = 61

Median (bias)= 0.308

Mean (bias)= 0.758

standard deviation (bias)= 0.702

Accuracy (bias)= 0.090

C5: Bias applied on Salinity

Constant bias correction: 0.000 psu

C5: Bias applied on Fluorescence

Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0038.raw	26-sept-15	07:56:32
2	1503001_0039.raw	26-sept-15	07:57:28
3	1503001_0040.raw	26-sept-15	07:58:27
4	1503001_0041.raw	26-sept-15	07:59:33
5	1503001_0042.raw	26-sept-15	08:01:09
6	1503001_0043.raw	26-sept-15	08:02:18
7	1503001_0044.raw	26-sept-15	08:03:54
8	1503001_0045.raw	26-sept-15	08:05:53
9	1503001_0046.raw	26-sept-15	08:07:39

10	1503001_0047.raw	26-sept-15	08:09:17
11	1503001_0048.raw	26-sept-15	08:10:47
12	1503001_0049.raw	26-sept-15	08:12:46
13	1503001_0050.raw	26-sept-15	08:15:41
14	1503001_0051.raw	26-sept-15	08:18:40
15	1503001_0052.raw	26-sept-15	08:21:05
16	1503001_0053.raw	26-sept-15	08:23:14
17	1503001_0054.raw	26-sept-15	08:25:35
18	1503001_0055.raw	26-sept-15	08:27:47
19	1503001_0056.raw	26-sept-15	08:29:45
20	1503001_0057.raw	26-sept-15	08:32:03
21	1503001_0058.raw	26-sept-15	08:34:21
22	1503001_0059.raw	26-sept-15	08:36:30
23	1503001_0060.raw	26-sept-15	08:38:43
24	1503001_0061.raw	26-sept-15	08:41:09
25	1503001_0062.raw	26-sept-15	08:43:35
26	1503001_0063.raw	26-sept-15	08:46:05
27	1503001_0064.raw	26-sept-15	09:03:08
28	1503001_0065.raw	26-sept-15	09:05:42
29	1503001_0066.raw	26-sept-15	09:09:29
30	1503001_0067.raw	26-sept-15	09:12:57
31	1503001_0068.raw	26-sept-15	09:15:55
32	1503001_0069.raw	26-sept-15	09:19:37
33	1503001_0070.raw	26-sept-15	09:23:54
34	1503001_0071.raw	26-sept-15	09:26:57
35	1503001_0072.raw	26-sept-15	09:30:09
36	1503001_0074.raw	26-sept-15	09:46:05
37	1503001_0075.raw	26-sept-15	09:47:56
38	1503001_0076.raw	26-sept-15	09:50:59
39	1503001_0077.raw	26-sept-15	09:53:56
40	1503001_0078.raw	26-sept-15	10:04:07
41	1503001_0079.raw	26-sept-15	10:06:33
42	1503001_0080.raw	26-sept-15	10:10:16
43	1503001_0081.raw	26-sept-15	10:13:35
44	1503001_0082.raw	26-sept-15	10:16:59
45	1503001_0083.raw	26-sept-15	10:20:24
46	1503001_0084.raw	26-sept-15	10:23:43

47	1503001_0085.raw	26-sept-15	10:27:00
48	1503001_0086.raw	26-sept-15	10:31:51
49	1503001_0088.raw	26-sept-15	10:34:16
50	1503001_0089.raw	26-sept-15	10:38:01
51	1503001_0090.raw	26-sept-15	10:41:48
52	1503001_0091.raw	26-sept-15	10:46:04
53	1503001_0092.raw	26-sept-15	10:49:54
54	1503001_0093.raw	26-sept-15	10:53:38
55	1503001_0094.raw	26-sept-15	10:57:22
56	1503001_0095.raw	26-sept-15	11:01:19
57	1503001_0096.raw	26-sept-15	11:05:34
58	1503001_0097.raw	26-sept-15	11:10:07
59	1503001_0098.raw	26-sept-15	11:16:03
60	1503001_0100.raw	26-sept-15	11:21:59
61	1503001_0102.raw	26-sept-15	11:37:14
62	1503001_0104.raw	26-sept-15	11:45:13
63	1503001_0106.raw	26-sept-15	11:57:33
64	1503001_0107.raw	26-sept-15	12:01:04
65	1503001_0109.raw	26-sept-15	12:12:57
66	1503001_0110.raw	26-sept-15	12:19:08
67	1503001_0111.raw	26-sept-15	12:25:16
68	1503001_0112.raw	26-sept-15	12:33:30
69	1503001_0113.raw	26-sept-15	12:39:54
70	1503001_0114.raw	26-sept-15	12:43:54
71	1503001_0115.raw	26-sept-15	13:02:52
72	1503001_0116.raw	26-sept-15	13:08:19
73	1503001_0117.raw	26-sept-15	13:13:41
74	1503001_0118.raw	26-sept-15	13:17:02
75	1503001_0119.raw	26-sept-15	13:20:34
76	1503001_0120.raw	26-sept-15	13:25:40
77	1503001_0121.raw	26-sept-15	13:30:46
78	1503001_0122.raw	26-sept-15	13:35:14
79	1503001_0123.raw	26-sept-15	13:39:45
80	1503001_0124.raw	26-sept-15	13:44:21
81	1503001_0125.raw	26-sept-15	13:49:33
82	1503001_0126.raw	26-sept-15	13:54:52
83	1503001_0127.raw	26-sept-15	14:00:12

84	1503001_0128.raw	26-sept-15	14:05:46
85	1503001_0129.raw	26-sept-15	14:16:23
86	1503001_0130.raw	26-sept-15	14:22:20
87	1503001_0131.raw	26-sept-15	14:28:34
88	1503001_0132.raw	26-sept-15	14:34:51
89	1503001_0133.raw	26-sept-15	14:41:10
90	1503001_0134.raw	26-sept-15	14:47:42
91	1503001_0135.raw	26-sept-15	14:53:45
92	1503001_0136.raw	26-sept-15	14:59:57
93	1503001_0137.raw	26-sept-15	15:06:31
94	1503001_0138.raw	26-sept-15	15:13:17
95	1503001_0139.raw	26-sept-15	15:20:13
96	1503001_0140.raw	26-sept-15	15:27:46
97	1503001_0141.raw	26-sept-15	15:35:25
98	1503001_0142.raw	26-sept-15	15:43:15
99	1503001_0143.raw	26-sept-15	15:55:45
100	1503001_0144.raw	26-sept-15	16:03:00
101	1503001_0145.raw	26-sept-15	16:10:10
102	1503001_0146.raw	26-sept-15	16:17:34
103	1503001_0147.raw	26-sept-15	16:24:58
104	1503001_0148.raw	26-sept-15	16:32:04
105	1503001_0149.raw	26-sept-15	16:38:43
106	1503001_0150.raw	26-sept-15	16:46:00
107	1503001_0151.raw	26-sept-15	16:54:45
108	1503001_0152.raw	26-sept-15	17:01:42
109	1503001_0153.raw	26-sept-15	17:05:54
110	1503001_0154.raw	26-sept-15	17:09:33
111	1503001_0155.raw	26-sept-15	17:13:32
112	1503001_0156.raw	26-sept-15	17:17:36
113	1503001_0157.raw	26-sept-15	17:21:43
114	1503001_0158.raw	26-sept-15	17:25:15
115	1503001_0159.raw	26-sept-15	17:28:10
116	1503001_0160.raw	26-sept-15	17:30:39
117	1503001_0161.raw	26-sept-15	17:33:29
118	1503001_0162.raw	26-sept-15	17:36:27
119	1503001_0163.raw	26-sept-15	17:38:56
120	1503001_0164.raw	26-sept-15	17:41:08

121	1503001_0165.raw	26-sept-15	17:43:32
122	1503001_0166.raw	26-sept-15	17:45:22
123	1503001_0167.raw	26-sept-15	17:46:50
124	1503001_0168.raw	26-sept-15	17:48:14
125	1503001_0169.raw	26-sept-15	17:49:39
126	1503001_0170.raw	26-sept-15	17:51:02
127	1503001_0171.raw	26-sept-15	17:52:52
128	1503001_0172.raw	26-sept-15	17:54:50
129	1503001_0173.raw	26-sept-15	17:56:34
130	1503001_0174.raw	26-sept-15	17:58:12
131	1503001_0175.raw	26-sept-15	18:00:52
132	1503001_0176.raw	26-sept-15	18:02:39
133	1503001_0177.raw	26-sept-15	18:04:29
134	1503001_0178.raw	26-sept-15	18:05:50
135	1503001_0179.raw	26-sept-15	18:07:03
136	1503001_0180.raw	26-sept-15	18:08:13
137	1503001_0181.raw	26-sept-15	18:09:22
138	1503001_0182.raw	26-sept-15	18:10:34
139	1503001_0183.raw	26-sept-15	18:11:54
140	1503001_0184.raw	26-sept-15	18:13:17
141	1503001_0185.raw	26-sept-15	18:14:51
142	1503001_0186.raw	26-sept-15	18:16:11
143	1503001_0187.raw	26-sept-15	18:17:20
144	1503001_0188.raw	26-sept-15	18:18:19
145	1503001_0189.raw	26-sept-15	18:19:12
146	1503001_0190.raw	26-sept-15	18:20:10
147	1503001_0191.raw	26-sept-15	18:21:06
148	1503001_0192.raw	26-sept-15	18:22:12
149	1503001_0193.raw	26-sept-15	18:23:18
150	1503001_0194.raw	26-sept-15	18:24:19
151	1503001_0195.raw	26-sept-15	18:25:16
152	1503001_0196.raw	26-sept-15	18:26:16
153	1503001_0197.raw	26-sept-15	18:27:19
154	1503001_0198.raw	26-sept-15	18:28:17
155	1503001_0199.raw	26-sept-15	18:29:16
156	1503001_0200.raw	26-sept-15	18:30:15
157	1503001_0201.raw	26-sept-15	18:31:19

158	1503001_0202.raw	26-sept-15	18:32:28
159	1503001_0203.raw	26-sept-15	18:33:49
160	1503001_0204.raw	26-sept-15	18:35:22
161	1503001_0205.raw	26-sept-15	18:37:52
162	1503001_0206.raw	26-sept-15	18:39:38
163	1503001_0207.raw	26-sept-15	18:41:31
164	1503001_0208.raw	26-sept-15	18:43:00
165	1503001_0209.raw	26-sept-15	18:44:19
166	1503001_0210.raw	26-sept-15	18:46:06
167	1503001_0211.raw	26-sept-15	18:48:23
168	1503001_0212.raw	26-sept-15	18:51:14
169	1503001_0213.raw	26-sept-15	18:54:55
170	1503001_0214.raw	26-sept-15	19:00:15
171	1503001_0215.raw	26-sept-15	19:04:54
172	1503001_0216.raw	26-sept-15	19:10:51
173	1503001_0217.raw	26-sept-15	19:12:49
174	1503001_0218.raw	26-sept-15	19:14:42
175	1503001_0219.raw	26-sept-15	19:16:04
176	1503001_0220.raw	26-sept-15	19:17:16
177	1503001_0221.raw	26-sept-15	19:18:57
178	1503001_0222.raw	26-sept-15	19:21:08
179	1503001_0223.raw	26-sept-15	19:23:03
180	1503001_0224.raw	26-sept-15	19:24:44

3.3 Transect 3

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 3
Processing date: 12-Apr-2017

////////// Limits and Thresholds Settings //////////
B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature

B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////
------ Inter-comparison------
C1: Bias applied on Transmittance
Constant bias correction: -9.100 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.900 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: -93.368%
C5: Salinity bias statistics
Number of samples used (TSG) = 88
Median (bias)= -0.016

Mean (bias)= -0.013
Standard deviation (bias)= 0.017
Accuracy (bias)= 0.002
C5: Fluorescence bias statistic calculate
Number of samples used (TSG) = 26
Median (bias)= 3.046
Mean (bias)= 2.722
standard deviation (bias)= 1.440
Accuracy (bias)= 0.282
C5: Bias applied on Salinity
Constant bias correction: 0.000 psu
C5: Bias applied on Fluorescence
Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0226.raw	26-sept-15	21:08:38
2	1503001_0227.raw	26-sept-15	21:09:24
3	1503001_0228.raw	26-sept-15	21:10:26
4	1503001_0229.raw	26-sept-15	21:12:15
5	1503001_0230.raw	26-sept-15	21:13:54
6	1503001_0231.raw	26-sept-15	21:15:25
7	1503001_0232.raw	26-sept-15	21:18:20
8	1503001_0233.raw	26-sept-15	21:19:24
9	1503001_0234.raw	26-sept-15	21:20:07
10	1503001_0235.raw	26-sept-15	21:20:58
11	1503001_0236.raw	26-sept-15	21:21:43
12	1503001_0237.raw	26-sept-15	21:22:33
13	1503001_0238.raw	26-sept-15	21:23:23
14	1503001_0239.raw	26-sept-15	21:24:14
15	1503001_0240.raw	26-sept-15	21:25:03
16	1503001_0241.raw	26-sept-15	21:25:54
17	1503001_0242.raw	26-sept-15	21:26:44
18	1503001_0243.raw	26-sept-15	21:27:37
19	1503001_0244.raw	26-sept-15	21:28:35
20	1503001_0245.raw	26-sept-15	21:29:34
21	1503001_0246.raw	26-sept-15	21:30:21

