



Rapport nr. 645-2011

STRAUMMÅLING

NS 9425-2

LOKALITET TVEITNES

Kvam kommune





Resipientanalyse

Foretaksnr.: NO 984 238 630 mva
 Adresse: Dortledhaugen 156
 5239 Rådal
 Kontaktperson: Frode Berge-Haveland
 Telefon: 40231779 / 55135242
 Epost: resipientanalyse@online.no
 Internett: <http://www.resipientanalyse.no>

<i>Lokalitet</i> Tveitnes	<i>Dato, rapport</i> 17 / 10 – 2011
<i>Kommune</i> Kvam kommune	<i>Dato, felt</i> Utsett: 22/08 – 2011 Opptak: 24 / 09 – 2011
<i>Oppdragsgjevar</i> Lingalaks AS	<i>Rapport nr.</i> 645 – 2011
<i>Oppdragsart</i> Straummåling	<i>Rapportsider</i> 84
<i>Personell feltundersøking</i> Frode Berge-Haveland, Resipientanalyse Normann Rong, Lingalaks	Gjennomsnittleg og høgste målte vasstraum:
<i>Samandrag</i> To Nortek 400kHz Aquadopp strømmålar blei sett ut på lokaliteten. Straumrigg S1 stod på 115 meters og strømmåling S2 stod på 43 meters djup. Der var hhv ca. 200 og 100 meter djupt ved strømmålingane. Strømmålararen blei programmert til å måle 40 celler a 2 meter. Strømmålinga viser ein dominerande strømmåling MOT sørvest ved begge strømmålingane, men strømmålinga går neste like mykje i retning MOT nordaust. Den gjennomsnittlege strømmålinga er over 0,04 m/s ved alle målepunkta ved begge strømmålingane. Den høgste strømmålinga blei målt ved 5 meters djup ved strømmåling S2 og var 0,41 m/s MOT retning vest/sørvest (ca. 250°).	Spreiingsstraum S1 35, 40 og 50 meters djup: 0,05 – 0,09 m/s 0,16 – 0,21 m/s
	Botnstraum S1 80, 100 og 110 meters djup: 0,04 m/s 0,13 – 0,23 m/s
	Vassutskifting S2 7, 10 og 15 meters djup: 0,06 – 0,08 m/s 0,25 – 0,41 m/s
	Spreiingsstraum S2 20, 30 og 40 meters djup: 0,05 – 0,06 m/s 0,20 – 0,24 m/s
<i>Fagansvarleg i Resipientanalyse</i> Frode Berge-Haveland <i>Cand. Scient.</i> Marin mikrobiolog Dagleiar i Resipientanalyse	<i>Kvalitetsansvarleg i Resipientanalyse</i> Kjetil Aursland <i>Cand. Scient.</i> Mikrobiolog Kvalitetsleiar i Resipientanalyse

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Straummåling Tveitnes S2

Vassutskifting

16.10.2011

Resipientanalyse

Frode Berge-Haveland

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Sammendrag

Detaljer

Instrument

Head Id	AQP 4663
Frequency	400000

Oppsett

Start	22.08.2011 11:00
End	25.09.2011 12:40
Data records	4907
Longitude	6° 24,19'E
Latitude	60° 24,91'N
Orientation	DOWN
Cells	40
Cell size(m)	2
Blanking distance(m)	0,99
Measurement interval(sec)	600

Kvalitet

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

Post prosessering

Selected Start	22.08.2011 12:10
Selected End	24.09.2011 12:10
Selected Records	4753
Reference	Water Surface
Top Depth(m)	5
Top invalid data	1155
Middle Depth(m)	10
Middle invalid data	1
Bottom invalid data	1

Statistikk

Top [5,0m]

Mean current [m/s]	0.08
Max current [m/s]	0.41
Min current [m/s]	0.00
Measurements [#]	3598
Std.dev [m/s]	0.05
Significant max velocity [m/s]	0.14
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.677
50 year return current [m/s]	0.759
Most significant directions [°]	240.00, 225.00, 255.00, 210.00
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Least flow	1777.56m ³ by 90-105°.

Middle [10,0m]

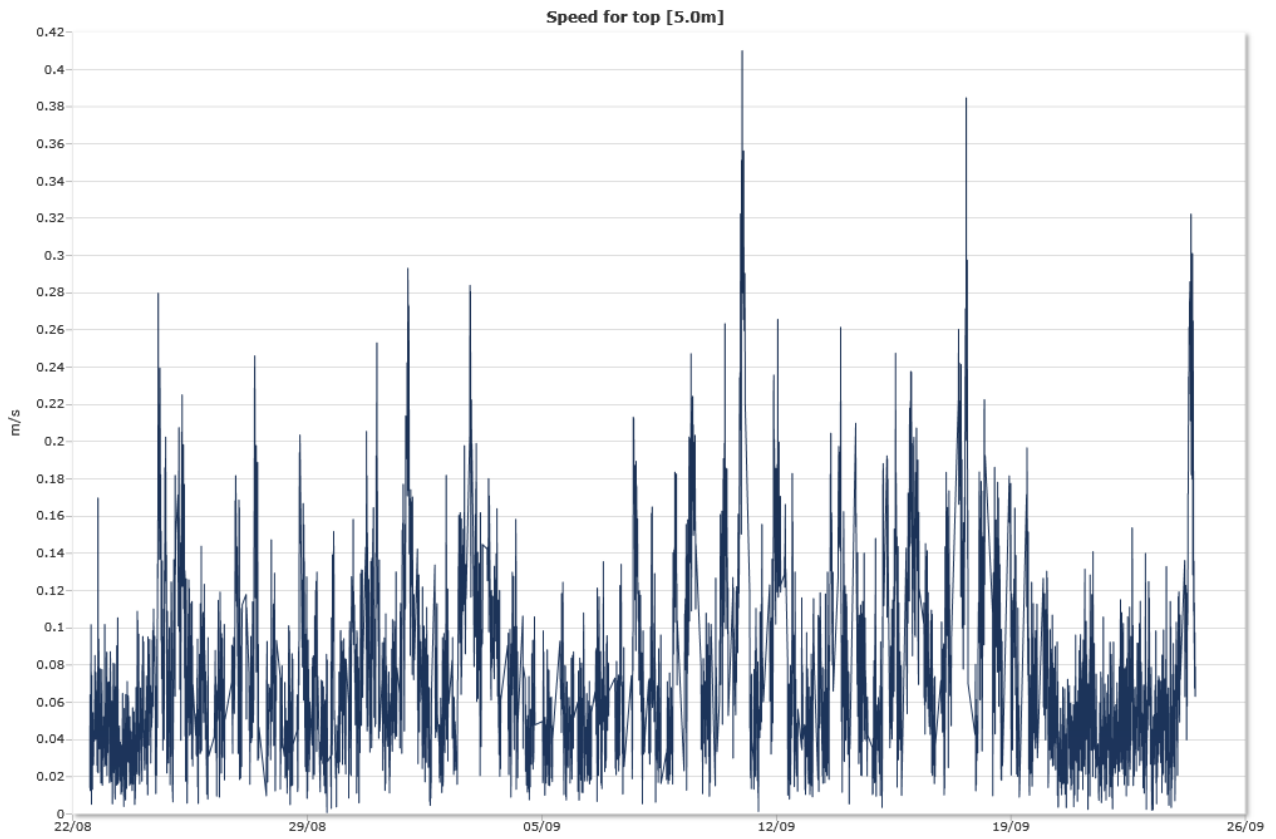
Mean current [m/s]	0.07
Max current [m/s]	0.29
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.04
Significant max velocity [m/s]	0.11
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.472
50 year return current [m/s]	0.529
Most significant directions [°]	240.00, 225.00, 255.00, 210.00
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Least flow	2279.29m ³ by 135-150°.

