

Ellingsen Seafood AS

Strømmålinger ved lokalitet Signaluokta.

Overflate, 5, 15 og 30m, spredningsdyp 85m og bunn 200m,
januar-februar 2015.

Lofotbiolog AS
Haakon Chr
Rapport nr 3-15, 12.02.2015

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Det ble målt strøm på lokaliteten Signaluokta i Tysfjord i tidsrommet 6.1-10.2. 2015. En rigg, bestående av Norteks dopplermålere ble satt ut nær planlagt midtpunkt i anlegget. En profiler på 35m dyp, en punktmåler på spredningsdyp, 85m, og en ved bunn, 200m.

Fra profileren på 35m dyp ble det lest ut målinger på 5, 15 og 30m dyp. Gjennomsnittlig strømhastighet på disse tre dyp var henholdsvis 6, 5 og 5 cm/s, som må betegnes som sterk strøm. Andelen nullmålinger er svært lav på alle dyp. Neumanns parameter viser middels ensretting på 5m, og sterk ensretting på 15 og 30m dyp. Hovedstrømretning er sydlig på alle disse 3 dypene.

På spredningsdyp, 85m, viste punktmåleren en gjennomsnittlig strømhastighet på 5 cm/s, sterk strøm. Andel nullmålinger er også her svært lav, Neumanns parameter er noe lavere og viser lite ensretting. Hovedstrømretningen er således noe mindre markert med en mer sydvestlig retning.

Ved bunn, 200m, viste punktmåleren middels strøm, 3cm/s. Andel nullmålinger er noe høyere enn på spredningsdyp, men fortsatt svært lav. Neumanns parameter er svært lav, dvs strømmen går like mye i alle retninger, og det er da heller ingen markert hovedstrømretning her.

Som vurderingsgrunnlag for strøm er benyttet:

MTB, Nytt konsesjonssystem, Vedlegg IV: En sammenligning av miljøtilstand etter MOM-systemet og strømdata fra 35 oppdrettslokaliteter i Midt-Norge. Aqua Kompetanse AS, 2002.

Details

Instrument

Head Id	AQP 4956
Board Id	AQD 9557
Frequency	400000

Configuration

File	Slpro101.prf
Start	06.01.2015 13:10
End	10.02.2015 09:10
Data Records	5017
Orientation	DOWN
Cells	25
Cell Size [m]	2,5
Blanking Distance [m]	1
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	07.01.2015 13:20
Selected End	09.02.2015 09:50
Compass Offset	0
Pressure Offset	0
Selected Records	4732
Reference	Water Surface
Top Depth [m]	5
Top Invalid Data	8
Middle Depth [m]	15
Middle Invalid Data	2
Bottom Depth [m]	30
Bottom Invalid Data	137

Manually removed data

Start Time

13.01.2015 08:27:22

End Time

13.01.2015 08:48:46

Comment

Usannsynlig høy strømpik

Statistics

Top [5,0m]

Mean current [m/s]	0.06
Max current [m/s]	0.22
Min current [m/s]	0.00
Measurements used/total [#]	4724 / 4732
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.10
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.356
50 year return current [m/s]	0.399
Most significant directions [°]	195°, 180°, 210°, 165°
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Most flow	617.72m ³ / day at 180-195°
Least flow	36.19m ³ / day at 300-315°
Neumann parameter	0.52
Residue current	0.03 m/s at 164°
Zero current [%] - [HH:mm]	2.01% - 00:20

Middle [15,0m]

Mean current [m/s]	0.05
Max current [m/s]	0.20
Min current [m/s]	0.00
Measurements used/total [#]	4730 / 4732
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.09
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.335
50 year return current [m/s]	0.375
Most significant directions [°]	195°, 210°, 180°, 225°
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Most flow	889.67m ³ / day at 180-195°
Least flow	20.84m ³ / day at 315-330°
Neumann parameter	0.71
Residue current	0.04 m/s at 188°
Zero current [%] - [HH:mm]	2.96% - 00:30

Bottom [30,0m]

Mean current [m/s]	0.05
Max current [m/s]	0.21
Min current [m/s]	0.00
Measurements used/total [#]	4595 / 4732
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.09
Significant min velocity [m/s]	0.02

10 year return current [m/s]	0.345
50 year return current [m/s]	0.387
Most significant directions [°]	210°, 195°, 225°, 240°
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Most flow	826.64m ³ / day at 195-210°
Least flow	41.45m ³ / day at 345-360°
Neumann parameter	0.64
Residue current	0.03 m/s at 203°
Zero current [%] - [HH:mm]	3.35% - 00:20

Direction with return period

Top [5,0m]

Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,044	0,137	0,073	0,226	0,082	0,253
45	0,057	0,216	0,094	0,356	0,106	0,399
90	0,058	0,192	0,096	0,317	0,107	0,356
135	0,063	0,168	0,103	0,278	0,116	0,311
180	0,070	0,187	0,115	0,309	0,129	0,346
225	0,065	0,193	0,106	0,318	0,119	0,357
270	0,044	0,165	0,072	0,272	0,081	0,305
315	0,041	0,109	0,067	0,180	0,076	0,201

Middle [15,0m]

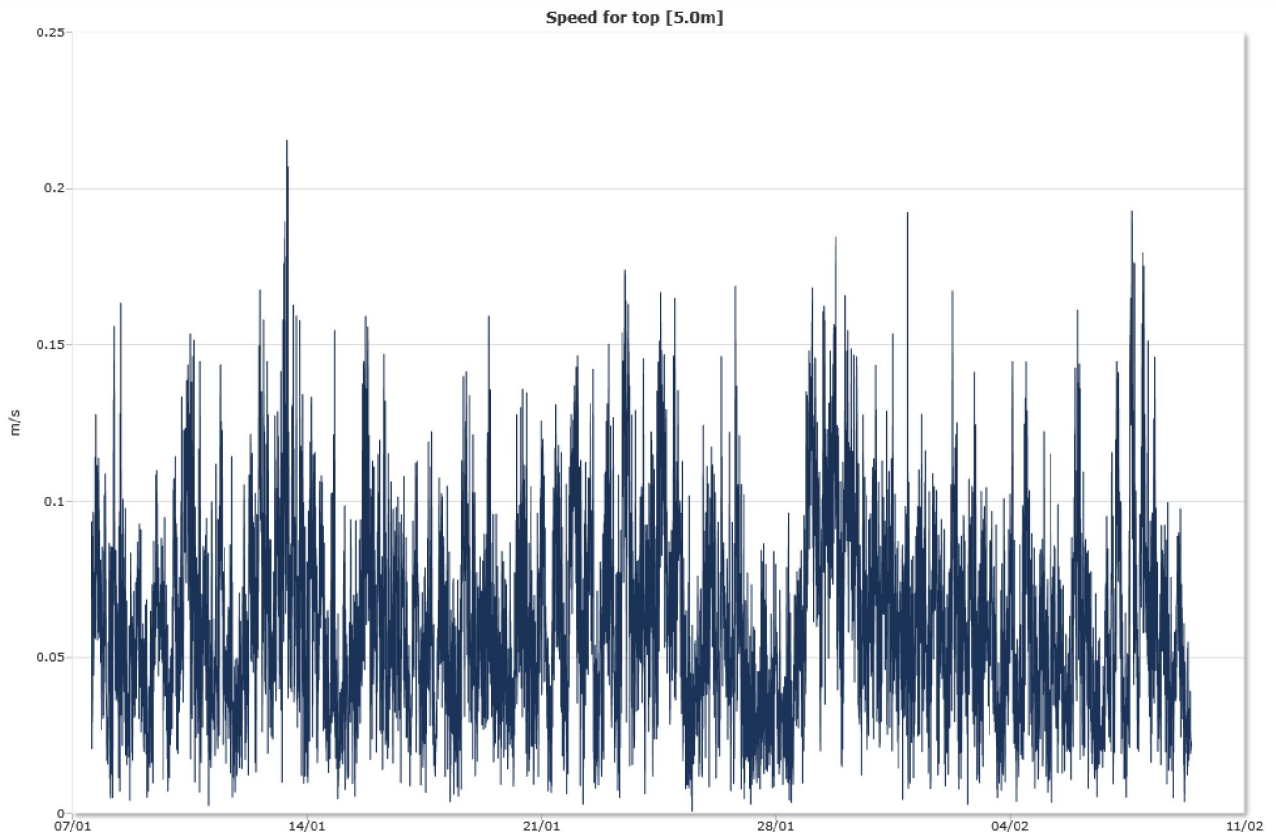
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,031	0,111	0,052	0,184	0,058	0,206
45	0,035	0,145	0,058	0,240	0,065	0,269
90	0,038	0,109	0,062	0,180	0,069	0,202
135	0,048	0,173	0,079	0,285	0,088	0,319
180	0,063	0,189	0,104	0,312	0,117	0,350
225	0,060	0,203	0,098	0,335	0,110	0,375
270	0,035	0,124	0,057	0,205	0,064	0,229
315	0,032	0,106	0,053	0,175	0,059	0,197

Bottom [30,0m]

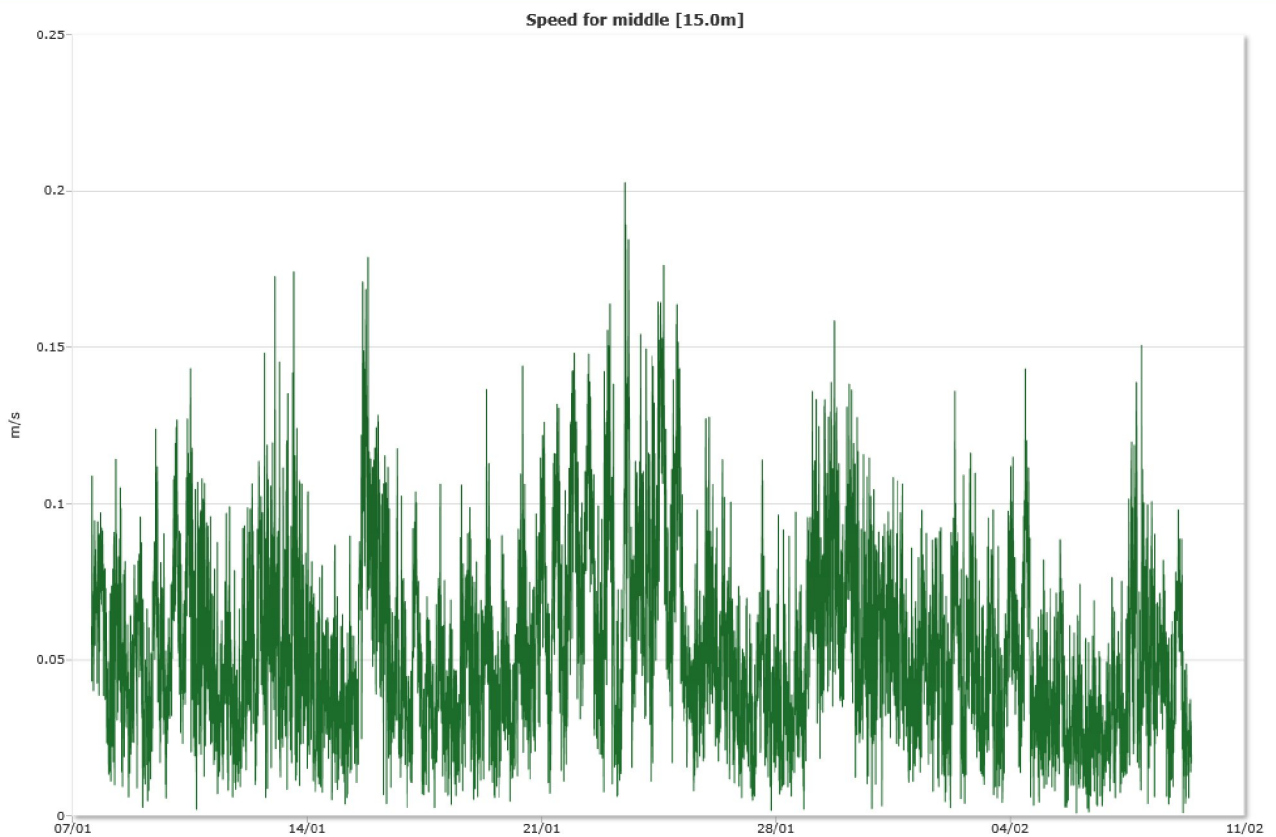
Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,035	0,103	0,057	0,171	0,064	0,191
45	0,036	0,118	0,060	0,195	0,067	0,219
90	0,037	0,121	0,062	0,199	0,069	0,223
135	0,043	0,119	0,071	0,196	0,080	0,220
180	0,061	0,194	0,101	0,320	0,113	0,359
225	0,062	0,209	0,103	0,345	0,115	0,387
270	0,045	0,134	0,074	0,221	0,083	0,247
315	0,035	0,109	0,057	0,180	0,064	0,202

Time series

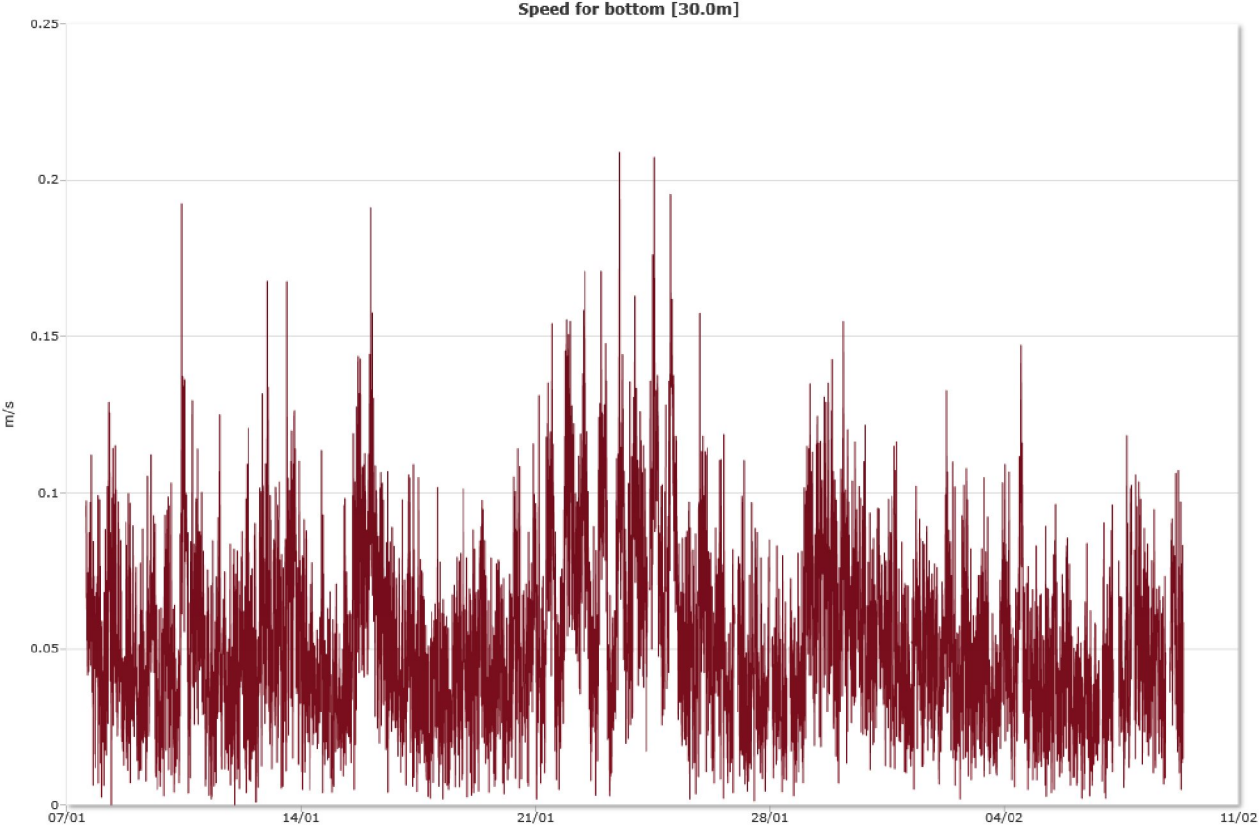
Top [5,0m]



Middle [15,0m]



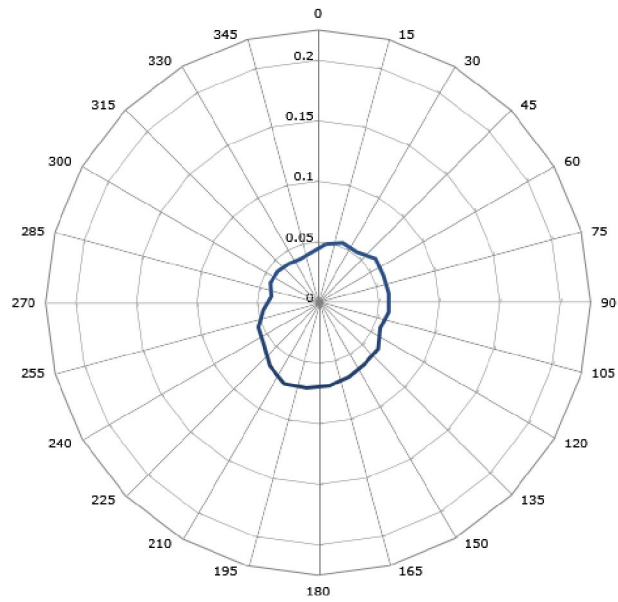
Bottom [30,0m]