22	1503001_0247.raw	26-sept-15	21:31:21
23	1503001_0248.raw	26-sept-15	21:32:05
24	1503001_0249.raw	26-sept-15	21:32:45
25	1503001_0250.raw	26-sept-15	21:33:26
26	1503001_0251.raw	26-sept-15	21:34:09
27	1503001_0252.raw	26-sept-15	21:34:51
28	1503001_0253.raw	26-sept-15	21:35:35
29	1503001_0254.raw	26-sept-15	21:36:19
30	1503001_0255.raw	26-sept-15	21:37:03
31	1503001_0256.raw	26-sept-15	21:37:46
32	1503001_0257.raw	26-sept-15	21:38:35
33	1503001_0258.raw	26-sept-15	21:39:29
34	1503001_0259.raw	26-sept-15	21:40:19
35	1503001_0260.raw	26-sept-15	21:41:25
36	1503001_0261.raw	26-sept-15	21:42:35
37	1503001_0262.raw	26-sept-15	21:43:38
38	1503001_0263.raw	26-sept-15	21:44:47
39	1503001_0264.raw	26-sept-15	21:45:33
40	1503001_0265.raw	26-sept-15	21:46:25
41	1503001_0266.raw	26-sept-15	21:47:18
42	1503001_0267.raw	26-sept-15	21:48:02
43	1503001_0268.raw	26-sept-15	21:48:45
44	1503001_0269.raw	26-sept-15	21:49:26
45	1503001_0270.raw	26-sept-15	21:50:10
46	1503001_0271.raw	26-sept-15	21:50:54
47	1503001_0272.raw	26-sept-15	21:51:37
48	1503001_0273.raw	26-sept-15	21:52:23
49	1503001_0274.raw	26-sept-15	21:53:10
50	1503001_0275.raw	26-sept-15	21:54:23
51	1503001_0276.raw	26-sept-15	21:55:27
52	1503001_0277.raw	26-sept-15	21:56:27
53	1503001_0278.raw	26-sept-15	21:57:29
54	1503001_0279.raw	26-sept-15	21:58:18
55	1503001_0280.raw	26-sept-15	21:58:59
56	1503001_0281.raw	26-sept-15	21:59:52
57	1503001_0282.raw	26-sept-15	22:00:35
58	1503001_0283.raw	26-sept-15	22:01:21

59	1503001_0284.raw	26-sept-15	22:02:40
60	1503001_0285.raw	26-sept-15	22:03:44
61	1503001_0286.raw	26-sept-15	22:04:38
62	1503001_0287.raw	26-sept-15	22:05:21
63	1503001_0288.raw	26-sept-15	22:06:10
64	1503001_0289.raw	26-sept-15	22:07:31
65	1503001_0290.raw	26-sept-15	22:08:43
66	1503001_0291.raw	26-sept-15	22:10:00
67	1503001_0292.raw	26-sept-15	22:11:30
68	1503001_0293.raw	26-sept-15	22:12:27
69	1503001_0294.raw	26-sept-15	22:13:18
70	1503001_0295.raw	26-sept-15	22:14:05
71	1503001_0296.raw	26-sept-15	22:14:48
72	1503001_0297.raw	26-sept-15	22:15:36
73	1503001_0298.raw	26-sept-15	22:16:26
74	1503001_0299.raw	26-sept-15	22:17:33
75	1503001_0300.raw	26-sept-15	22:18:42
76	1503001_0301.raw	26-sept-15	22:19:57
77	1503001_0302.raw	26-sept-15	22:21:41
78	1503001_0303.raw	26-sept-15	22:22:57
79	1503001_0304.raw	26-sept-15	22:24:10
80	1503001_0305.raw	26-sept-15	22:25:21
81	1503001_0306.raw	26-sept-15	22:26:55
82	1503001_0307.raw	26-sept-15	22:28:02
83	1503001_0308.raw	26-sept-15	22:28:54
84	1503001_0309.raw	26-sept-15	22:29:47
85	1503001_0310.raw	26-sept-15	22:30:40
86	1503001_0311.raw	26-sept-15	22:31:42
87	1503001_0312.raw	26-sept-15	22:32:37
88	1503001_0313.raw	26-sept-15	22:34:04
89	1503001_0314.raw	26-sept-15	22:35:37
90	1503001_0315.raw	26-sept-15	22:36:41
91	1503001_0316.raw	26-sept-15	22:37:32
92	1503001_0317.raw	26-sept-15	22:38:32
93	1503001_0318.raw	26-sept-15	22:39:19
94	1503001_0319.raw	26-sept-15	22:40:02
95	1503001_0320.raw	26-sept-15	22:41:12

96	1503001_0321.raw	26-sept-15	22:42:15
97	1503001_0322.raw	26-sept-15	22:43:16
98	1503001_0323.raw	26-sept-15	22:44:18
99	1503001_0324.raw	26-sept-15	22:45:27
100	1503001_0325.raw	26-sept-15	22:46:50
101	1503001_0326.raw	26-sept-15	22:48:13
102	1503001_0327.raw	26-sept-15	22:49:25
103	1503001_0328.raw	26-sept-15	22:50:40
104	1503001_0330.raw	26-sept-15	22:59:46
105	1503001_0331.raw	26-sept-15	23:01:14
106	1503001_0332.raw	26-sept-15	23:02:35
107	1503001_0333.raw	26-sept-15	23:03:59
108	1503001_0334.raw	26-sept-15	23:05:19
109	1503001_0335.raw	26-sept-15	23:06:56
110	1503001_0336.raw	26-sept-15	23:08:47
111	1503001_0337.raw	26-sept-15	23:10:58
112	1503001_0338.raw	26-sept-15	23:13:30
113	1503001_0339.raw	26-sept-15	23:16:09
114	1503001_0340.raw	26-sept-15	23:19:32
115	1503001_0341.raw	26-sept-15	23:23:00
116	1503001_0342.raw	26-sept-15	23:25:44
117	1503001_0343.raw	26-sept-15	23:29:08
118	1503001_0344.raw	26-sept-15	23:31:37
119	1503001_0345.raw	26-sept-15	23:34:06
120	1503001_0346.raw	26-sept-15	23:36:27
121	1503001_0347.raw	26-sept-15	23:38:27
122	1503001_0348.raw	26-sept-15	23:41:14
123	1503001_0349.raw	26-sept-15	23:44:42
124	1503001_0350.raw	26-sept-15	23:48:39
125	1503001_0353.raw	26-sept-15	23:57:42
126	1503001_0354.raw	27-sept-15	00:08:19
127	1503001_0355.raw	27-sept-15	00:32:31
128	1503001_0356.raw	27-sept-15	00:33:38
129	1503001_0357.raw	27-sept-15	00:34:55
130	1503001_0358.raw	27-sept-15	00:37:24
131	1503001_0360.raw	27-sept-15	00:41:36
132	1503001_0361.raw	27-sept-15	00:45:16

133	1503001_0362.raw	27-sept-15	00:50:00
134	1503001_0363.raw	27-sept-15	00:55:38
135	1503001_0364.raw	27-sept-15	01:01:22
136	1503001_0366.raw	27-sept-15	01:17:04
137	1503001_0368.raw	27-sept-15	01:25:48
138	1503001_0369.raw	27-sept-15	01:31:00
139	1503001_0370.raw	27-sept-15	01:36:25
140	1503001_0371.raw	27-sept-15	01:42:03

3.4 Transect 4

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 4
Processing date: 12-Apr-2017

////////// Limits and Thresholds Settings //////////

B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature
B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike

B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////

------ Inter-comparison------

C1: Bias applied on Transmittance
Constant bias correction: -9.100 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.900 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: 0.000%
C5: Salinity bias statistics
Number of samples used (TSG) = 59
Median (bias)= 0.005
Mean (bias)= 0.023
Standard deviation (bias)= 0.051
Accuracy (bias)= 0.007
C5: Fluorescence bias statistic calculate
Number of samples used (TSG) = 14
Median (bias)= 2.079
Mean (bias)= 2.033
standard deviation (bias)= 0.637
Accuracy (bias)= 0.170
C5: Bias applied on Salinity
Constant bias correction: 0.000 psu

C5: Bias applied on Fluorescence

Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0375.raw	27-sept-15	22:40:20
2	1503001_0376.raw	27-sept-15	22:43:05
3	1503001_0377.raw	27-sept-15	22:45:44
4	1503001_0378.raw	27-sept-15	22:49:06
5	1503001_0379.raw	27-sept-15	22:52:25
6	1503001_0380.raw	27-sept-15	22:55:20
7	1503001_0381.raw	27-sept-15	22:57:35
8	1503001_0382.raw	27-sept-15	22:59:37
9	1503001_0383.raw	27-sept-15	23:01:45
10	1503001_0384.raw	27-sept-15	23:04:02
11	1503001_0385.raw	27-sept-15	23:05:54
12	1503001_0386.raw	27-sept-15	23:07:51
13	1503001_0387.raw	27-sept-15	23:10:17
14	1503001_0388.raw	27-sept-15	23:13:02
15	1503001_0389.raw	27-sept-15	23:17:55
16	1503001_0390.raw	27-sept-15	23:22:07
17	1503001_0391.raw	27-sept-15	23:25:55
18	1503001_0392.raw	27-sept-15	23:29:45
19	1503001_0394.raw	27-sept-15	23:38:04
20	1503001_0395.raw	27-sept-15	23:42:13
21	1503001_0396.raw	27-sept-15	23:45:42
22	1503001_0397.raw	27-sept-15	23:48:19
23	1503001_0398.raw	27-sept-15	23:50:44
24	1503001_0399.raw	27-sept-15	23:53:29
25	1503001_0400.raw	27-sept-15	23:55:56
26	1503001_0401.raw	27-sept-15	23:58:31
27	1503001_0402.raw	28-sept-15	00:01:35
28	1503001_0403.raw	28-sept-15	00:04:58
29	1503001_0404.raw	28-sept-15	00:08:33
30	1503001_0405.raw	28-sept-15	00:11:57
31	1503001_0406.raw	28-sept-15	00:14:44
32	1503001_0407.raw	28-sept-15	00:16:52

33	1503001_0408.raw	28-sept-15	00:18:34
34	1503001_0409.raw	28-sept-15	00:20:25
35	1503001_0410.raw	28-sept-15	00:22:23
36	1503001_0411.raw	28-sept-15	00:24:21
37	1503001_0412.raw	28-sept-15	00:26:43
38	1503001_0413.raw	28-sept-15	00:28:31
39	1503001_0414.raw	28-sept-15	00:30:21
40	1503001_0415.raw	28-sept-15	00:32:21
41	1503001_0416.raw	28-sept-15	00:33:44
42	1503001_0417.raw	28-sept-15	00:34:57
43	1503001_0418.raw	28-sept-15	00:36:19
44	1503001_0419.raw	28-sept-15	00:37:36
45	1503001_0420.raw	28-sept-15	00:39:00
46	1503001_0421.raw	28-sept-15	00:40:06
47	1503001_0422.raw	28-sept-15	00:40:59
48	1503001_0423.raw	28-sept-15	00:41:52
49	1503001_0424.raw	28-sept-15	00:42:41
50	1503001_0425.raw	28-sept-15	00:43:33
51	1503001_0426.raw	28-sept-15	00:44:38
52	1503001_0427.raw	28-sept-15	00:45:57
53	1503001_0428.raw	28-sept-15	00:47:22
54	1503001_0429.raw	28-sept-15	00:48:47
55	1503001_0430.raw	28-sept-15	00:50:06
56	1503001_0431.raw	28-sept-15	00:51:10
57	1503001_0432.raw	28-sept-15	00:52:19
58	1503001_0433.raw	28-sept-15	00:53:22
59	1503001_0434.raw	28-sept-15	00:54:25
60	1503001_0435.raw	28-sept-15	00:55:42
61	1503001_0436.raw	28-sept-15	00:56:48
62	1503001_0437.raw	28-sept-15	00:58:03
63	1503001_0438.raw	28-sept-15	00:59:23
64	1503001_0439.raw	28-sept-15	01:00:51
65	1503001_0440.raw	28-sept-15	01:03:10
66	1503001_0441.raw	28-sept-15	01:04:41
67	1503001_0442.raw	28-sept-15	01:06:30
68	1503001_0443.raw	28-sept-15	01:07:26
69	1503001_0444.raw	28-sept-15	01:08:18