Bottom [15,0m]

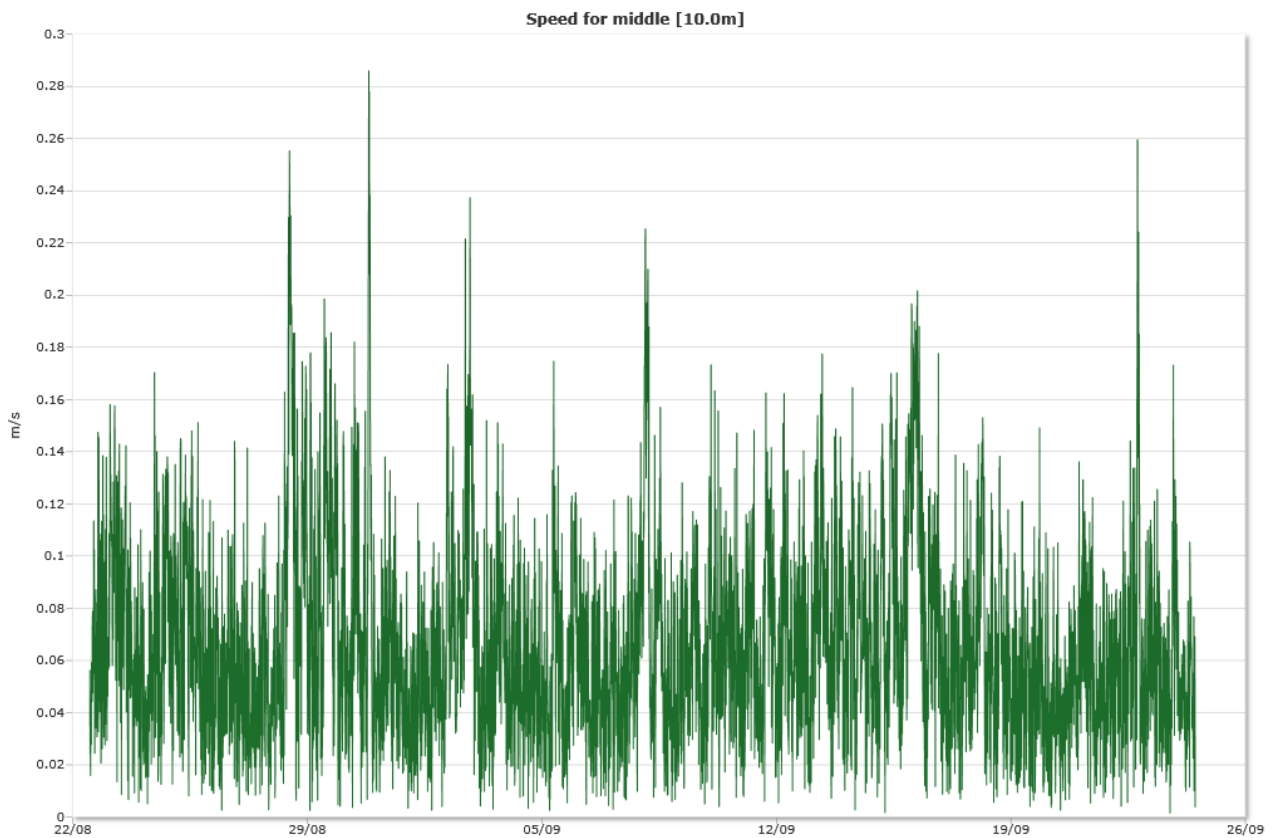
Mean current [m/s]	0.06
Max current [m/s]	0.25
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.10
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.417
50 year return current [m/s]	0.468
Most significant directions [°]	240.00, 225.00, 255.00, 210.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2335.76m ³ by 120-135°.