Mean speed - roseplot

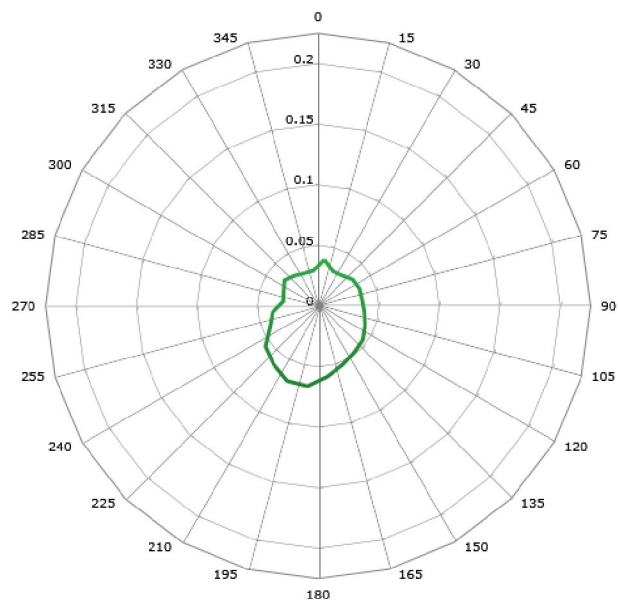
Top [5,0m]

Mean speed by direction from top [5.0m] (m/s)

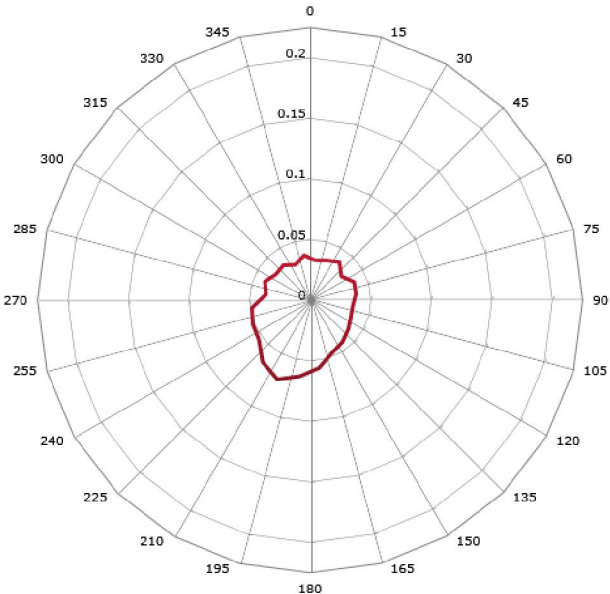


Middle [15,0m]

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



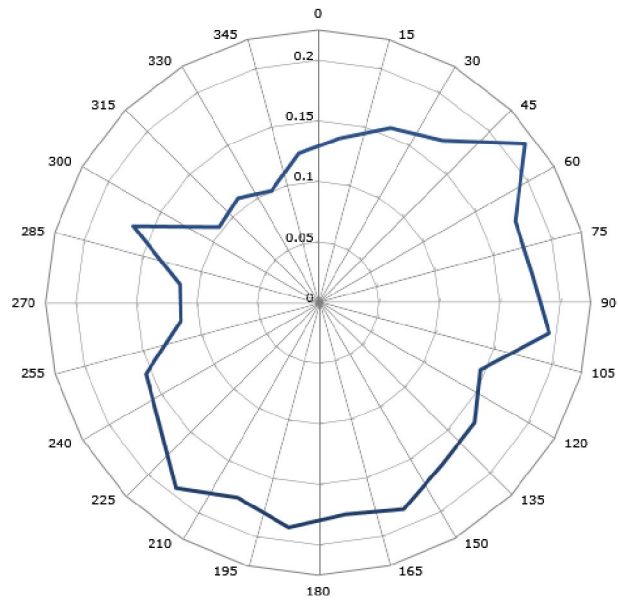
Mean speed by direction from bottom [30.0m] (m/s)



Max speed - roseplot

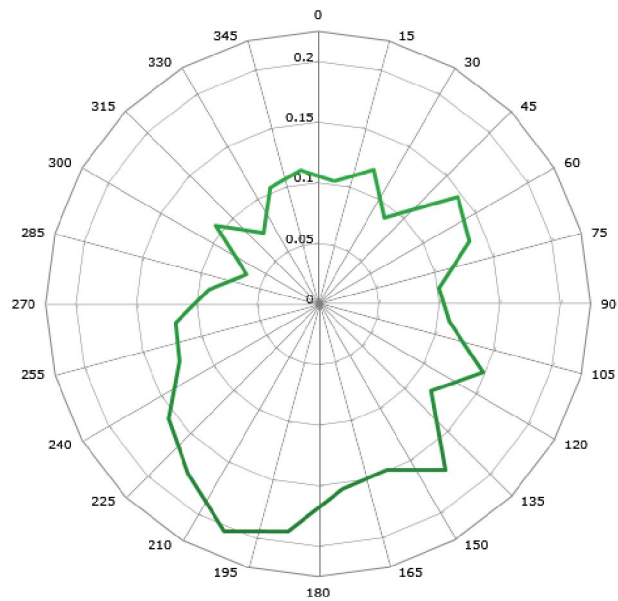
Top [5,0m]

Maximum speed by direction from top [5.0m] (m/s)

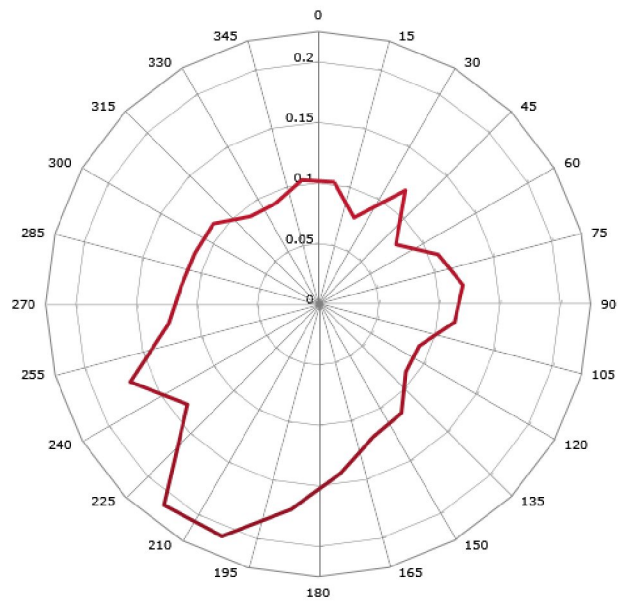


Middle [15,0m]

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

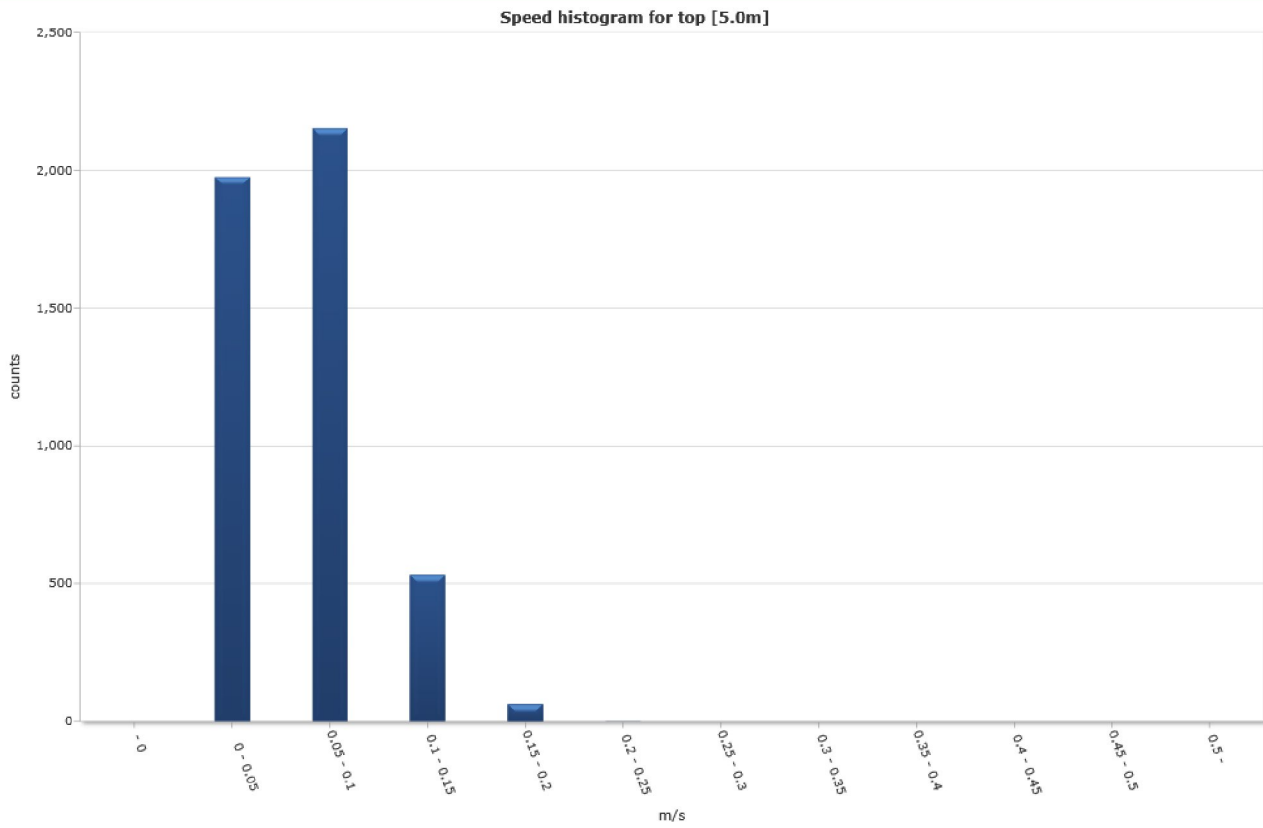


Maximum speed by direction from bottom [30.0m] (m/s)

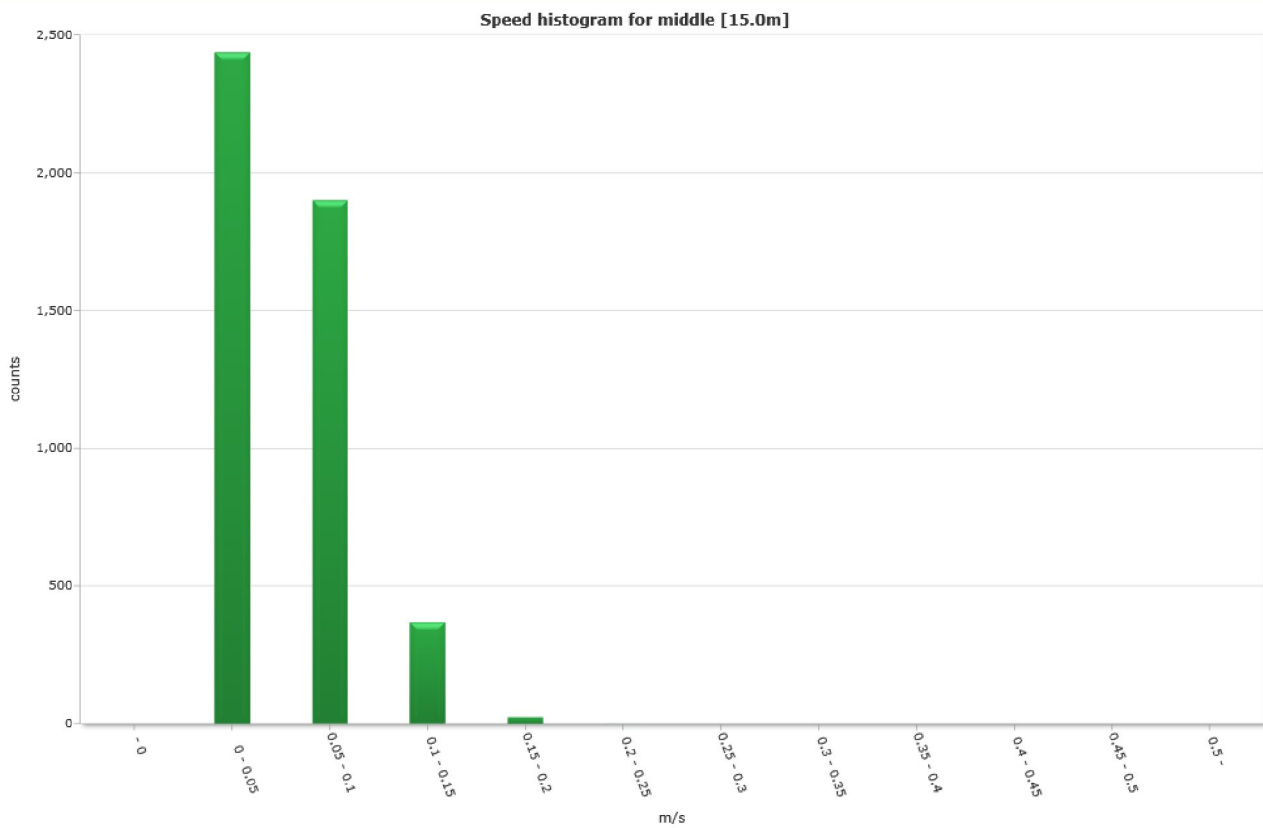


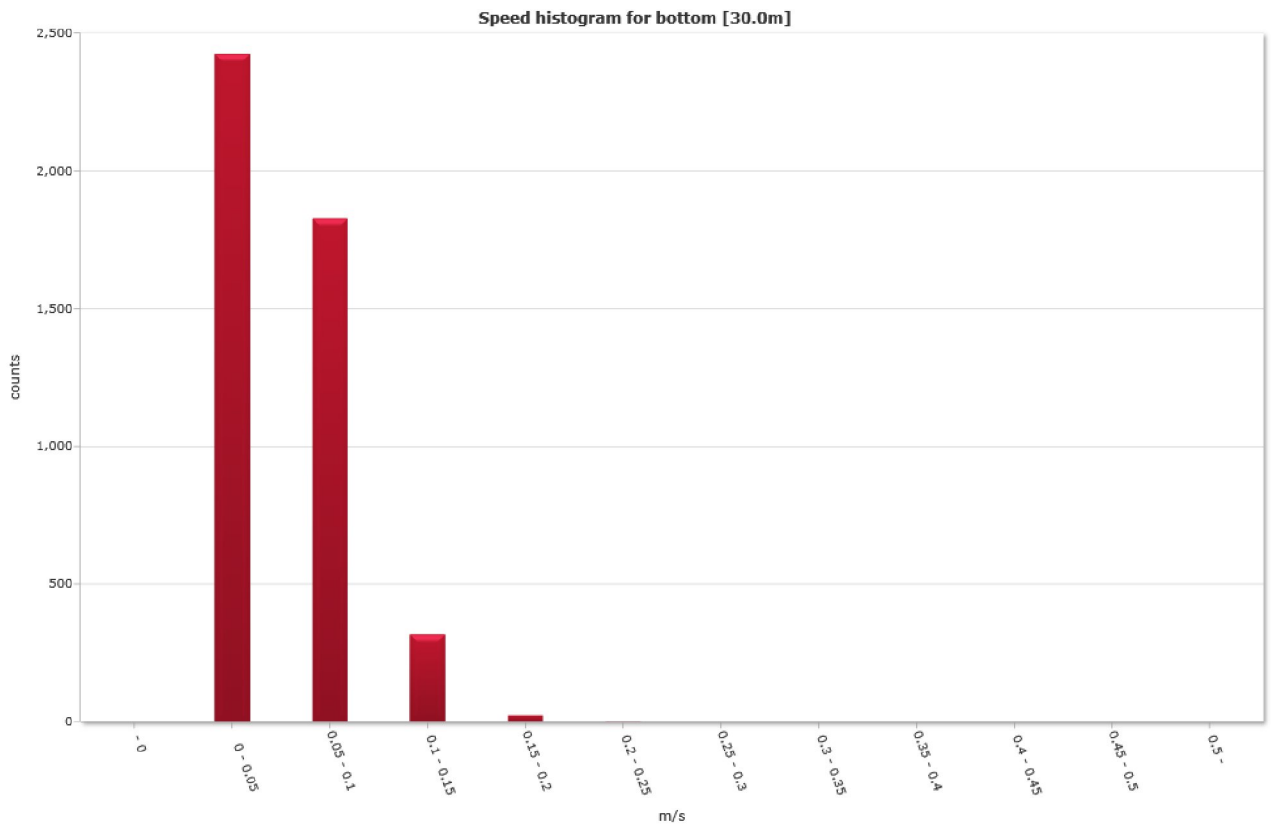
Speed histogram

Top [5,0m]



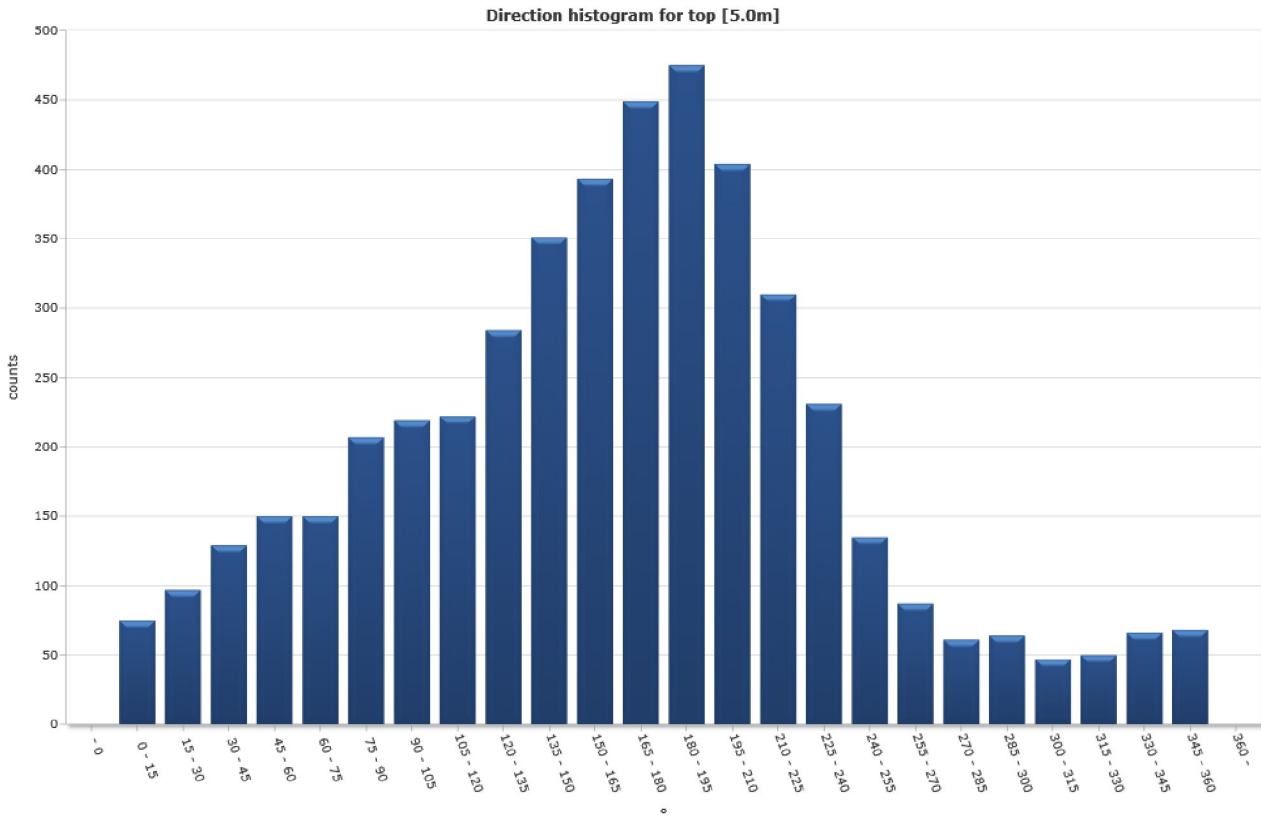
Middle [15,0m]