70	1503001_0445.raw	28-sept-15	01:09:16
71	1503001_0446.raw	28-sept-15	01:10:18
72	1503001_0447.raw	28-sept-15	01:11:32
73	1503001_0448.raw	28-sept-15	01:12:42
74	1503001_0449.raw	28-sept-15	01:13:40
75	1503001_0450.raw	28-sept-15	01:14:33
76	1503001_0451.raw	28-sept-15	01:15:42
77	1503001_0452.raw	28-sept-15	01:16:43
78	1503001_0453.raw	28-sept-15	01:17:35
79	1503001_0454.raw	28-sept-15	01:18:27
80	1503001_0455.raw	28-sept-15	01:19:20
81	1503001_0456.raw	28-sept-15	01:20:22
82	1503001_0457.raw	28-sept-15	01:21:13
83	1503001_0458.raw	28-sept-15	01:22:04
84	1503001_0459.raw	28-sept-15	01:22:54
85	1503001_0460.raw	28-sept-15	01:23:41
86	1503001_0461.raw	28-sept-15	01:24:24
87	1503001_0462.raw	28-sept-15	01:25:08
88	1503001_0463.raw	28-sept-15	01:25:59
89	1503001_0464.raw	28-sept-15	01:27:06
90	1503001_0465.raw	28-sept-15	01:28:07
91	1503001_0466.raw	28-sept-15	01:29:09
92	1503001_0467.raw	28-sept-15	01:30:12
93	1503001_0468.raw	28-sept-15	01:31:13
94	1503001_0469.raw	28-sept-15	01:32:11
95	1503001_0470.raw	28-sept-15	01:33:01
96	1503001_0471.raw	28-sept-15	01:33:48
97	1503001_0472.raw	28-sept-15	01:34:39
98	1503001_0473.raw	28-sept-15	01:35:33
99	1503001_0474.raw	28-sept-15	01:36:30
100	1503001_0475.raw	28-sept-15	01:37:25
101	1503001_0476.raw	28-sept-15	01:38:19
102	1503001_0477.raw	28-sept-15	01:39:33
103	1503001_0478.raw	28-sept-15	01:40:43
104	1503001_0479.raw	28-sept-15	01:41:50
105	1503001_0480.raw	28-sept-15	01:42:51
106	1503001_0481.raw	28-sept-15	01:43:49

107	1503001_0482.raw	28-sept-15	01:44:43
108	1503001_0483.raw	28-sept-15	01:45:36
109	1503001_0484.raw	28-sept-15	01:46:25
110	1503001_0485.raw	28-sept-15	01:47:11
111	1503001_0486.raw	28-sept-15	01:47:51
112	1503001_0487.raw	28-sept-15	01:48:40
113	1503001_0488.raw	28-sept-15	01:49:27
114	1503001_0489.raw	28-sept-15	01:50:17
115	1503001_0490.raw	28-sept-15	01:51:12
116	1503001_0491.raw	28-sept-15	01:52:09
117	1503001_0492.raw	28-sept-15	01:53:08
118	1503001_0493.raw	28-sept-15	01:54:12
119	1503001_0494.raw	28-sept-15	01:55:21
120	1503001_0495.raw	28-sept-15	01:56:23
121	1503001_0496.raw	28-sept-15	01:57:26
122	1503001_0497.raw	28-sept-15	01:58:32
123	1503001_0498.raw	28-sept-15	01:59:37
124	1503001_0499.raw	28-sept-15	02:00:40
125	1503001_0500.raw	28-sept-15	02:01:36
126	1503001_0501.raw	28-sept-15	02:02:30
127	1503001_0502.raw	28-sept-15	02:03:25
128	1503001_0503.raw	28-sept-15	02:04:24
129	1503001_0504.raw	28-sept-15	02:05:32
130	1503001_0505.raw	28-sept-15	02:06:50
131	1503001_0506.raw	28-sept-15	02:08:25
132	1503001_0507.raw	28-sept-15	02:10:17
133	1503001_0508.raw	28-sept-15	02:12:16
134	1503001_0509.raw	28-sept-15	02:13:45
135	1503001_0510.raw	28-sept-15	02:15:19
136	1503001_0511.raw	28-sept-15	02:17:21
137	1503001_0512.raw	28-sept-15	02:19:47
138	1503001_0513.raw	28-sept-15	02:22:33
139	1503001_0514.raw	28-sept-15	02:25:35
140	1503001_0515.raw	28-sept-15	02:28:09
141	1503001_0516.raw	28-sept-15	02:30:23
142	1503001_0517.raw	28-sept-15	02:33:15
143	1503001_0518.raw	28-sept-15	02:36:40

144	1503001_0519.raw	28-sept-15	02:40:17
145	1503001_0520.raw	28-sept-15	02:44:00
146	1503001_0521.raw	28-sept-15	02:47:47
147	1503001_0522.raw	28-sept-15	02:51:12
148	1503001_0523.raw	28-sept-15	02:53:13
149	1503001_0524.raw	28-sept-15	02:55:08
150	1503001_0525.raw	28-sept-15	02:56:39
151	1503001_0526.raw	28-sept-15	02:57:53
152	1503001_0527.raw	28-sept-15	02:59:10
153	1503001_0529.raw	28-sept-15	03:04:20

3.5 Transect 5

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 5
Processing date: 12-Apr-2017

////////// Limits and Thresholds Settings //////////
B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature
B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike

B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////
------ Inter-comparison------
C1: Bias applied on Transmittance
Constant bias correction: -9.100 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.900 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: -1.091%
C5: Salinity bias statistics
Number of samples used (TSG) = 10
Median (bias)= -0.023
Mean (bias)= -0.018
Standard deviation (bias)= 0.024
Accuracy (bias)= 0.008
C5: Fluorescence bias statistic calculate
Number of samples used (TSG) = 10
Median (bias)= 1.523
Mean (bias)= 1.498
standard deviation (bias)= 0.137
Accuracy (bias)= 0.043
C5: Bias applied on Salinity
Constant bias correction: 0.000 psu

C5: Bias applied on Fluorescence

Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0531.raw	28-sept-15	04:46:37
2	1503001_0532.raw	28-sept-15	04:47:41
3	1503001_0533.raw	28-sept-15	04:49:02
4	1503001_0534.raw	28-sept-15	04:50:18
5	1503001_0535.raw	28-sept-15	04:51:46
6	1503001_0536.raw	28-sept-15	04:53:38
7	1503001_0537.raw	28-sept-15	04:55:56
8	1503001_0538.raw	28-sept-15	04:58:41
9	1503001_0539.raw	28-sept-15	05:01:15
10	1503001_0540.raw	28-sept-15	05:03:44
11	1503001_0541.raw	28-sept-15	05:06:19
12	1503001_0542.raw	28-sept-15	05:09:02
13	1503001_0543.raw	28-sept-15	05:12:14
14	1503001_0545.raw	28-sept-15	05:17:15
15	1503001_0546.raw	28-sept-15	05:21:02
16	1503001_0547.raw	28-sept-15	05:25:15

3.6 Transect 6

Amundsen MVP data processing

Amundsen_2015003

Year: 2015

Leg: 3

Transect: 6

Processing date: 27-Apr-2017

////////// Limits and Thresholds Settings //////////

B6: -2.00 db - Minimum pressure

B6: 7000.00 db - Maximum pressure

B6: -3.00 °C - Minimum temperature

B6: 30.00 °C - Maximum temperature

B6: 0.00 mS/cm - Minimum conductivity

B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG
C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////
------ Inter-comparison------
C1: Bias applied on Transmittance
Constant bias correction: -8.700 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.800 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: 1.155%
C5: Salinity bias statistics
Number of samples used (TSG) = 10
Median (bias)= -0.021
Mean (bias)= -0.017

Standard deviation (bias)= 0.012

Accuracy (bias)= 0.004

C5: Fluorescence bias statistic calculate

Number of samples used (TSG) = 6

Median (bias)= 1.453

Mean (bias)= 1.468

standard deviation (bias)= 0.031

Accuracy (bias)= 0.013

C5: Bias applied on Salinity

Constant bias correction: 0.000 psu

C5: Bias applied on Fluorescence

Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0548.raw	28-sept-15	05:29:22
2	1503001_0550.raw	28-sept-15	05:37:22
3	1503001_0552.raw	28-sept-15	05:43:31
4	1503001_0553.raw	28-sept-15	05:51:38
5	1503001_0554.raw	28-sept-15	05:58:07
6	1503001_0556.raw	28-sept-15	06:04:18
7	1503001_0557.raw	28-sept-15	06:11:33
8	1503001_0558.raw	28-sept-15	06:31:23
9	1503001_0560.raw	28-sept-15	06:39:59
10	1503001_0562.raw	28-sept-15	06:48:07
11	1503001_0563.raw	28-sept-15	06:55:19
12	1503001_0564.raw	28-sept-15	07:01:52
13	1503001_0567.raw	28-sept-15	07:11:56
14	1503001_0569.raw	28-sept-15	07:20:38
15	1503001_0570.raw	28-sept-15	07:25:36
16	1503001_0571.raw	28-sept-15	07:30:53
17	1503001_0572.raw	28-sept-15	07:35:05
18	1503001_0574.raw	28-sept-15	07:40:09
19	1503001_0575.raw	28-sept-15	07:43:25

3.7 Transect 7

Amundsen MVP data processing
Amundsen_2015003
Year: 2015
Leg: 3
Transect: 7
Processing date: 27-Apr-2017

////////// Limits and Thresholds Settings //////////
B6: -2.00 db - Minimum pressure
B6: 7000.00 db - Maximum pressure
B6: -3.00 °C - Minimum temperature
B6: 30.00 °C - Maximum temperature
B6: 0.00 mS/cm - Minimum conductivity
B6: 70.00 mS/cm - Maximum conductivity
B6: -0.10 ug/L - Minimum fluorescence
B6: 20.00 ug/L - Maximum fluorescence
B6: 1400.00 m/s - Minimum sound velocity
B6: 1500.00 m/s - Maximum sound velocity
B6: 0.00 % - Minimum dissolved oxygen
B6: 100.00 % - Maximum dissolved oxygen
B6: 0.00 % - Minimum transmittance
B6: 120.00 % - Maximum transmittance
B7: 0.40 °C/m - Temperature limit spike
B7: 0.20 mS/cm - Conductivity limit spike
B7: 4.00 m/s/m - Sound velocity limit spike
B7: 4.00 %/m - Transmittance limit spike
B7: 10.00 ml/L/m - Dissolved oxygen limit spike
B7: 10.00 ml/L/m - Fluorescence limit spike
C5: 10.00 m - Lower depth for comparison MVP-TSG
C5: 0.05 psu - Standard deviation flags on MVP salinity at several depths for comparison MVP-TSG
C5: 0.20 ug/L - Standard deviation flags on MVP fluorescence at several depths for comparison MVP-TSG
C5: 0.04 psu - Standard deviation flags on TSG salinity during 2 minutes for comparison MVP-TSG

C5: 0.05 ug/L - Standard deviation flags on TSG fluorescence during 2 minutes for comparison MVP-TSG

////////// Processing //////////
------ Inter-comparison------
C1: Bias applied on Transmittance
Constant bias correction: -9.100 %
C2: Bias applied on Fluorescence
Constant bias correction: -0.850 ug/l
C3: Bias applied on Dissolved oxygen
Constant bias correction: 1.384%
C5: Salinity bias statistics
Number of samples used (TSG) = 241
Median (bias)= -0.002
Mean (bias)= 0.006
Standard deviation (bias)= 0.028
Accuracy (bias)= 0.002
C5: Fluorescence bias statistic calculate
Number of samples used (TSG) = 189
Median (bias)= 1.618
Mean (bias)= 1.579
standard deviation (bias)= 0.331
Accuracy (bias)= 0.024
C5: Bias applied on Salinity
Constant bias correction: 0.000 psu
C5: Bias applied on Fluorescence
Constant bias correction: 0.000 ug/L

////// List of Casts //////

Cast	File_name	Date	Hour
1	1503001_0576.raw	28-sept-15	10:28:11
2	1503001_0577.raw	28-sept-15	10:35:06
3	1503001_0578.raw	28-sept-15	10:41:02
4	1503001_0579.raw	28-sept-15	10:47:06
5	1503001_0580.raw	28-sept-15	10:53:52
6	1503001_0581.raw	28-sept-15	11:00:37
7	1503001_0582.raw	28-sept-15	11:04:24

8	1503001_0583.raw	28-sept-15	11:07:34
9	1503001_0584.raw	28-sept-15	11:10:31
10	1503001_0585.raw	28-sept-15	11:13:30
11	1503001_0586.raw	28-sept-15	11:17:37
12	1503001_0587.raw	28-sept-15	11:21:19
13	1503001_0588.raw	28-sept-15	11:24:44
14	1503001_0589.raw	28-sept-15	11:27:56
15	1503001_0590.raw	28-sept-15	11:30:41
16	1503001_0591.raw	28-sept-15	11:32:47
17	1503001_0592.raw	28-sept-15	11:35:23
18	1503001_0593.raw	28-sept-15	11:37:35
19	1503001_0594.raw	28-sept-15	11:39:40
20	1503001_0595.raw	28-sept-15	11:41:43
21	1503001_0596.raw	28-sept-15	11:43:31
22	1503001_0597.raw	28-sept-15	11:45:07
23	1503001_0598.raw	28-sept-15	11:46:49
24	1503001_0599.raw	28-sept-15	11:48:07
25	1503001_0600.raw	28-sept-15	11:49:11
26	1503001_0601.raw	28-sept-15	11:50:15
27	1503001_0602.raw	28-sept-15	11:51:17
28	1503001_0603.raw	28-sept-15	11:52:17
29	1503001_0604.raw	28-sept-15	11:53:15
30	1503001_0605.raw	28-sept-15	11:54:07
31	1503001_0606.raw	28-sept-15	11:55:09
32	1503001_0607.raw	28-sept-15	11:56:23
33	1503001_0608.raw	28-sept-15	11:57:45
34	1503001_0609.raw	28-sept-15	11:59:04
35	1503001_0610.raw	28-sept-15	12:00:19
36	1503001_0611.raw	28-sept-15	12:01:35
37	1503001_0612.raw	28-sept-15	12:02:48
38	1503001_0613.raw	28-sept-15	12:04:02
39	1503001_0614.raw	28-sept-15	12:05:22
40	1503001_0615.raw	28-sept-15	12:06:47
41	1503001_0616.raw	28-sept-15	12:08:00
42	1503001_0617.raw	28-sept-15	12:09:08
43	1503001_0618.raw	28-sept-15	12:10:12
44	1503001_0619.raw	28-sept-15	12:13:04