Time series

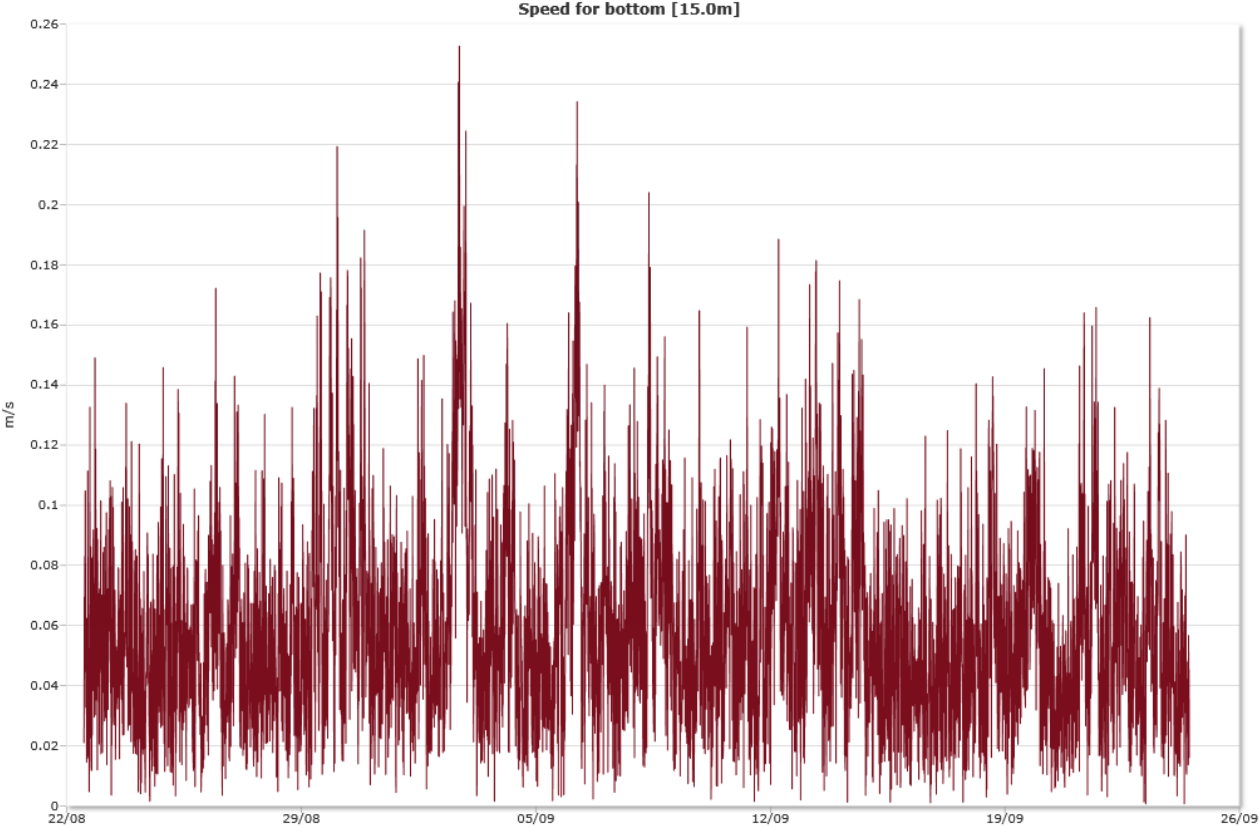
Top [5,0m]



Middle [10,0m]

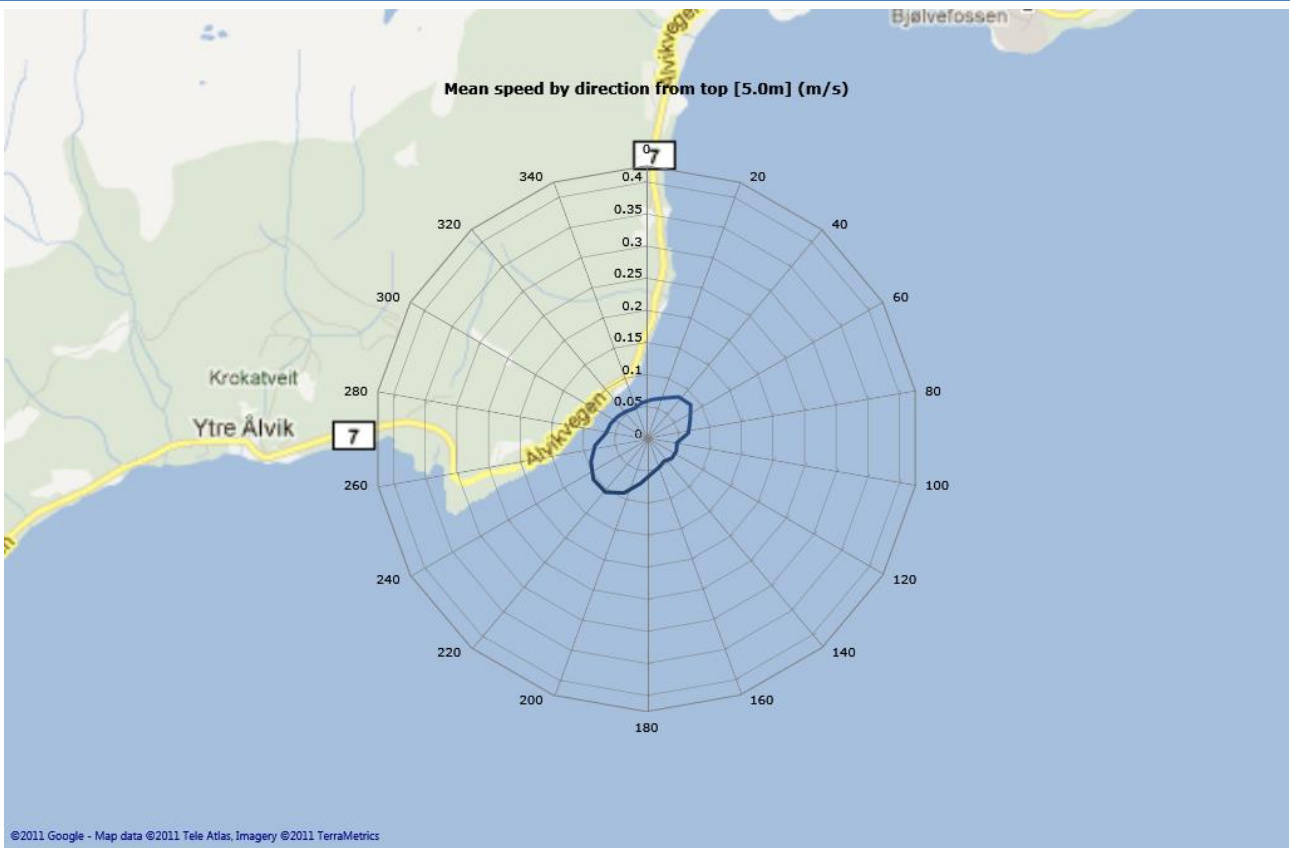


Bottom [15,0m]