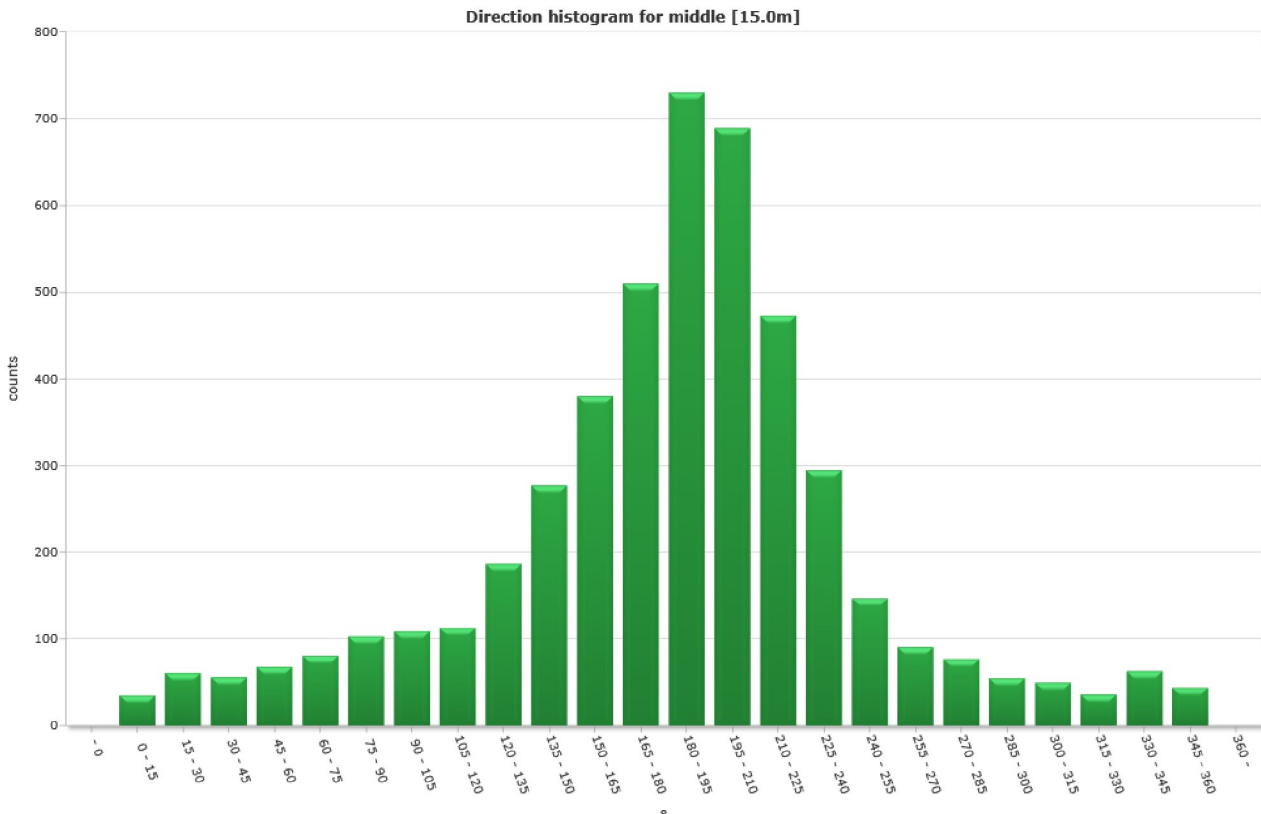


Direction histogram

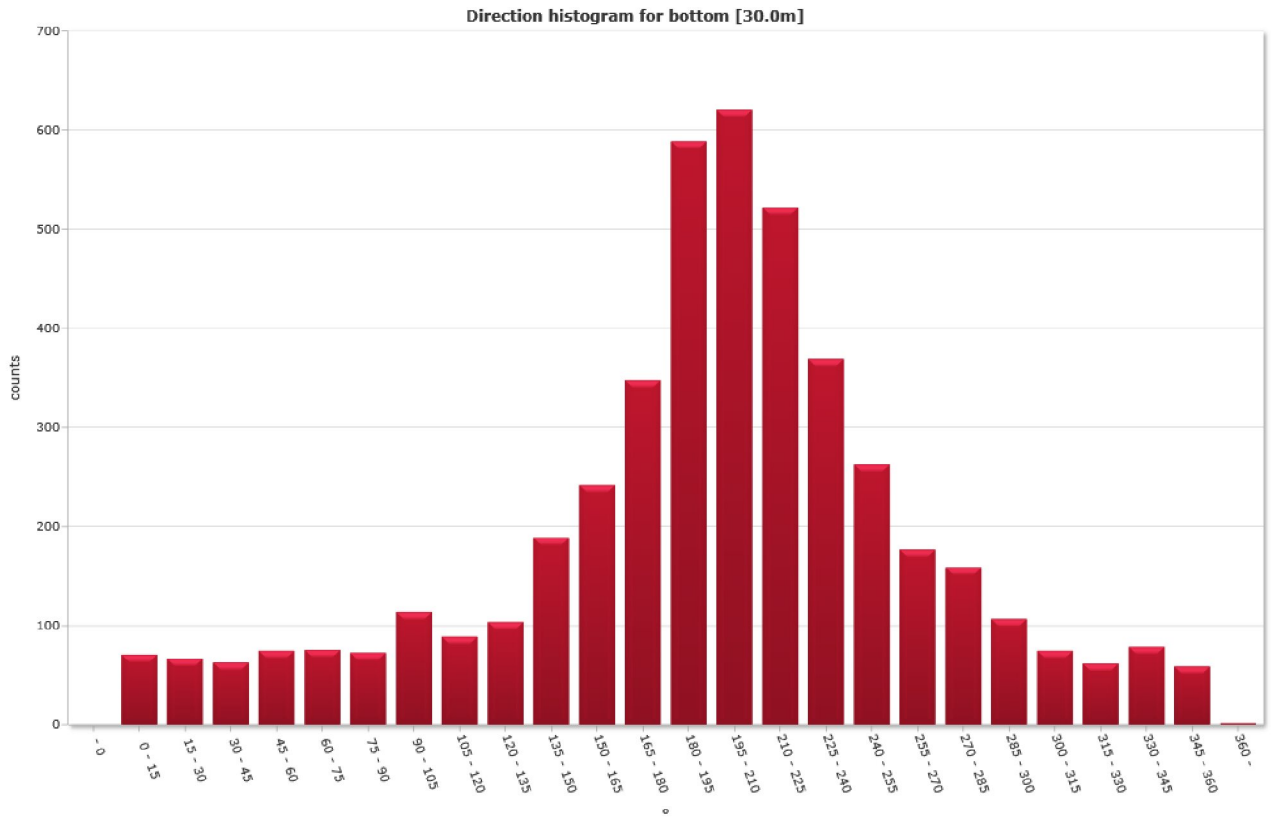
Top [5,0m]



Middle [15,0m]



Bottom [30,0m]



Direction/Speed histogram

Top [5,0m]

* m/s	Direction/speed matrix for top [5.0m]																									%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
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			
0.05	45	48	66	75	72	93	95	102	112	128	136	146	141	117	117	108	70	55	46	44	31	38	48	43	41.8	1976	
0.10	24	40	53	55	60	93	108	110	138	184	200	224	247	201	135	102	56	27	12	18	15	11	17	23	45.6	2153	
0.15	6	8	8	14	15	17	15	10	29	32	52	73	77	79	54	20	8	5	3	1	1	1	1	2	11.2	531	
0.20	0	1	2	4	3	4	1	0	5	7	5	6	10	7	4	1	1	0	0	1	0	0	0	0	1.3	62	
0.25	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	2	
0.30	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	
0.35	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	2.7	3.2	3.2	4.4	4.6	4.7	6.0	7.4	8.3	9.5	10.1	8.6	6.6	4.9	2.9	1.8	1.3	1.4	1.0	1.1	1.4	1.4	100.0	100.0	
Sum	75	97	129	150	150	207	219	222	284	351	393	449	475	404	310	231	135	87	61	64	47	50	66	68	100.0	4724	

Middle [15,0m]

* m/s	Direction/speed matrix for middle [15.0m]																									%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
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			
0.05	27	47	47	55	65	81	78	80	115	166	188	218	243	234	202	140	100	67	70	49	40	31	56	38	51.5	2437	
0.10	7	13	9	12	12	21	29	30	64	96	175	255	378	337	218	139	44	23	7	6	9	5	6	5	40.2	1900	
0.15	1	1	0	1	4	1	2	3	8	14	17	35	101	111	47	15	3	1	0	0	1	0	1	1	7.8	368	
0.20	0	0	0	0	0	0	0	0	0	1	0	2	8	6	6	1	0	0	0	0	0	0	0	0	0.5	24	
0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0	1	
0.30	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	
0.35	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	
%	0.7	1.3	1.2	1.4	1.7	2.2	2.3	2.4	4.0	5.9	8.0	10.8	15.4	14.6	10.0	6.2	3.1	1.9	1.6	1.2	1.1	0.8	1.3	0.9	100.0	100.0	
Sum	35	61	56	68	81	103	109	113	187	277	380	510	730	689	473	295	147	91	77	55	50	36	63	44	100.0	4730	

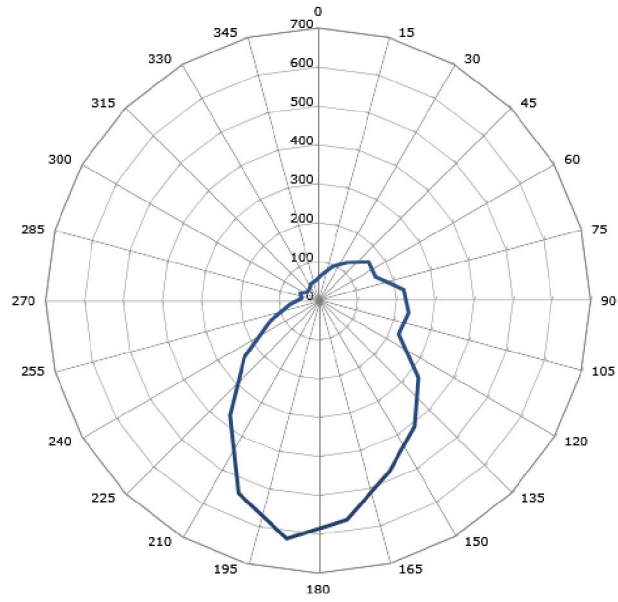
Bottom [30,0m]

* m/s	Direction/speed matrix for bottom [30.0m]																								%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360		
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	55	47	47	65	56	56	85	71	74	132	143	149	220	186	196	188	135	100	120	79	62	48	66	43	52.8	2423
0.10	15	20	15	10	18	16	28	18	30	54	94	183	294	316	260	153	113	74	36	26	12	14	13	15	39.8	1827
0.15	1	0	1	0	2	1	1	0	0	3	5	16	67	106	61	28	14	3	3	2	1	0	0	1	6.9	316
0.20	0	0	0	0	0	0	0	0	0	0	0	0	8	12	4	0	1	0	0	0	0	0	0	0	0.5	25
0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.0	2
0.30	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
0.35	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
%	1.5	1.5	1.4	1.6	1.7	1.6	2.5	1.9	2.3	4.1	5.3	7.6	12.8	13.5	11.4	8.0	5.7	3.9	3.5	2.3	1.6	1.3	1.7	1.3	100.0	100.0
Sum	71	67	63	75	76	73	114	89	104	189	242	348	589	621	522	369	263	177	159	107	75	62	79	59	100.0	4593

Flow

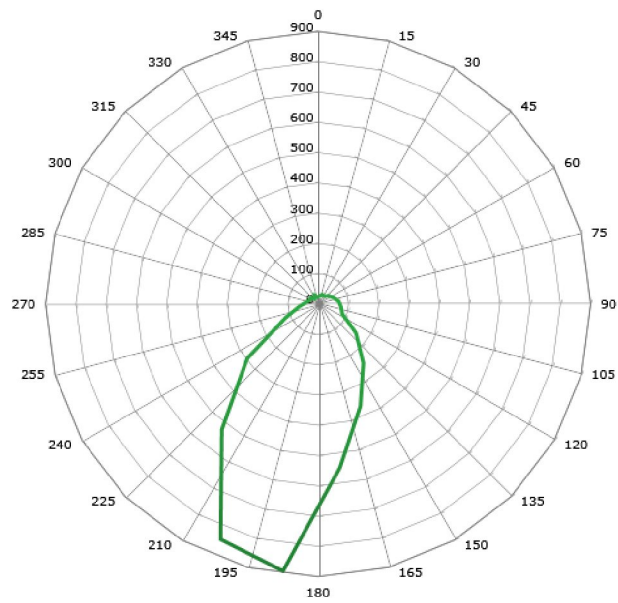
Top [5,0m]

Flow per day from top [5.0m] ($m^3/m^2/d$)

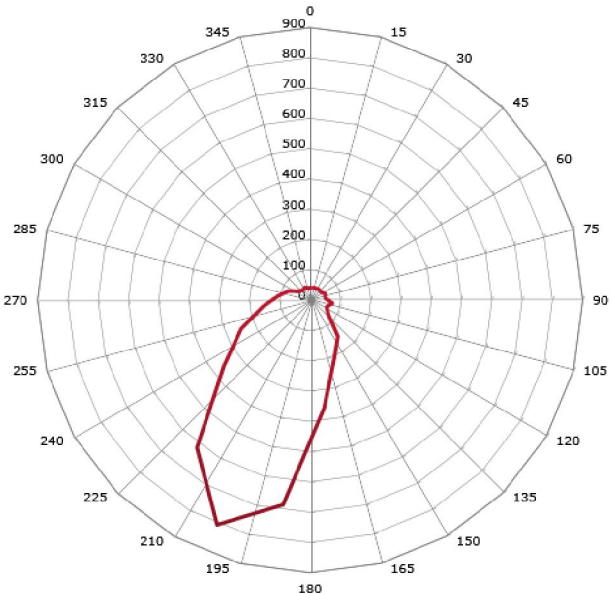


Middle [15,0m]

Flow per day from middle [15.0m] ($m^3/m^2/d$)

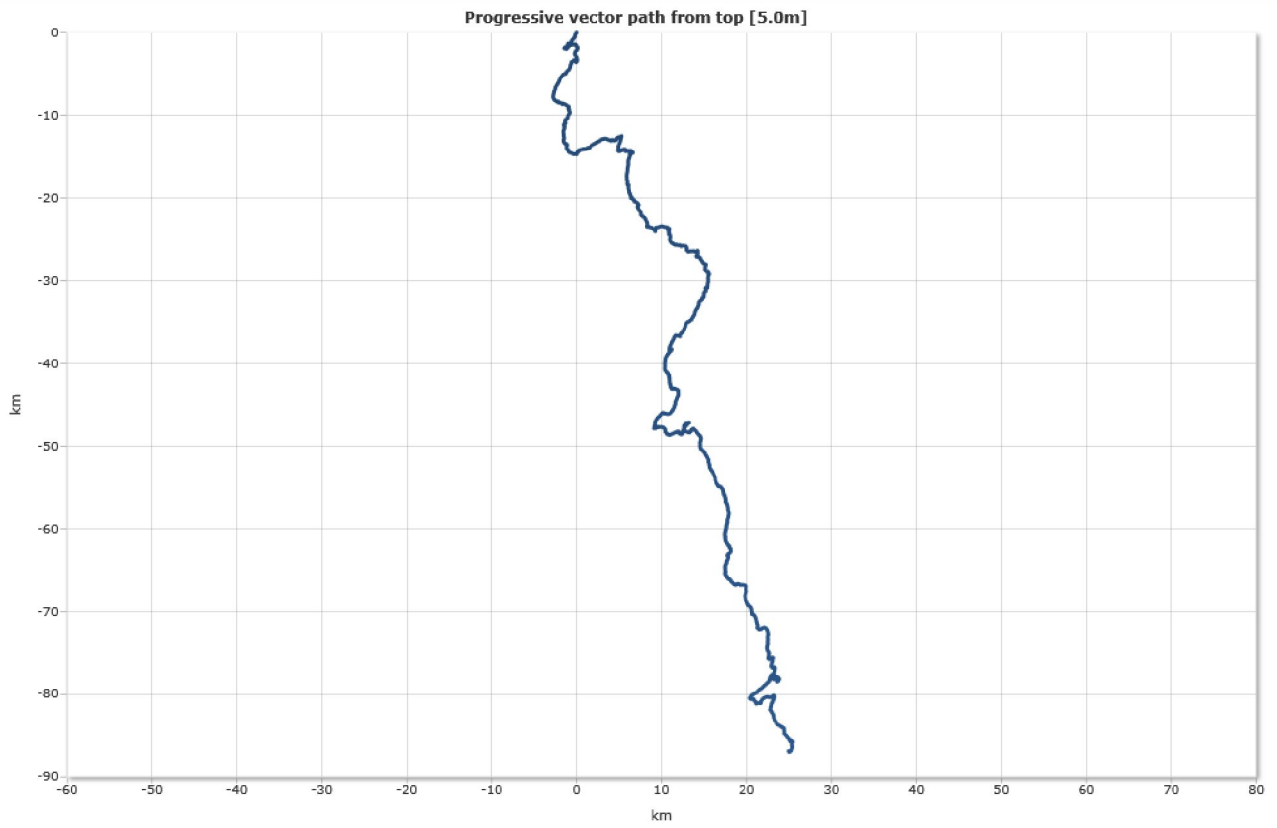


Flow per day from bottom [30.0m] (m³/m²/d)