45	1503001_0620.raw	28-sept-15	12:14:02
46	1503001_0621.raw	28-sept-15	12:15:00
47	1503001_0622.raw	28-sept-15	12:16:05
48	1503001_0623.raw	28-sept-15	12:17:14
49	1503001_0624.raw	28-sept-15	12:18:27
50	1503001_0625.raw	28-sept-15	12:19:28
51	1503001_0626.raw	28-sept-15	12:20:36
52	1503001_0627.raw	28-sept-15	12:21:40
53	1503001_0628.raw	28-sept-15	12:22:41
54	1503001_0629.raw	28-sept-15	12:23:32
55	1503001_0630.raw	28-sept-15	12:24:32
56	1503001_0631.raw	28-sept-15	12:25:23
57	1503001_0632.raw	28-sept-15	12:26:14
58	1503001_0633.raw	28-sept-15	12:27:02
59	1503001_0634.raw	28-sept-15	12:27:44
60	1503001_0635.raw	28-sept-15	12:28:39
61	1503001_0636.raw	28-sept-15	12:29:27
62	1503001_0637.raw	28-sept-15	12:30:19
63	1503001_0638.raw	28-sept-15	12:31:09
64	1503001_0639.raw	28-sept-15	12:31:54
65	1503001_0640.raw	28-sept-15	12:32:51
66	1503001_0641.raw	28-sept-15	12:33:42
67	1503001_0642.raw	28-sept-15	12:34:30
68	1503001_0643.raw	28-sept-15	12:35:13
69	1503001_0644.raw	28-sept-15	12:36:00
70	1503001_0645.raw	28-sept-15	12:36:46
71	1503001_0646.raw	28-sept-15	12:37:33
72	1503001_0647.raw	28-sept-15	12:38:37
73	1503001_0648.raw	28-sept-15	12:39:49
74	1503001_0649.raw	28-sept-15	12:41:07
75	1503001_0650.raw	28-sept-15	12:42:30
76	1503001_0651.raw	28-sept-15	12:43:47
77	1503001_0652.raw	28-sept-15	12:44:58
78	1503001_0653.raw	28-sept-15	12:46:14
79	1503001_0654.raw	28-sept-15	12:47:26
80	1503001_0655.raw	28-sept-15	12:48:27
81	1503001_0656.raw	28-sept-15	12:49:27

82	1503001_0657.raw	28-sept-15	12:50:40
83	1503001_0658.raw	28-sept-15	12:53:00
84	1503001_0660.raw	28-sept-15	12:57:16
85	1503001_0662.raw	28-sept-15	13:00:25
86	1503001_0664.raw	28-sept-15	13:08:24
87	1503001_0665.raw	28-sept-15	13:11:16
88	1503001_0666.raw	28-sept-15	13:13:51
89	1503001_0667.raw	28-sept-15	13:16:01
90	1503001_0668.raw	28-sept-15	13:17:58
91	1503001_0669.raw	28-sept-15	13:19:08
92	1503001_0670.raw	28-sept-15	13:20:30
93	1503001_0671.raw	28-sept-15	13:22:26
94	1503001_0672.raw	28-sept-15	13:25:03
95	1503001_0673.raw	28-sept-15	13:27:29
96	1503001_0674.raw	28-sept-15	13:29:36
97	1503001_0675.raw	28-sept-15	13:32:23
98	1503001_0676.raw	28-sept-15	13:33:09
99	1503001_0677.raw	28-sept-15	13:34:01
100	1503001_0678.raw	28-sept-15	13:35:11
101	1503001_0679.raw	28-sept-15	13:37:18
102	1503001_0680.raw	28-sept-15	13:39:02
103	1503001_0681.raw	28-sept-15	13:40:52
104	1503001_0682.raw	28-sept-15	13:42:06
105	1503001_0683.raw	28-sept-15	13:43:02
106	1503001_0684.raw	28-sept-15	13:43:56
107	1503001_0685.raw	28-sept-15	13:44:49
108	1503001_0686.raw	28-sept-15	13:45:43
109	1503001_0687.raw	28-sept-15	13:46:37
110	1503001_0688.raw	28-sept-15	13:47:32
111	1503001_0689.raw	28-sept-15	13:48:18
112	1503001_0690.raw	28-sept-15	13:49:16
113	1503001_0691.raw	28-sept-15	13:50:17
114	1503001_0692.raw	28-sept-15	13:51:21
115	1503001_0693.raw	28-sept-15	13:52:22
116	1503001_0694.raw	28-sept-15	13:53:24
117	1503001_0695.raw	28-sept-15	13:54:30
118	1503001_0696.raw	28-sept-15	13:55:37

119	1503001_0697.raw	28-sept-15	13:56:44
120	1503001_0698.raw	28-sept-15	13:57:45
121	1503001_0699.raw	28-sept-15	13:58:40
122	1503001_0700.raw	28-sept-15	13:59:36
123	1503001_0701.raw	28-sept-15	14:00:33
124	1503001_0702.raw	28-sept-15	14:01:33
125	1503001_0703.raw	28-sept-15	14:02:36
126	1503001_0704.raw	28-sept-15	14:03:34
127	1503001_0705.raw	28-sept-15	14:04:36
128	1503001_0706.raw	28-sept-15	14:05:55
129	1503001_0707.raw	28-sept-15	14:07:07
130	1503001_0708.raw	28-sept-15	14:08:21
131	1503001_0709.raw	28-sept-15	14:09:21
132	1503001_0710.raw	28-sept-15	14:10:20
133	1503001_0711.raw	28-sept-15	14:11:21
134	1503001_0712.raw	28-sept-15	14:12:17
135	1503001_0713.raw	28-sept-15	14:13:18
136	1503001_0714.raw	28-sept-15	14:14:15
137	1503001_0715.raw	28-sept-15	14:15:08
138	1503001_0716.raw	28-sept-15	14:16:00
139	1503001_0717.raw	28-sept-15	14:28:46
140	1503001_0718.raw	28-sept-15	14:29:37
141	1503001_0719.raw	28-sept-15	14:30:27
142	1503001_0720.raw	28-sept-15	14:31:18
143	1503001_0721.raw	28-sept-15	14:32:10
144	1503001_0722.raw	28-sept-15	14:33:05
145	1503001_0723.raw	28-sept-15	14:33:55
146	1503001_0724.raw	28-sept-15	14:34:40
147	1503001_0725.raw	28-sept-15	14:35:30
148	1503001_0726.raw	28-sept-15	14:36:24
149	1503001_0727.raw	28-sept-15	14:37:24
150	1503001_0728.raw	28-sept-15	14:38:32
151	1503001_0729.raw	28-sept-15	14:39:44
152	1503001_0730.raw	28-sept-15	14:41:04
153	1503001_0731.raw	28-sept-15	14:42:07
154	1503001_0732.raw	28-sept-15	14:43:01
155	1503001_0733.raw	28-sept-15	14:43:55

156	1503001_0734.raw	28-sept-15	14:44:45
157	1503001_0735.raw	28-sept-15	14:45:32
158	1503001_0736.raw	28-sept-15	14:46:16
159	1503001_0737.raw	28-sept-15	14:47:02
160	1503001_0738.raw	28-sept-15	14:47:54
161	1503001_0743.raw	28-sept-15	15:13:01
162	1503001_0744.raw	28-sept-15	15:13:52
163	1503001_0745.raw	28-sept-15	15:14:26
164	1503001_0746.raw	28-sept-15	15:14:58
165	1503001_0747.raw	28-sept-15	15:15:33
166	1503001_0748.raw	28-sept-15	15:16:19
167	1503001_0749.raw	28-sept-15	15:17:21
168	1503001_0750.raw	28-sept-15	15:18:34
169	1503001_0751.raw	28-sept-15	15:19:59
170	1503001_0752.raw	28-sept-15	15:21:40
171	1503001_0753.raw	28-sept-15	15:23:33
172	1503001_0754.raw	28-sept-15	15:25:44
173	1503001_0755.raw	28-sept-15	15:28:03
174	1503001_0756.raw	28-sept-15	15:30:20
175	1503001_0757.raw	28-sept-15	15:31:50
176	1503001_0759.raw	28-sept-15	15:38:04
177	1503001_0761.raw	28-sept-15	15:40:40
178	1503001_0762.raw	28-sept-15	15:42:40
179	1503001_0763.raw	28-sept-15	15:45:01
180	1503001_0764.raw	28-sept-15	15:47:39
181	1503001_0765.raw	28-sept-15	15:50:38
182	1503001_0767.raw	28-sept-15	15:54:46
183	1503001_0768.raw	28-sept-15	15:59:53
184	1503001_0770.raw	28-sept-15	16:11:59
185	1503001_0771.raw	28-sept-15	16:12:40
186	1503001_0772.raw	28-sept-15	16:13:25
187	1503001_0773.raw	28-sept-15	16:14:17
188	1503001_0774.raw	28-sept-15	16:15:28
189	1503001_0775.raw	28-sept-15	16:16:43
190	1503001_0776.raw	28-sept-15	16:17:57
191	1503001_0777.raw	28-sept-15	16:18:53
192	1503001_0778.raw	28-sept-15	16:19:52

193	1503001_0779.raw	28-sept-15	16:20:45
194	1503001_0780.raw	28-sept-15	16:21:43
195	1503001_0781.raw	28-sept-15	16:22:39
196	1503001_0782.raw	28-sept-15	16:23:47
197	1503001_0783.raw	28-sept-15	16:24:46
198	1503001_0784.raw	28-sept-15	16:25:46
199	1503001_0785.raw	28-sept-15	16:26:41
200	1503001_0786.raw	28-sept-15	16:27:37
201	1503001_0787.raw	28-sept-15	16:28:33
202	1503001_0788.raw	28-sept-15	16:29:31
203	1503001_0789.raw	28-sept-15	16:30:33
204	1503001_0790.raw	28-sept-15	16:31:33
205	1503001_0791.raw	28-sept-15	16:32:35
206	1503001_0792.raw	28-sept-15	16:33:40
207	1503001_0793.raw	28-sept-15	16:34:40
208	1503001_0794.raw	28-sept-15	16:35:50
209	1503001_0795.raw	28-sept-15	16:37:05
210	1503001_0796.raw	28-sept-15	16:38:26
211	1503001_0797.raw	28-sept-15	16:39:41
212	1503001_0798.raw	28-sept-15	16:40:49
213	1503001_0799.raw	28-sept-15	16:41:58
214	1503001_0800.raw	28-sept-15	16:43:08
215	1503001_0801.raw	28-sept-15	16:44:24
216	1503001_0802.raw	28-sept-15	16:45:42
217	1503001_0803.raw	28-sept-15	16:47:04
218	1503001_0804.raw	28-sept-15	16:48:39
219	1503001_0805.raw	28-sept-15	16:50:15
220	1503001_0806.raw	28-sept-15	16:52:05
221	1503001_0807.raw	28-sept-15	16:53:52
222	1503001_0808.raw	28-sept-15	16:55:18
223	1503001_0809.raw	28-sept-15	16:56:54
224	1503001_0810.raw	28-sept-15	16:58:23
225	1503001_0811.raw	28-sept-15	16:59:39
226	1503001_0812.raw	28-sept-15	17:00:48
227	1503001_0813.raw	28-sept-15	17:02:12
228	1503001_0814.raw	28-sept-15	17:03:35
229	1503001_0815.raw	28-sept-15	17:05:00

230	1503001_0816.raw	28-sept-15	17:06:23
231	1503001_0817.raw	28-sept-15	17:07:54
232	1503001_0818.raw	28-sept-15	17:09:43
233	1503001_0819.raw	28-sept-15	17:11:30
234	1503001_0820.raw	28-sept-15	17:13:24
235	1503001_0824.raw	28-sept-15	17:21:32
236	1503001_0825.raw	28-sept-15	17:22:53
237	1503001_0826.raw	28-sept-15	17:24:13
238	1503001_0828.raw	28-sept-15	17:29:42

4. Data quality discussion

Temperature uncertainty is in the order of 0.01°C or better. Inter-comparisons with the co-localised Rosette will provide some validation for the MVP temperature data.

- Salinity uncertainty is in the order of 0.01psu (good Rosette inter-comparison) or better during periods of low vertical variability. However, the uncertainty can exceed 0.015 psu during high vertical gradient.

- The sound velocity sensor worked well. Its measurements can be interpreted with an uncertainty in the order of 0.02m/s. The MVP sound velocity variation exactly corresponds to those calculated using the pressure, the salinity and the temperature. However, a constant difference persists between the MVP sound velocity values and values estimated from pressure, salinity and temperature (~0.3-0.4m/s). This difference is within the same order of magnitude and of the same sign through several legs and over several years. This might suggest that the method of estimating sound velocity is not suitable.