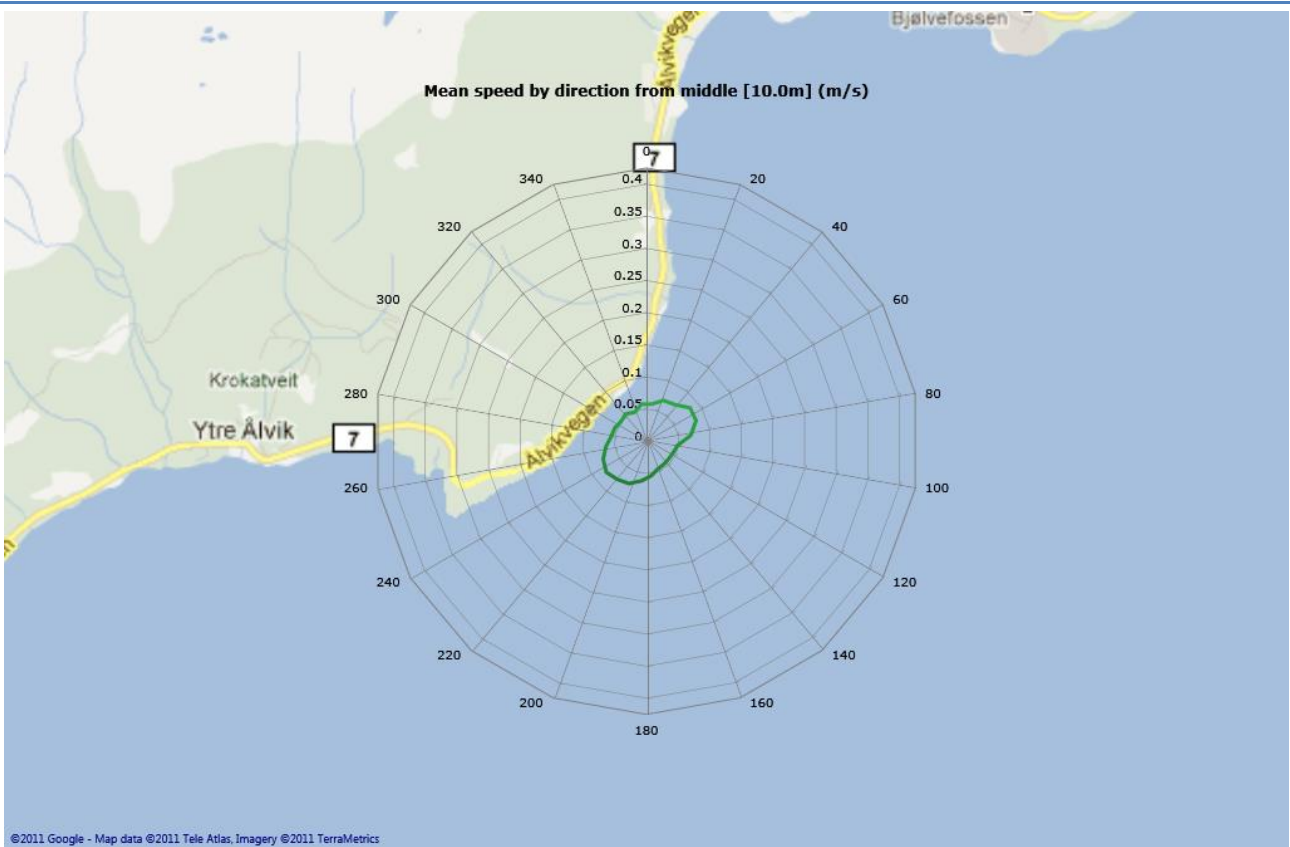


Mean speed - roseplot

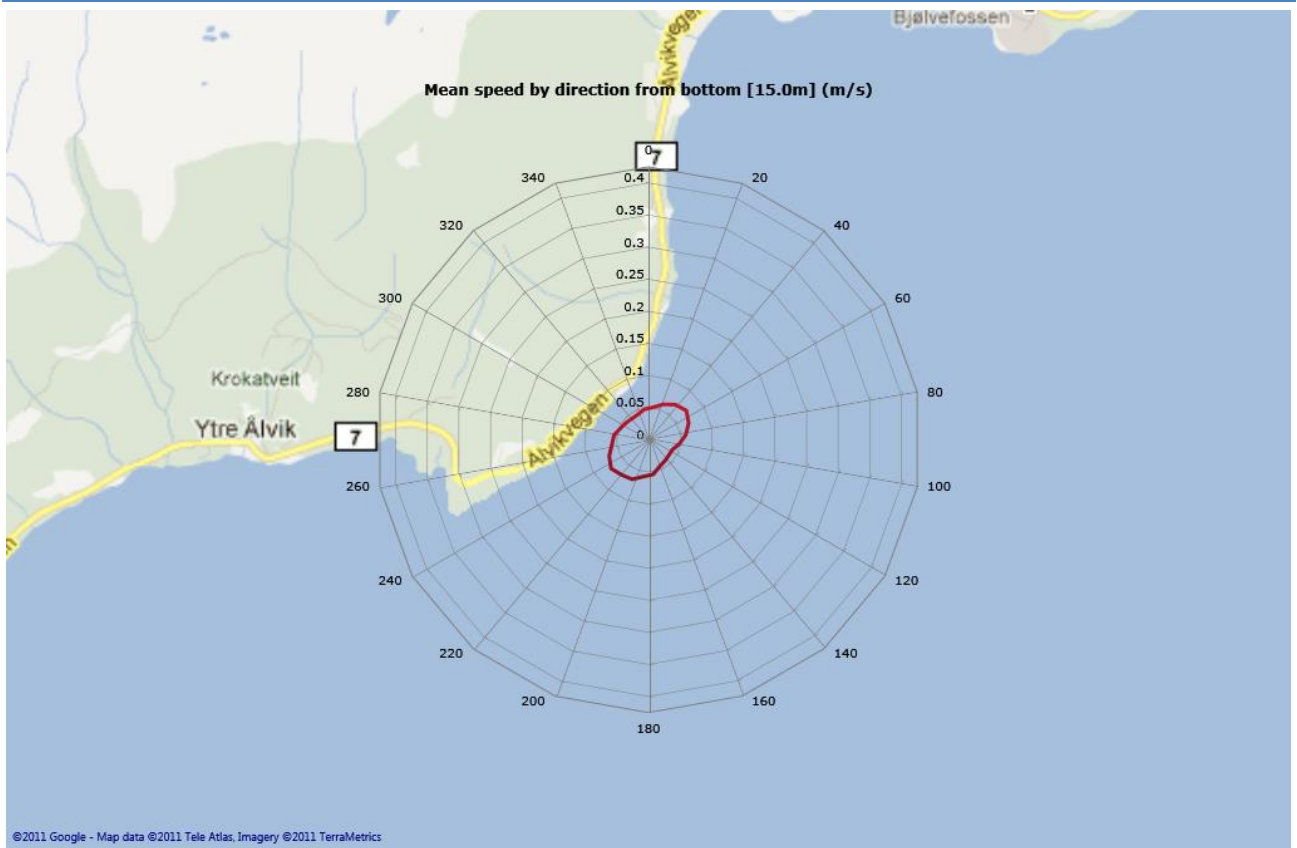
Top [5,0m]