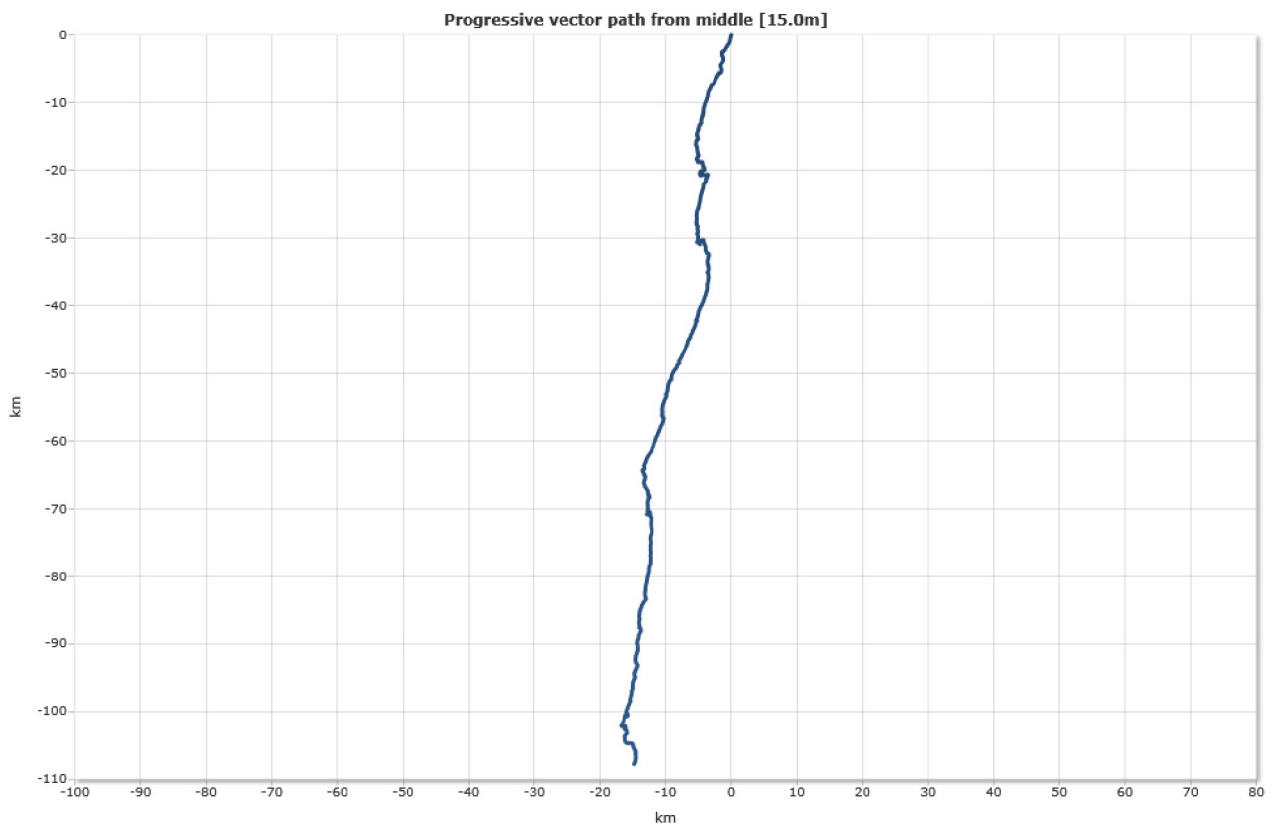


Progressive vector

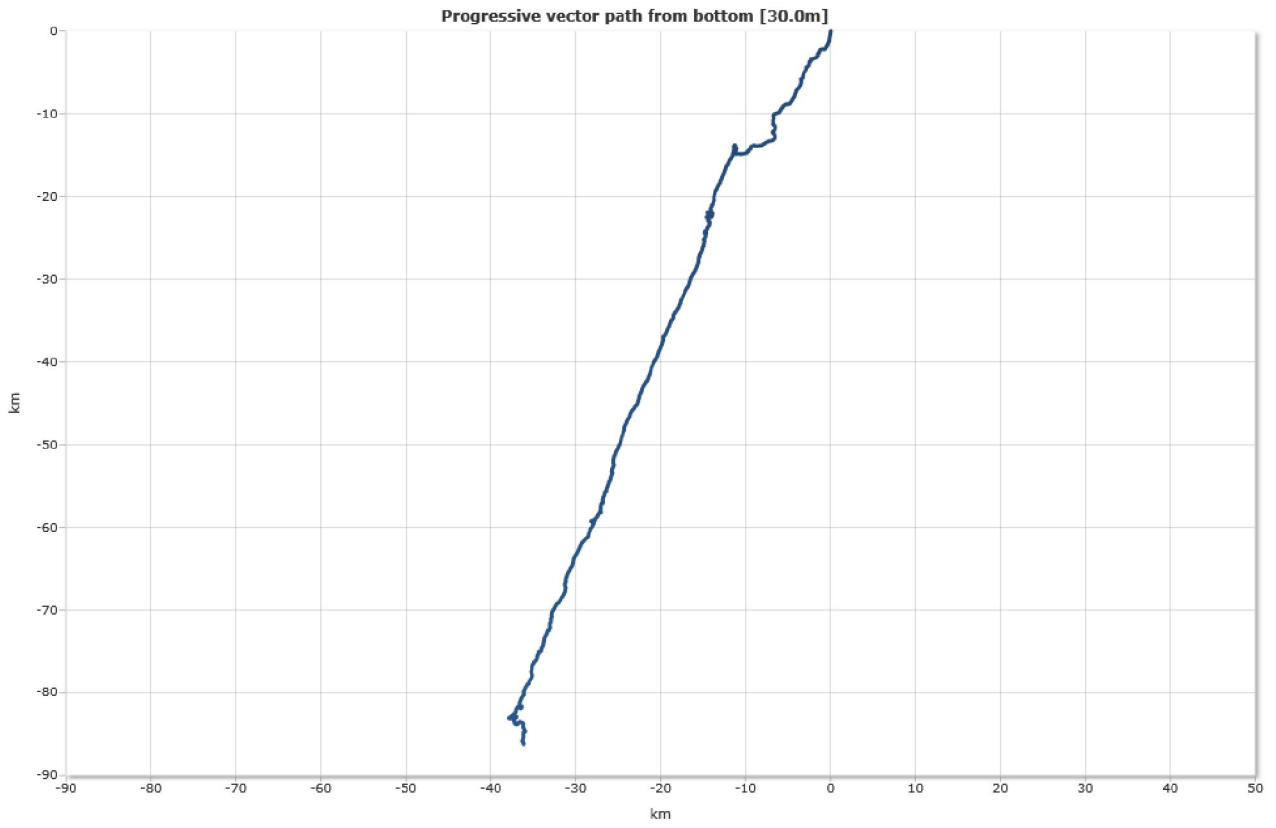
Top [5,0m]



Middle [15,0m]

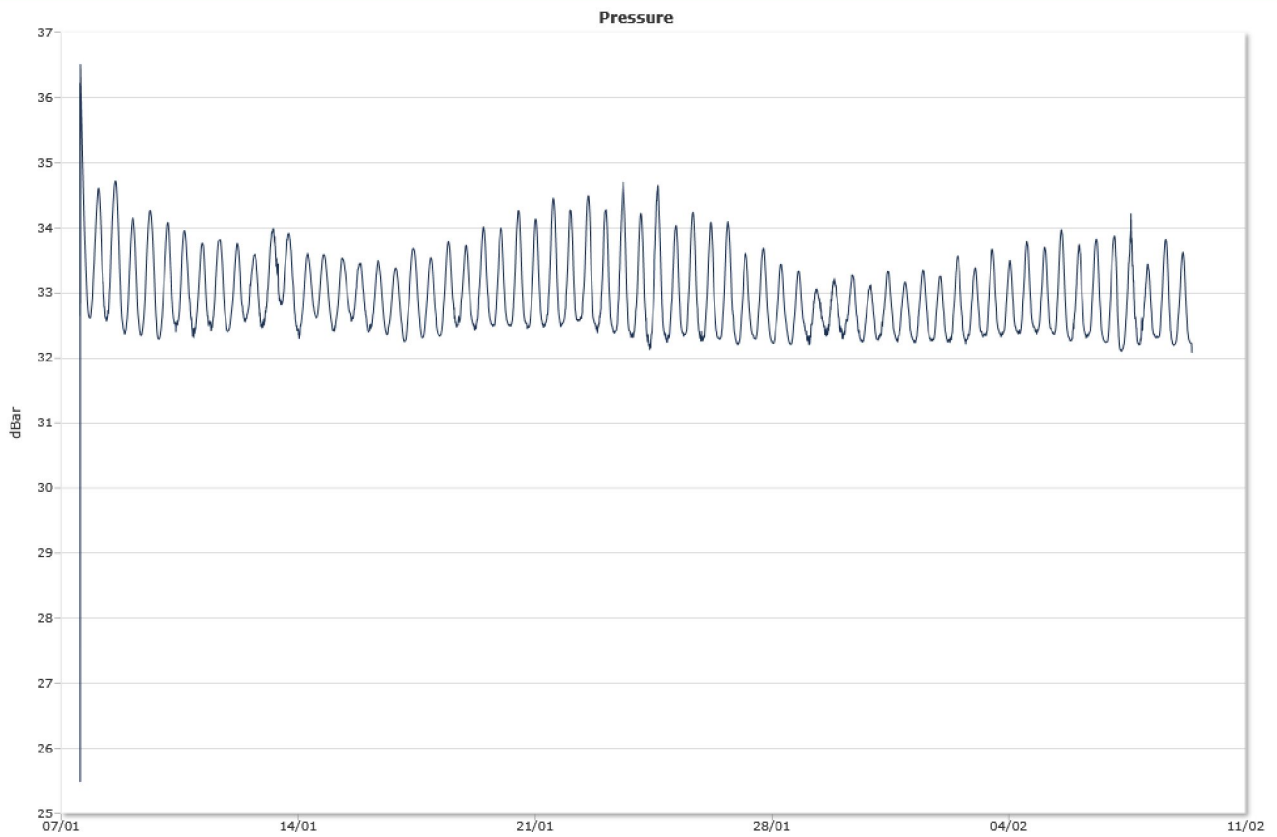


Bottom [30,0m]

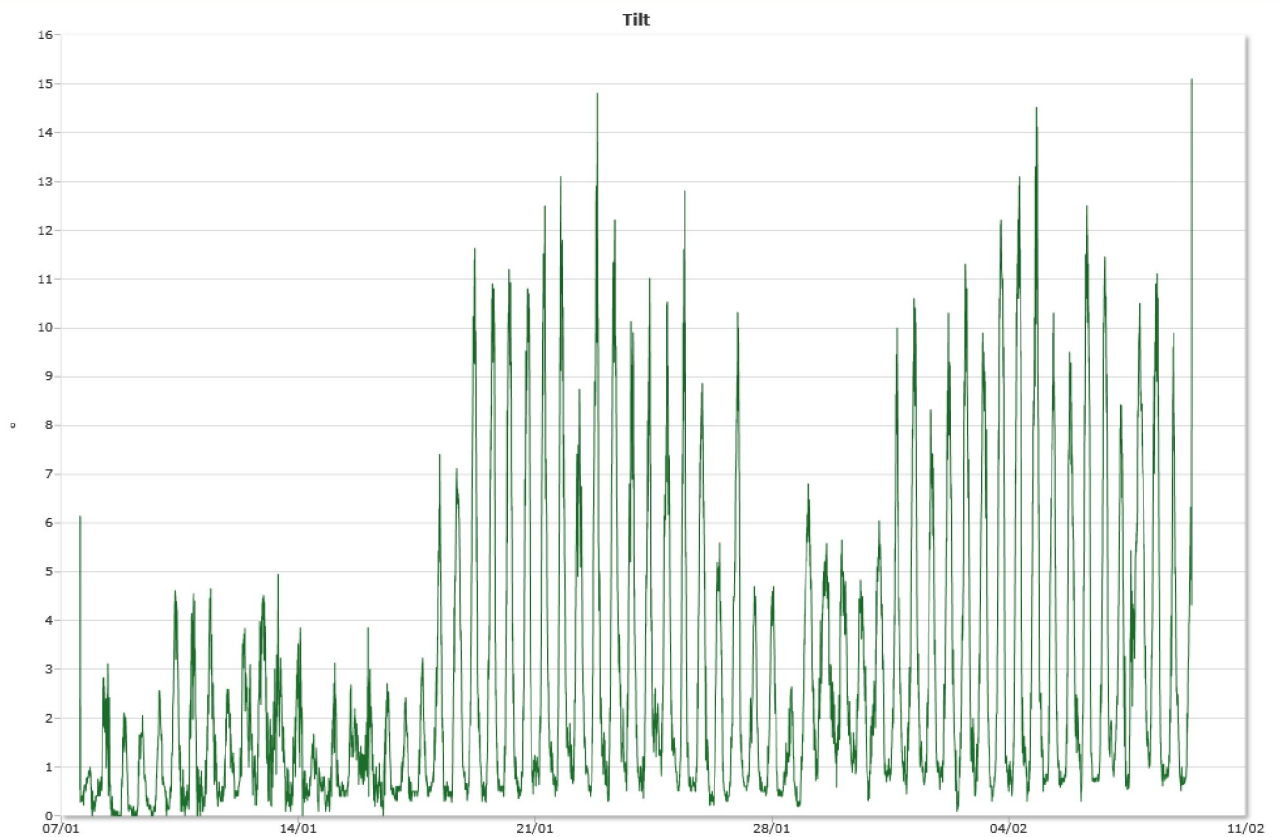


Sensors

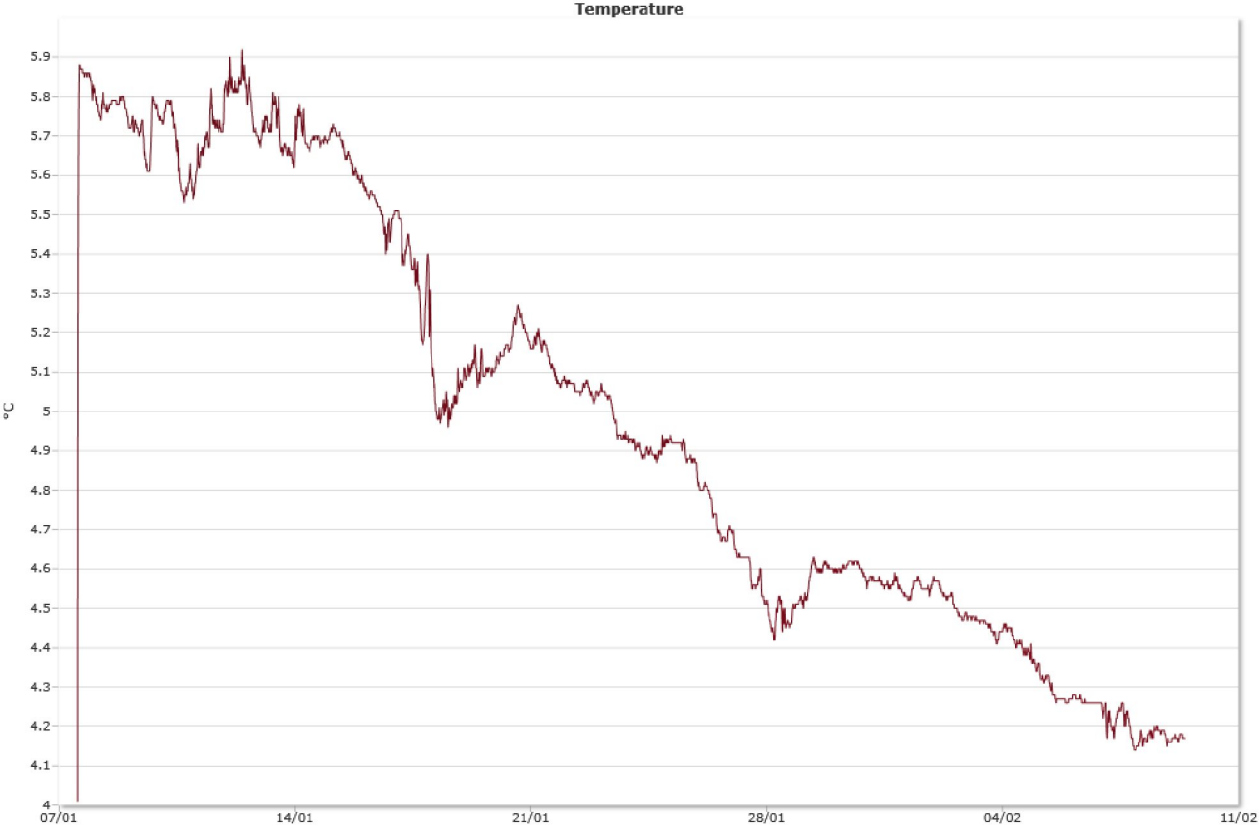
Pressure



Tilt



Temperature



Spredningsdyp 85m, jan-feb 2015.

