Lokalitet Stabben, Tjeldøya. Strømmålinger på 5, 15, 45 og 75 m dyp

12.09.2013- 18.10.2013 og 20.11.2013-20.12.2013

Lofotbiolog AS

Rapport nr 1-14, 20.1.14

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Summary

Rapporten er basert på strømmålinger gjort i to perioder.

Første periode, 12.9-18.10 ga bare brukbare data på måleren ved bunn, 75m, og spredningsdyp, 45m, se s.27-53.

Det ble derfor målt på nytt med måler satt ut på ca samme sted i 24m dyp, i perioden 20.11-20-13. Denne ga gode data på 5 og 15m, se s.1-26.

Strømmen på 5 og 15m viser snitt på henholdsvis 10 og 9 cm/s.

Neumanns parameter på 0,25/0,40 på disse to dyp viser lite-middels ensretting av strømmen.

Andel 0-strøm er svært lav begge steder, ~1%.

På 5m dyp bærer hovedstrømmen og massetransporten av vann ut i sydvestlig retning, 225-270° og bildet er stort sett det samme på 15m, sydvestlig retning, ut fjorden. Se s 21-22.

Nede på spredningsdyp er fortsatt snittstrømmen svært god, og Neumanns parameter viser også her middels ensretting. Hovedstrømretningen er som ved 15 m, men noe mer markert. Lav andel 0-strøm her også. Ved bunn, 75m, er også strømhastigheten høy, snitt 10 cm/s.

Det er et "hull" i registreringene på måleren i overflata i starten av den siste måleperioden, og registreringene fra trykksensoren i måleren, s 24, kan tyde på at uvedkommende har vært i kontakt med måleren. Programvaren har automatisk fjernet dette, og det anses ikke for å ha noen særlig betydning for totalresultatet av målingen.

Posisjoner strømmålere: Måleperiode 1: 68.24.309/16.14.091

Måleperiode 2: 68.24.338/16.13.615

Målerene er satt ut av Lofotbiolog AS v undertegnede, og ble tatt opp av personell fra Ellingsen Seafood AS.

Haakon Chr

Details

Instrument

Head Id	AQP 4956
Board Id	AQD 9557
Frequency	400000

Configuration

File	Stabbe01.prf
Start	20.11.2013 12:05
End	20.12.2013 10:55
Data Records	4314
Orientation	DOWN
Cells	30
Cell Size [m]	1
Blanking Distance [m]	0,98
Average Interval [sec]	00:01:00
Measurement Interval [sec]	00:10:00

Quality

Low Pressure Treshold	0
HighTilt Threshold	30
Expected Orientation	UP
Amplitude Spike Treshold	70
Velocity Spike Treshold	5
SNR Treshold	3

Post processing

Selected Start	20.11.2013 12:05
Selected End	19.12.2013 10:25
Compass Offset	0
Pressure Offset	0
Selected Records	4167
Reference	Water Surface
Top Depth [m]	5
Top Invalid Data	714
Middle Depth [m]	15
Middle Invalid Data	274
Bottom Depth [m]	20
Bottom Invalid Data	273

Manually removed data

Start Time	End Time	Comment
21.11.2013 14:02:29	21.11.2013 14:26:39	Usannsynlig høy pik på 1,59m/s
Bortsett fra denne strømpiken på 1,59m/s på 5m dyp er ingen data manuelt fjernet		

Statistics

Top [5,0m]

Mean current [m/s]	0.10
Max current [m/s]	0.38
Min current [m/s]	0.00
Measurements used/total [#]	3453 / 4167
Std.dev [m/s]	0.06
Significant max velocity [m/s]	0.16
Significant min velocity [m/s]	0.04
10 year return current [m/s]	0.624
50 year return current [m/s]	0.699
Most significant directions [°]	255°, 240°, 225°, 270°
Most significant speeds [m/s]	0.10, 0.15, 0.05, 0.20
Most flow	978.23m³ / day at 240-255°
Least flow	105.76m³ / day at 330-345°
Neumann parameter	0.25
Residue current	0.02 m/s at 222°
Zero current [%] - [HH:mm]	1.04% - 00:10

Middle [15,0m]

Mean current [m/s]	0.09
Max current [m/s]	0.27
Min current [m/s]	0.00
Measurements used/total [#]	3893 / 4167
Std.dev [m/s]	0.05
Significant max velocity [m/s]	0.14
Significant min velocity [m/s]	0.04
10 year return current [m/s]	0.448
50 year return current [m/s]	0.502
Most significant directions [°]	255°, 270°, 240°, 225°
Most significant speeds [m/s]	0.10, 0.15, 0.05, 0.20
Most flow	774.64m³ / day at 240-255°
Least flow	80.45m³ / day at 330-345°
Neumann parameter	0.41
Residue current	0.04 m/s at 222°
Zero current [%] - [HH:mm]	0.98% - 00:20

Bottom [20,0m]

Mean current [m/s]	0.08
Max current [m/s]	0.30
Min current [m/s]	0.00
Measurements used/total [#]	3894 / 4167
Std.dev [m/s]	0.05
Significant max velocity [m/s]	0.14
Significant min velocity [m/s]	0.04

10 year return current [m/s]	0.497
50 year return current [m/s]	0.558
Most significant directions [°]	255°, 270°, 240°, 285°
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Most flow	866.26m^3 / day at 240-255°
Least flow	88.03m^3 / day at 0-15°
Neumann parameter	0.38
Residue current	0.03 m/s at 237°
Zero current [%] - [HH:mm]	1.23% - 00:20

Direction with return period

Top [5,0m]

Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,073	0,378	0,121	0,624	0,136	0,699
45	0,091	0,280	0,151	0,462	0,169	0,517
90	0,100	0,316	0,165	0,521	0,185	0,585
135	0,084	0,272	0,139	0,449	0,156	0,504
180	0,086	0,329	0,141	0,543	0,159	0,609
225	0,121	0,332	0,200	0,548	0,224	0,615
270	0,113	0,291	0,187	0,480	0,210	0,538
315	0,075	0,195	0,124	0,321	0,139	0,360

Middle [15,0m]

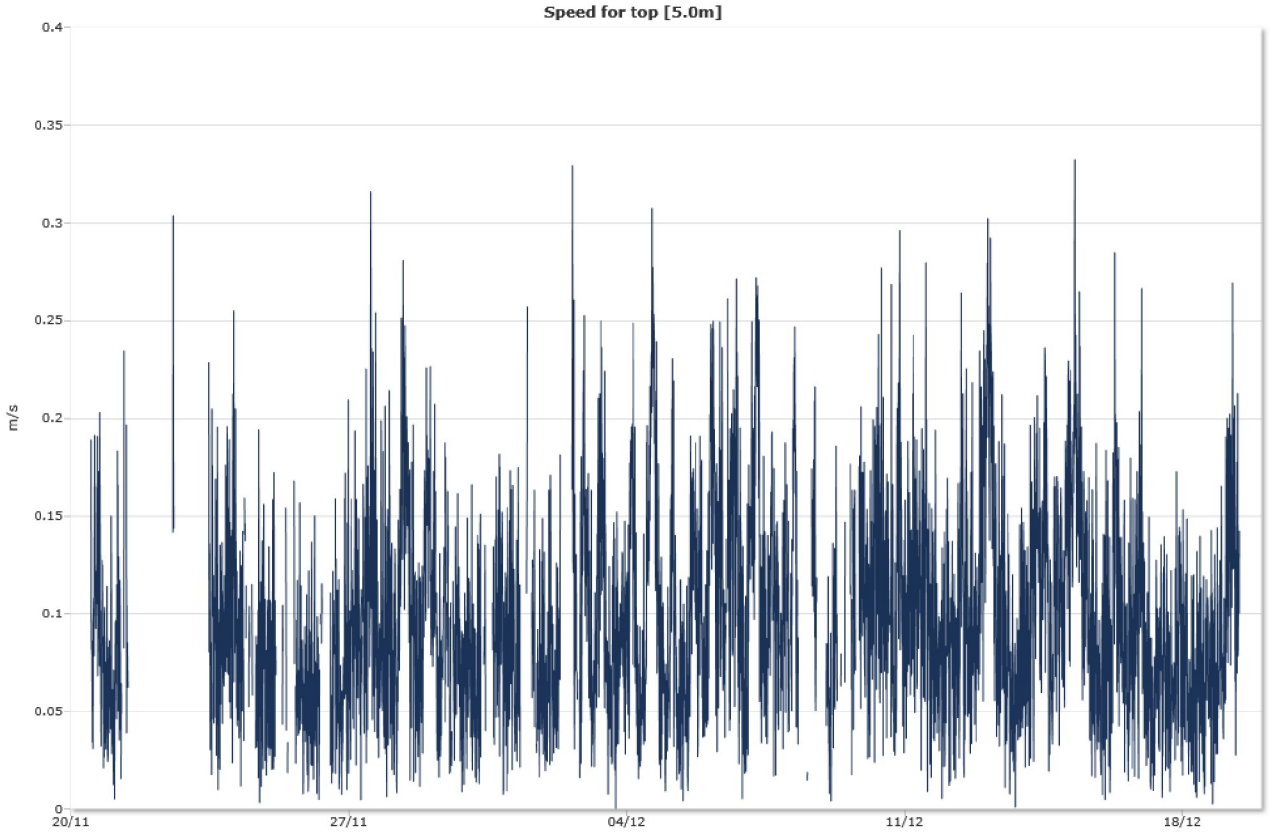
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,062	0,171	0,101	0,281	0,114	0,316
45	0,068	0,265	0,112	0,438	0,125	0,491
90	0,075	0,241	0,124	0,398	0,139	0,447
135	0,086	0,239	0,141	0,395	0,158	0,443
180	0,089	0,271	0,147	0,448	0,165	0,502
225	0,094	0,244	0,155	0,402	0,174	0,451
270	0,100	0,253	0,165	0,417	0,185	0,467
315	0,074	0,216	0,121	0,356	0,136	0,399

Bottom [20,0m]

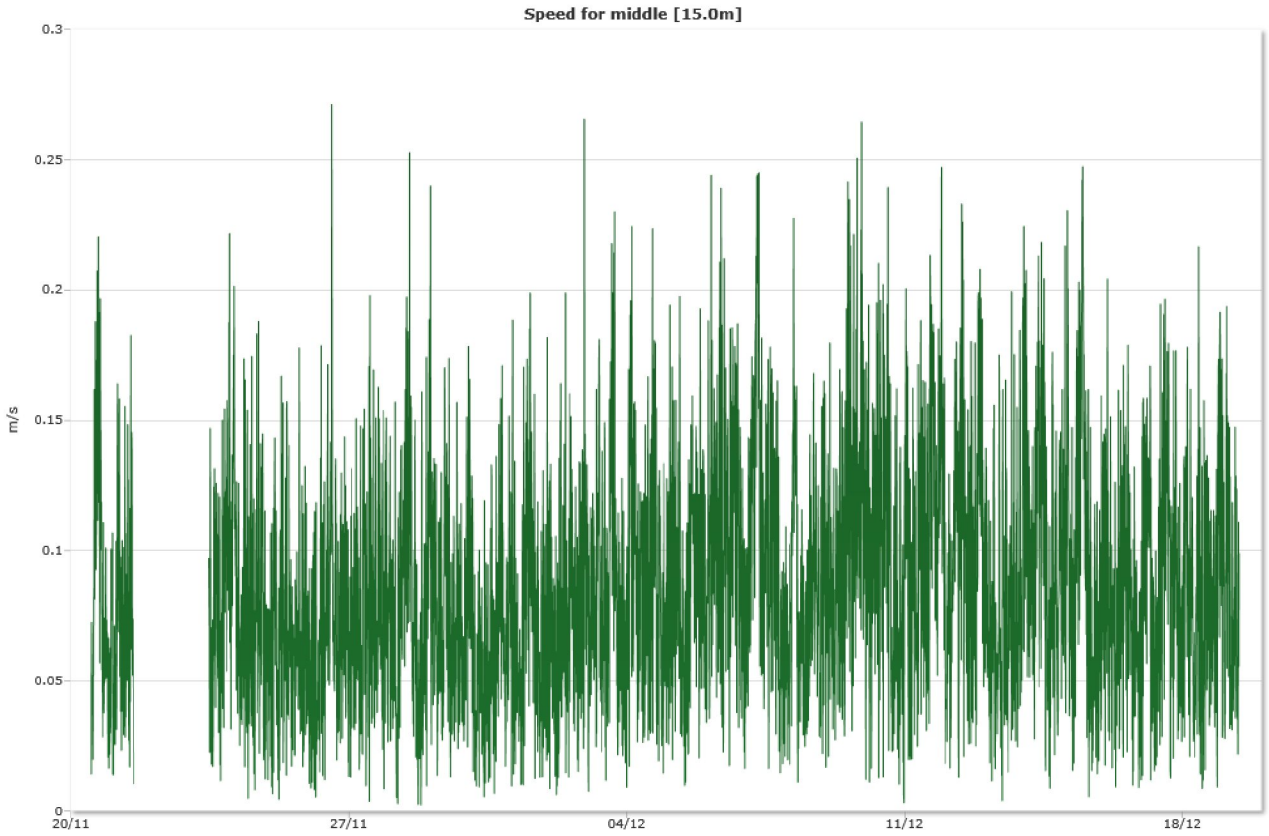
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,061	0,183	0,100	0,301	0,112	0,338
45	0,067	0,248	0,111	0,409	0,124	0,459
90	0,078	0,277	0,129	0,457	0,145	0,512
135	0,070	0,200	0,116	0,329	0,130	0,369
180	0,077	0,215	0,127	0,355	0,142	0,398
225	0,092	0,301	0,151	0,497	0,170	0,558
270	0,102	0,301	0,168	0,497	0,188	0,558
315	0,071	0,270	0,118	0,446	0,132	0,500

Time series

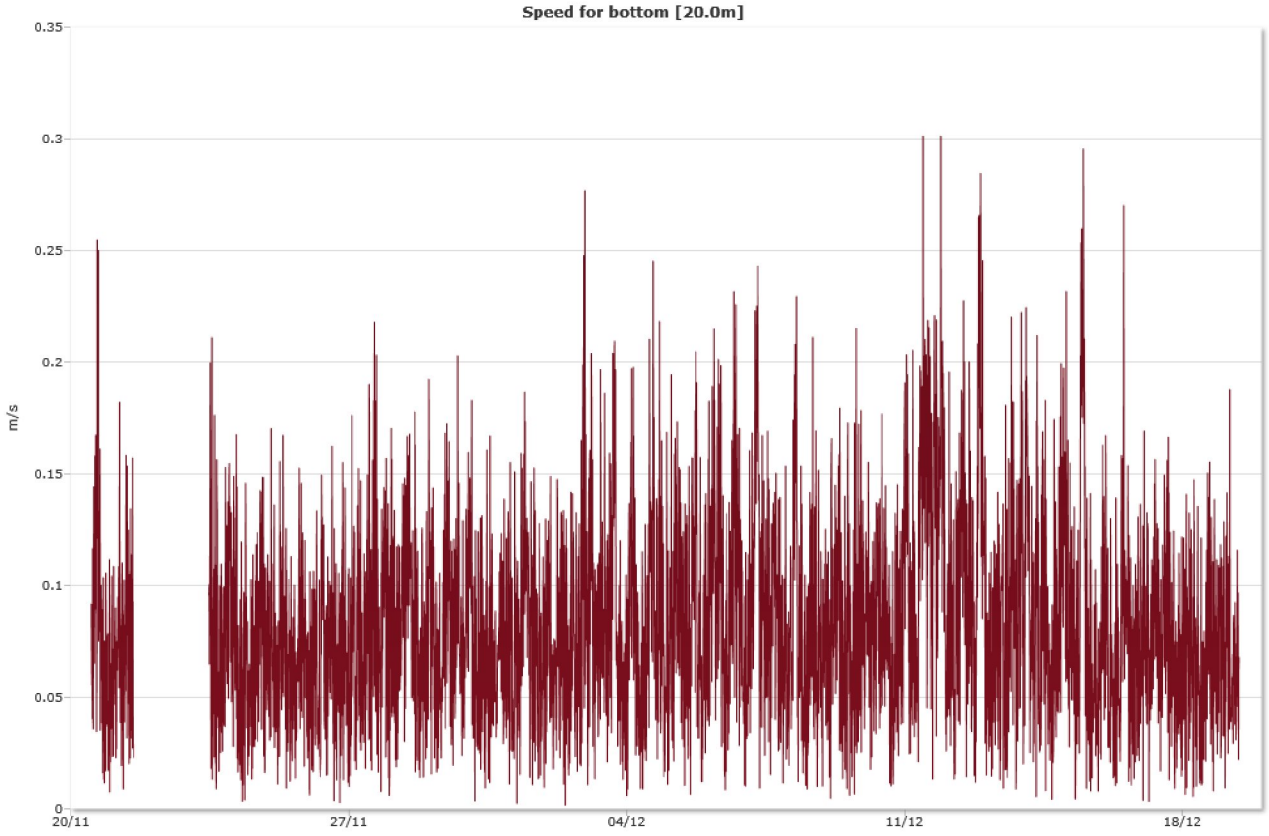
Top [5,0m]



Middle [15,0m]

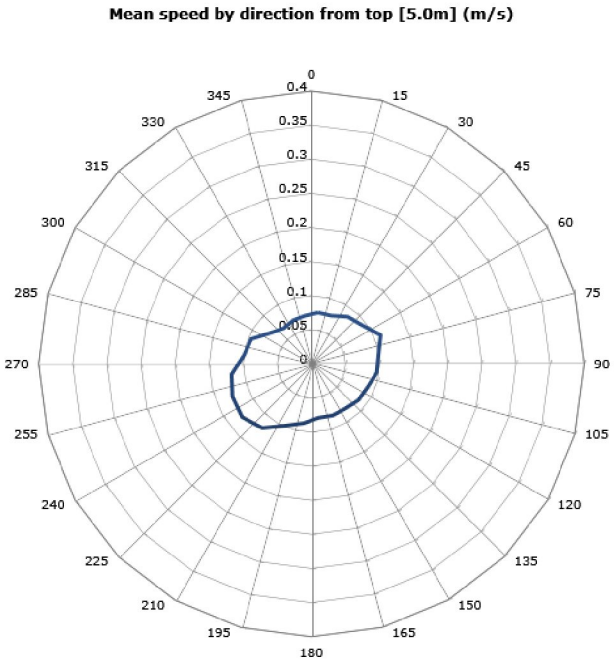

Speed for middle [15.0m]
m/s
0.3
0.25
0.2
0.15
0.1
0.05
0
20/11
27/11
04/12
11/12
18/12