Middle [10,0m]

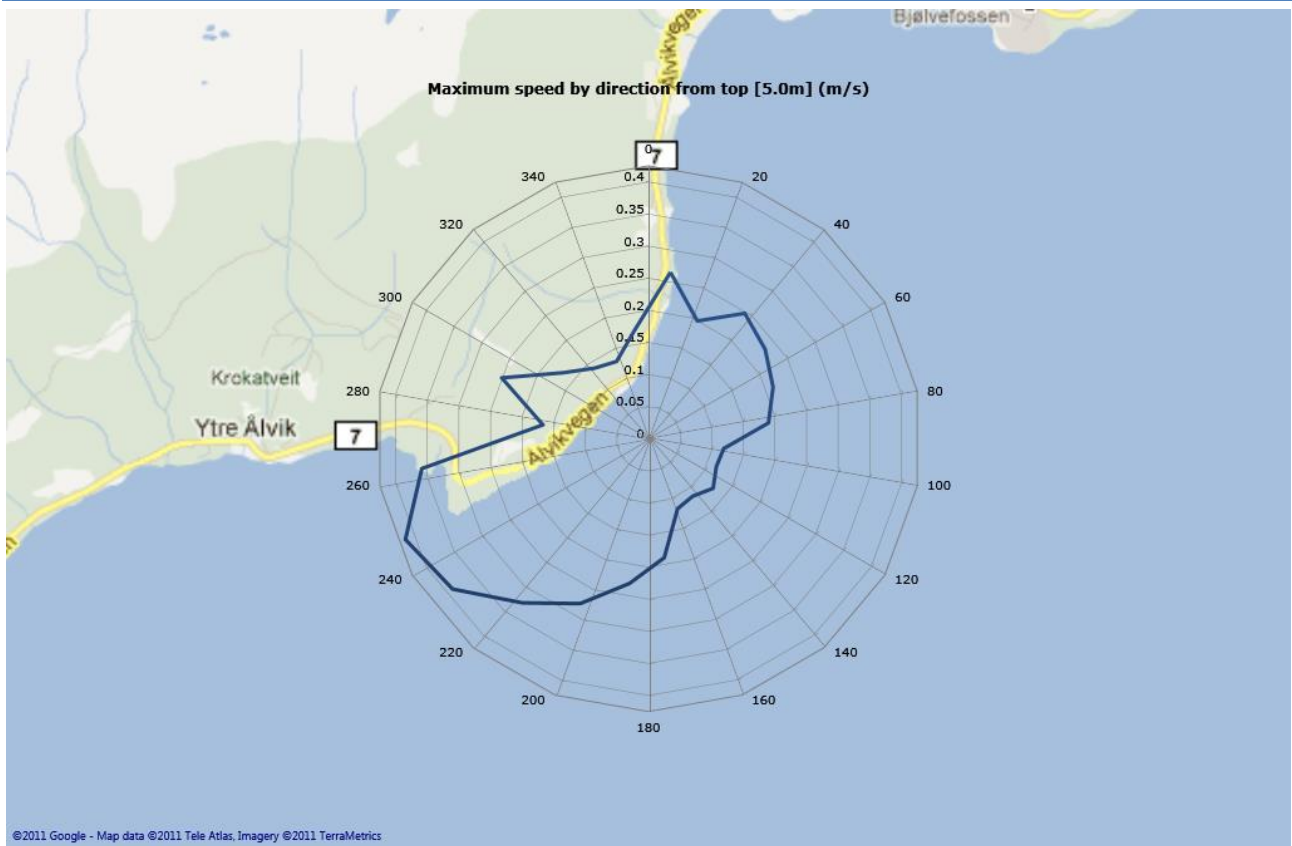


Bottom [15,0m]