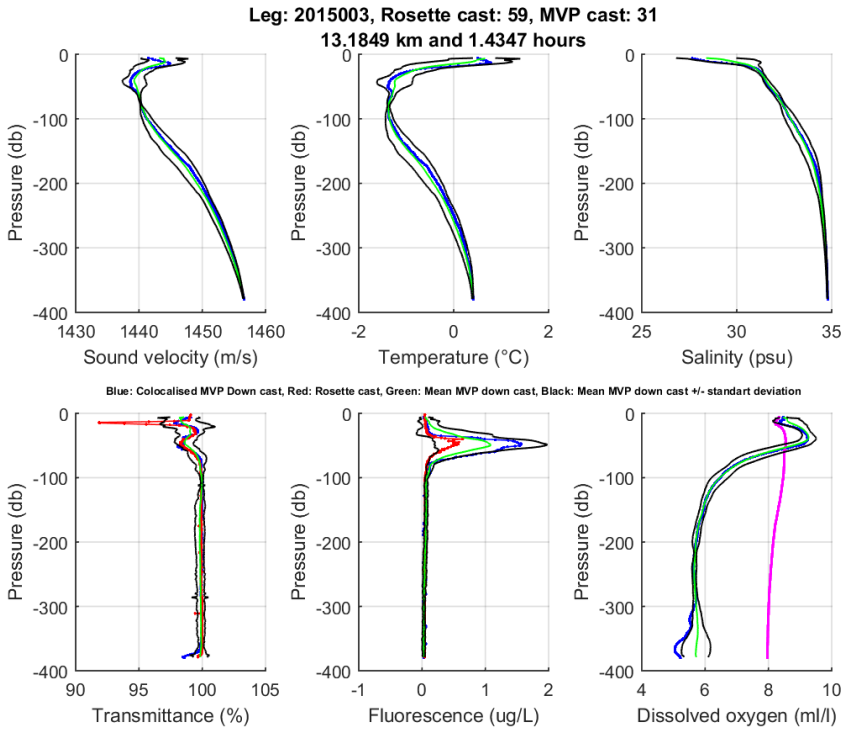
- Transmissometer provides very good results for this kind of use. The measurement noise is smaller than 0.1%.

- The dissolved oxygen sensor on the MVP is not well adapted for this kind of operation (free fall of the fish during down casts). The low response time of the sensor is not suited for these speeds of profiles. Furthermore, the sensor calibration is unstable and is only corrected on one point (from the CTD rosette comparison) for each transect.

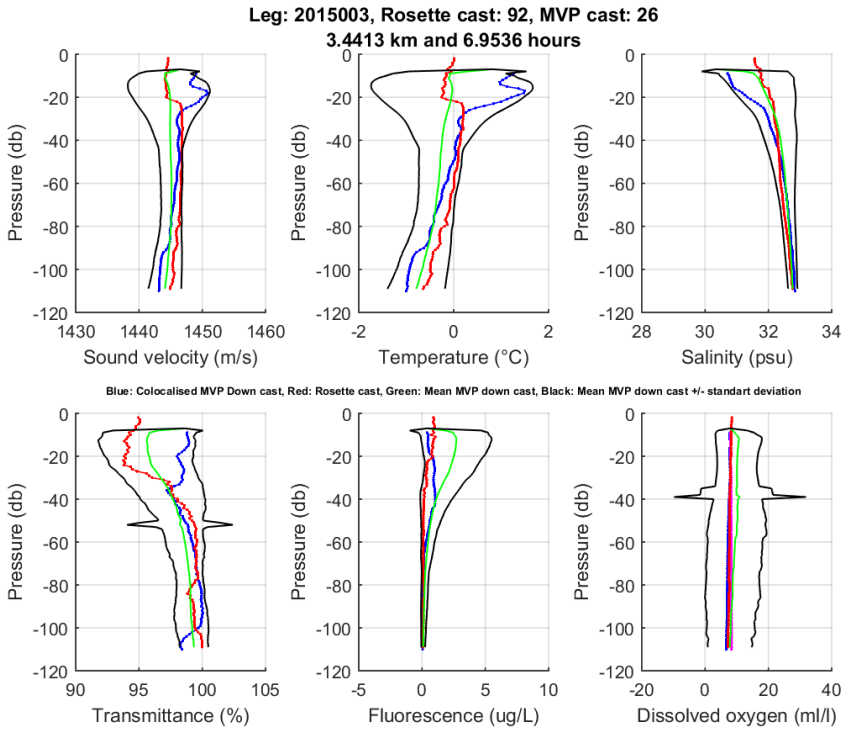
Therefore dissolved oxygen measurements must be used with caution and must be interpreted from a relative point of view and not in the absolute.