Bottom [20,0m]

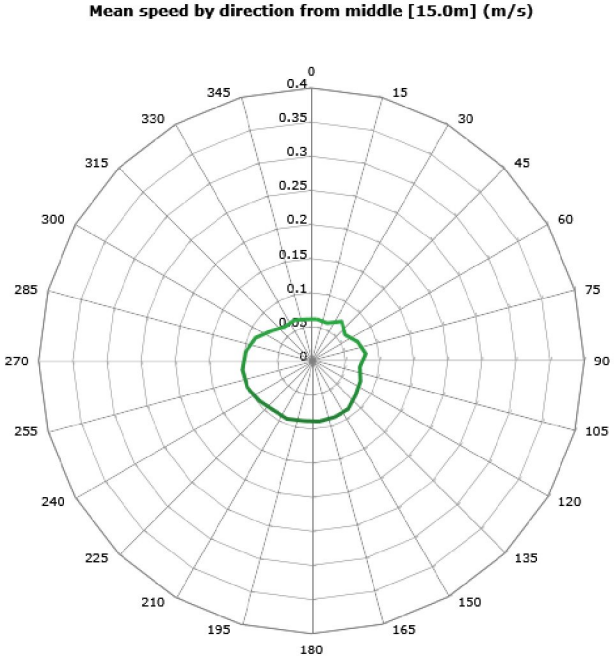

Speed for bottom [20.0m]
m/s
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
20/11
27/11
04/12
11/12
18/12

Mean speed - roseplot

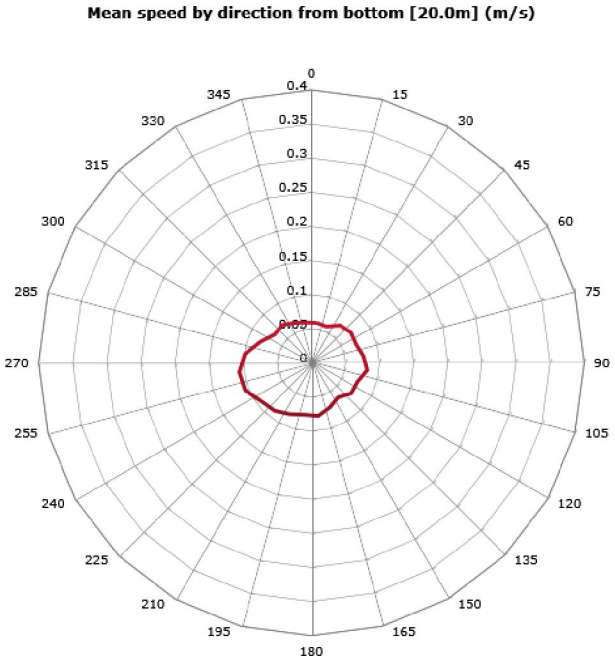
Top [5,0m]



Middle [15,0m]

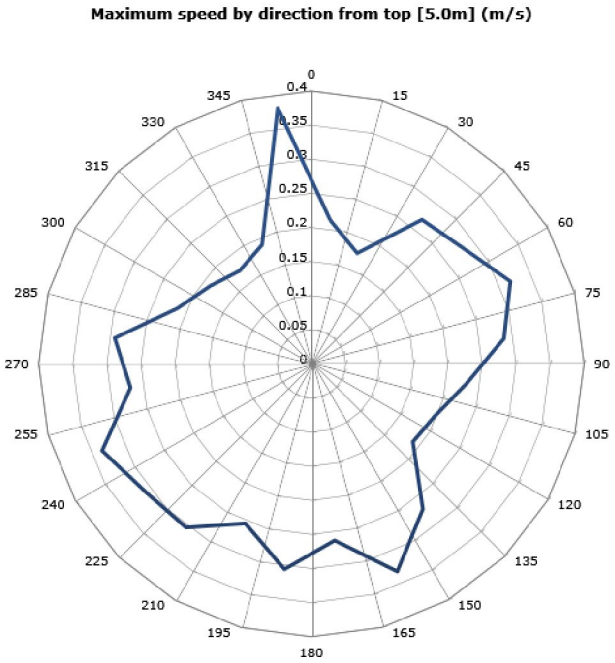

Mean speed by direction from middle [15.0m] (m/s)
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
225
240
255
270
285
300
315
330
345
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

Bottom [20,0m]


Mean speed by direction from bottom [20.0m] (m/s)
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
225
240
255
270
285
300
315
330
345
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

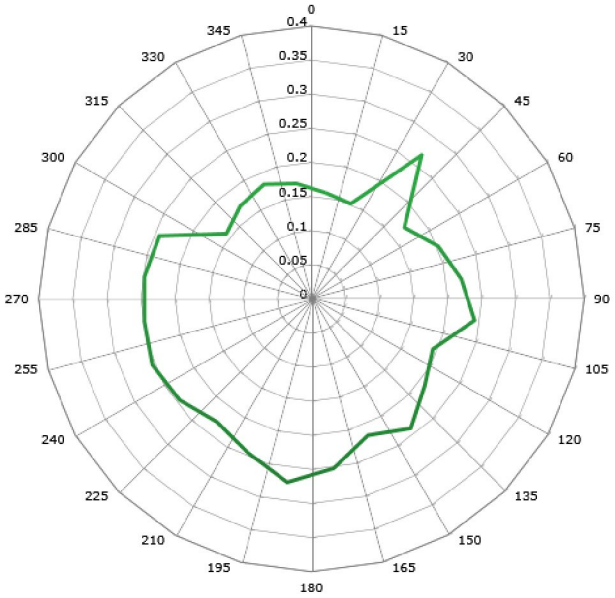
Max speed - roseplot

Top [5,0m]



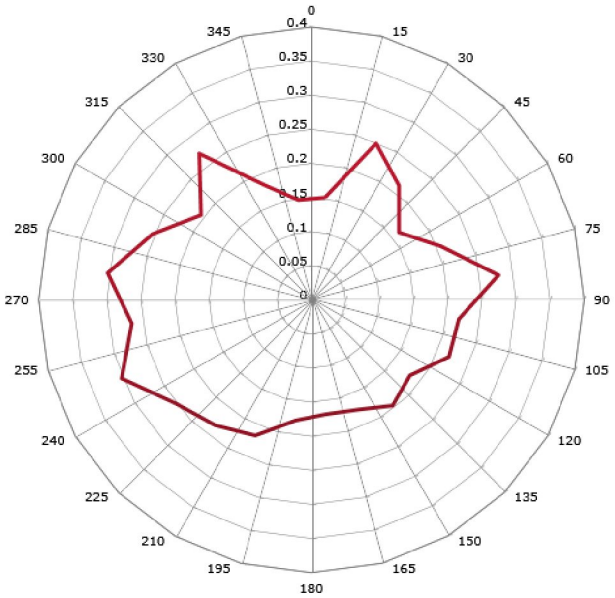
Middle [15,0m]

Maximum speed by direction from middle [15.0m] (m/s)



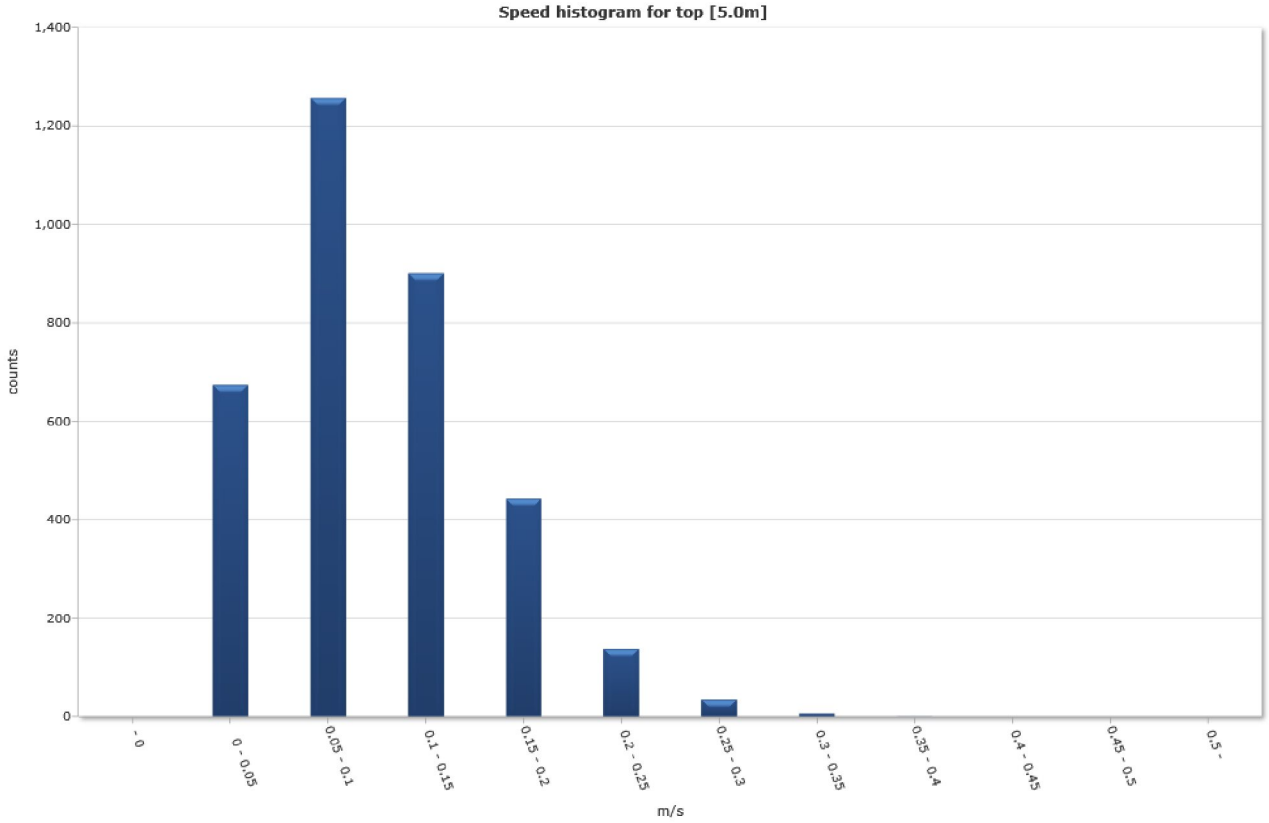
Bottom [20,0m]

Maximum speed by direction from bottom [20.0m] (m/s)

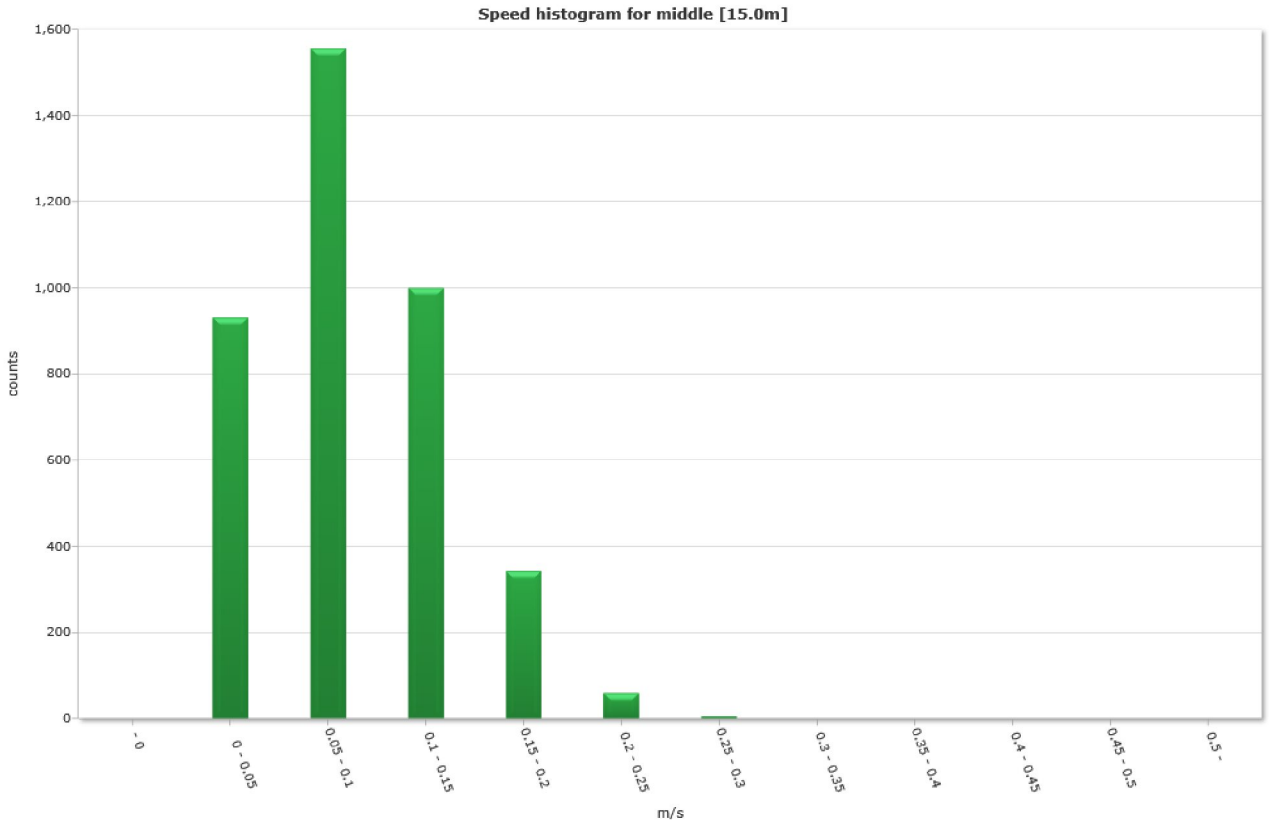


Speed histogram

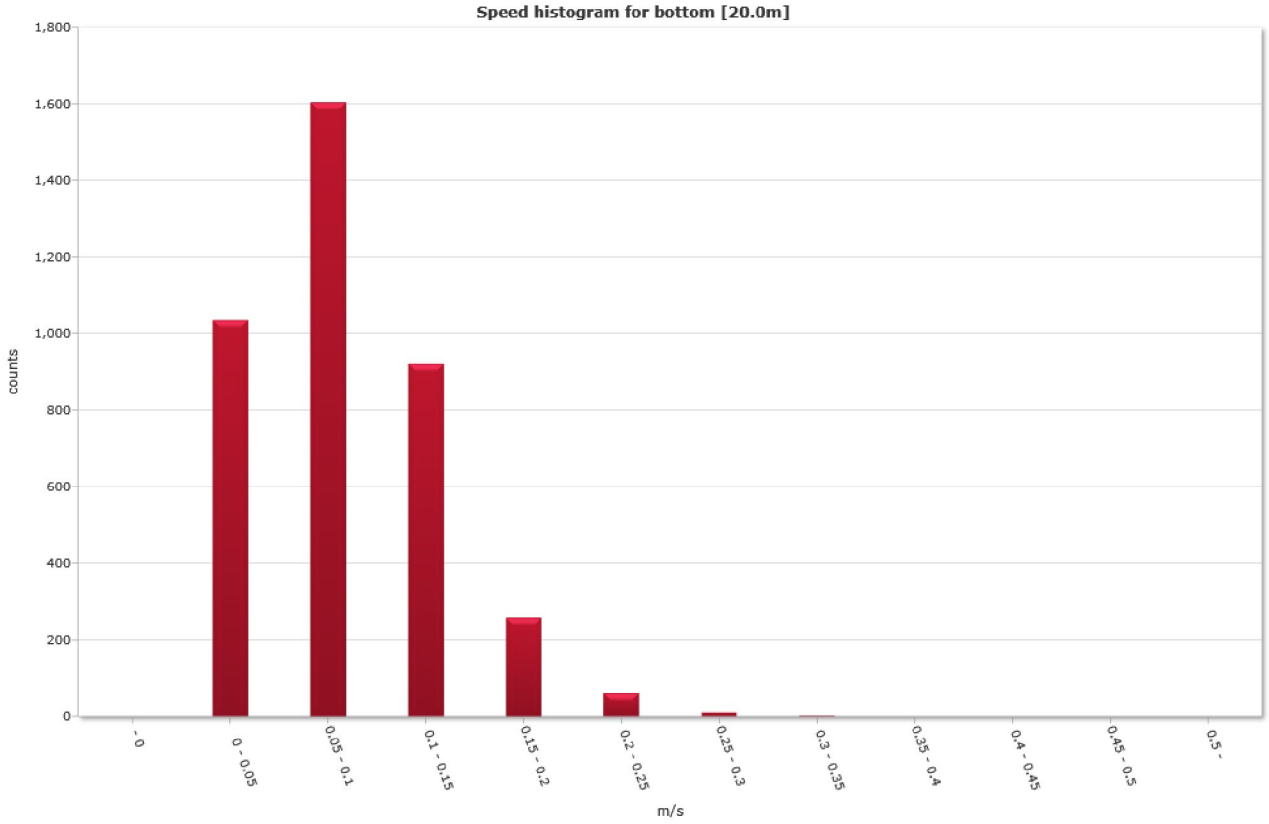
Top [5,0m]



Middle [15,0m]