Summary

Details

Instrument

Head Id	AQD 6087
Board Id	AQD11265
Frequency	2000000

Configuration

File	Slbun201.aqd
Start	06.01.2015 13:30
End	10.02.2015 09:20
Data Records	5016
Longitude	16° 14,62'E
Latitude	67° 54,71'N
Orientation	DOWN
Cells	1
Cell Size [m]	0,68
Blanking Distance [m]	0,34
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	07.01.2015 13:20
Selected End	09.02.2015 09:50
Compass Offset	0
Pressure Offset	0
Selected Records	4732
Reference	Instrument
Top Depth [m]	1
Top Invalid Data	0
Middle Depth [m]	1
Middle Invalid Data	0
Bottom Depth [m]	1
Bottom Invalid Data	0

Manually removed data

Start Time

End Time

Comment

Statistics

Top [1,0m]

Mean current [m/s]	0.05
Max current [m/s]	0.21
Min current [m/s]	0.00
Measurements used/total [#]	4732 / 4732
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.08
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.348
50 year return current [m/s]	0.391
Most significant directions [°]	240°, 225°, 255°, 210°
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Most flow	461.50m ³ / day at 195-210°
Least flow	50.98m ³ / day at 105-120°
Neumann parameter	0.38
Residue current	0.02 m/s at 225°
Zero current [%] - [HH:mm]	3.17% - 00:30

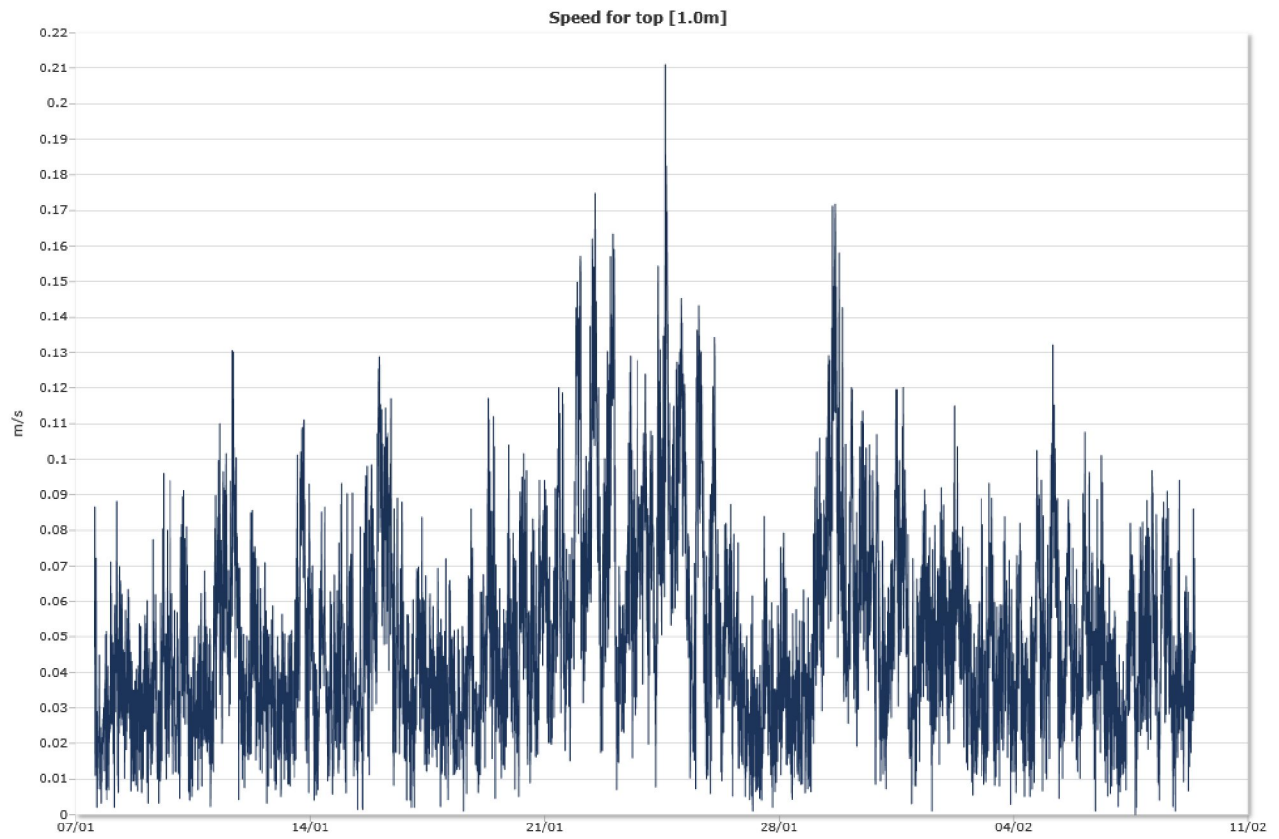
Direction with return period

Top [1,0m]

Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,040	0,132	0,066	0,218	0,074	0,245
45	0,050	0,131	0,083	0,215	0,093	0,242
90	0,039	0,096	0,064	0,159	0,072	0,178
135	0,034	0,084	0,056	0,138	0,063	0,155
180	0,059	0,211	0,097	0,348	0,109	0,391
225	0,058	0,182	0,096	0,301	0,108	0,338
270	0,051	0,154	0,084	0,255	0,094	0,286
315	0,038	0,102	0,062	0,169	0,069	0,189

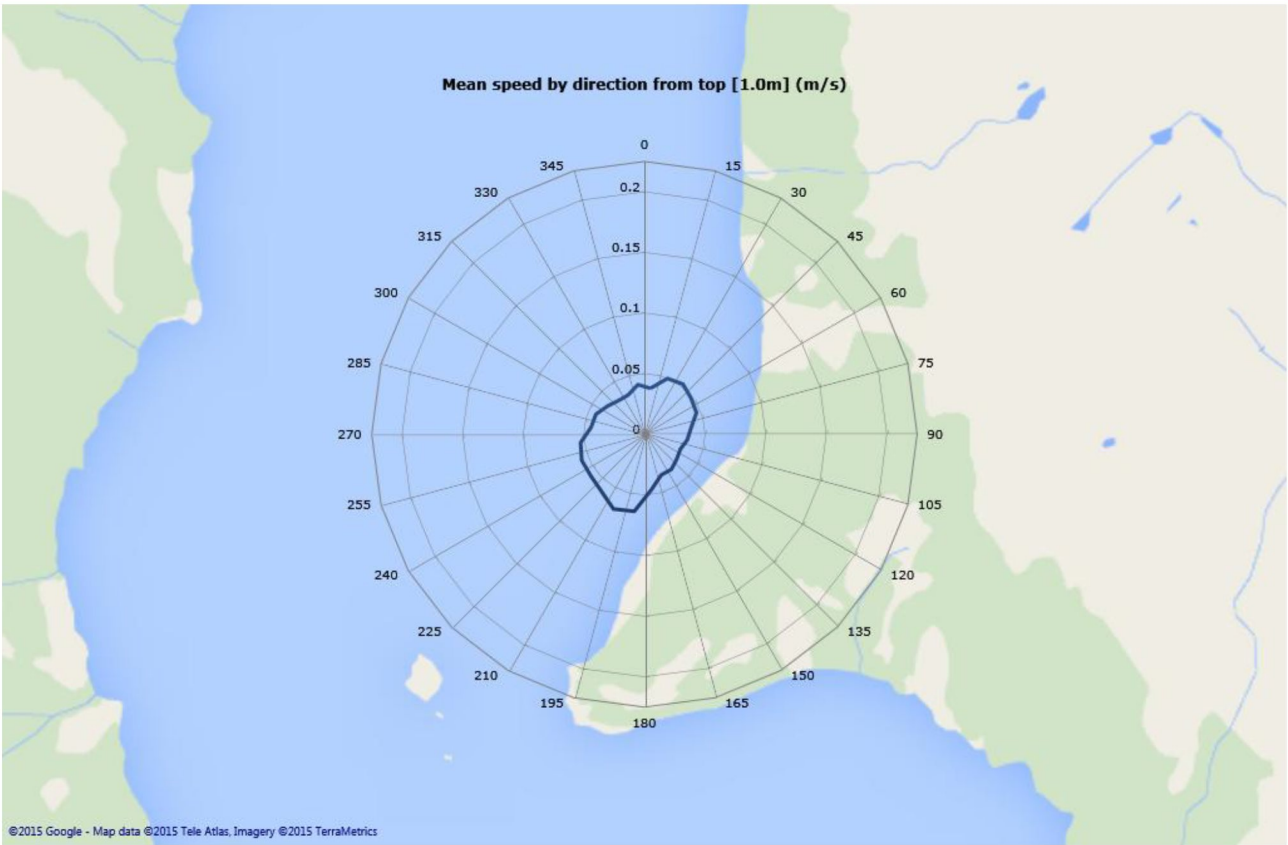
Time series

Top [1,0m]



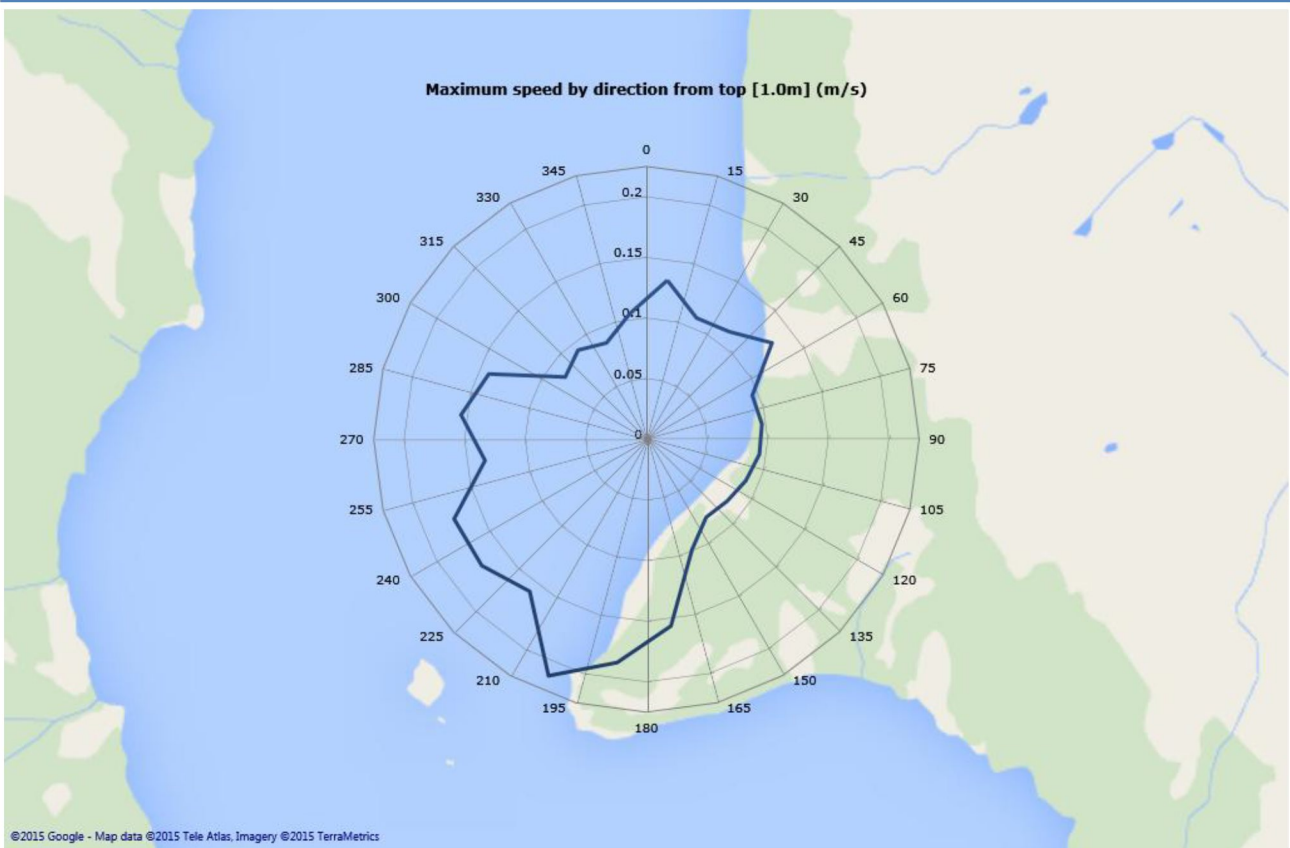
Mean speed - roseplot

Top [1,0m]



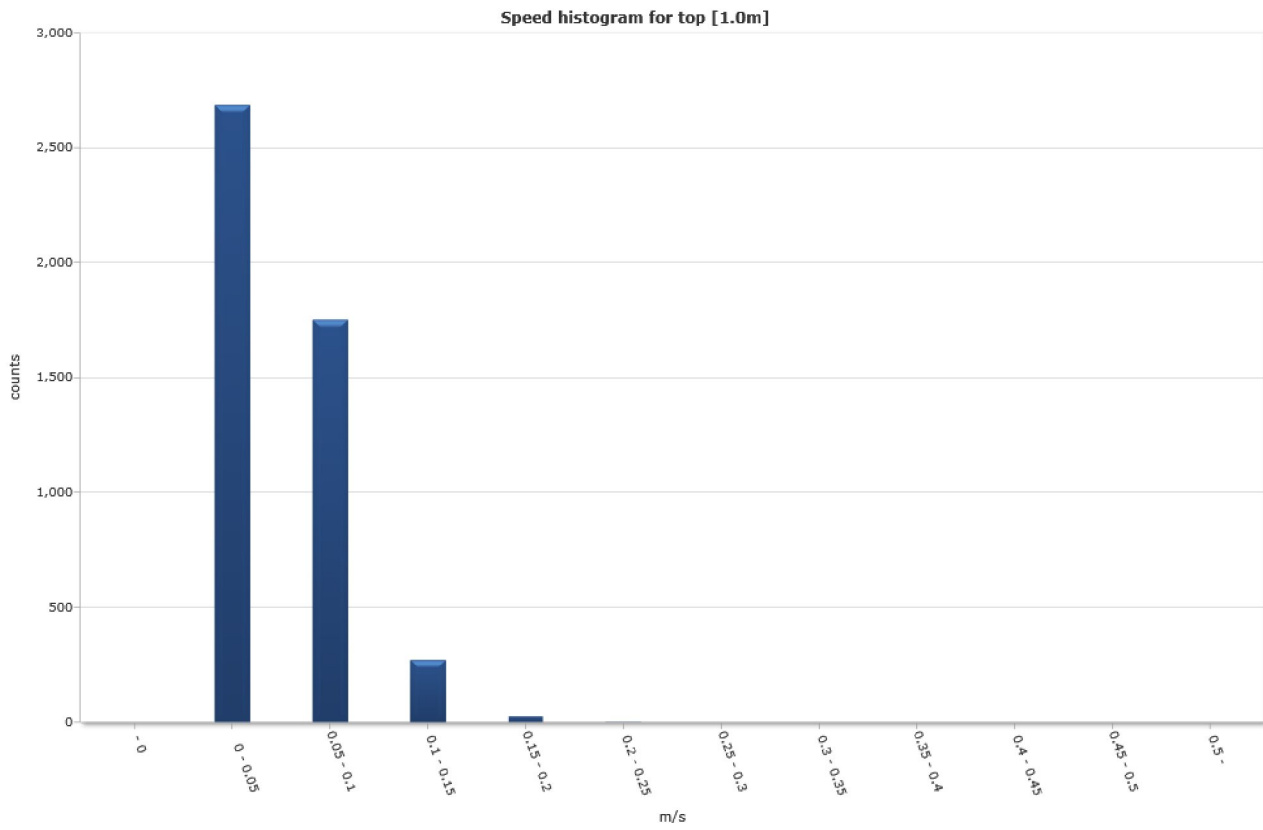
Max speed - roseplot

Top [1,0m]



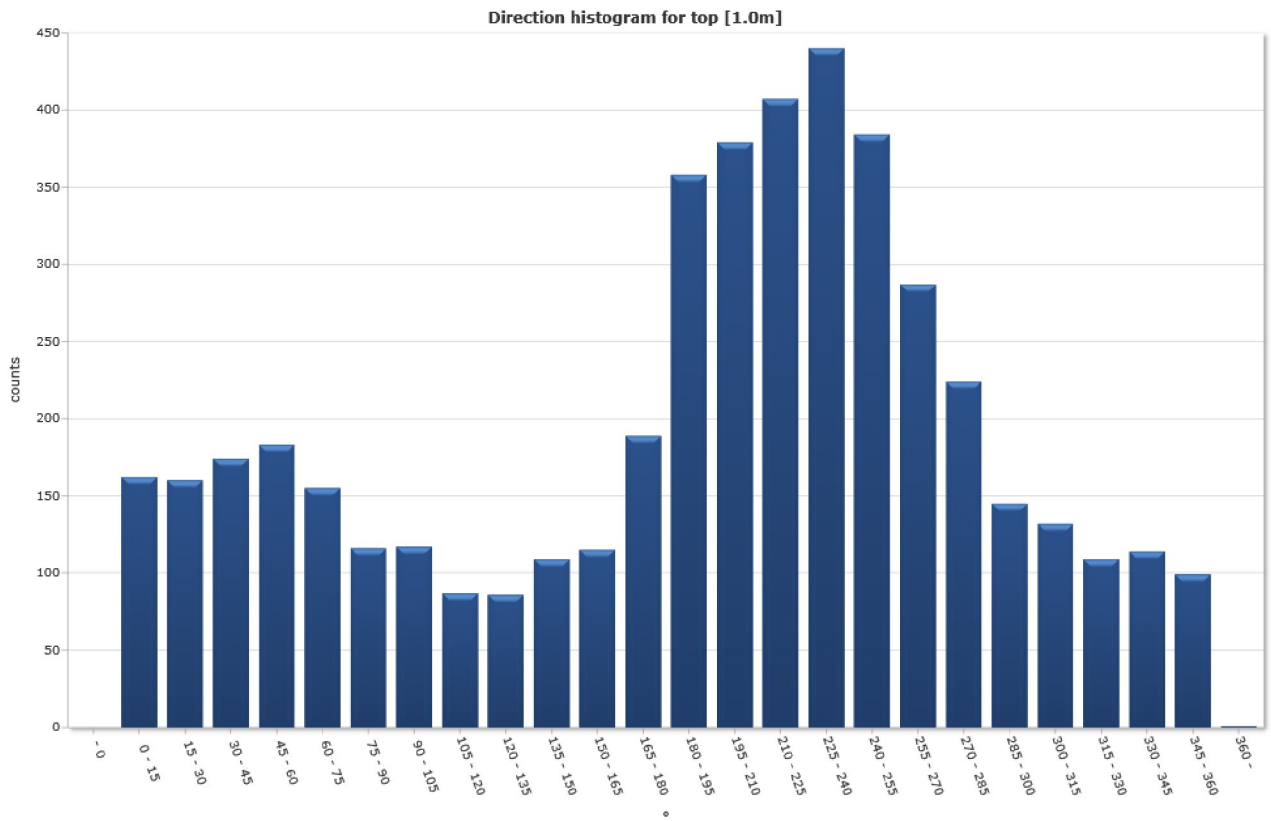
Speed histogram

Top [1,0m]