Annex 1: Rosette inter-comparison plot

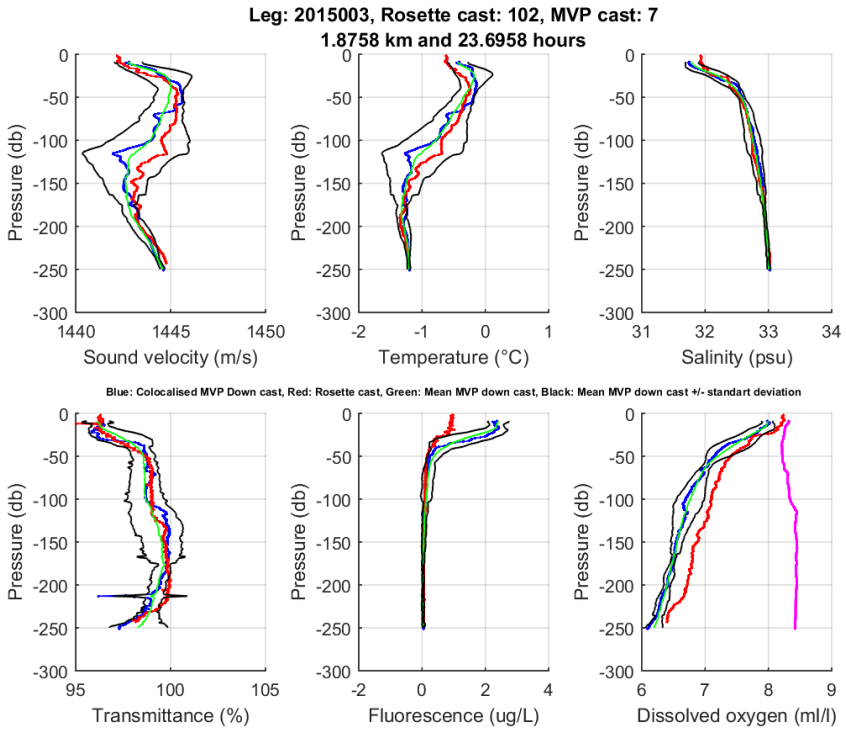
- Transect 1



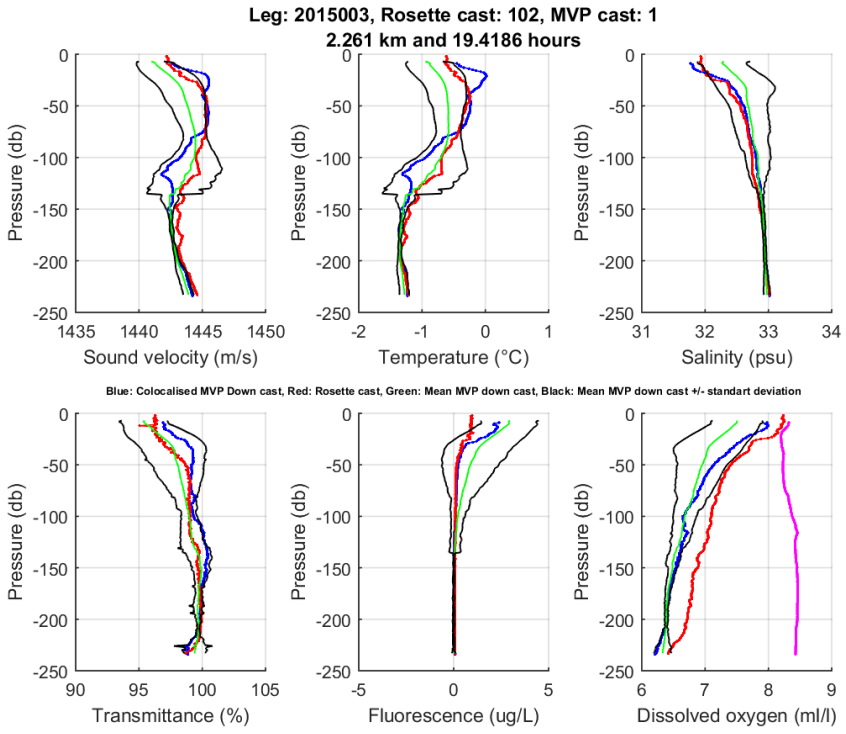
- Transect 2



- Transect 6

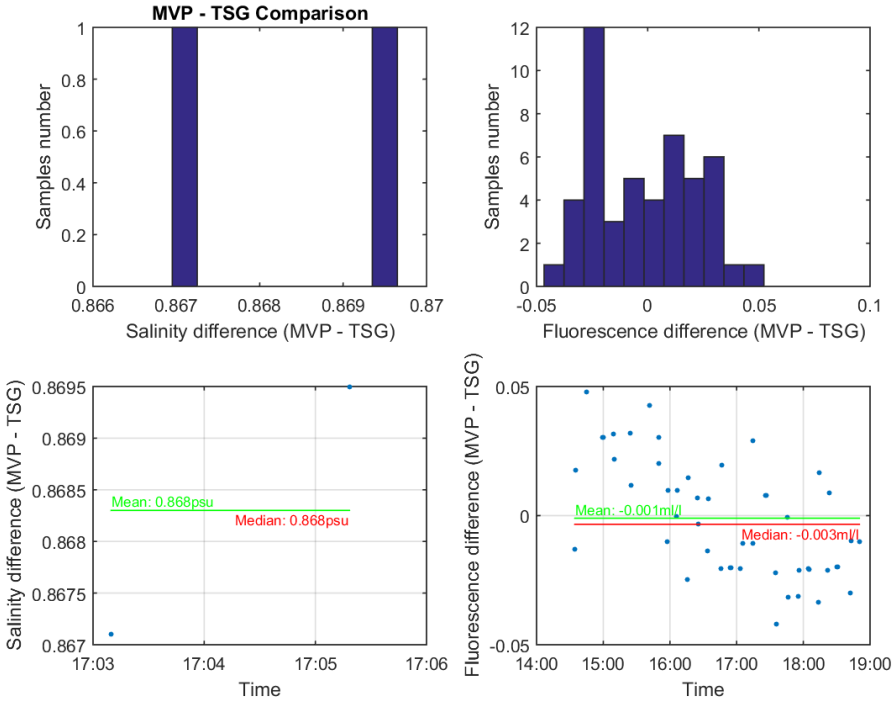


- Transect 7

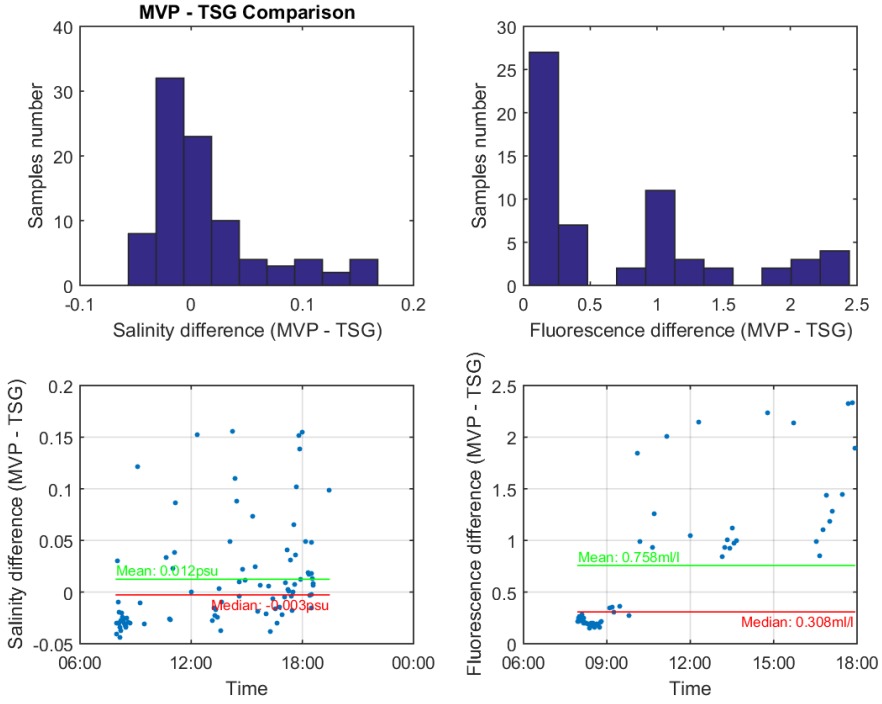


Annex 2: TSG Inter-comparison plot

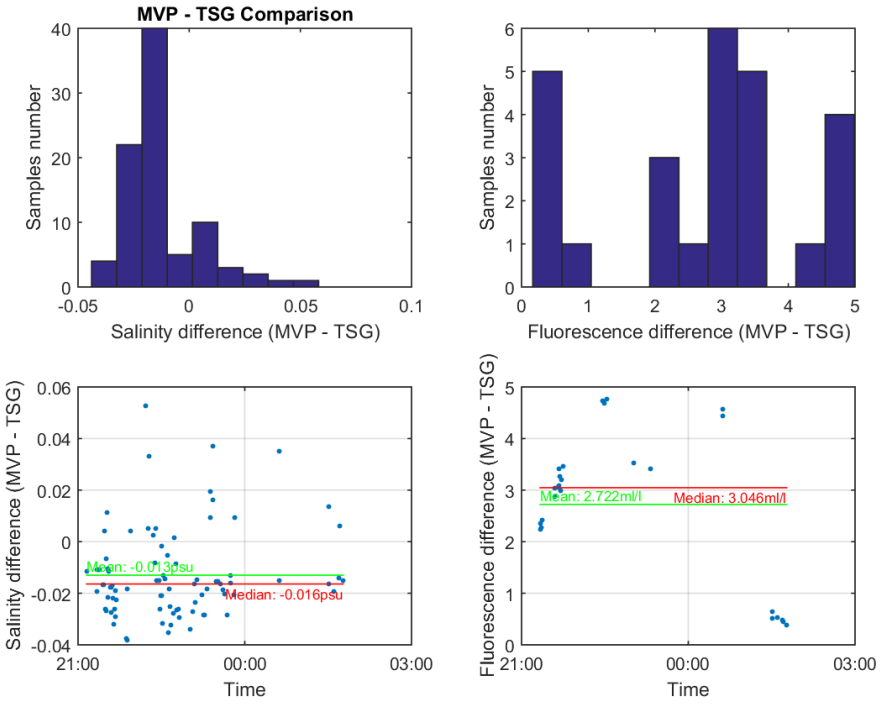
- Transect 1



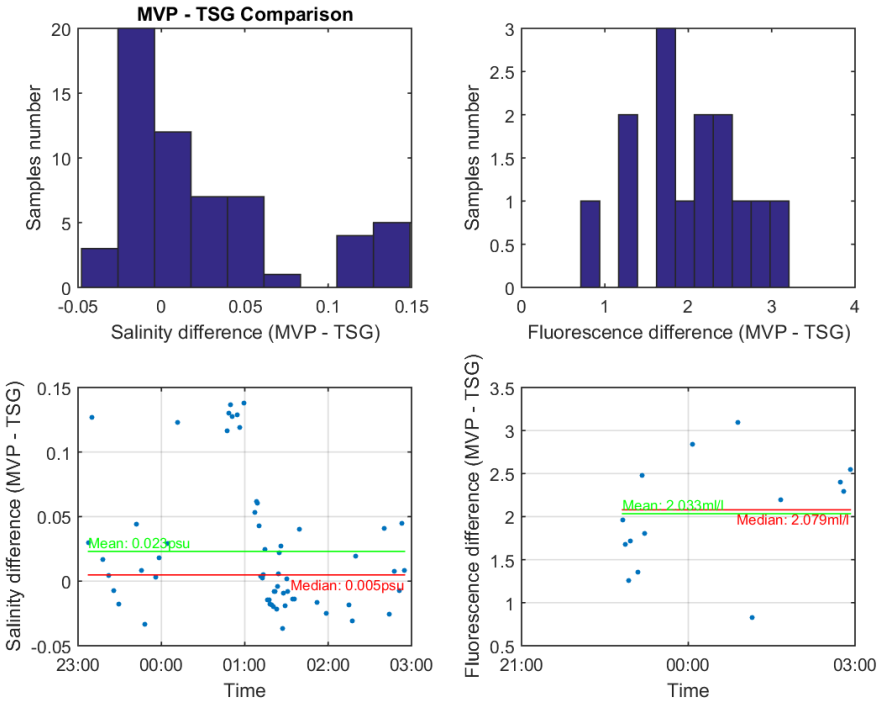
- Transect 2



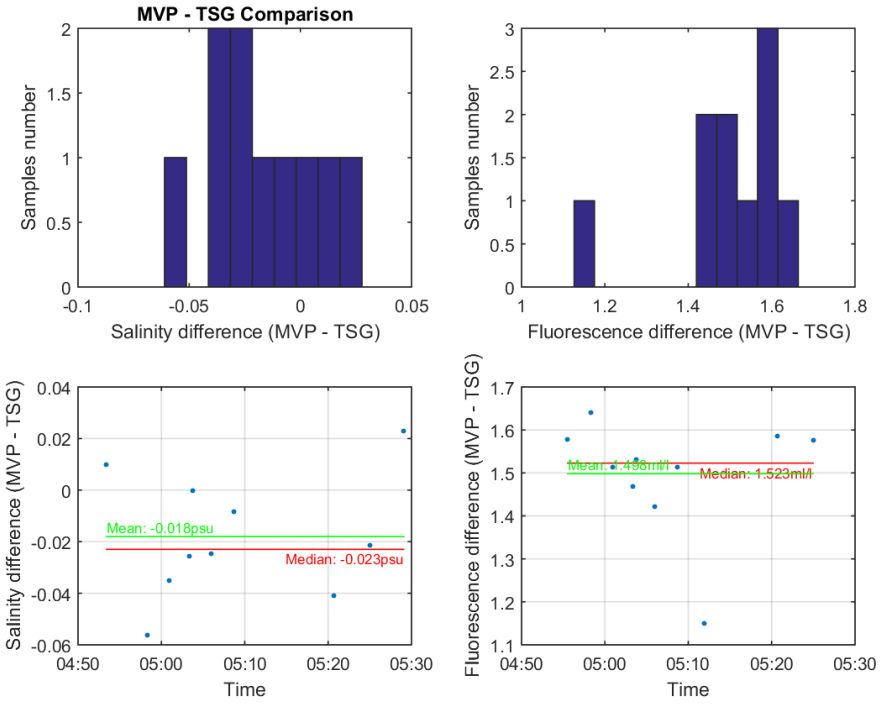
- Transect 3



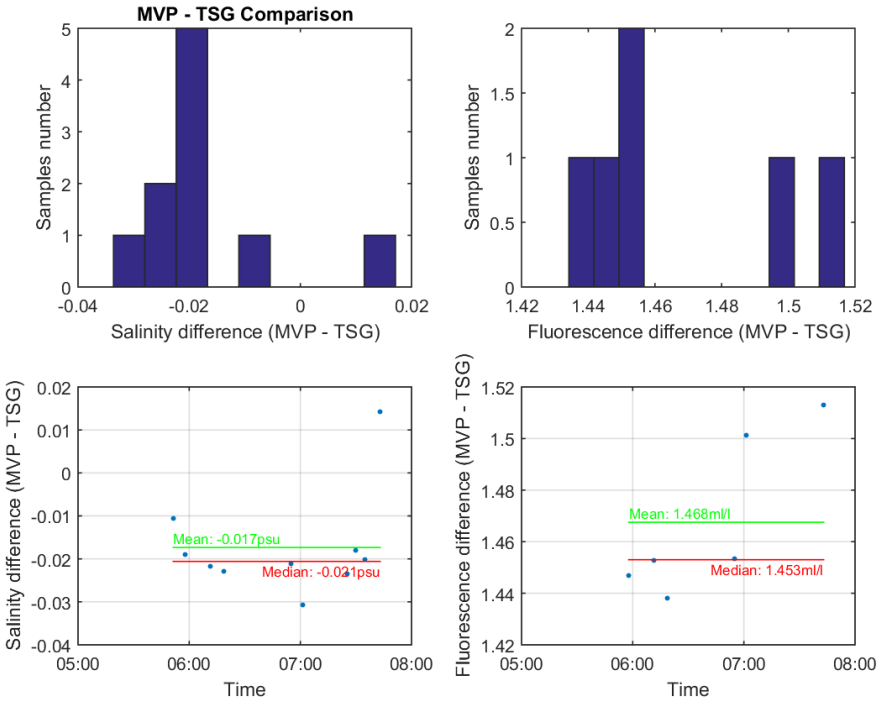
- Transect 4



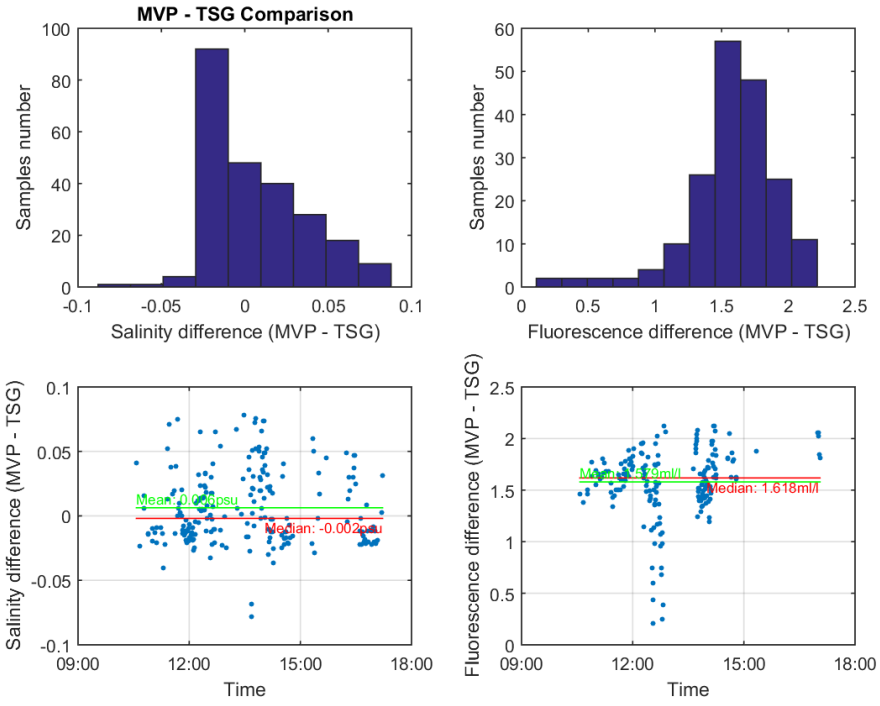
- Transect 5



- Transect 6



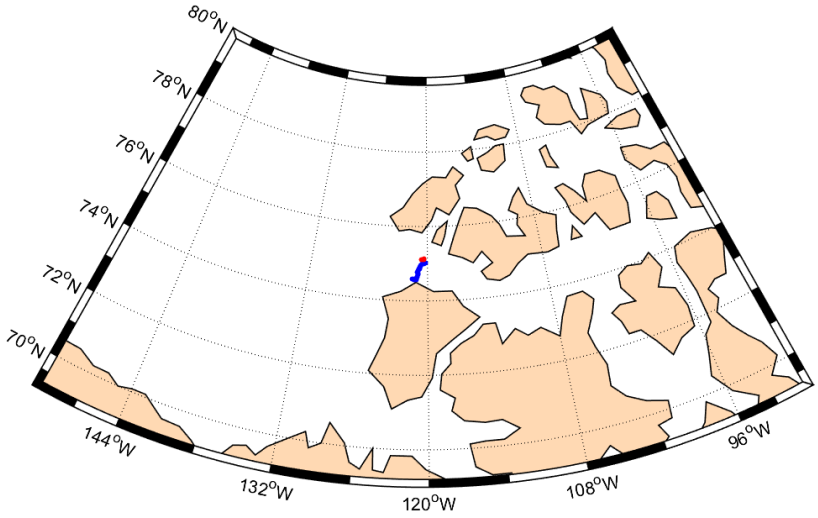
- Transect 7


MVP - TSG Comparison
Samples number
Salinity difference (MVP - TSG)
Samples number
Fluorescence difference (MVP - TSG)
Salinity difference (MVP - TSG)
Mean: 0.000psu
Median: -0.002psu
Time
Fluorescence difference (MVP - TSG)
Median: 1.618ml/l
Time

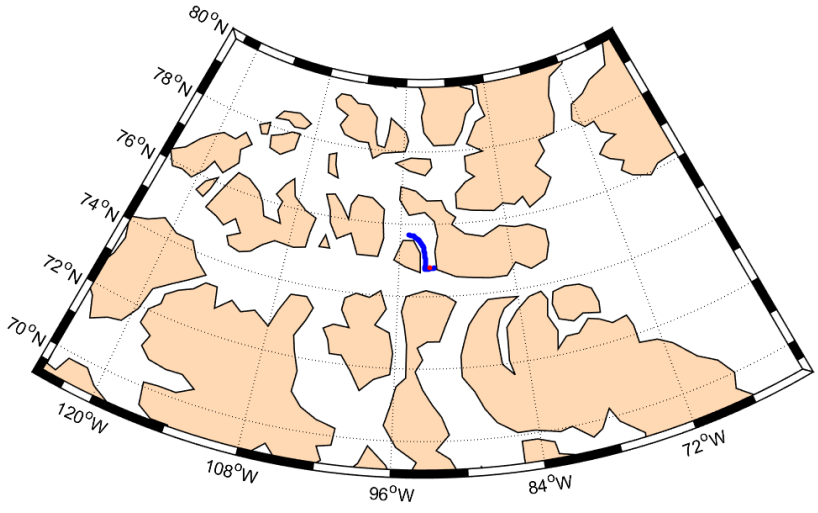
Annex 3: Mapping

Blue points are the MVP cast positions and red points the co-localised rosette positions.