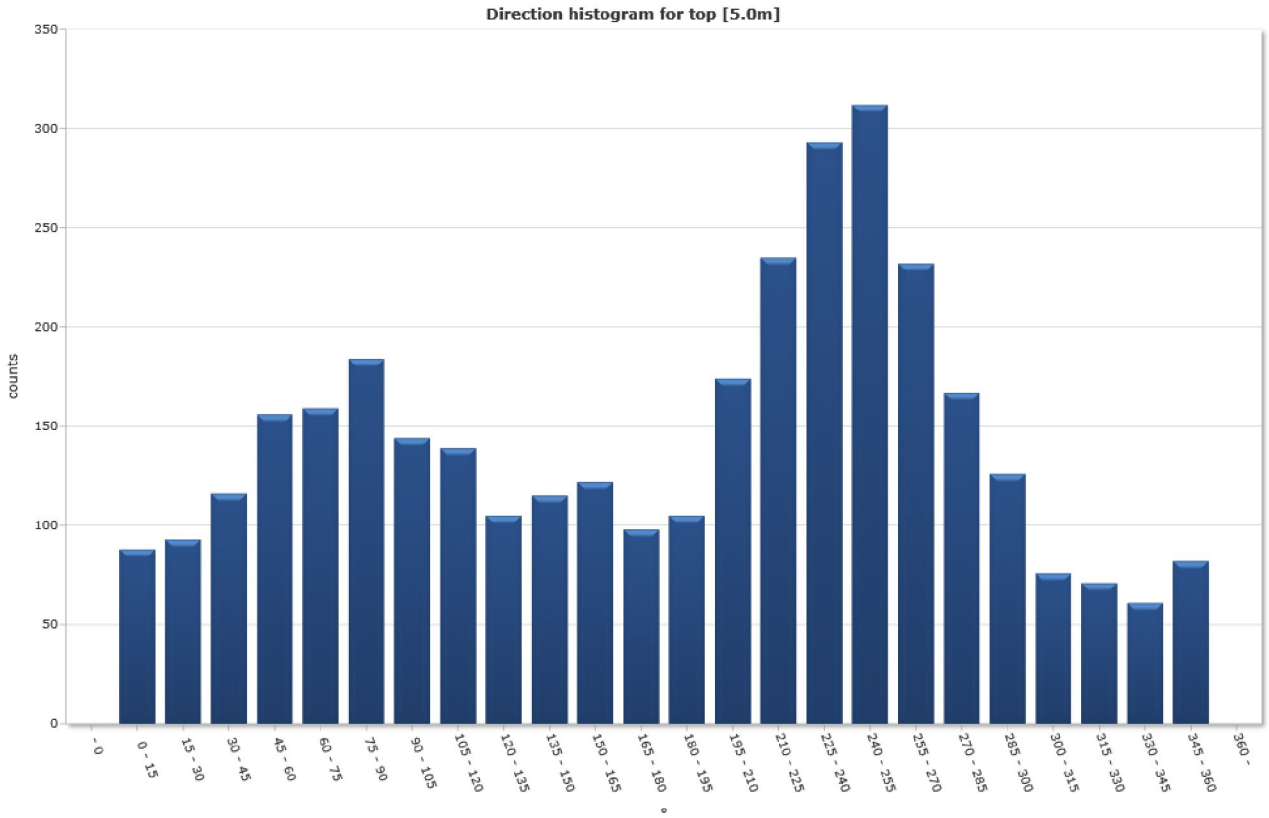

Speed histogram for middle [15.0m]
counts
1,600
1,400
1,200
1,000
800
600
400
200
0
- 0
0 - 0,05
0,05 - 0,1
0,1 - 0,15
0,15 - 0,2
0,2 - 0,25
0,25 - 0,3
0,3 - 0,35
0,35 - 0,4
0,4 - 0,45
0,45 - 0,5
0,5 -
m/s

Bottom [20,0m]

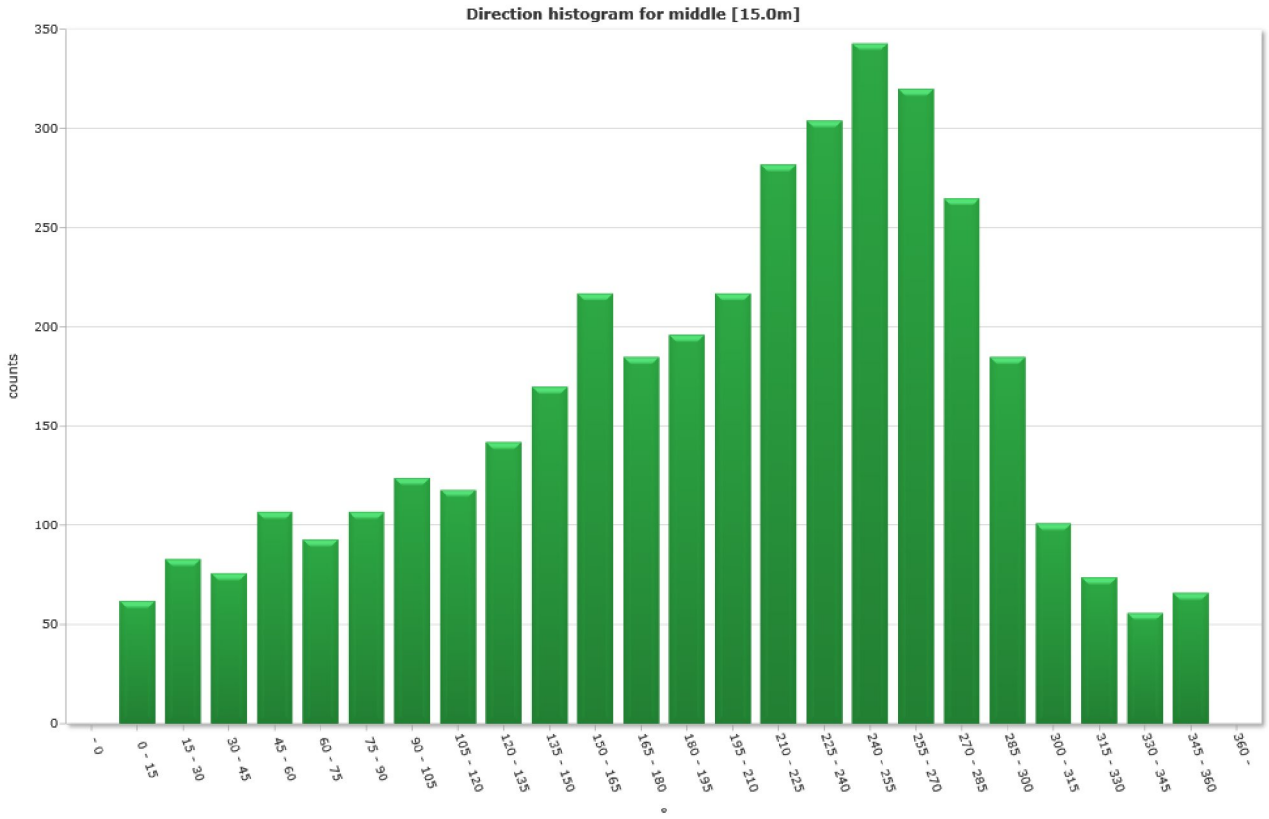

Speed histogram for bottom [20.0m]
counts
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
- 0
0 - 0,05
0,05 - 0,1
0,1 - 0,15
0,15 - 0,2
0,2 - 0,25
0,25 - 0,3
0,3 - 0,35
0,35 - 0,4
0,4 - 0,45
0,45 - 0,5
0,5 -
m/s

Direction histogram

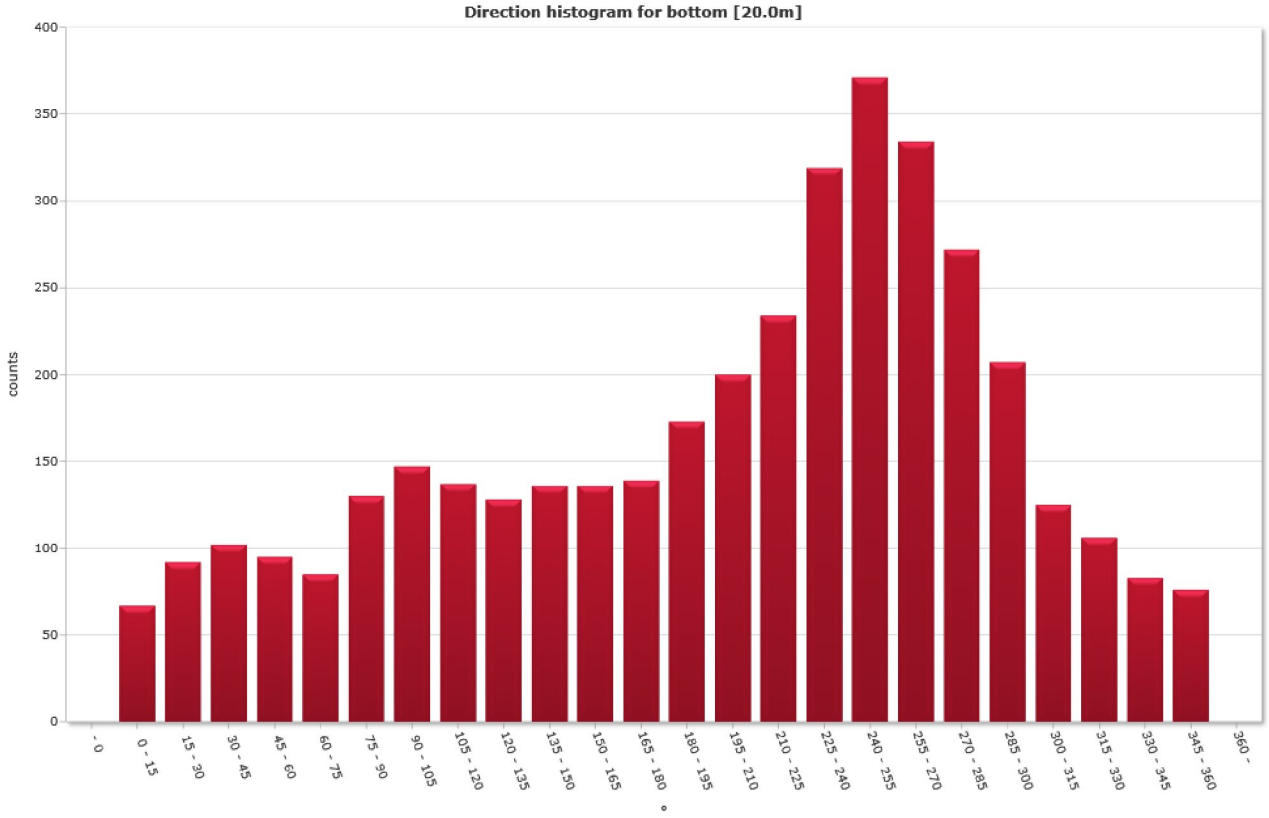
Top [5,0m]



Middle [15,0m]


Direction histogram for middle [15.0m]
counts
0
50
100
150
200
250
300
350
- 0
0 - 15
15 - 30
30 - 45
45 - 60
60 - 75
75 - 90
90 - 105
105 - 120
120 - 135
135 - 150
150 - 165
165 - 180
180 - 195
195 - 210
210 - 225
225 - 240
240 - 255
255 - 270
270 - 285
285 - 300
300 - 315
315 - 330
330 - 345
345 - 360
360 -
°

Bottom [20,0m]


Direction histogram for bottom [20.0m]
counts
0
50
100
150
200
250
300
350
400
- 0
0 - 15
15 - 30
30 - 45
45 - 60
60 - 75
75 - 90
90 - 105
105 - 120
120 - 135
135 - 150
150 - 165
165 - 180
180 - 195
195 - 210
210 - 225
225 - 240
240 - 255
255 - 270
270 - 285
285 - 300
300 - 315
315 - 330
330 - 345
345 - 360
360 -
°

Direction/Speed histogram

Top [5,0m]

° m/s	Direction/speed matrix for top [5.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	26	29	30	33	23	36	23	26	22	32	31	29	25	34	32	26	30	34	32	20	23	24	25	29	19.5	674
0.10	40	35	47	63	51	65	62	63	45	46	56	42	43	65	74	80	79	64	56	52	38	36	22	33	36.4	1257
0.15	15	21	24	37	53	53	41	35	31	28	25	21	28	43	58	85	106	62	51	33	10	10	11	19	26.1	900
0.20	6	8	11	15	24	22	13	15	7	6	8	3	7	26	42	67	67	47	21	19	5	1	3	0	12.8	443
0.25	1	0	3	5	5	6	5	0	0	1	0	2	1	5	27	23	25	21	5	2	0	0	0	0	4.0	137
0.30	0	0	1	3	2	2	0	0	0	2	1	1	0	1	1	11	4	4	2	0	0	0	0	0	1.0	35
0.35	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0.2	6
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	1
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
%	2.5	2.7	3.4	4.5	4.6	5.3	4.2	4.0	3.0	3.3	3.5	2.8	3.0	5.0	6.8	8.5	9.0	6.7	4.8	3.6	2.2	2.1	1.8	2.4	100.0	100.0
Sum	88	93	116	156	159	184	144	139	105	115	122	98	105	174	235	293	312	232	167	126	76	71	61	82	100.0	3453

Middle [15,0m]

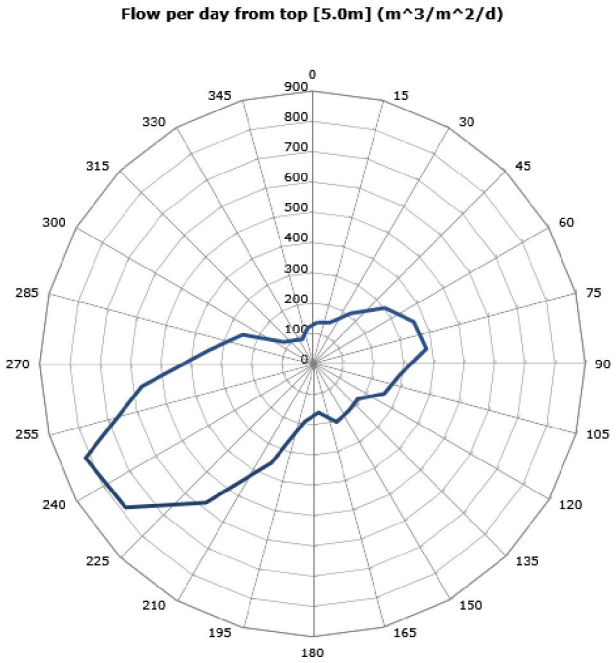
° m/s	Direction/speed matrix for middle [15.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	25	35	24	45	28	29	38	33	37	38	46	41	39	45	58	56	57	51	60	40	31	29	19	27	23.9	931
0.10	27	38	33	49	42	47	63	53	57	70	89	75	83	82	117	108	112	111	83	79	46	36	26	29	39.9	1555
0.15	9	9	16	9	20	22	15	26	38	43	56	47	57	64	79	101	115	101	82	44	23	6	9	9	25.7	1000
0.20	1	1	2	4	2	8	7	6	9	14	23	19	15	23	22	34	50	45	33	18	1	3	2	1	8.8	343
0.25	0	0	0	0	1	1	1	0	1	5	3	2	0	3	6	5	8	12	7	4	0	0	0	0	1.5	59
0.30	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0.1	5
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
%	1.6	2.1	2.0	2.7	2.4	2.7	3.2	3.0	3.6	4.4	5.6	4.8	5.0	5.6	7.2	7.8	8.8	8.2	6.8	4.8	2.6	1.9	1.4	1.7	100.0	100.0
Sum	62	83	76	107	93	107	124	118	142	170	217	185	196	217	282	304	343	320	265	185	101	74	56	66	100.0	3893

Bottom [20,0m]

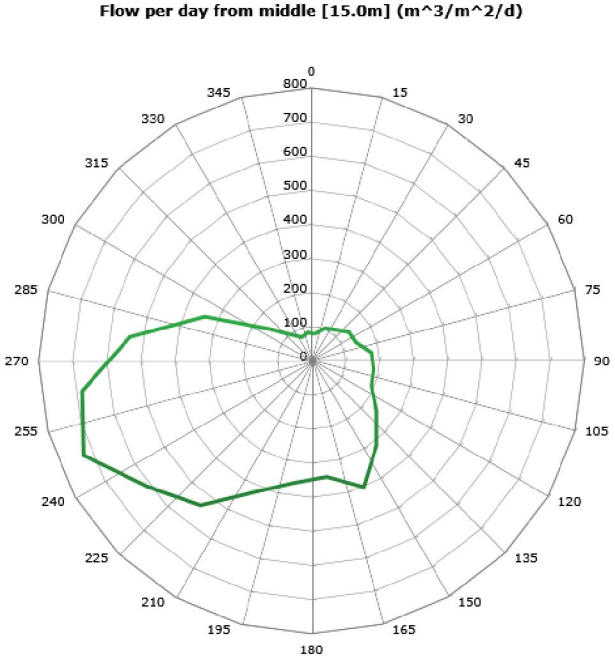
° m/s	Direction/speed matrix for bottom [20.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	32	48	39	30	29	34	31	48	37	60	39	35	48	41	48	59	59	55	54	53	49	43	32	33	26.6	1036
0.10	24	31	41	42	38	69	68	52	64	53	73	62	79	102	95	129	125	109	95	94	53	35	40	31	41.2	1604
0.15	10	12	17	20	15	18	42	30	22	19	20	38	39	46	73	96	112	98	83	49	18	23	9	12	23.7	921
0.20	1	0	3	3	1	7	5	6	5	4	4	4	7	10	15	30	54	52	29	8	4	4	2	0	6.6	258
0.25	0	1	2	0	2	1	1	1	0	0	0	0	0	1	3	4	18	17	8	2	1	0	0	0	1.6	62
0.30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2	3	2	1	0	1	0	0	0.3	11
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0.1	2
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
%	1.7	2.4	2.6	2.4	2.2	3.3	3.8	3.5	3.3	3.5	3.5	3.6	4.4	5.1	6.0	8.2	9.5	8.6	7.0	5.3	3.2	2.7	2.1	2.0	100.0	100.0
Sum	67	92	102	95	85	130	147	137	128	136	136	139	173	200	234	319	371	334	272	207	125	106	83	76	100.0	3894

Flow

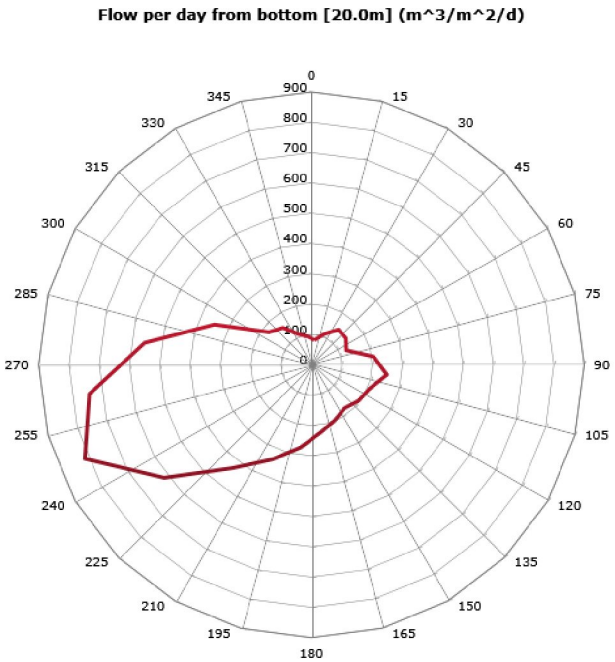
Top [5,0m]