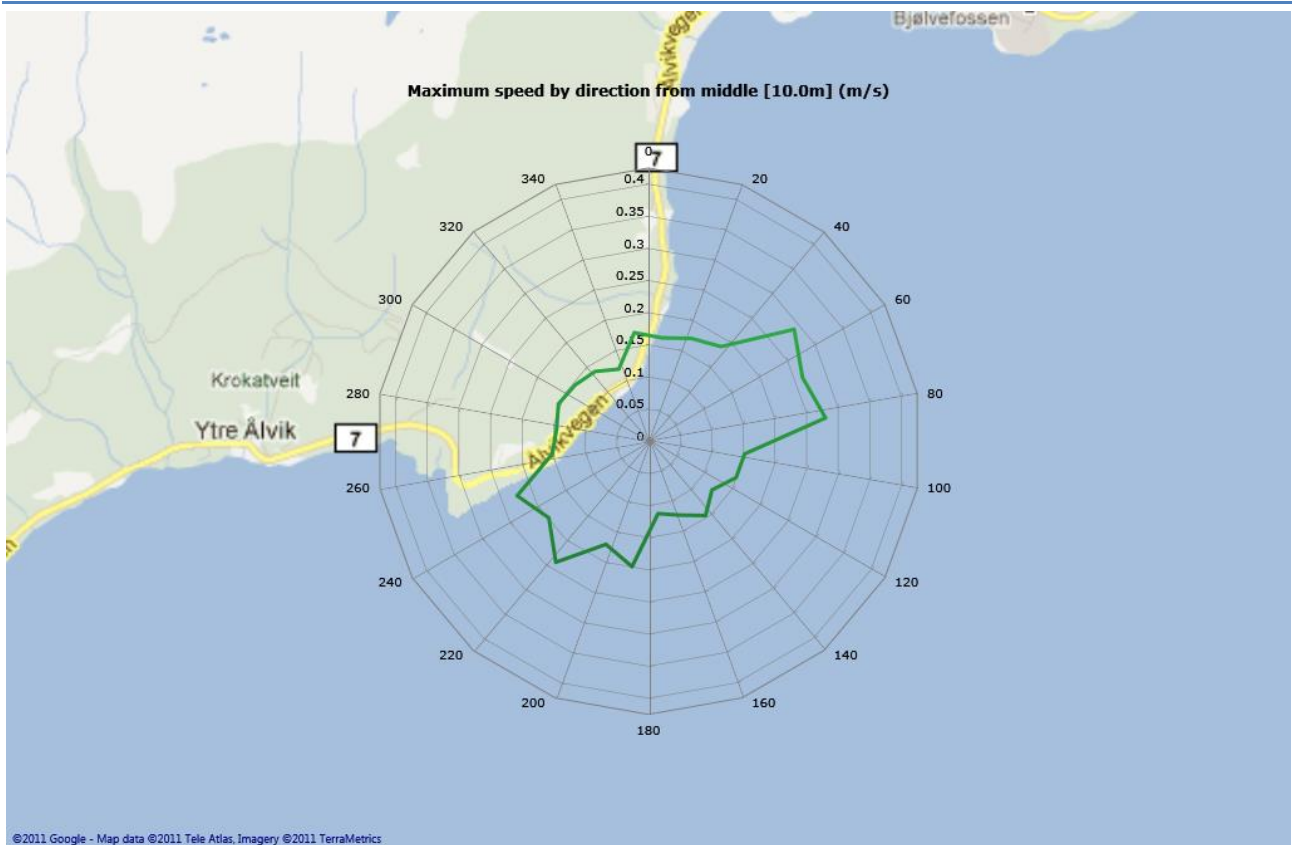


Max speed - roseplot

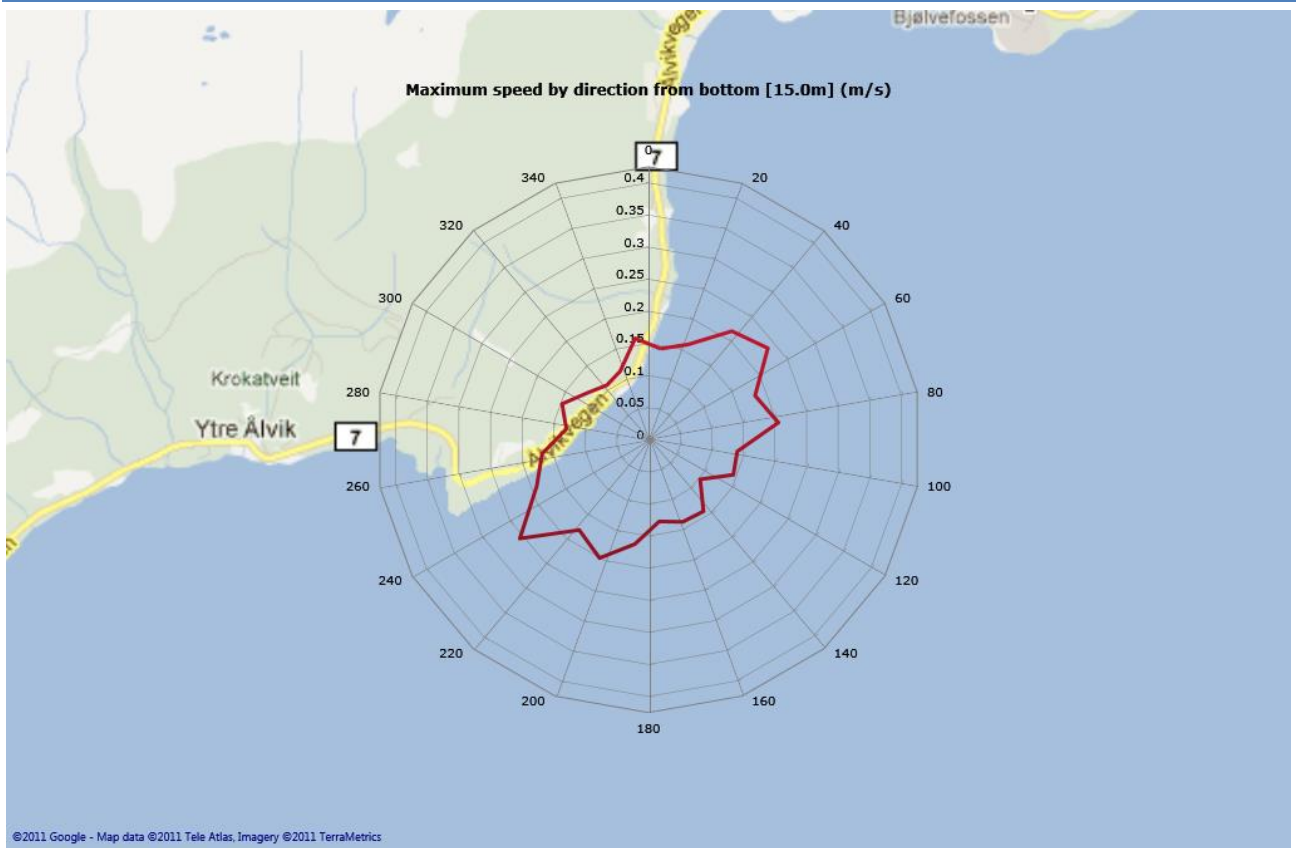
Top [5,0m]



Middle [10,0m]