Direction histogram

Top [1,0m]



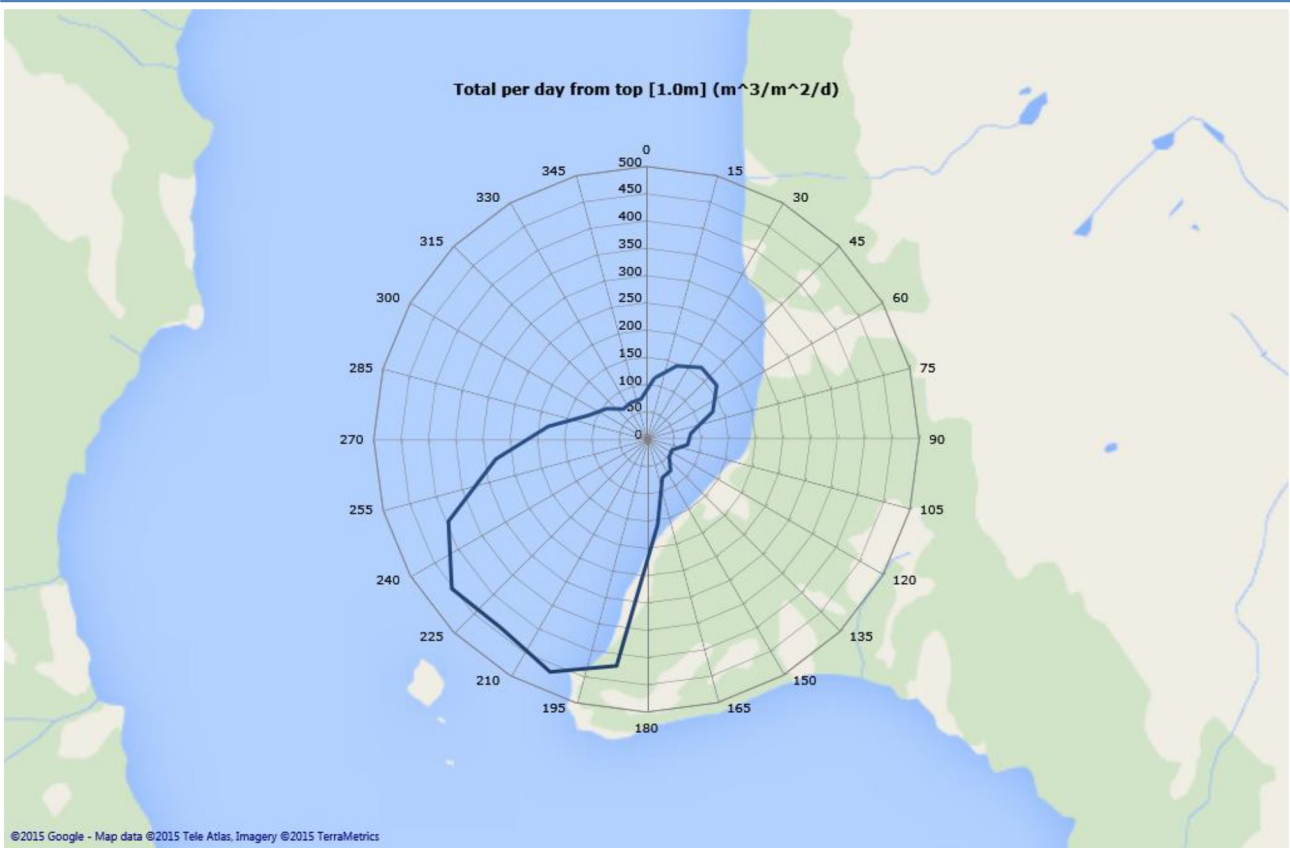
Direction/Speed histogram

Top [1,0m]

* m/s	Direction/speed matrix for top [1.0m]																								%	Sum	
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
0.0																											
0.05	119	83	87	106	94	81	96	69	73	84	93	122	162	143	182	205	173	140	143	90	97	83	91	68	56.7	2684	
0.10	37	75	81	70	61	35	21	18	13	25	22	56	123	172	183	203	184	128	77	53	35	26	23	29	37.0	1750	
0.15	6	2	6	7	0	0	0	0	0	0	0	8	67	53	41	28	26	19	3	2	0	0	0	2	5.7	270	
0.20	0	0	0	0	0	0	0	0	0	0	0	3	6	10	1	4	1	0	1	0	0	0	0	0	0.5	26	
0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0	1	
0.30	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	
0.35	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	
%	3.4	3.4	3.7	3.9	3.3	2.5	2.5	1.8	1.8	2.3	2.4	4.0	7.6	8.0	8.6	9.3	8.1	6.1	4.7	3.1	2.8	2.3	2.4	2.1	100.0	100.0	
Sum	162	160	174	183	155	116	117	87	86	109	115	189	358	379	407	440	384	287	224	145	132	109	114	99	100.0	4731	

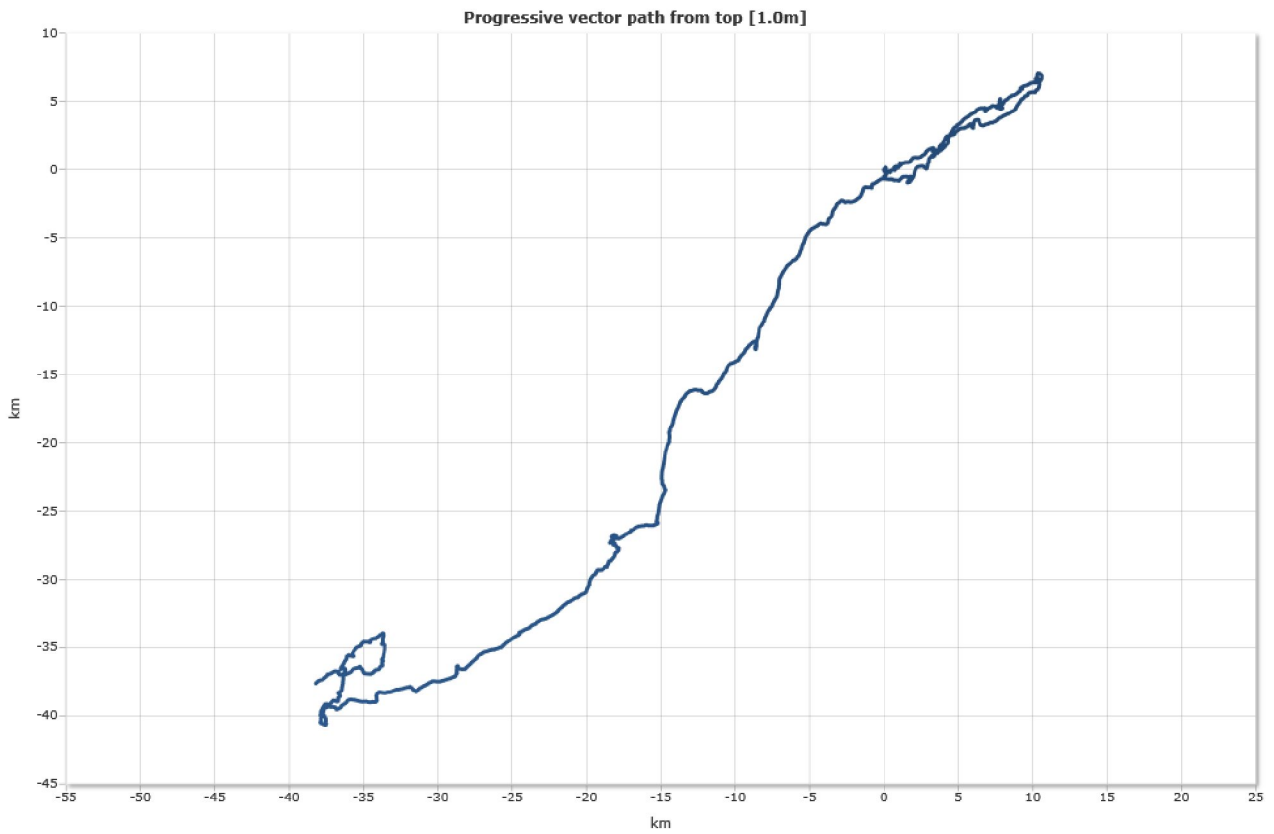
Flow

Top [1,0m]



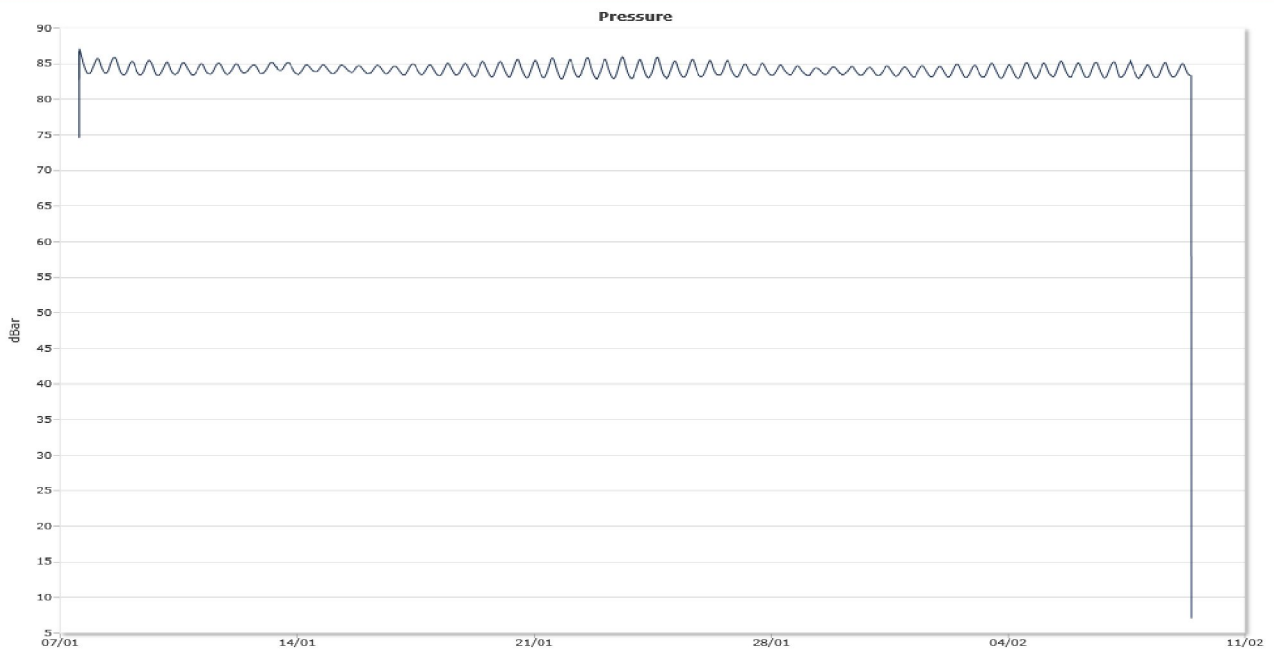
Progressive vector

Top [1,0m]

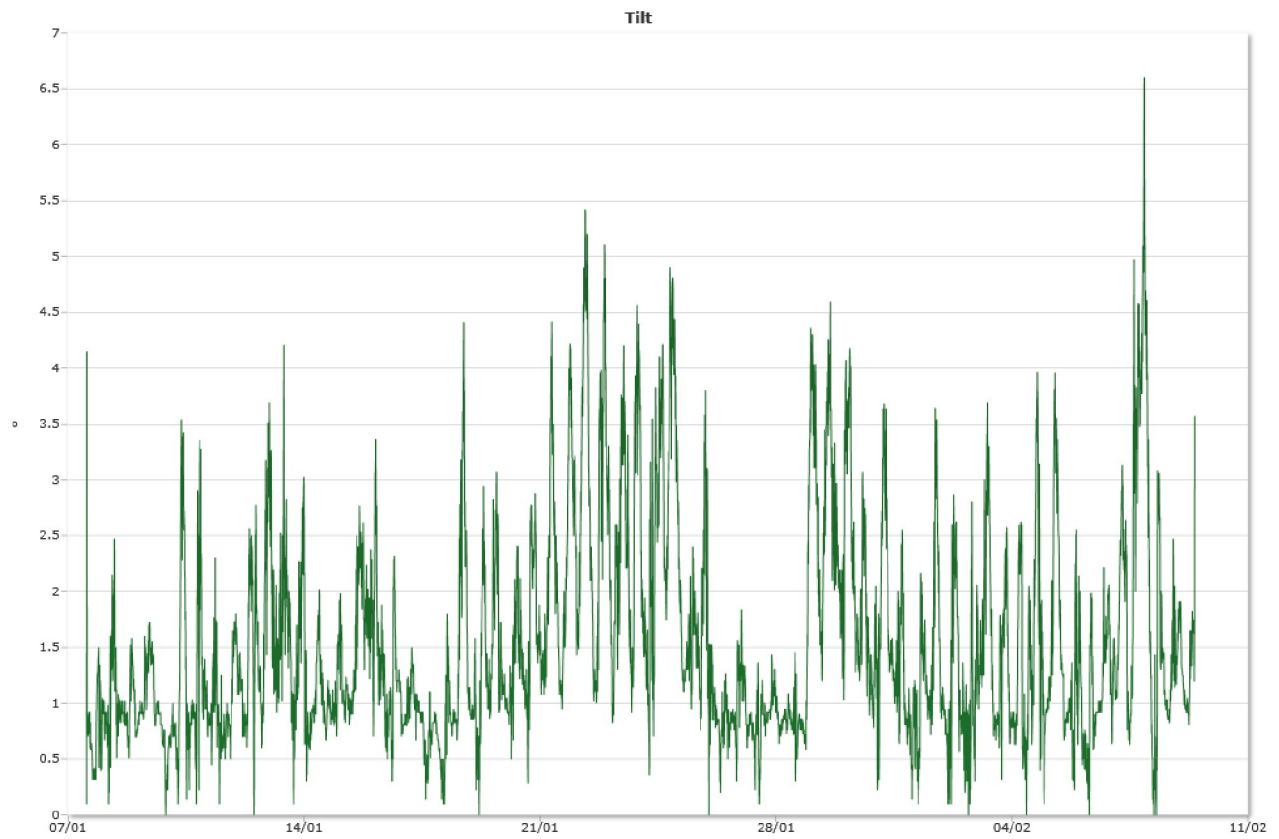


Sensors

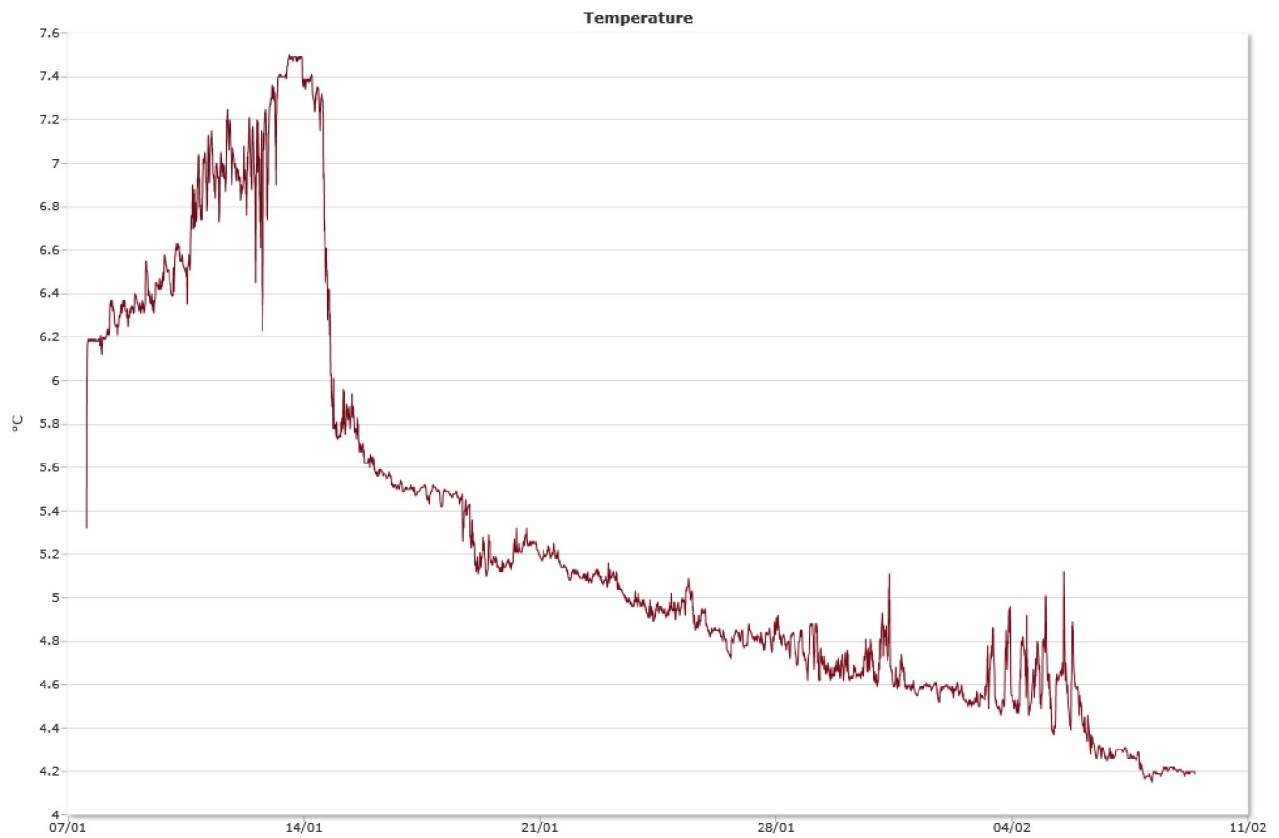
Pressure



Tilt



Temperature



Bunnmålinger 200m, jan-feb 2015

Summary

Details

Instrument

Head Id	AQD 6070
Board Id	AQD11269
Frequency	2000000

Configuration

File	Slbun101.aqd
Start	06.01.2015 13:19
End	10.02.2015 09:19
Data Records	5017
Longitude	16° 14,62'E
Latitude	67° 54,71'N
Orientation	DOWN
Cells	1
Cell Size [m]	0,68
Blanking Distance [m]	0,34
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	07.01.2015 15:50
Selected End	09.02.2015 07:51
Compass Offset	0
Pressure Offset	0
Selected Records	4704
Reference	Instrument
Top Depth [m]	1
Top Invalid Data	0
Middle Depth [m]	1
Middle Invalid Data	0
Bottom Depth [m]	1
Bottom Invalid Data	0