Middle [15,0m]

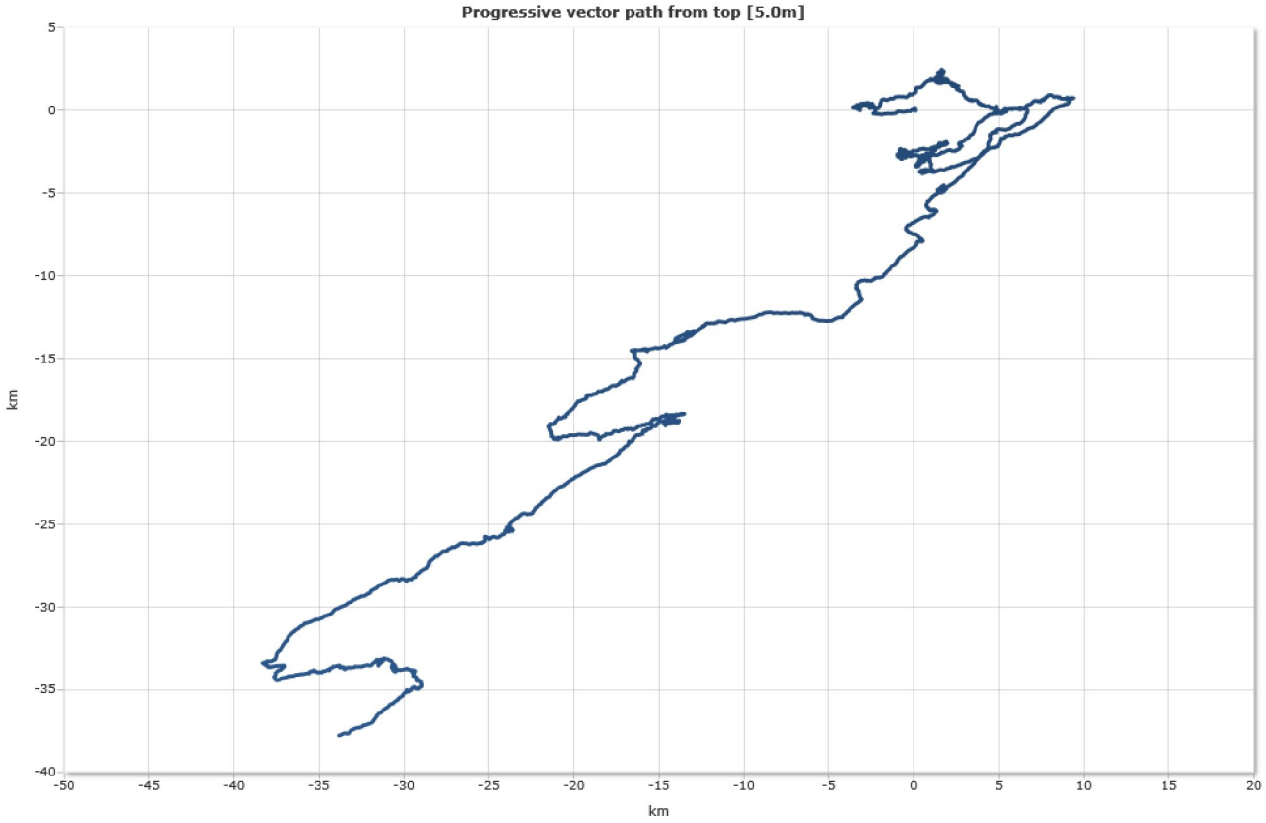

Flow per day from middle [15.0m] (m^3/m^2/d)
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
225
240
255
270
285
300
315
330
345
800
700
600
500
400
300
200
100
0

Bottom [20,0m]

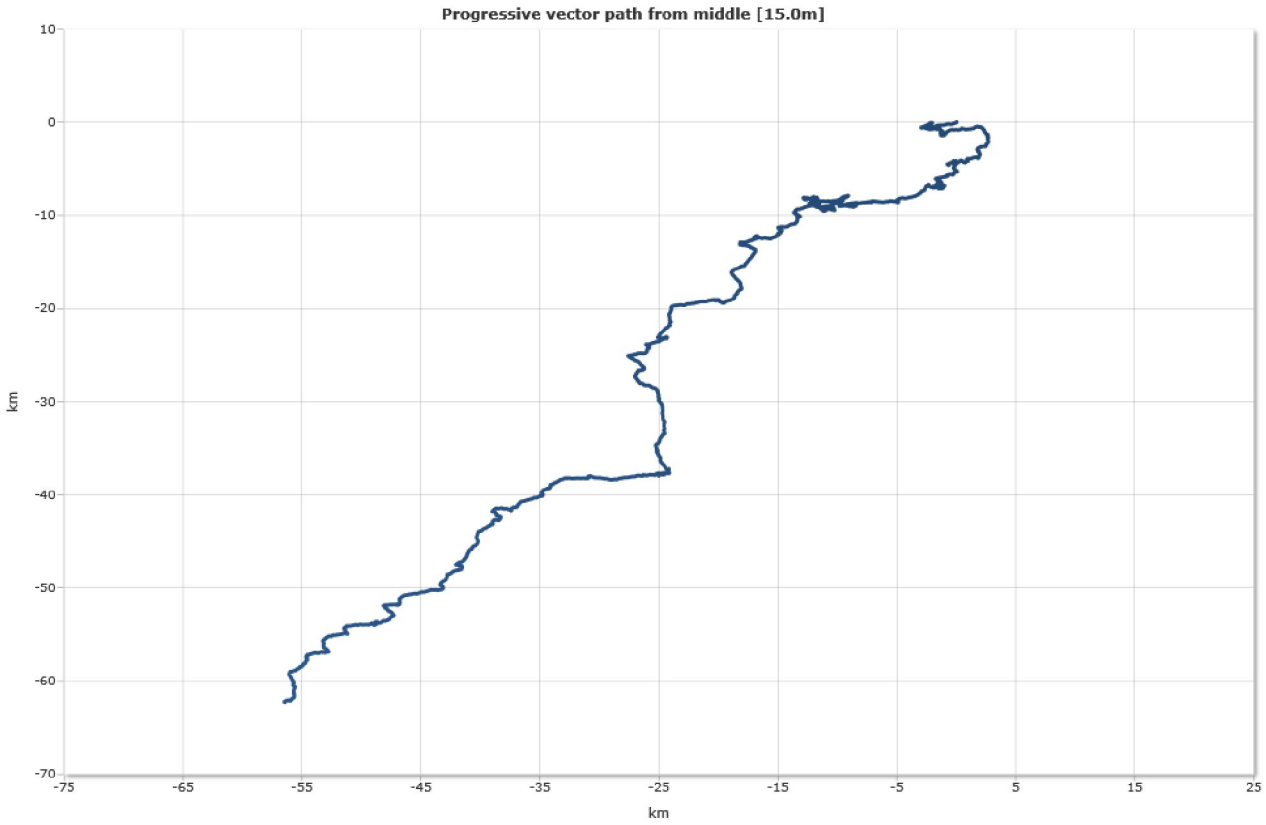

Flow per day from bottom [20.0m] (m^3/m^2/d)
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
225
240
255
270
285
300
315
330
345
900
800
700
600
500
400
300
200
100
0

Progressive vector

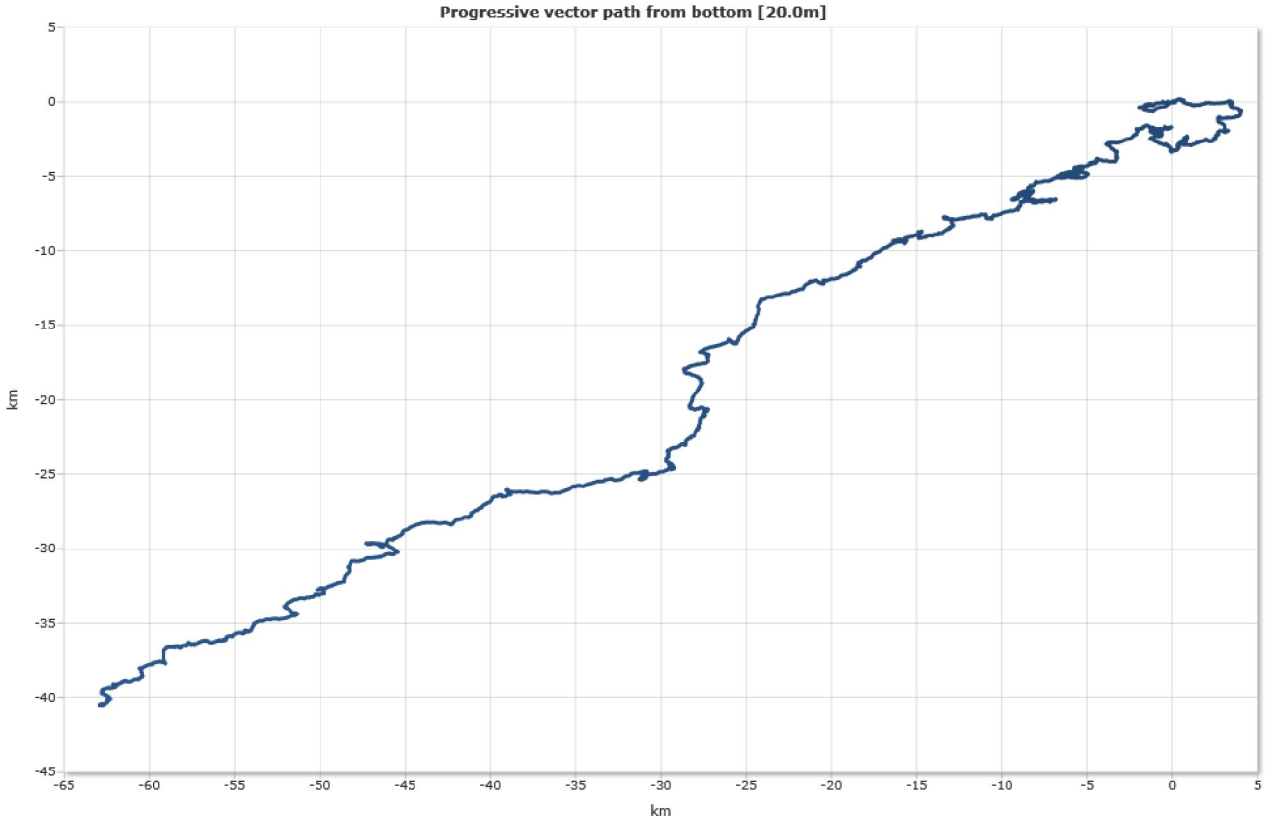
Top [5,0m]



Middle [15,0m]

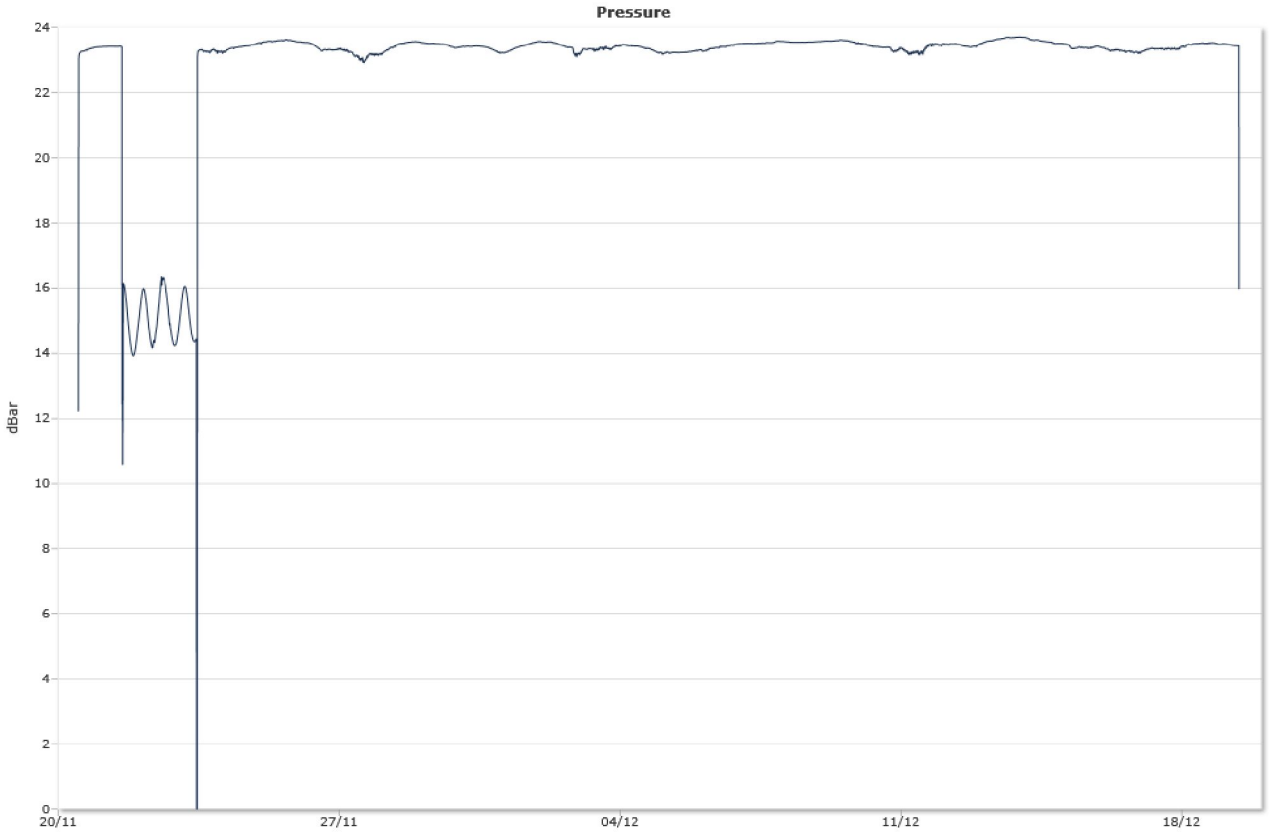

Progressive vector path from middle [15.0m]
km
km
10
0
-10
-20
-30
-40
-50
-60
-70
-75
-65
-55
-45
-35
-25
-15
-5
5
15
25

Bottom [20,0m]

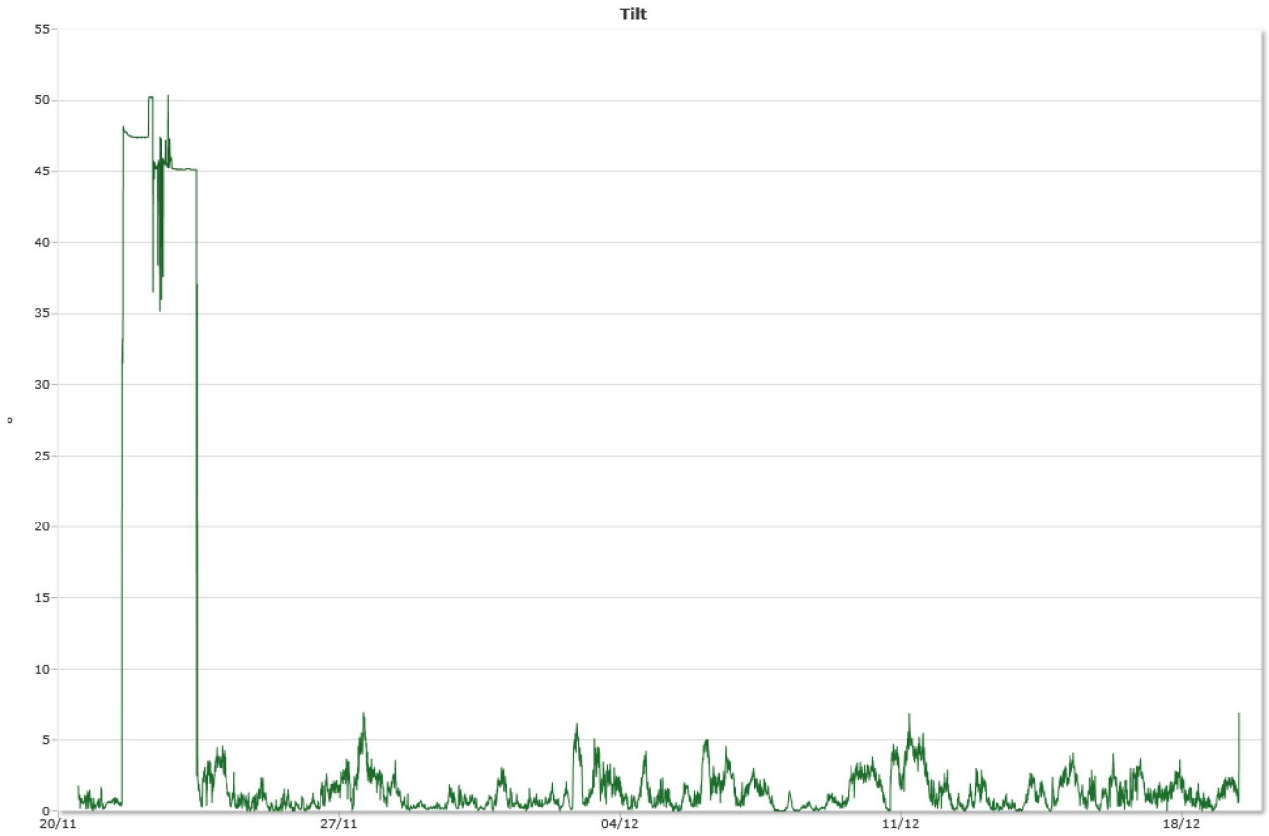

Progressive vector path from bottom [20.0m]
km
km
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-65
-60
-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
5

Sensors

Pressure



Tilt



Temperature

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Summary

Details

Instrument

Head Id	AQP 4956
Board Id	AQD 9557
Frequency	400000

Configuration

File	Tj1p01.prf
Start	12.09.2013 16:00
End	18.10.2013 10:40
Data Records	5153
Orientation	DOWN
Cells	30
Cell Size [m]	2,5
Blanking Distance [m]	1
Average Interval [sec]	60
Measurement Interval [sec]	600

Quality

Low Pressure Treshold	0
HighTilt Threshold	30
Expected Orientation	UP
Amplitude Spike Treshold	70
Velocity Spike Treshold	5
SNR Treshold	3

Post processing

Selected Start	12.09.2013 16:00
Selected End	17.10.2013 09:30
Compass Offset	0
Pressure Offset	0
Selected Records	5002
Reference	Water Surface
Top Depth [m]	15
Top Invalid Data	2004
Middle Depth [m]	45
Middle Invalid Data	58
Bottom Depth [m]	75
Bottom Invalid Data	1689