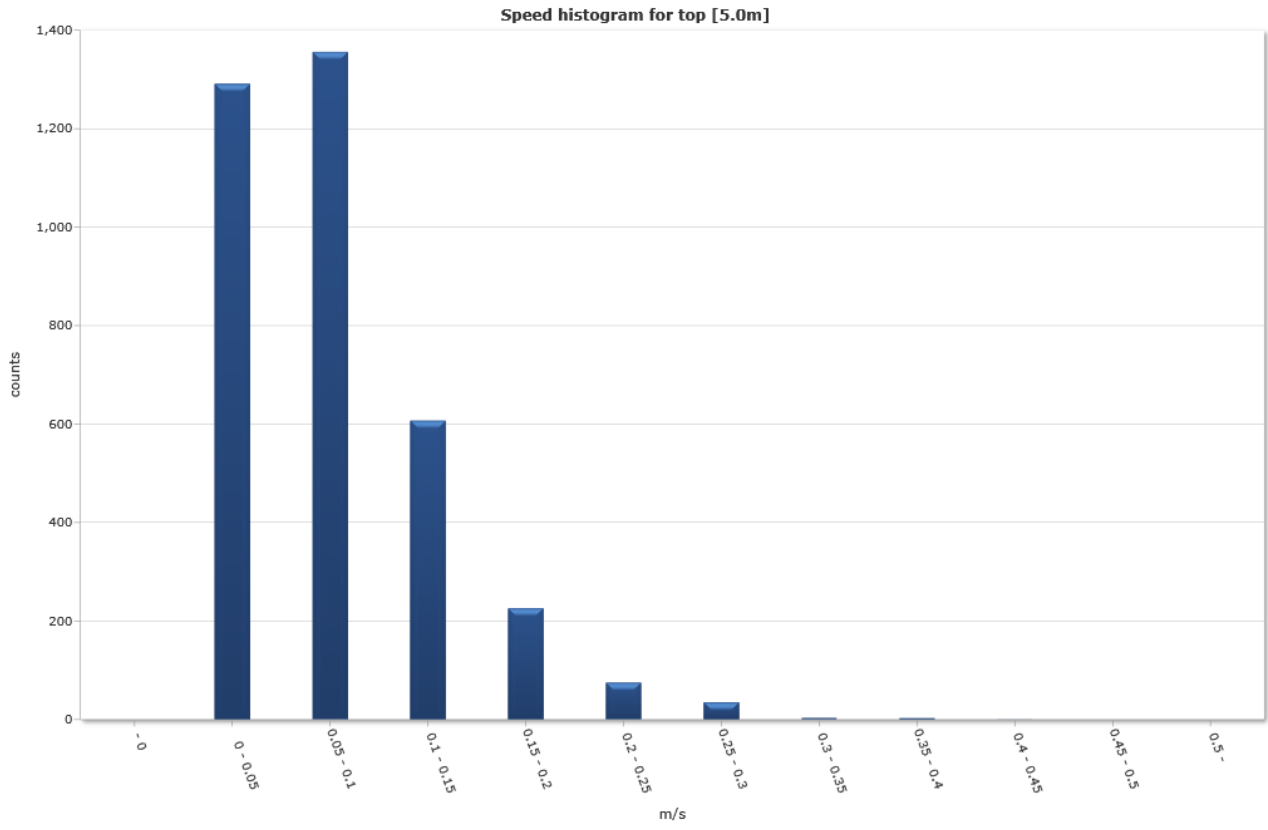


Bottom [15,0m]