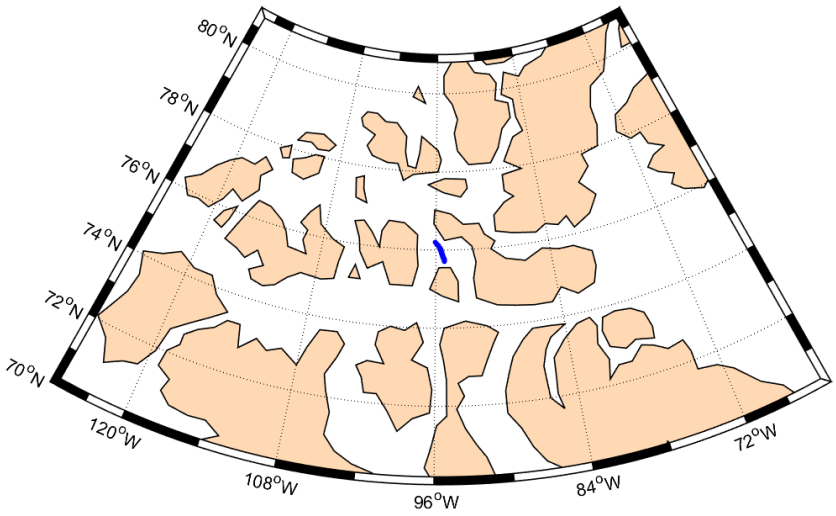
- Transect 1



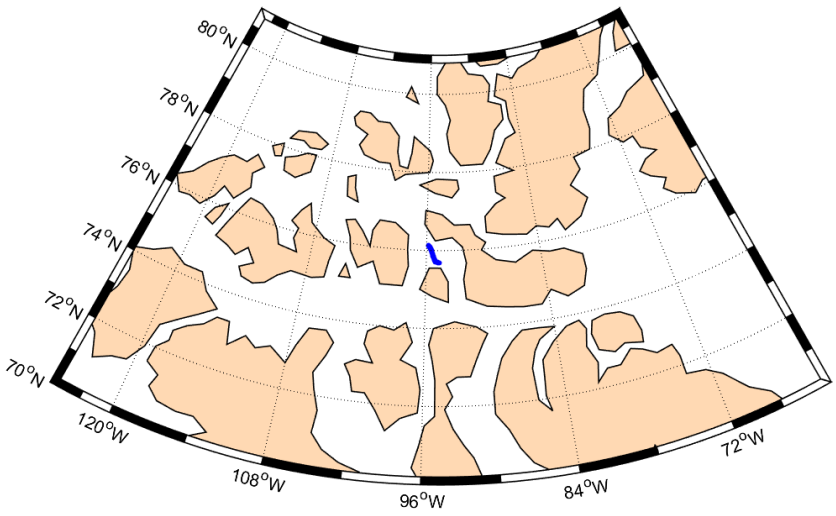
- Transect 2



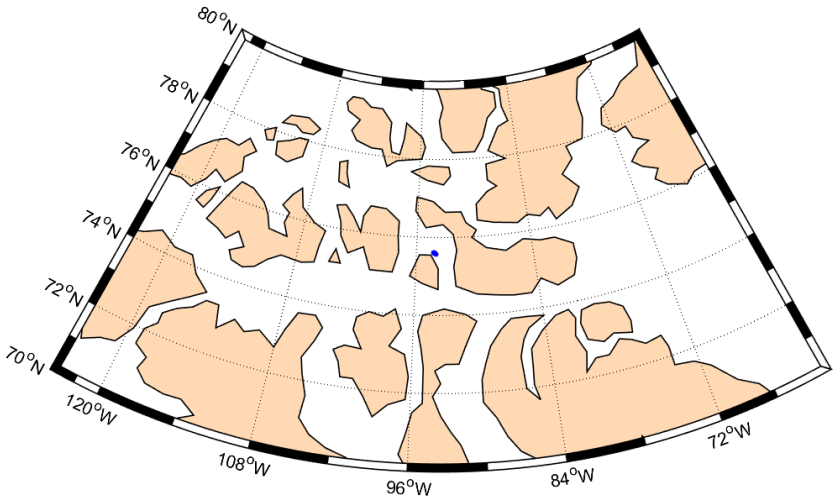
- Transect 3



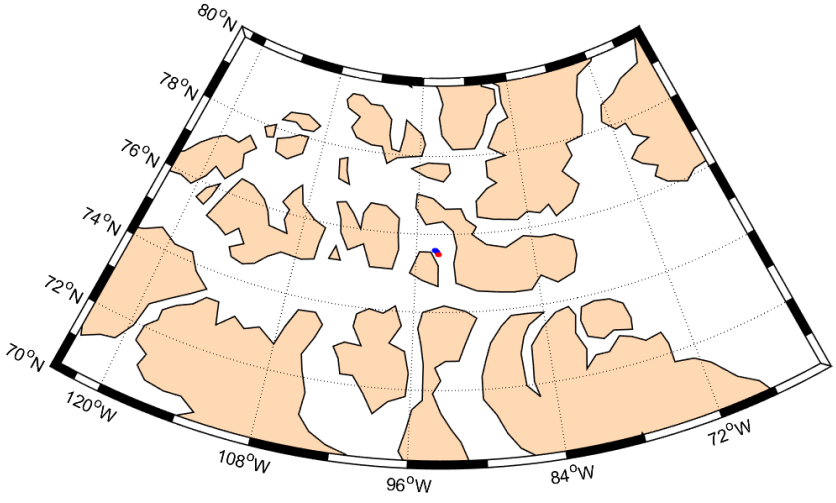
- Transect 4



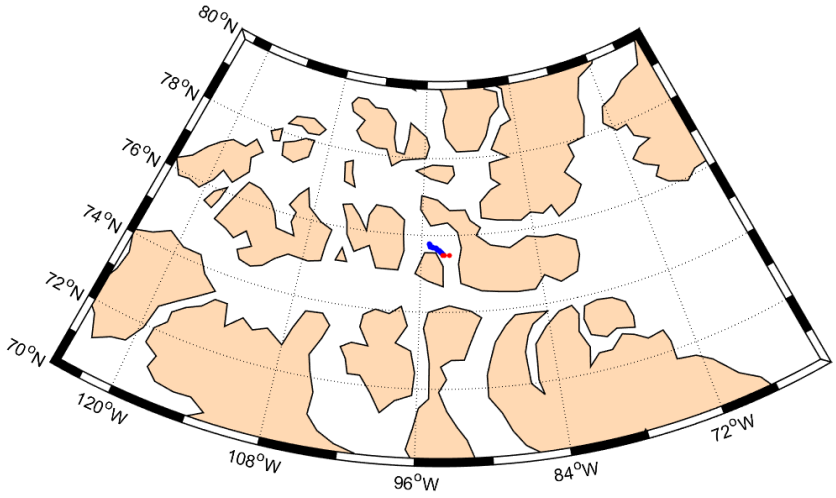
- Transect 5



- Transect 6



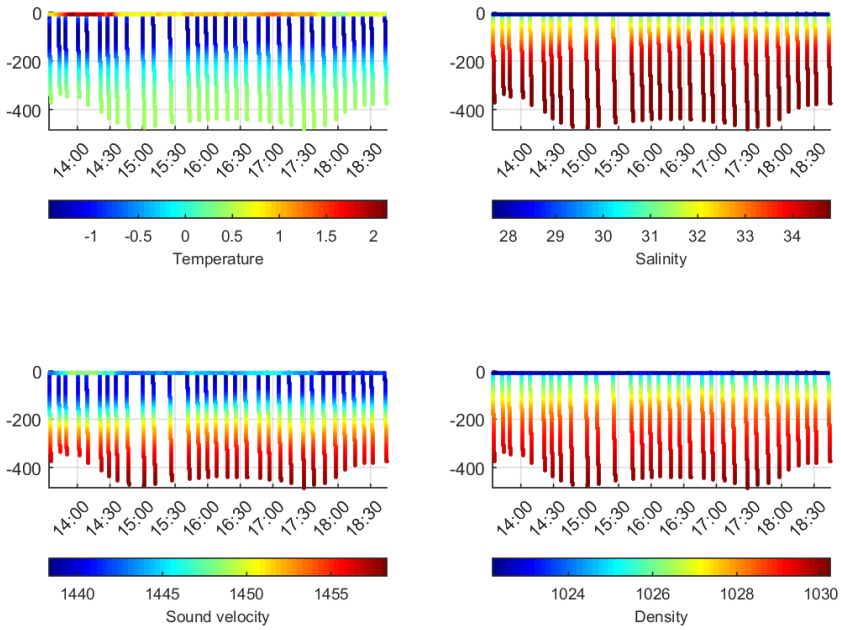
- Transect 7



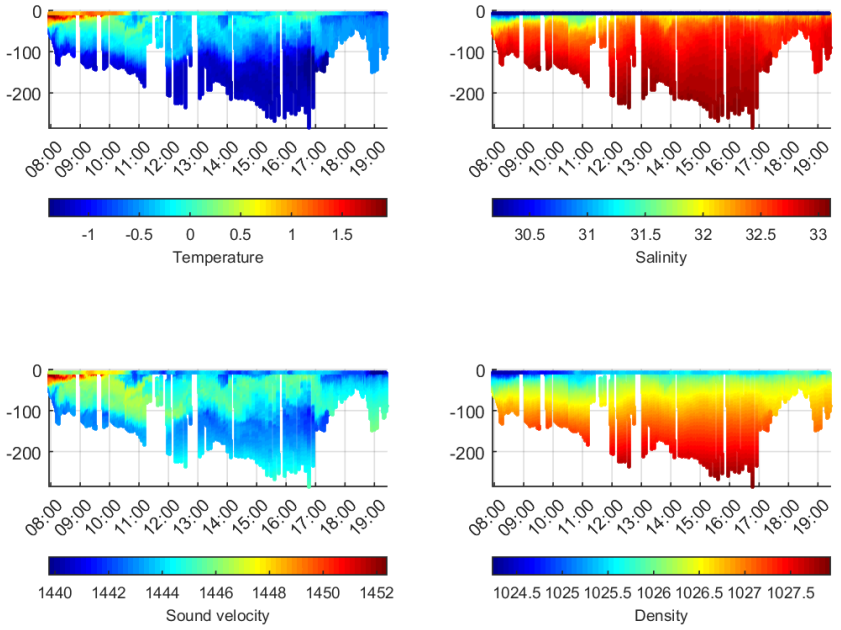
Annex 4: Scatter plots (MVP+ TSG)

TSG data are the points represented near the surface.