Manually removed data

Start Time	End Time	Comment

Statistics

Top [15,0m]

Mean current [m/s]	0.11
Max current [m/s]	0.47
Min current [m/s]	0.00
Measurements used/total [#]	2998 / 5002
Std.dev [m/s]	0.08
Significant max velocity [m/s]	0.19
Significant min velocity [m/s]	0.04
10 year return current [m/s]	0.768
50 year return current [m/s]	0.861
Most significant directions [°]	255°, 240°, 270°, 75°
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Most flow	2303.90m³ / day at 240-255°
Least flow	25.28m³ / day at 330-345°
Neumann parameter	0.43
Residue current	0.05 m/s at 238°
Zero current [%] - [HH:mm]	1.27% - 00:20

Middle [45,0m]

Mean current [m/s]	0.11
Max current [m/s]	0.47
Min current [m/s]	0.00
Measurements used/total [#]	4944 / 5002
Std.dev [m/s]	0.07
Significant max velocity [m/s]	0.20
Significant min velocity [m/s]	0.04
10 year return current [m/s]	0.777
50 year return current [m/s]	0.871
Most significant directions [°]	255°, 240°, 270°, 75°
Most significant speeds [m/s]	0.10, 0.15, 0.05, 0.20
Most flow	3311.55m³ / day at 240-255°
Least flow	24.88m³ / day at 150-165°
Neumann parameter	0.46
Residue current	0.05 m/s at 244°
Zero current [%] - [HH:mm]	1.09% - 00:20

Bottom [75,0m]

Mean current [m/s]	0.10
Max current [m/s]	0.43
Min current [m/s]	0.00
Measurements used/total [#]	3313 / 5002
Std.dev [m/s]	0.07
Significant max velocity [m/s]	0.18
Significant min velocity [m/s]	0.04

10 year return current [m/s]	0.703
50 year return current [m/s]	0.789
Most significant directions [°]	240°, 255°, 225°, 60°
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Most flow	2137.63m^3 / day at 225-240°
Least flow	27.82m^3 / day at 345-360°
Neumann parameter	0.36
Residue current	0.04 m/s at 239°
Zero current [%] - [HH:mm]	1.39% - 00:20

Direction with return period

Top [15,0m]

Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,051	0,163	0,083	0,269	0,094	0,302
45	0,082	0,368	0,136	0,608	0,152	0,681
90	0,097	0,466	0,160	0,768	0,179	0,861
135	0,056	0,181	0,093	0,299	0,104	0,335
180	0,060	0,213	0,100	0,351	0,112	0,394
225	0,147	0,436	0,243	0,719	0,272	0,806
270	0,116	0,389	0,192	0,642	0,215	0,720
315	0,051	0,139	0,084	0,229	0,094	0,256

Middle [45,0m]

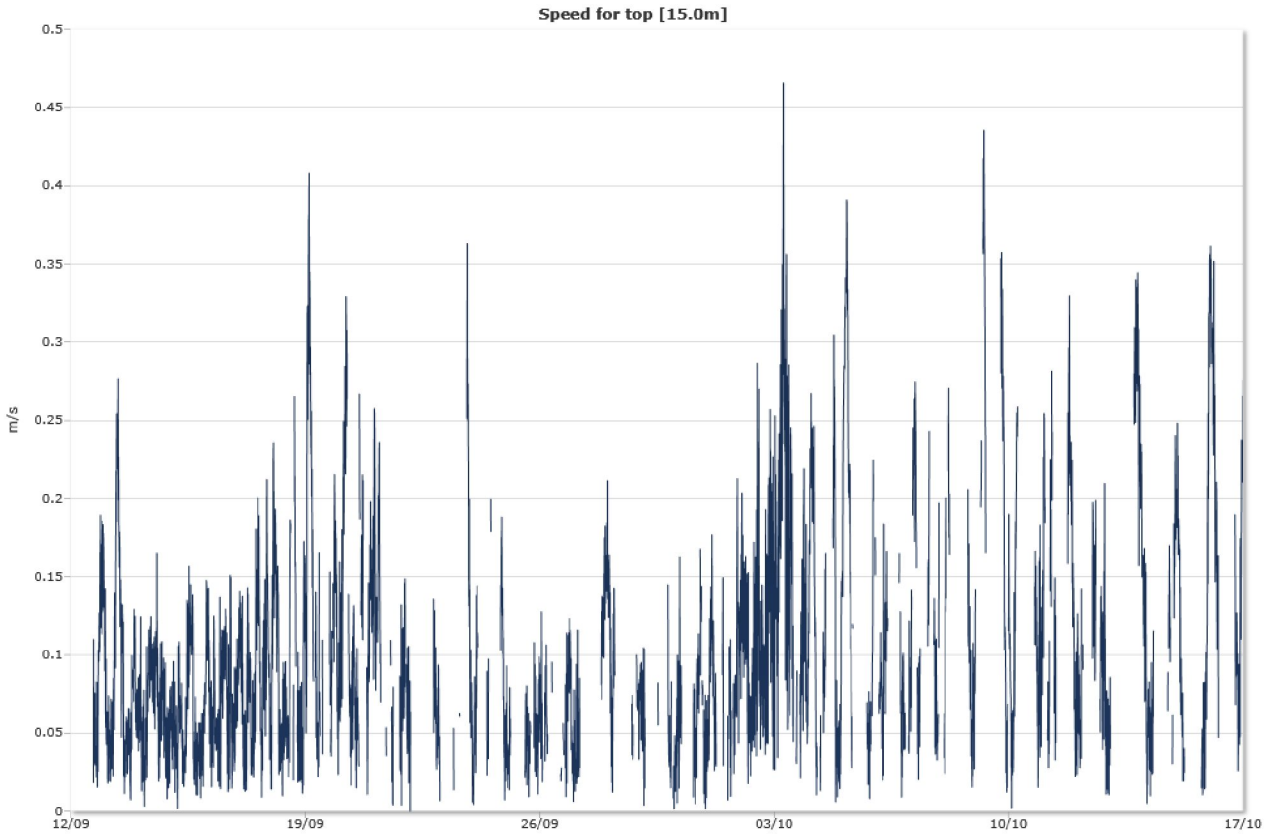
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,046	0,148	0,076	0,244	0,086	0,274
45	0,097	0,246	0,160	0,407	0,180	0,456
90	0,091	0,264	0,151	0,436	0,169	0,488
135	0,047	0,154	0,078	0,254	0,088	0,285
180	0,053	0,293	0,088	0,483	0,098	0,542
225	0,151	0,453	0,249	0,748	0,279	0,839
270	0,125	0,471	0,206	0,777	0,231	0,871
315	0,056	0,170	0,093	0,281	0,104	0,315

Bottom [75,0m]

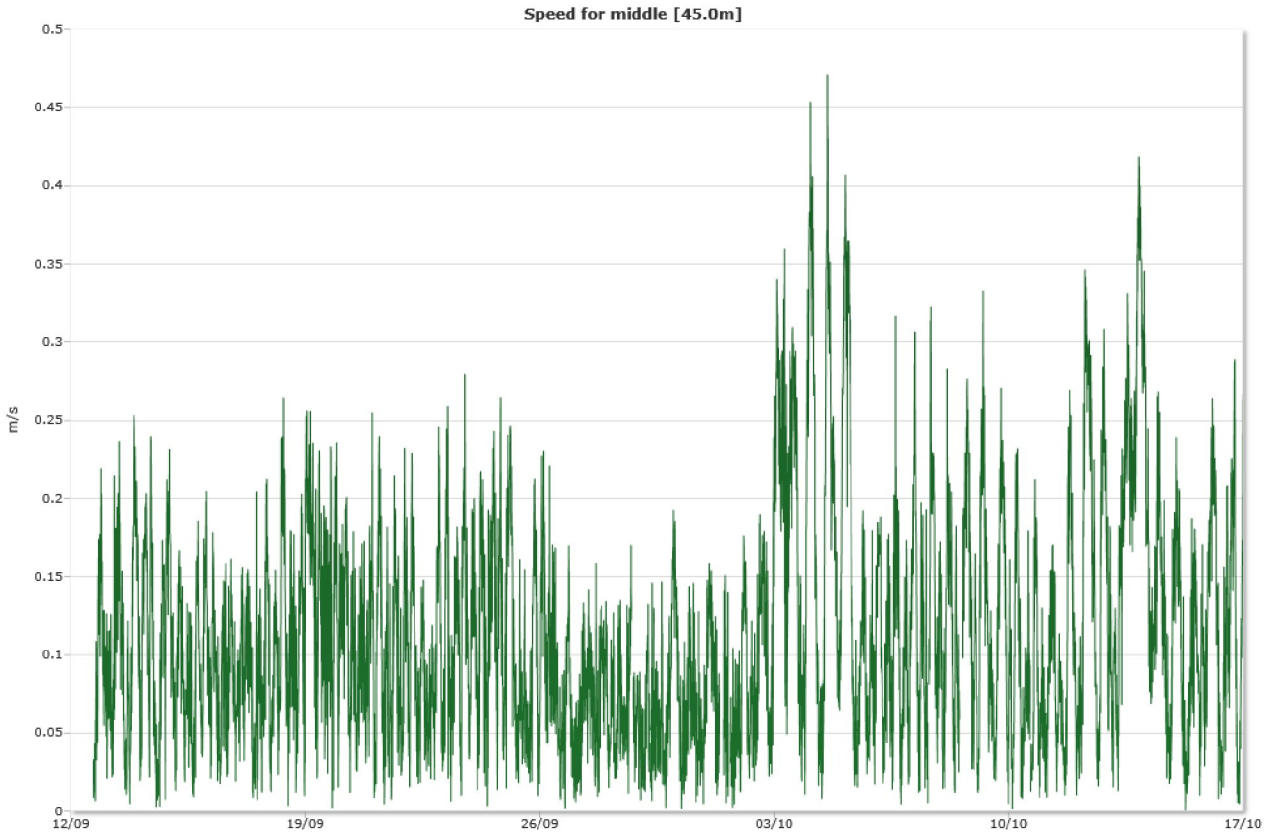
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,044	0,133	0,072	0,219	0,081	0,245
45	0,106	0,285	0,174	0,470	0,195	0,527
90	0,075	0,272	0,124	0,449	0,139	0,503
135	0,045	0,139	0,074	0,229	0,083	0,257
180	0,049	0,122	0,081	0,201	0,091	0,226
225	0,129	0,418	0,213	0,690	0,239	0,774
270	0,100	0,426	0,165	0,703	0,185	0,789
315	0,044	0,126	0,073	0,208	0,082	0,233

Time series

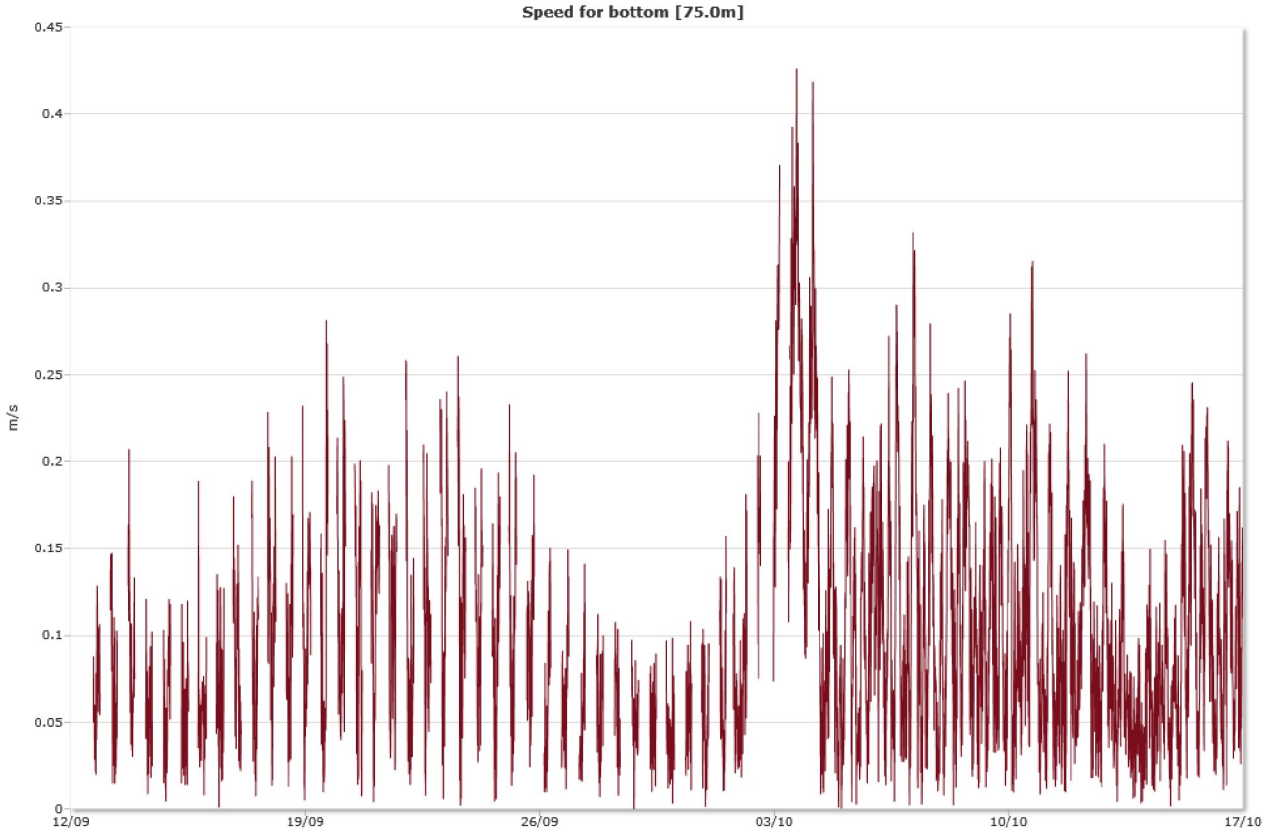
Top [15,0m]



Middle [45,0m]

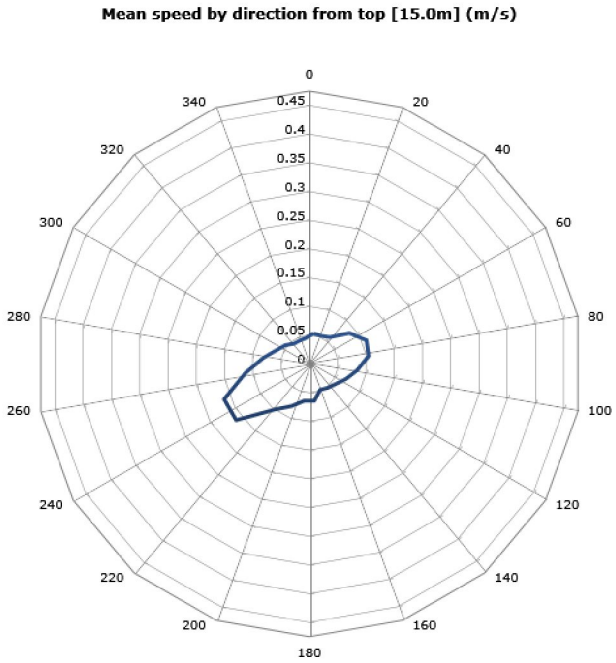

Speed for middle [45.0m]
m/s
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
12/09
19/09
26/09
03/10
10/10
17/10

Bottom [75,0m]

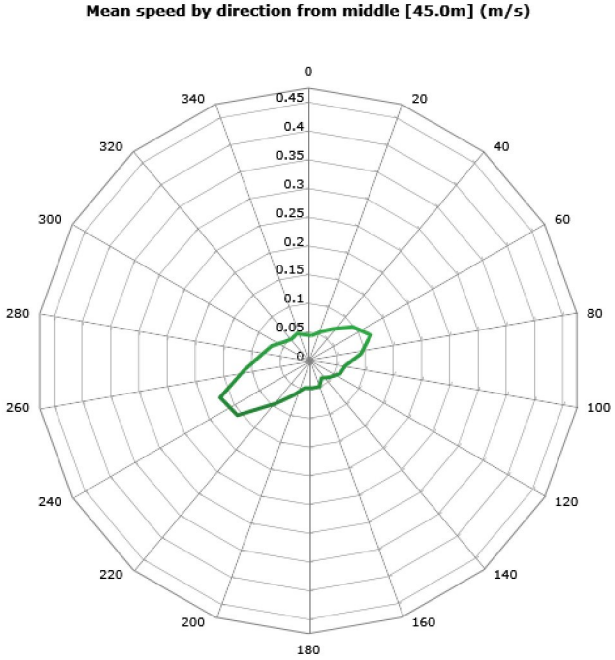

Speed for bottom [75.0m]
m/s
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
12/09
19/09
26/09
03/10
10/10
17/10

Mean speed - roseplot

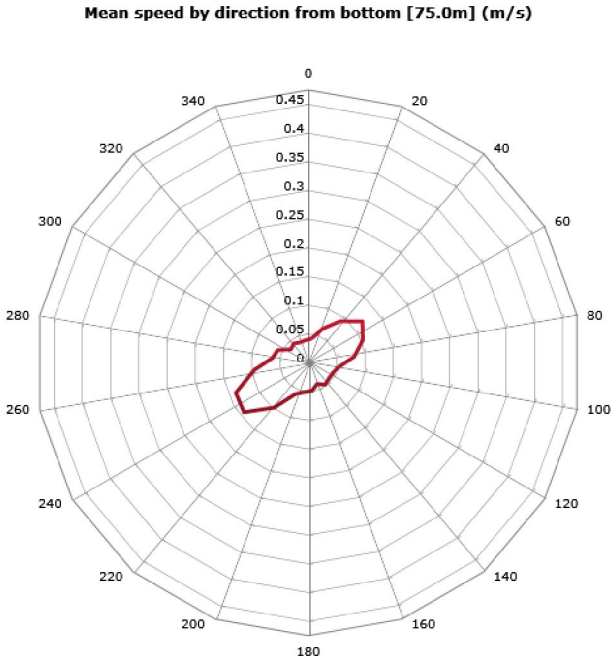
Top [15,0m]



Middle [45,0m]