Manually removed data

Start Time

End Time

Comment

Statistics

Top [1,0m]

Mean current [m/s]	0.03
Max current [m/s]	0.10
Min current [m/s]	0.00
Measurements used/total [#]	4704 / 4704
Std.dev [m/s]	0.01
Significant max velocity [m/s]	0.04
Significant min velocity [m/s]	0.01
10 year return current [m/s]	0.168
50 year return current [m/s]	0.188
Most significant directions [°]	105°, 15°, 60°, 285°
Most significant speeds [m/s]	0.04, 0.02, 0.06, 0.08
Most flow	151.17m ³ / day at 90-105°
Least flow	41.50m ³ / day at 210-225°
Neumann parameter	0.17
Residue current	0.00 m/s at 35°
Zero current [%] - [HH:mm]	9.86% - 00:40

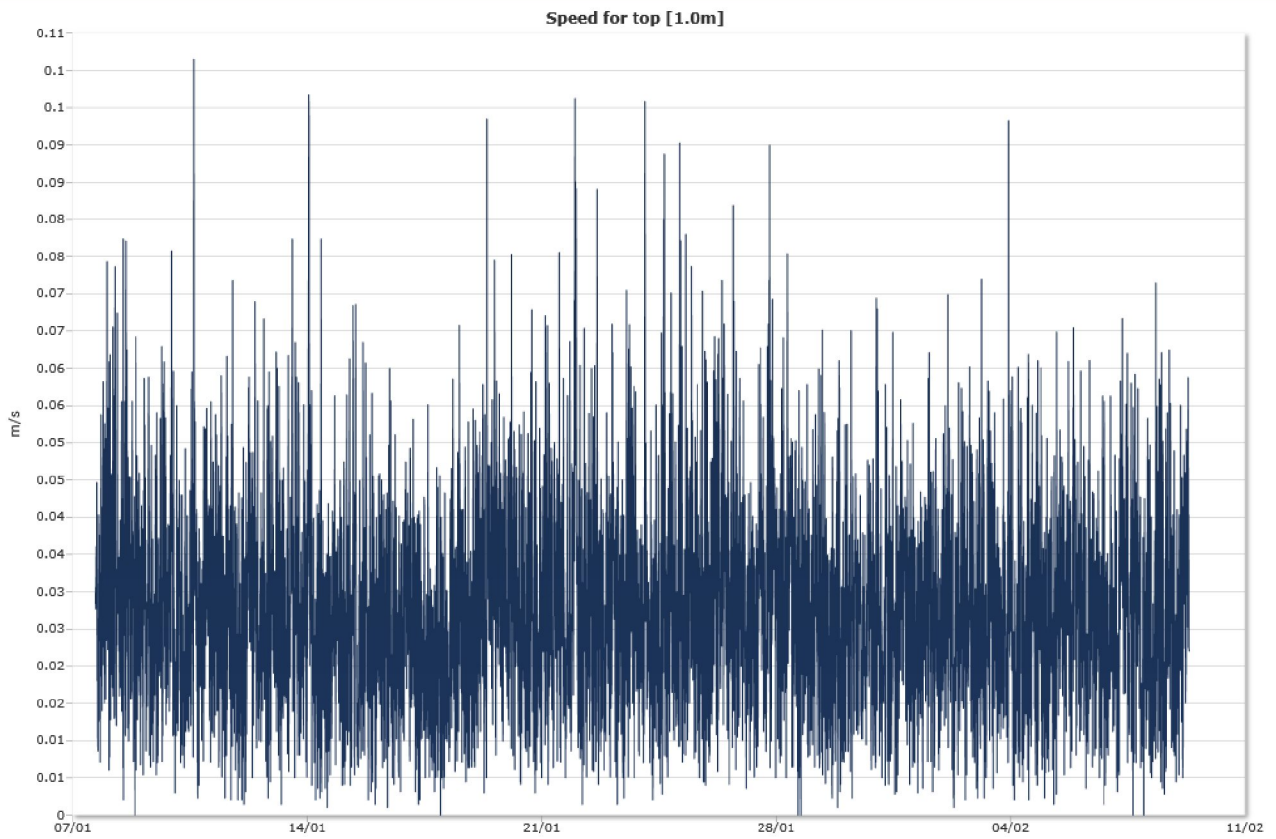
Direction with return period

Top [1,0m]

Direction	Mean	Max	Mean 10y	Max 10y	Mean 50y	Max 50y
0	0,027	0,070	0,045	0,116	0,050	0,130
45	0,029	0,102	0,048	0,168	0,054	0,188
90	0,029	0,097	0,048	0,160	0,053	0,179
135	0,029	0,094	0,048	0,154	0,054	0,173
180	0,024	0,084	0,040	0,139	0,044	0,156
225	0,024	0,070	0,040	0,115	0,045	0,129
270	0,028	0,096	0,046	0,159	0,052	0,178
315	0,029	0,090	0,048	0,149	0,053	0,167

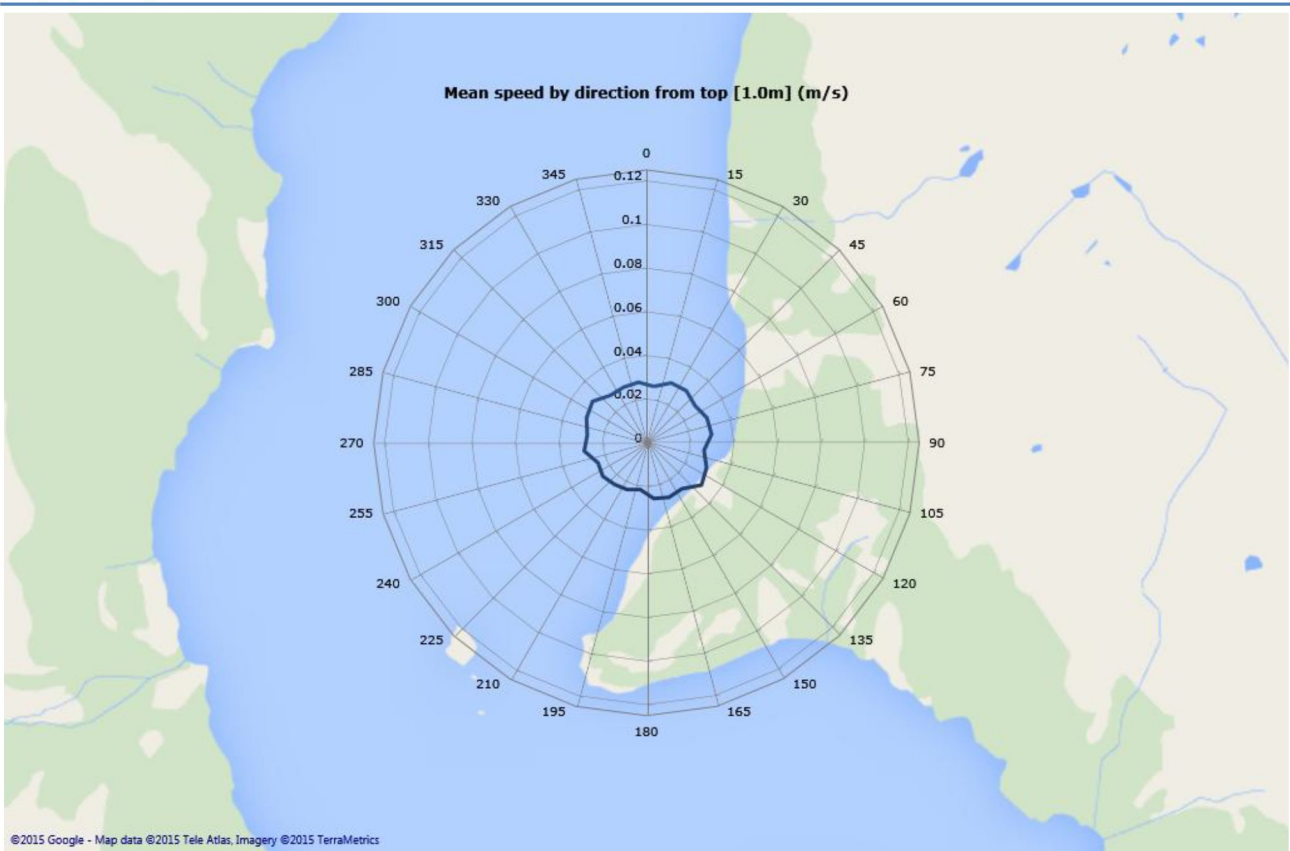
Time series

Top [1,0m]



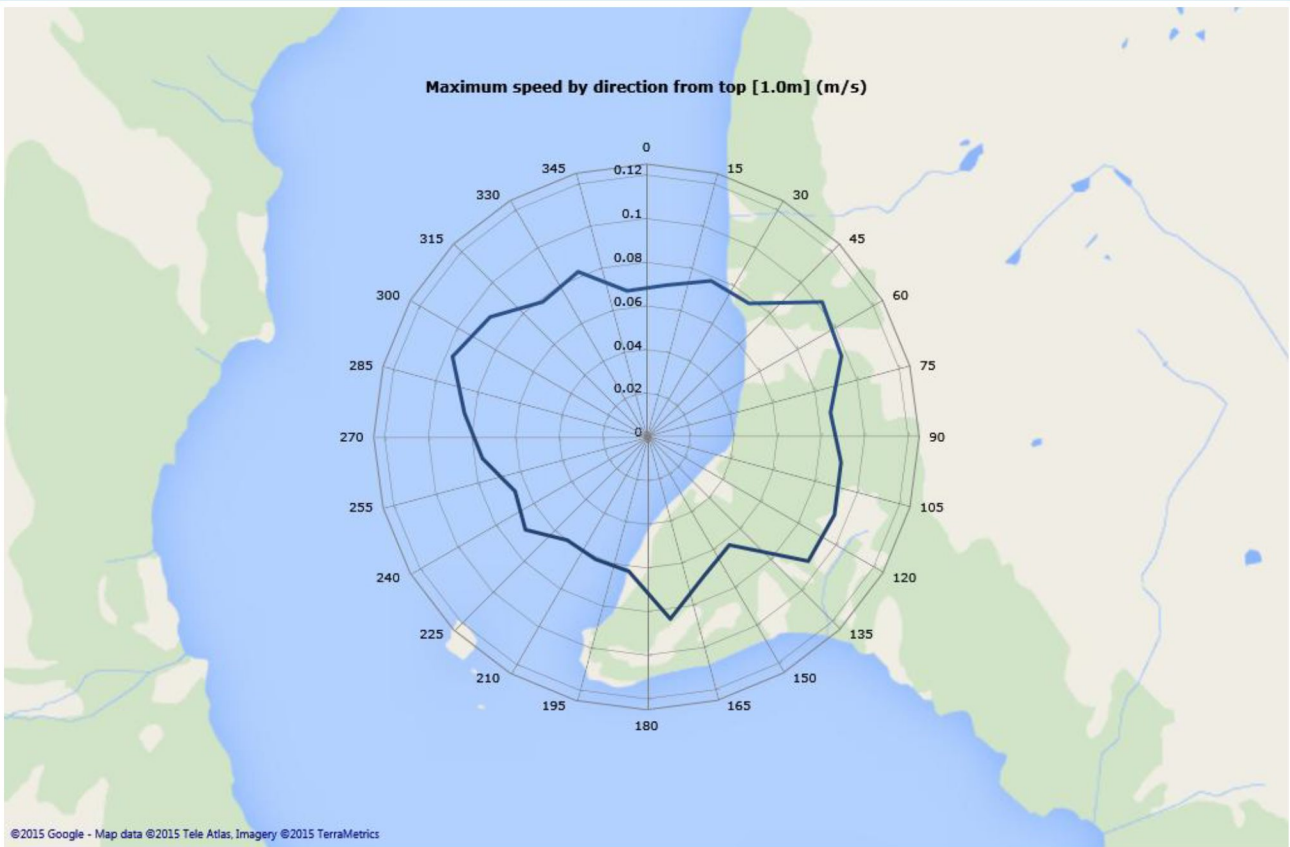
Mean speed - roseplot

Top [1,0m]



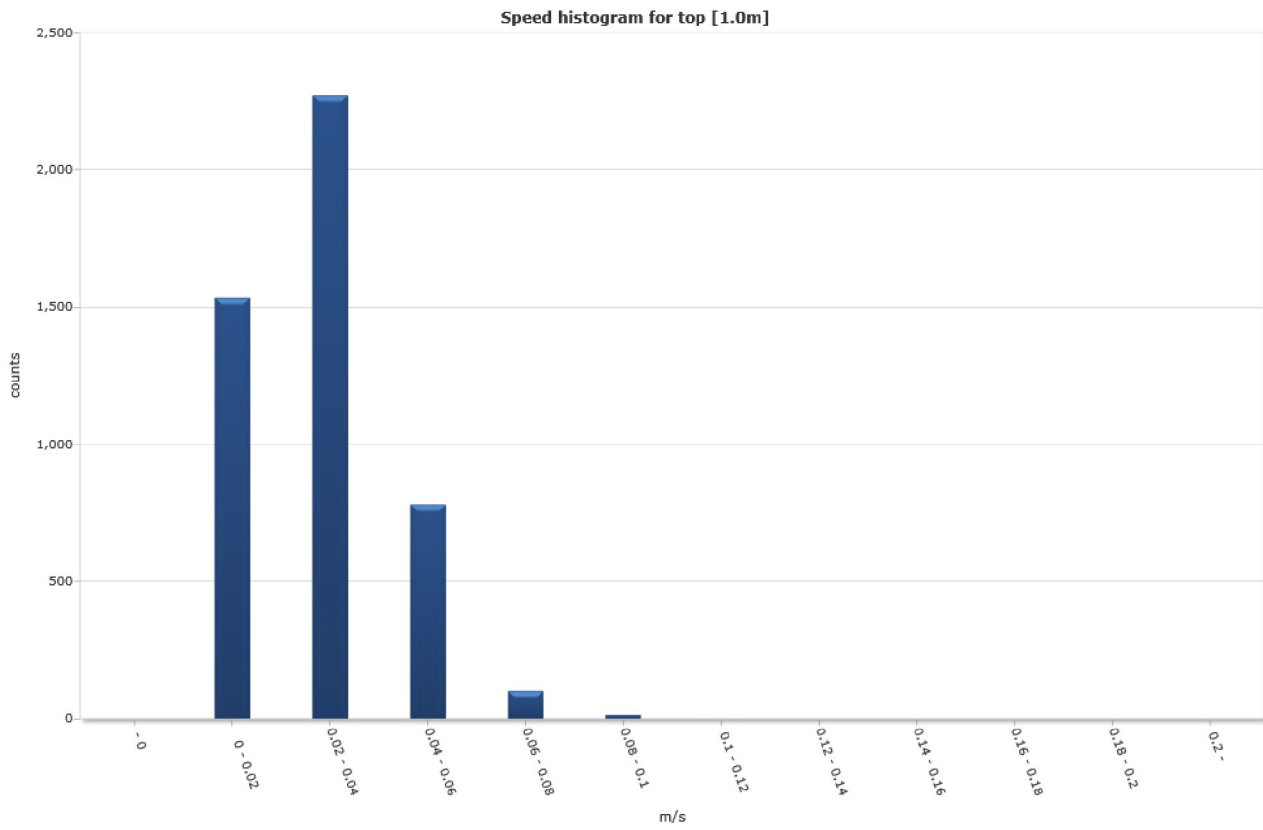
Max speed - roseplot

Top [1,0m]