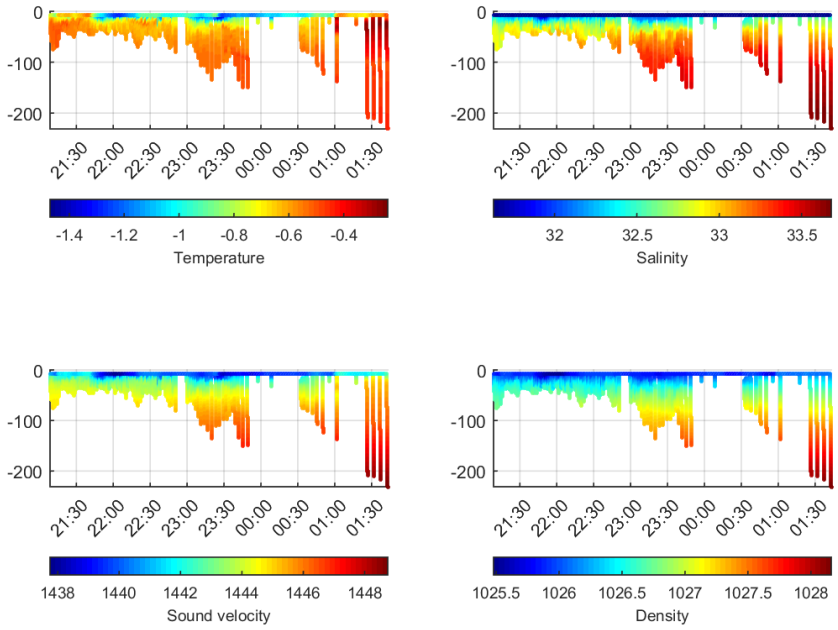
- Transect 1



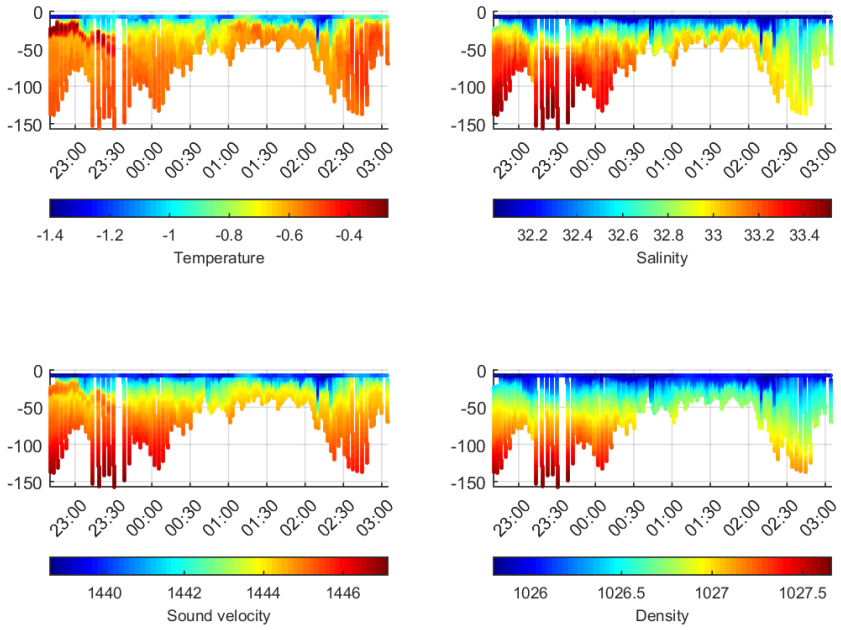
- Transect 2



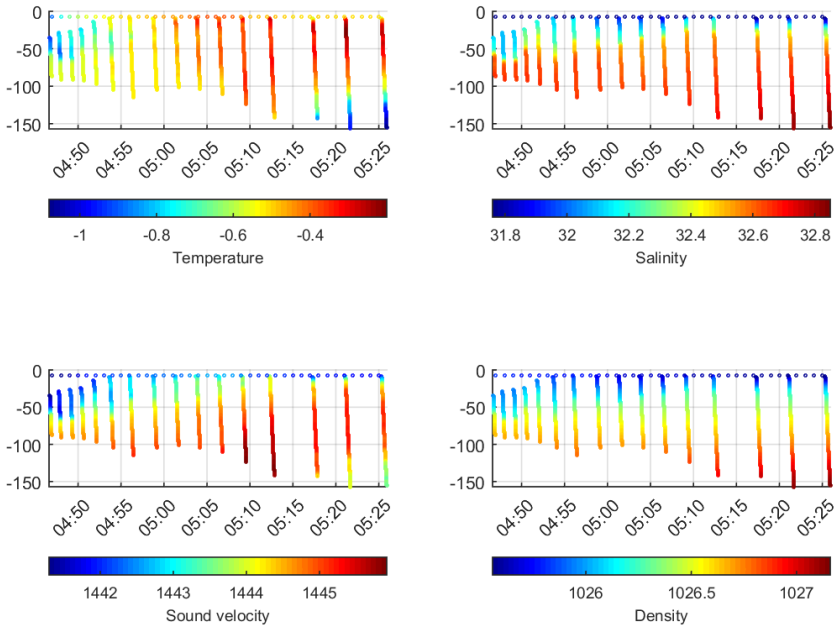
- Transect 3



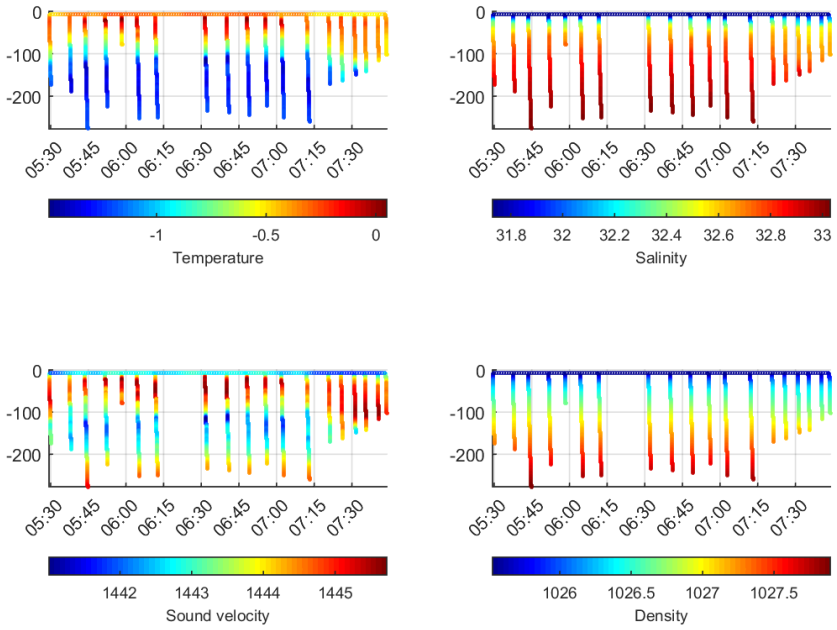
- Transect 4



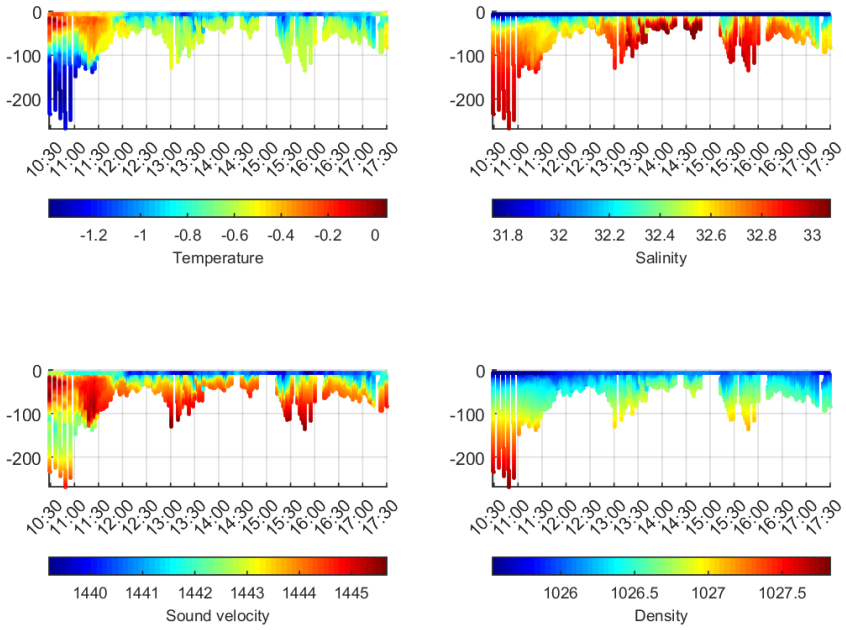
- Transect 5



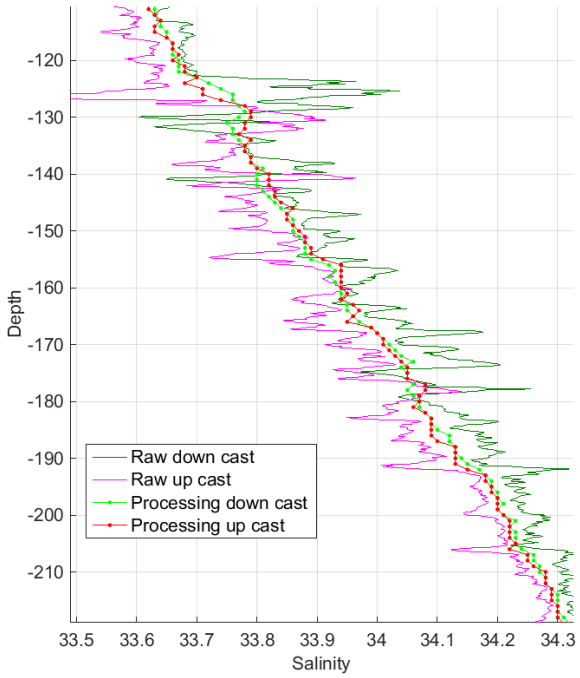
- Transect 6



- Transect 7

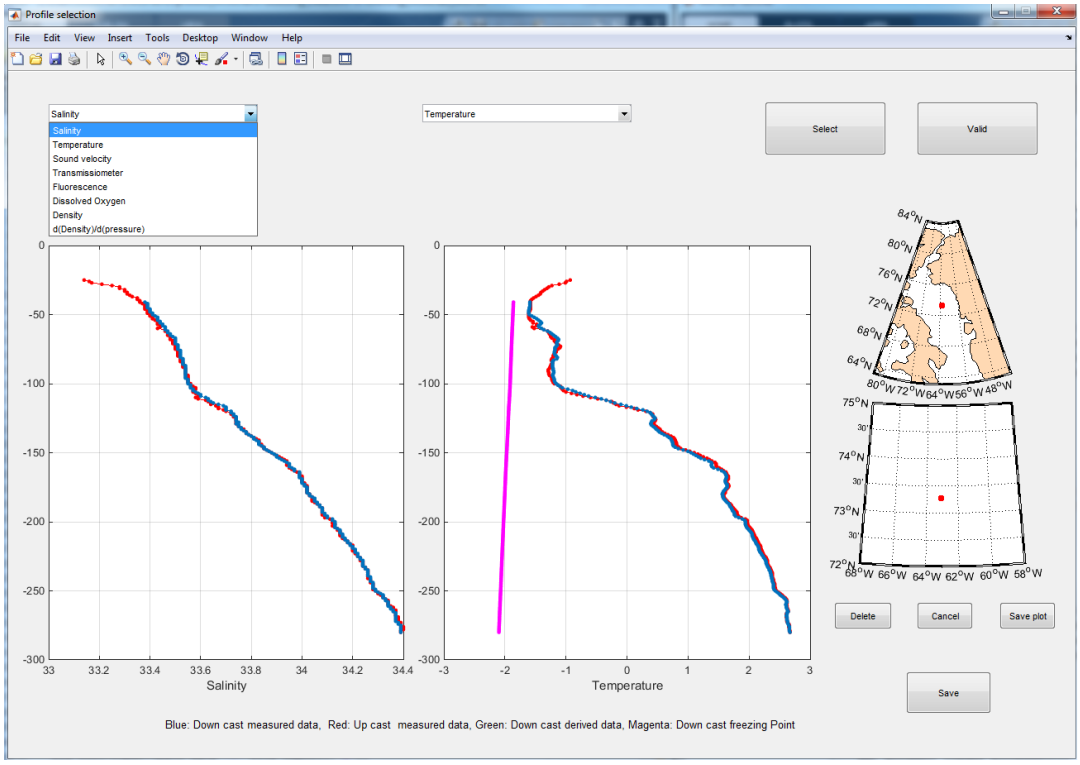

0
-100
-200
10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30
-1.2 -1 -0.8 -0.6 -0.4 -0.2 0
Temperature
31.8 32 32.2 32.4 32.6 32.8 33
Salinity
1440 1441 1442 1443 1444 1445
Sound velocity
1026 1026.5 1027 1027.5
Density

Annex 5: Filter comparison

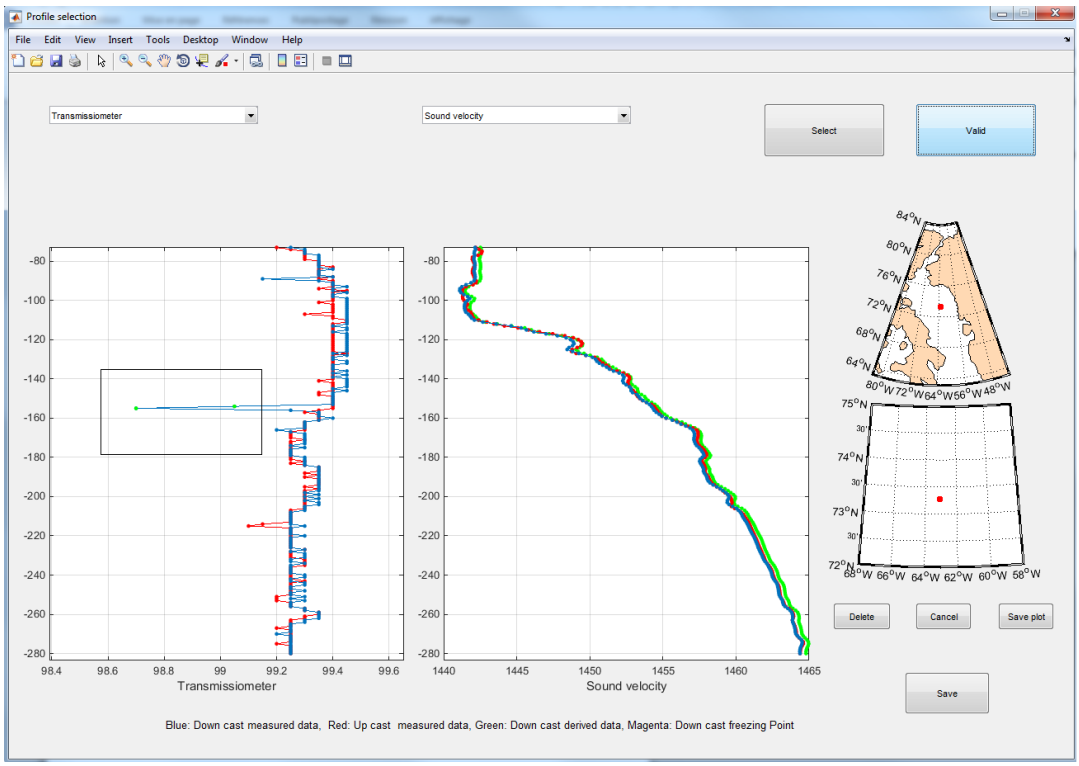


Comparison of raw and processed data after application of the Low pass filter and Align sensor filter.

Annex 6: Data visualizer



Selection of the variable to observe



Selection and flag of bad points