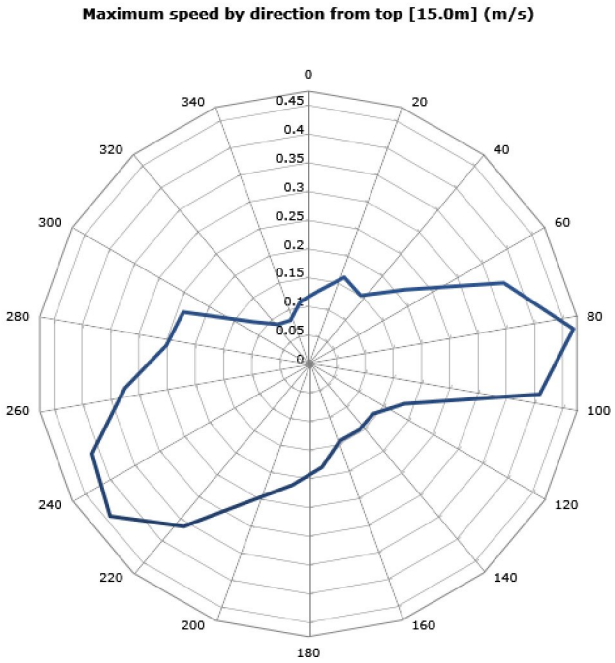

Mean speed by direction from middle [45.0m] (m/s)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

Bottom [75,0m]

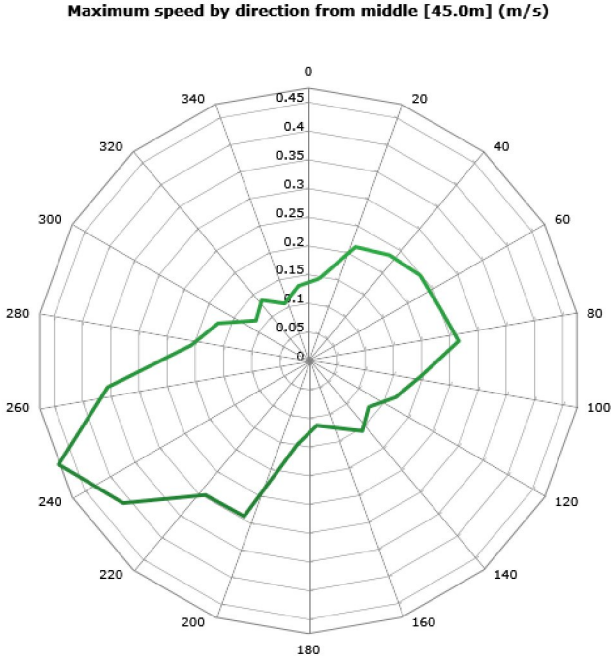

Mean speed by direction from bottom [75.0m] (m/s)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

Max speed - roseplot

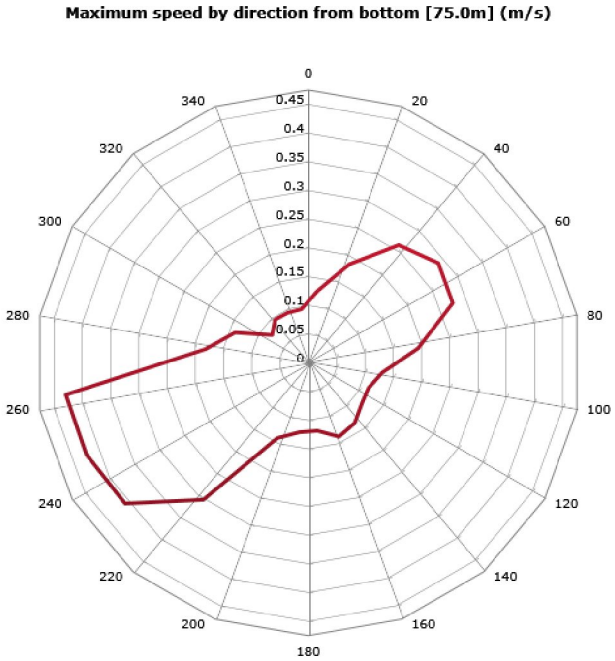
Top [15,0m]



Middle [45,0m]

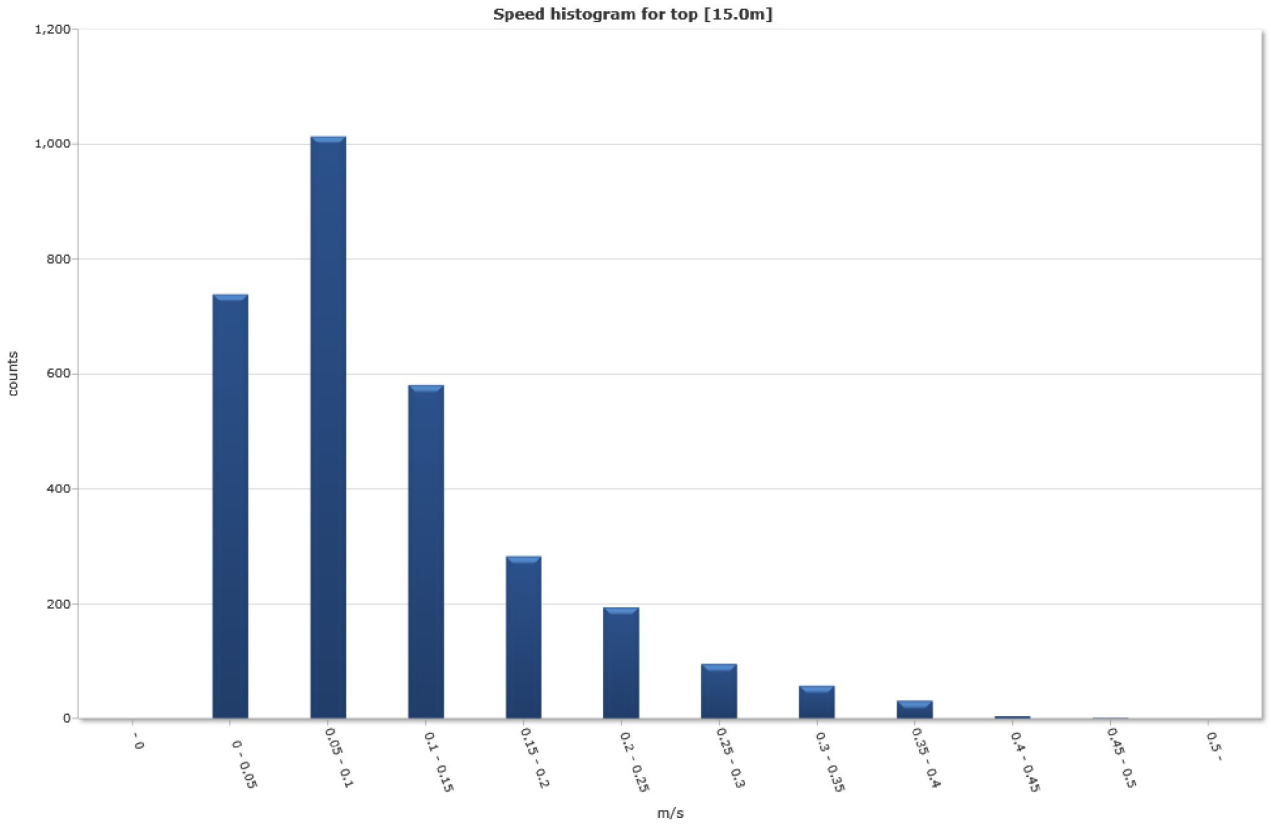

Maximum speed by direction from middle [45.0m] (m/s)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

Bottom [75,0m]

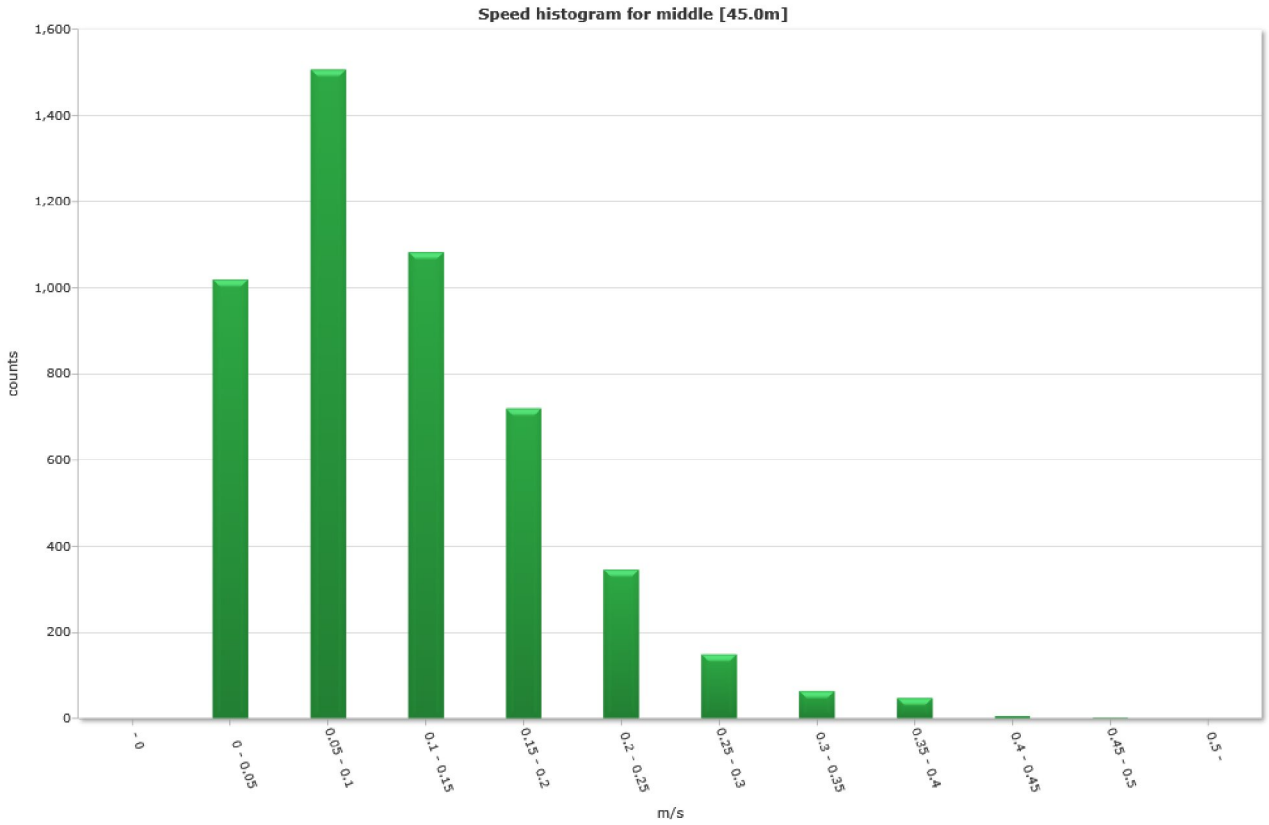

Maximum speed by direction from bottom [75.0m] (m/s)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

Speed histogram

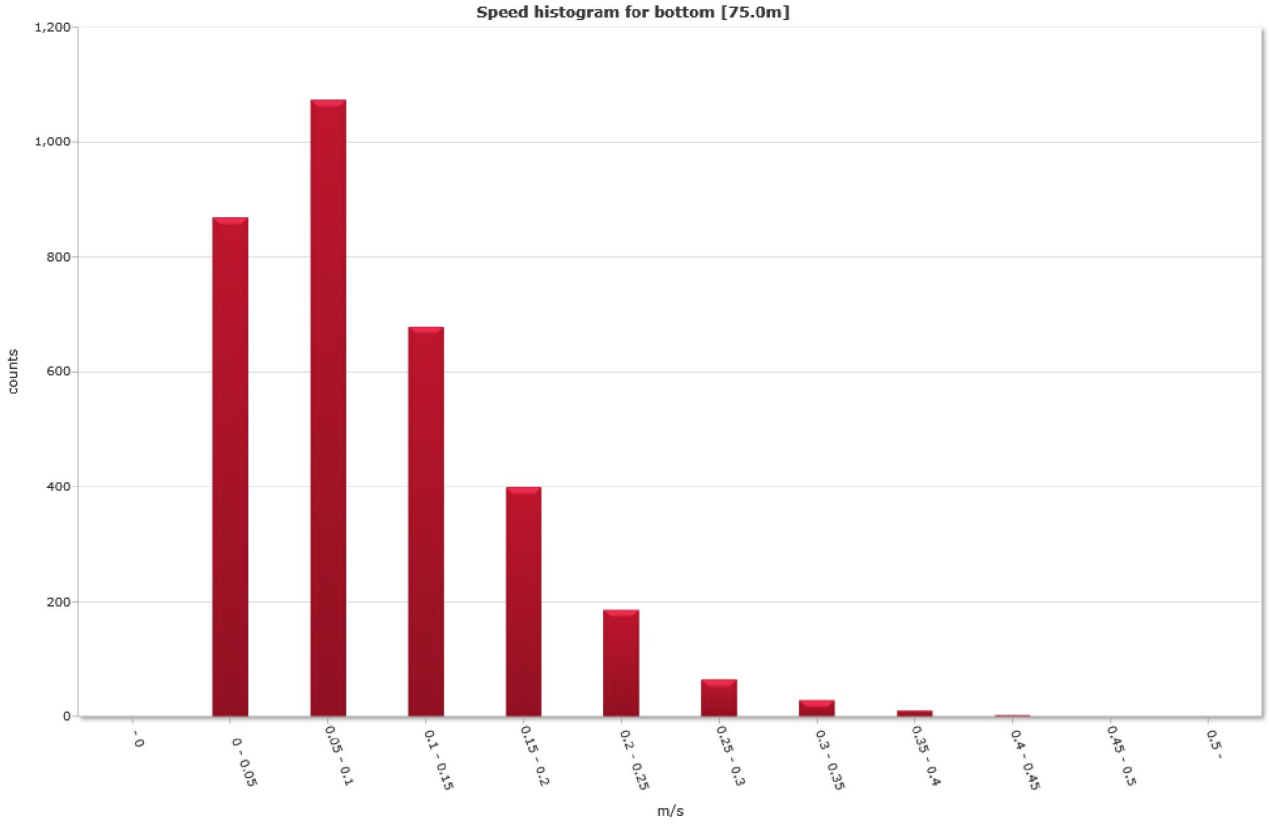
Top [15,0m]



Middle [45,0m]

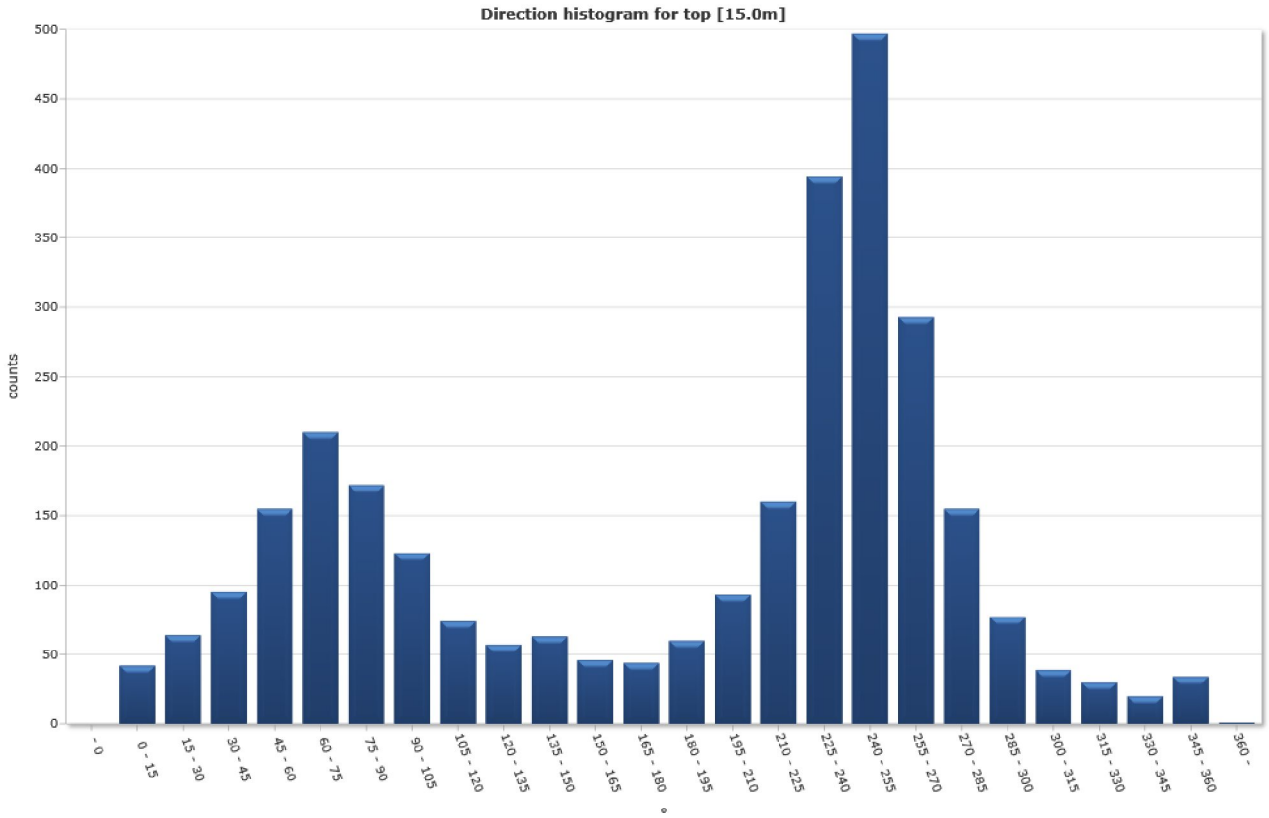

Speed histogram for middle [45.0m]
counts
1,600
1,400
1,200
1,000
800
600
400
200
0
- 0
0 - 0,05
0,05 - 0,1
0,1 - 0,15
0,15 - 0,2
0,2 - 0,25
0,25 - 0,3
0,3 - 0,35
0,35 - 0,4
0,4 - 0,45
0,45 - 0,5
0,5 -
m/s

Bottom [75,0m]