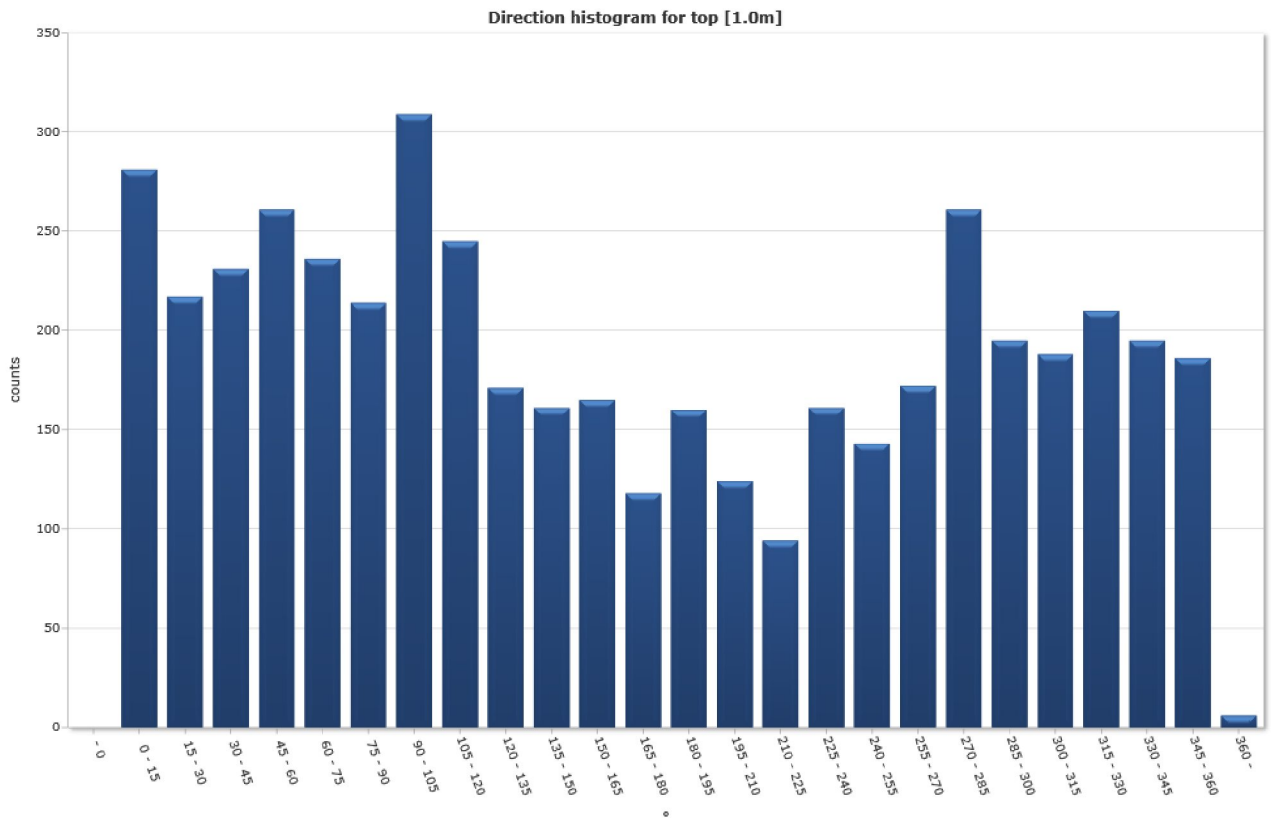
Speed histogram

Top [1,0m]



Direction histogram

Top [1,0m]



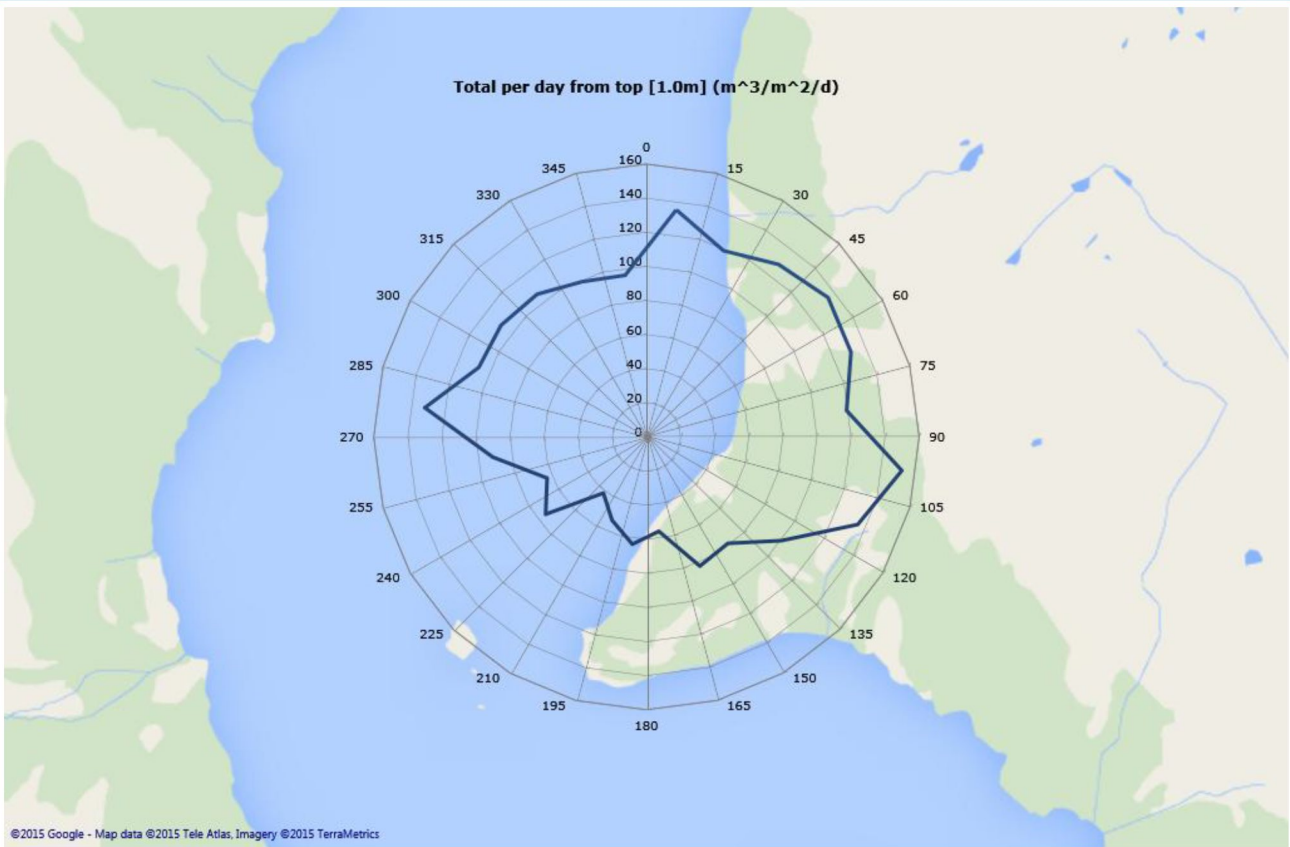
Direction/Speed histogram

Top [1,0m]

* m/s	Direction/speed matrix for top [1.0m]																								%	Sum	
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
0.0																											
0.02	109	67	65	86	62	59	114	64	39	60	55	42	81	51	37	65	60	52	85	52	41	70	59	53	32.5	1528	
0.04	122	92	108	115	123	108	143	130	77	67	82	62	65	63	45	71	70	88	134	100	101	101	108	97	48.4	2272	
0.06	43	50	53	53	47	43	39	40	48	33	26	11	13	9	12	22	12	27	32	37	39	35	23	34	16.6	781	
0.08	7	8	5	6	2	3	11	10	6	1	2	2	1	1	0	3	1	5	8	4	6	4	4	2	2.2	102	
0.10	0	0	0	0	2	1	2	1	1	0	0	1	0	0	0	0	0	0	2	2	1	0	1	0	0.3	14	
0.12	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	1	
0.14	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	
0.16	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	
0.18	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	
0.20	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	
%	6.0	4.6	4.9	5.6	5.0	4.6	6.6	5.2	3.6	3.4	3.5	2.5	3.4	2.6	2.0	3.4	3.0	3.7	5.6	4.2	4.0	4.5	4.2	4.0	100.0	100.0	
Sum	281	217	231	261	236	214	309	245	171	161	165	118	160	124	94	161	143	172	261	195	188	210	195	186	100.0	4698	

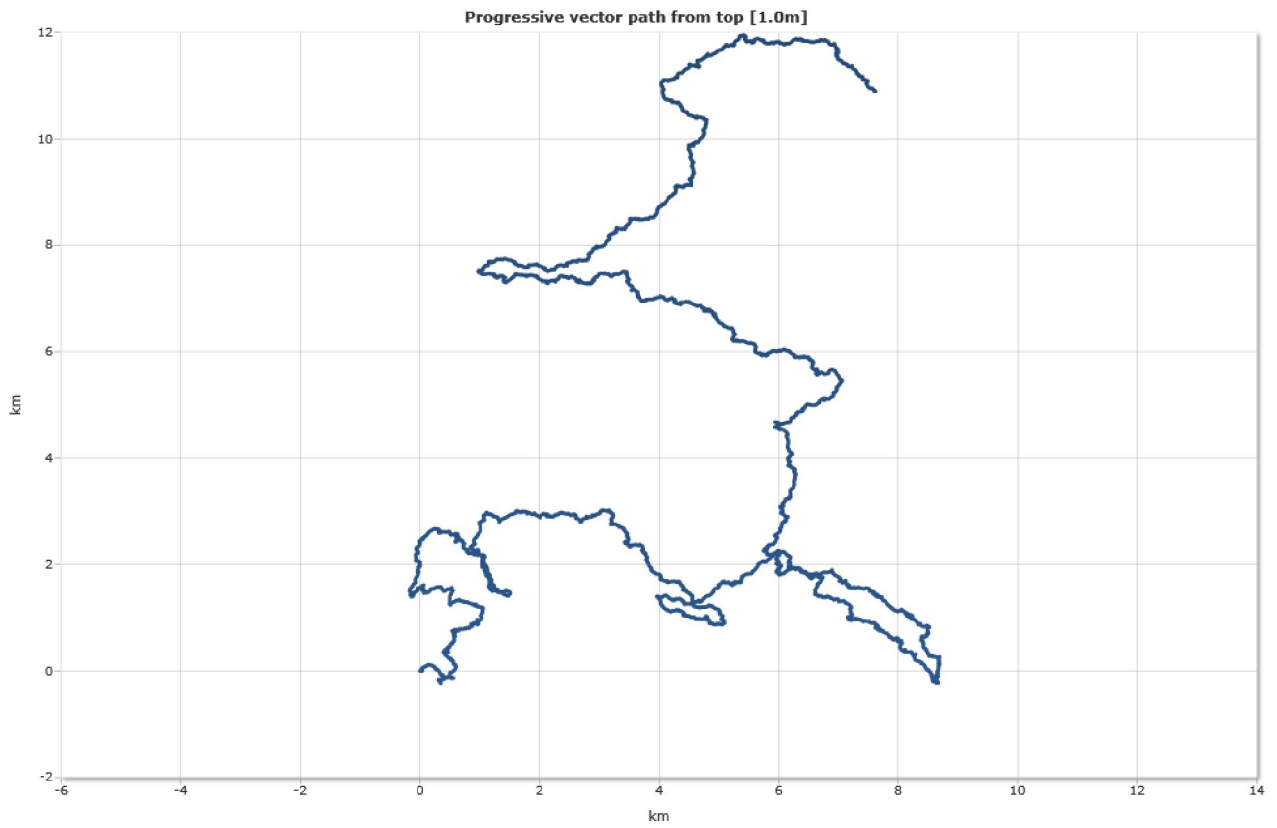
Flow

Top [1,0m]



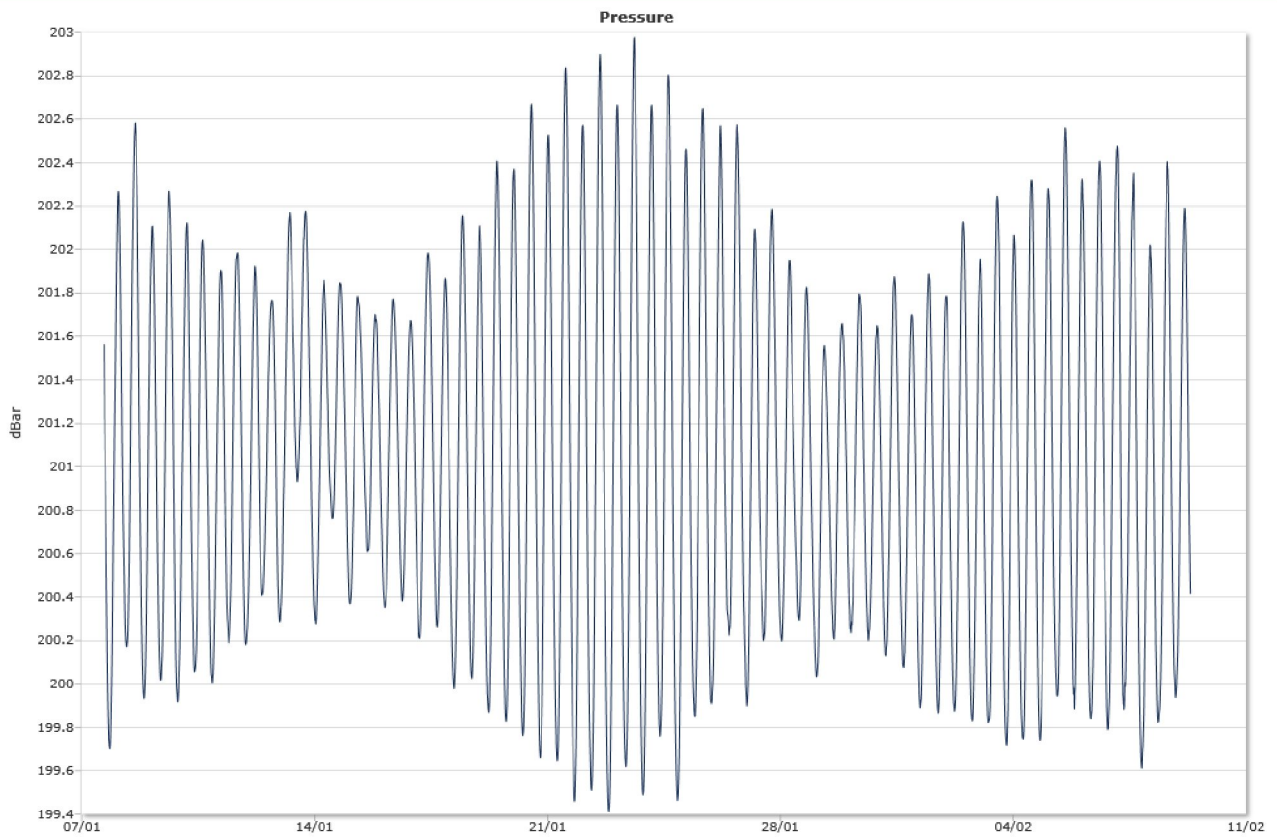
Progressive vector

Top [1,0m]

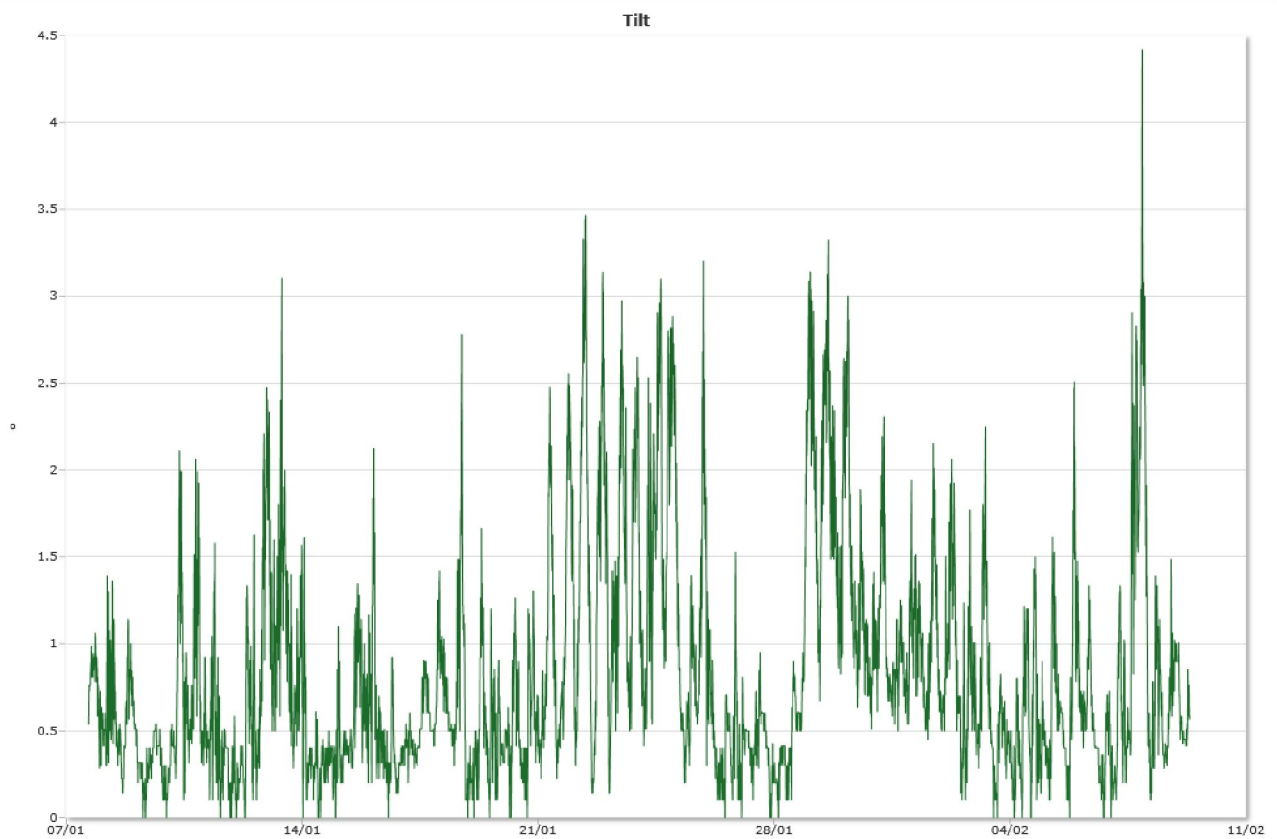


Sensors

Pressure



Tilt



Temperature