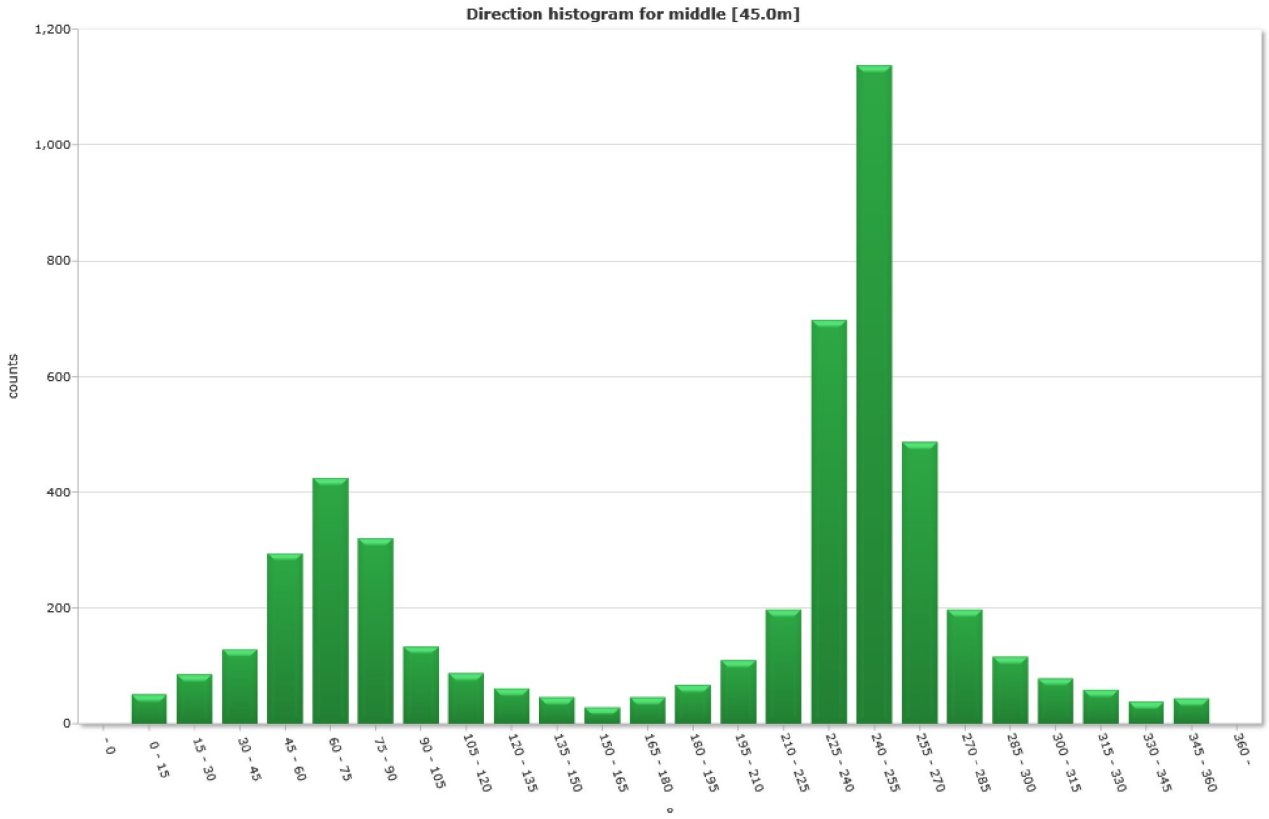

Speed histogram for bottom [75.0m]
counts
1,200
1,000
800
600
400
200
0
- 0
0 - 0,05
0,05 - 0,1
0,1 - 0,15
0,15 - 0,2
0,2 - 0,25
0,25 - 0,3
0,3 - 0,35
0,35 - 0,4
0,4 - 0,45
0,45 - 0,5
0,5 -
m/s

Direction histogram

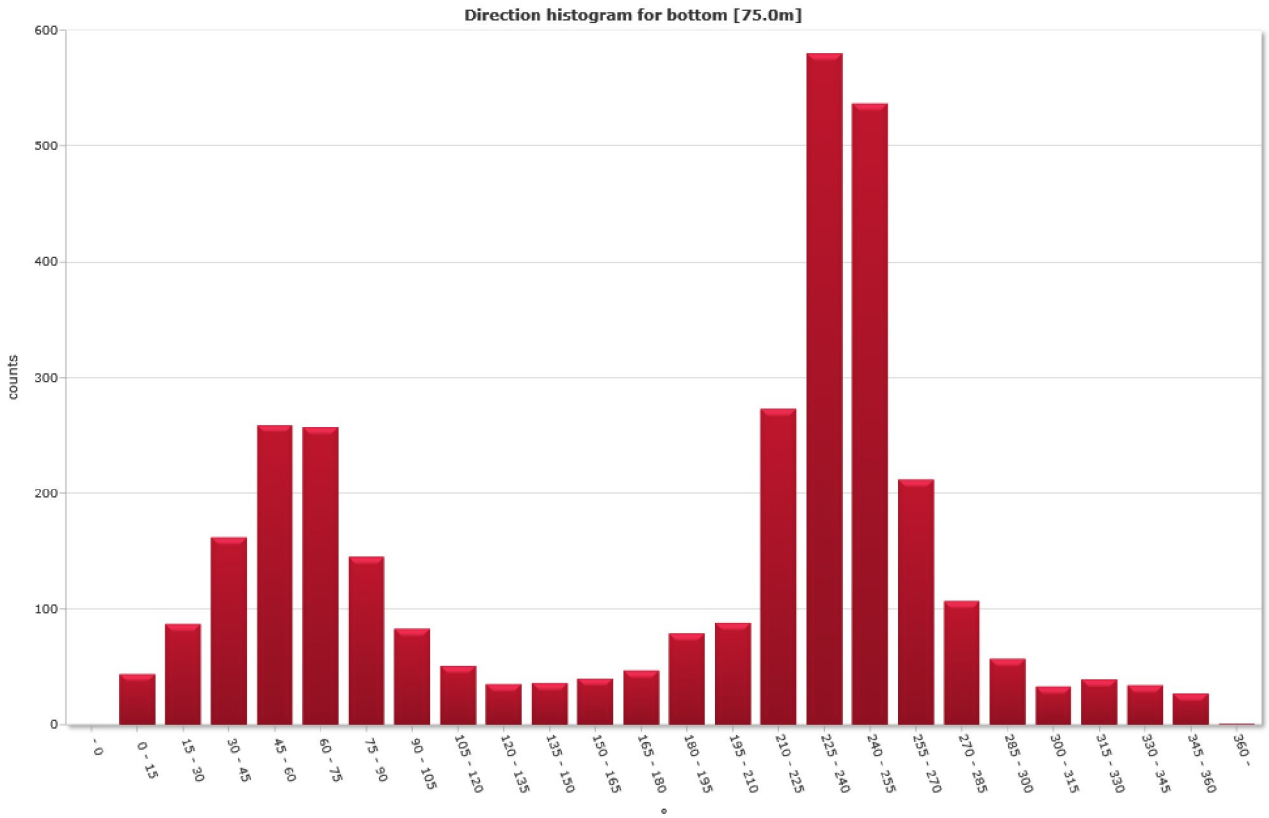
Top [15,0m]



Middle [45,0m]


Direction histogram for middle [45.0m]
counts
1,200
1,000
800
600
400
200
0
- 0
0 - 15
15 - 30
30 - 45
45 - 60
60 - 75
75 - 90
90 - 105
105 - 120
120 - 135
135 - 150
150 - 165
165 - 180
180 - 195
195 - 210
210 - 225
225 - 240
240 - 255
255 - 270
270 - 285
285 - 300
300 - 315
315 - 330
330 - 345
345 - 360
360 -
°

Bottom [75,0m]


Direction histogram for bottom [75.0m]
counts
600
500
400
300
200
100
0
- 0
0 - 15
15 - 30
30 - 45
45 - 60
60 - 75
75 - 90
90 - 105
105 - 120
120 - 135
135 - 150
150 - 165
165 - 180
180 - 195
195 - 210
210 - 225
225 - 240
240 - 255
255 - 270
270 - 285
285 - 300
300 - 315
315 - 330
330 - 345
345 - 360
360 -
°

Direction/Speed histogram

Top [15,0m]

° m/s	Direction/speed matrix for top [15.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	21	31	42	39	52	45	40	26	23	34	27	16	21	26	30	36	35	46	47	32	18	19	13	19	24.6	738
0.10	19	31	43	58	68	61	53	31	30	21	17	22	31	42	60	89	106	90	57	34	20	11	7	13	33.8	1014
0.15	2	1	10	38	40	30	12	13	4	8	2	3	6	17	42	80	123	97	41	9	1	0	0	2	19.4	581
0.20	0	1	0	18	24	16	12	4	0	0	0	3	1	4	16	62	80	33	7	1	0	0	0	0	9.4	282
0.25	0	0	0	2	14	11	3	0	0	0	0	0	1	3	11	60	68	17	3	1	0	0	0	0	6.5	194
0.30	0	0	0	0	7	6	2	0	0	0	0	0	0	1	0	35	36	8	0	0	0	0	0	0	3.2	95
0.35	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	15	35	2	0	0	0	0	0	0	1.9	57
0.40	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	15	13	0	0	0	0	0	0	0	1.0	31
0.45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0.1	4
0.50	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	1
%	1.4	2.1	3.2	5.2	7.0	5.7	4.1	2.5	1.9	2.1	1.5	1.5	2.0	3.1	5.3	13.1	16.6	9.8	5.2	2.6	1.3	1.0	0.7	1.1	100.0	100.0
Sum	42	64	95	155	210	172	123	74	57	63	46	44	60	93	160	394	497	293	155	77	39	30	20	34	100.0	2997

Middle [45,0m]

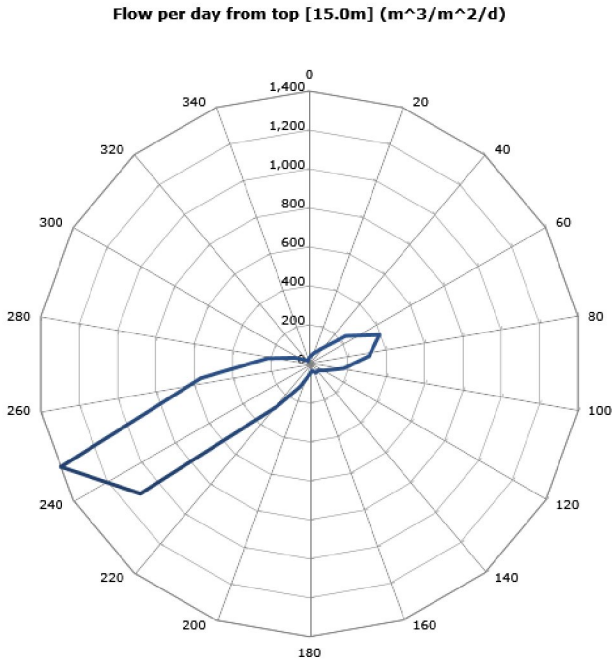
° / m/s	Direction/speed matrix for middle [45.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	32	44	49	56	54	59	53	38	41	35	18	27	40	47	39	39	56	76	53	40	35	35	23	30	20.6	1019
0.10	18	35	54	114	113	137	55	42	17	9	8	18	22	45	81	153	190	168	86	55	40	20	15	12	30.5	1507
0.15	1	5	19	80	132	88	24	7	3	1	3	1	5	13	49	171	285	123	43	19	4	4	1	2	21.9	1083
0.20	0	1	5	34	97	35	2	1	0	1	0	0	0	4	22	146	275	80	15	2	0	0	0	0	14.6	720
0.25	0	1	2	11	29	0	0	0	0	0	0	0	0	0	5	97	168	32	1	0	0	0	0	0	7.0	346
0.30	0	0	0	0	0	2	0	0	0	0	0	0	0	1	2	55	86	3	0	0	0	0	0	0	3.0	149
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	36	4	0	0	0	0	0	0	1.3	64
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	35	1	0	0	0	0	0	0	1.0	48
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0.1	6
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0.0	2
%	1.0	1.7	2.6	6.0	8.6	6.5	2.7	1.8	1.2	0.9	0.6	0.9	1.4	2.2	4.0	14.1	23.0	9.9	4.0	2.3	1.6	1.2	0.8	0.9	100.0	100.0
Sum	51	86	129	295	425	321	134	88	61	46	29	46	67	110	198	698	1138	487	198	116	79	59	39	44	100.0	4944

Bottom [75,0m]

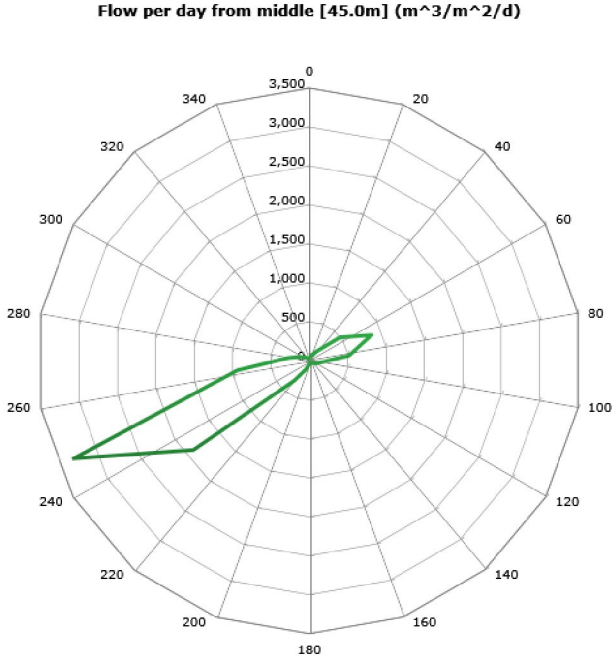
° / m/s	Direction/speed matrix for bottom [75.0m]																									
0.0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.05	32	39	41	34	51	43	43	29	22	22	27	28	41	41	48	58	63	41	48	26	23	27	23	18	26.2	868
0.10	11	33	53	74	86	56	34	19	12	12	12	18	33	40	109	146	130	89	40	25	10	12	11	9	32.4	1074
0.15	1	13	47	71	74	37	6	3	1	2	1	1	5	7	67	134	127	61	15	6	0	0	0	0	20.5	679
0.20	0	2	20	54	31	9	0	0	0	0	0	0	0	0	41	115	114	9	4	0	0	0	0	0	12.0	399
0.25	0	0	0	24	10	0	0	0	0	0	0	0	0	0	6	73	65	8	0	0	0	0	0	0	5.6	186
0.30	0	0	1	2	5	0	0	0	0	0	0	0	0	0	1	30	23	2	0	0	0	0	0	0	1.9	64
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	10	0	0	0	0	0	0	0	0.9	29
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	1	0	0	0	0	0	0	0.3	10
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0.1	3
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
%	1.3	2.6	4.9	7.8	7.8	4.4	2.5	1.5	1.1	1.1	1.2	1.4	2.4	2.7	8.2	17.5	16.2	6.4	3.2	1.7	1.0	1.2	1.0	0.8	100.0	100.0
Sum	44	87	162	259	257	145	83	51	35	36	40	47	79	88	273	580	537	212	107	57	33	39	34	27	100.0	3312

Flow

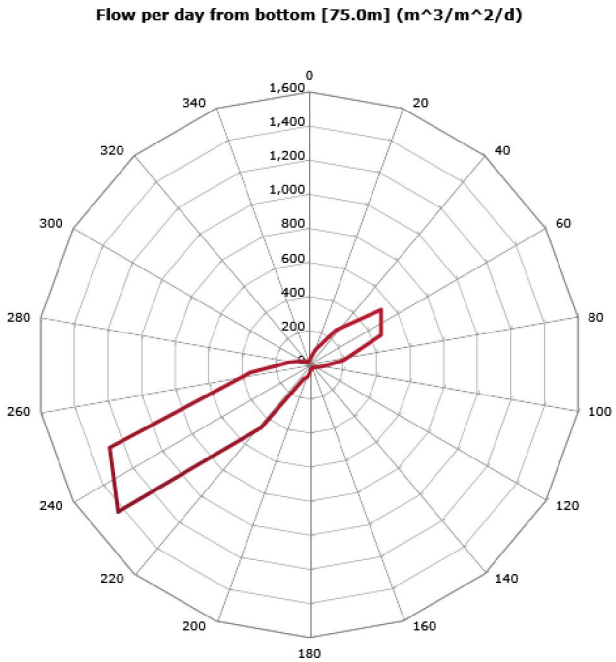
Top [15,0m]



Middle [45,0m]

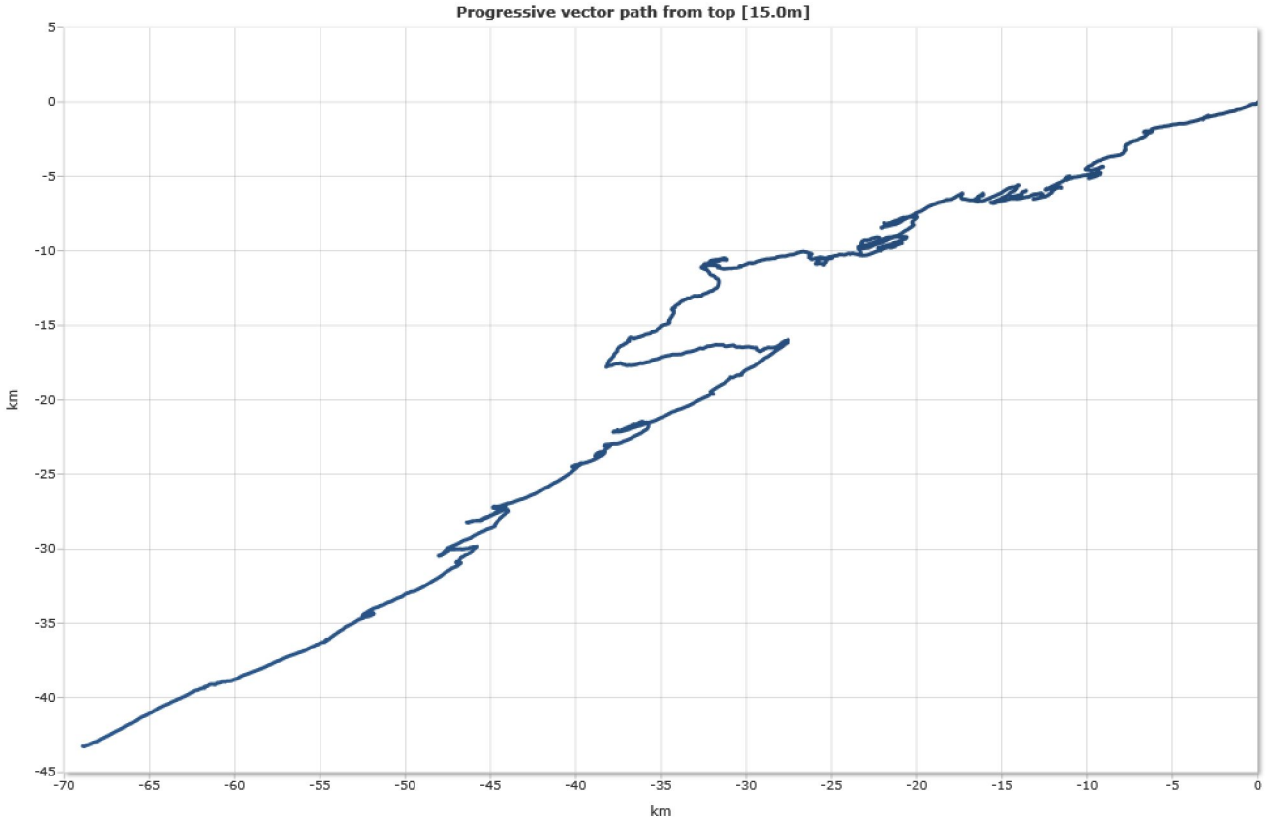

Flow per day from middle [45.0m] (m^3/m^2/d)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
3,500
3,000
2,500
2,000
1,500
1,000
500

Bottom [75,0m]

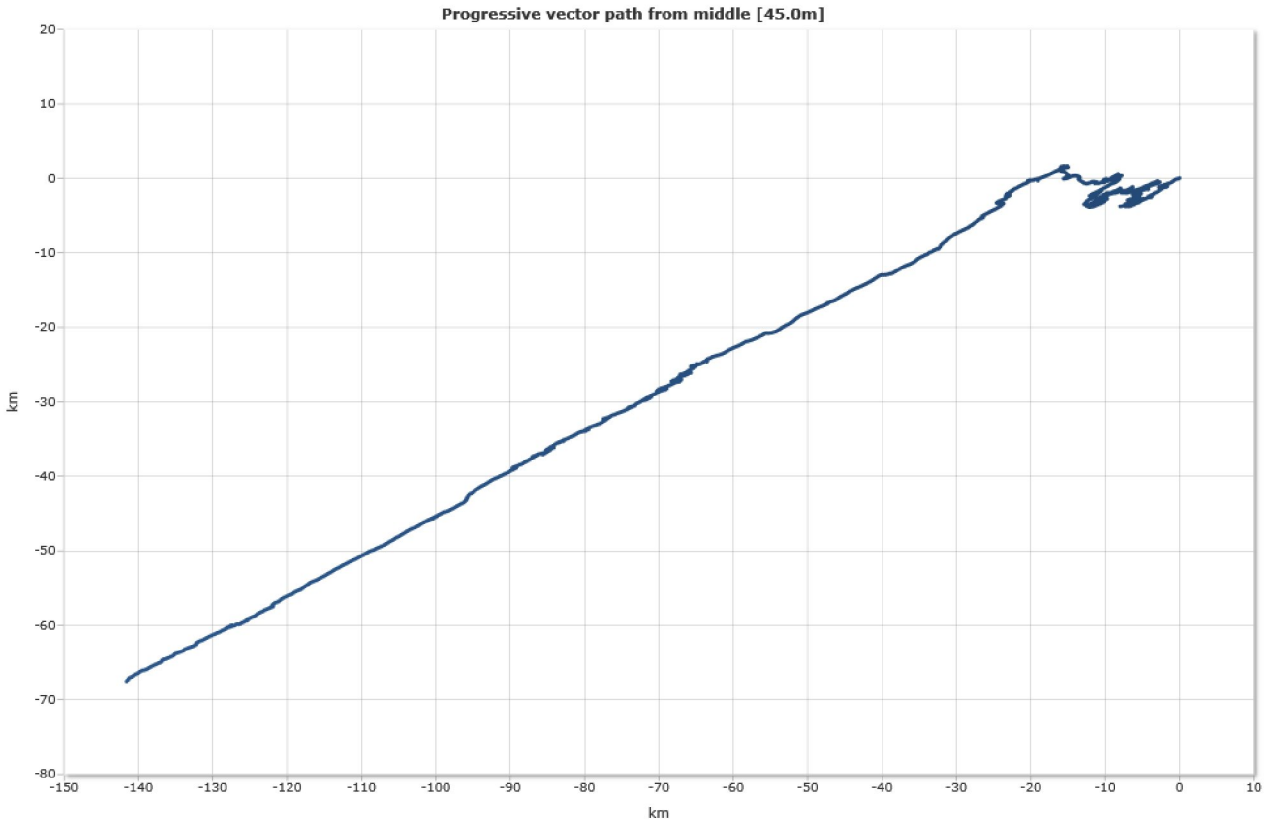

Flow per day from bottom [75.0m] (m^3/m^2/d)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
1,600
1,400
1,200
1,000
800
600
400
200

Progressive vector

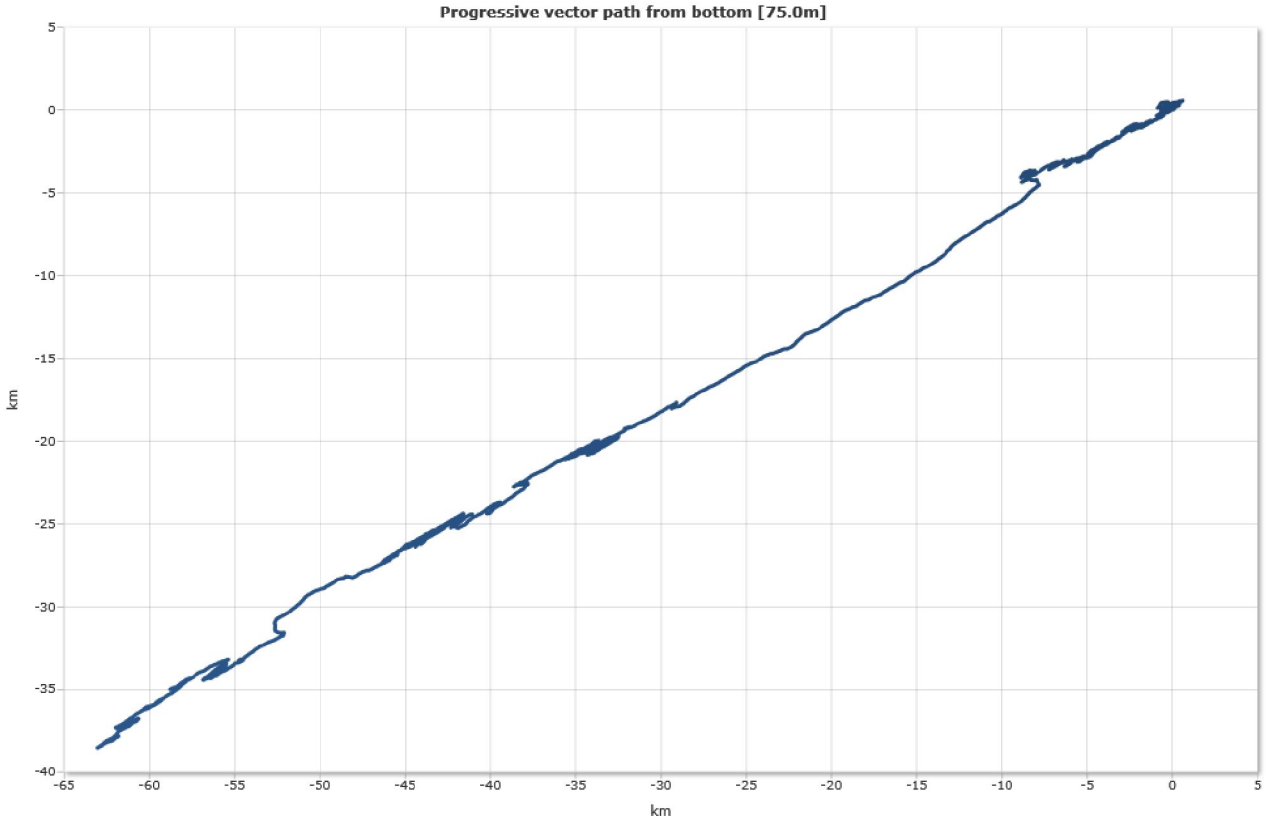
Top [15,0m]



Middle [45,0m]

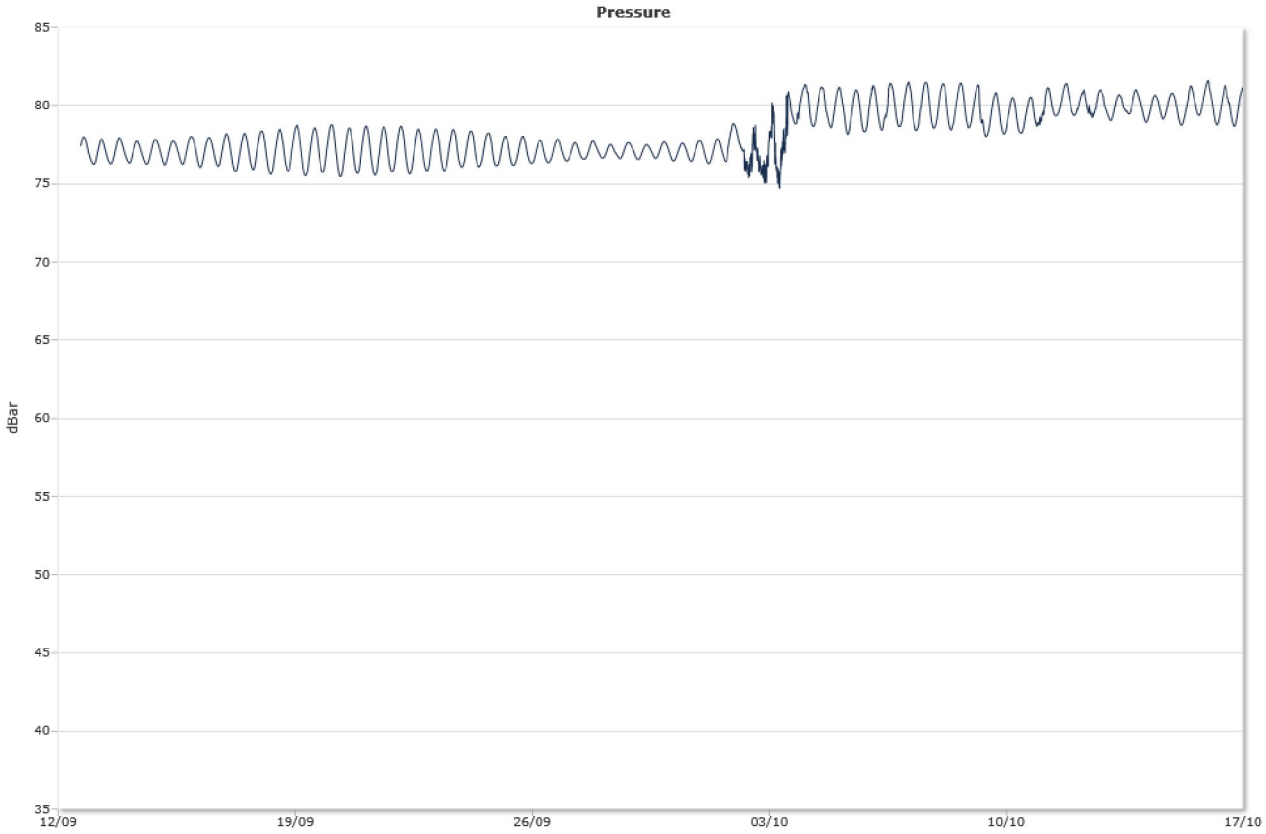

Progressive vector path from middle [45.0m]
km
km

Bottom [75,0m]

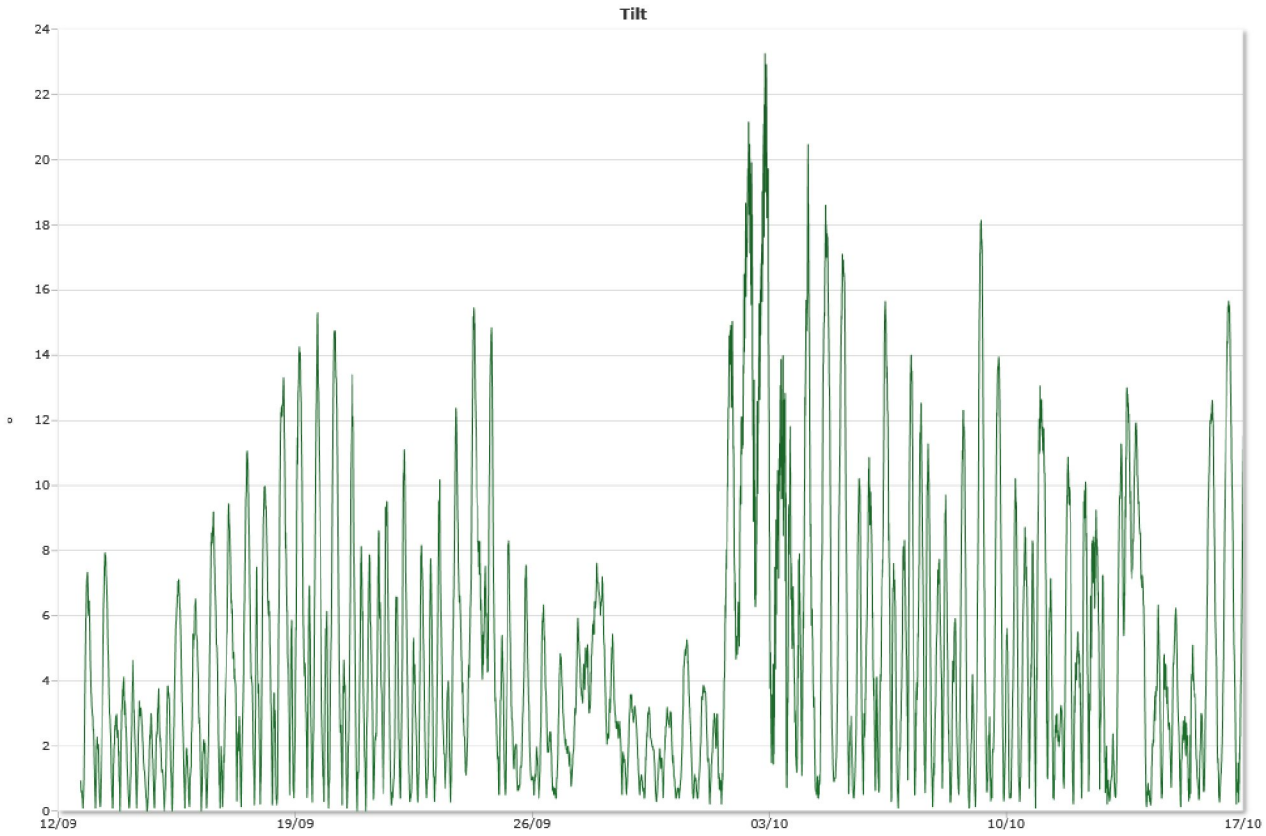
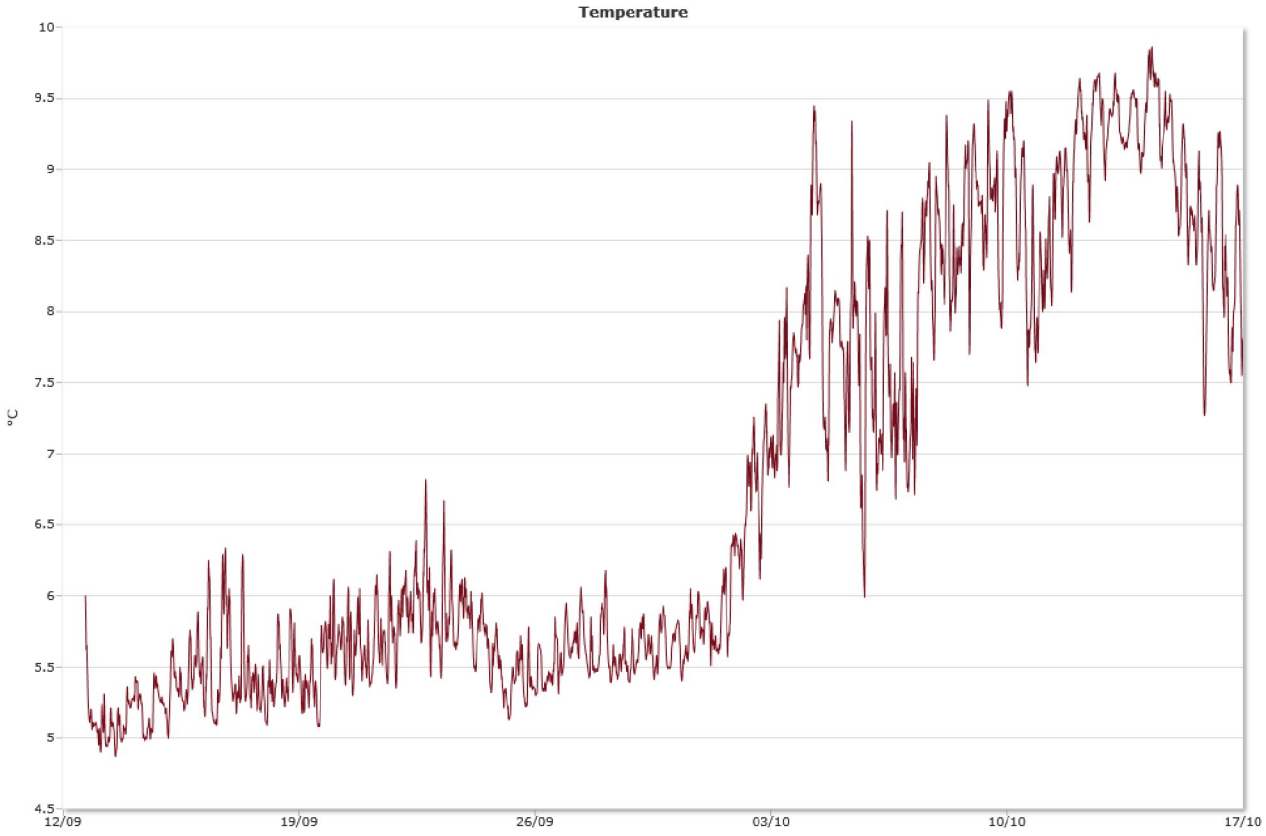

Progressive vector path from bottom [75.0m]
km
km

Sensors

Pressure



Tilt



Temperature