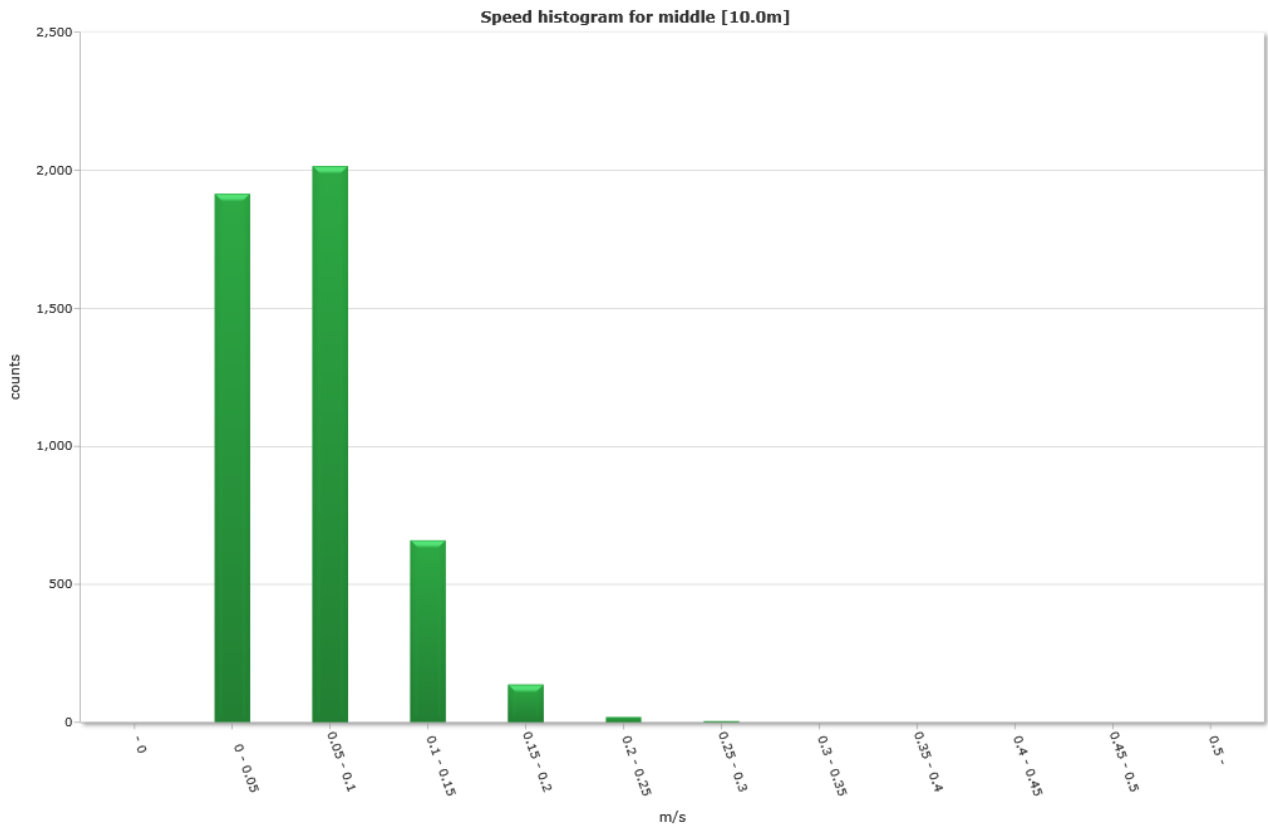


Speed histogram

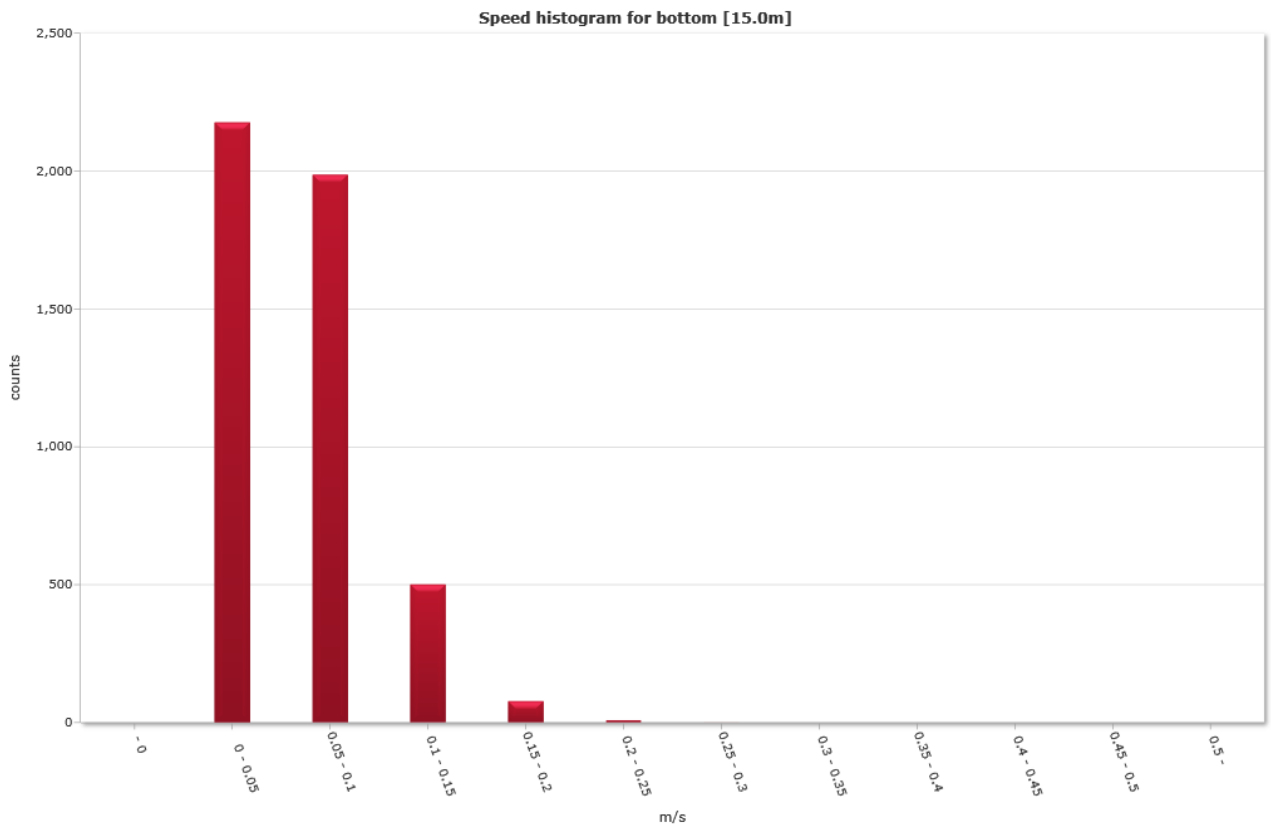
Top [5,0m]



Middle [10,0m]

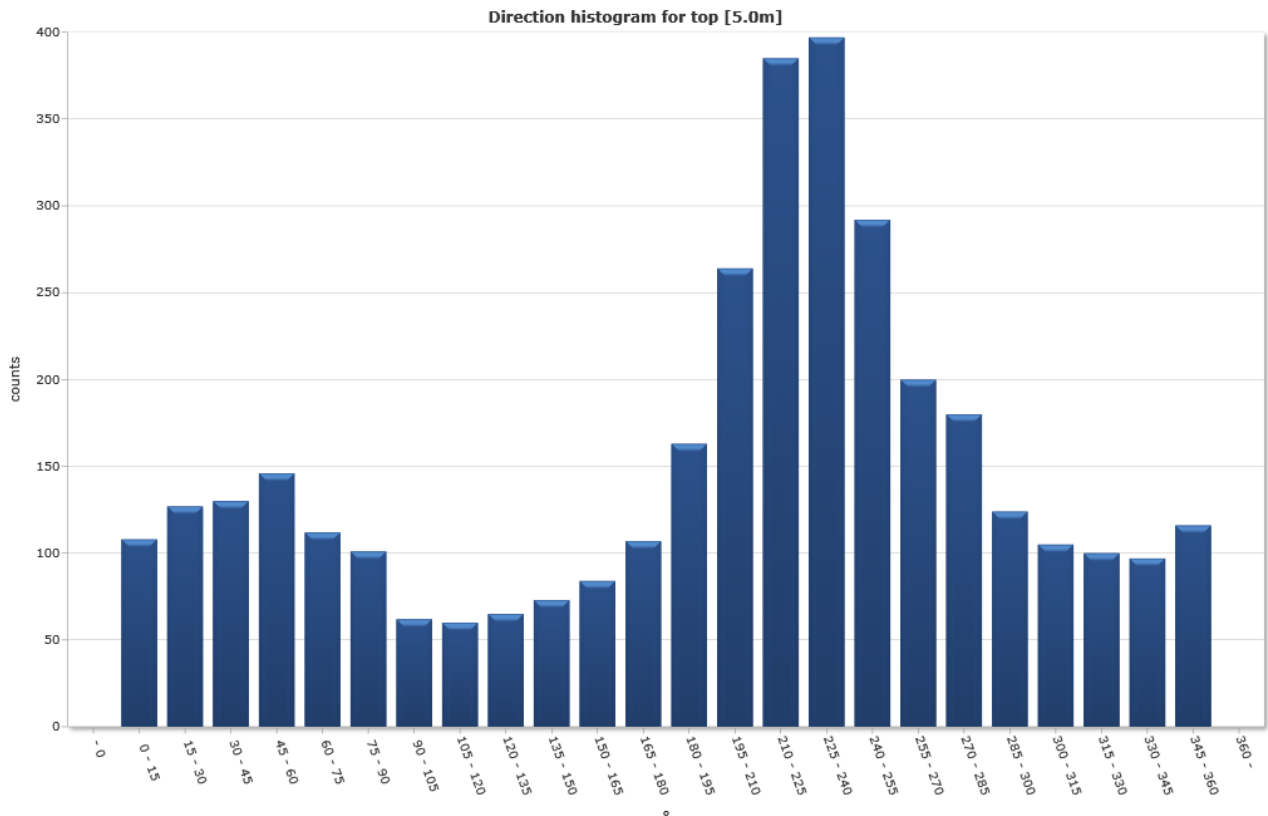


Bottom [15,0m]

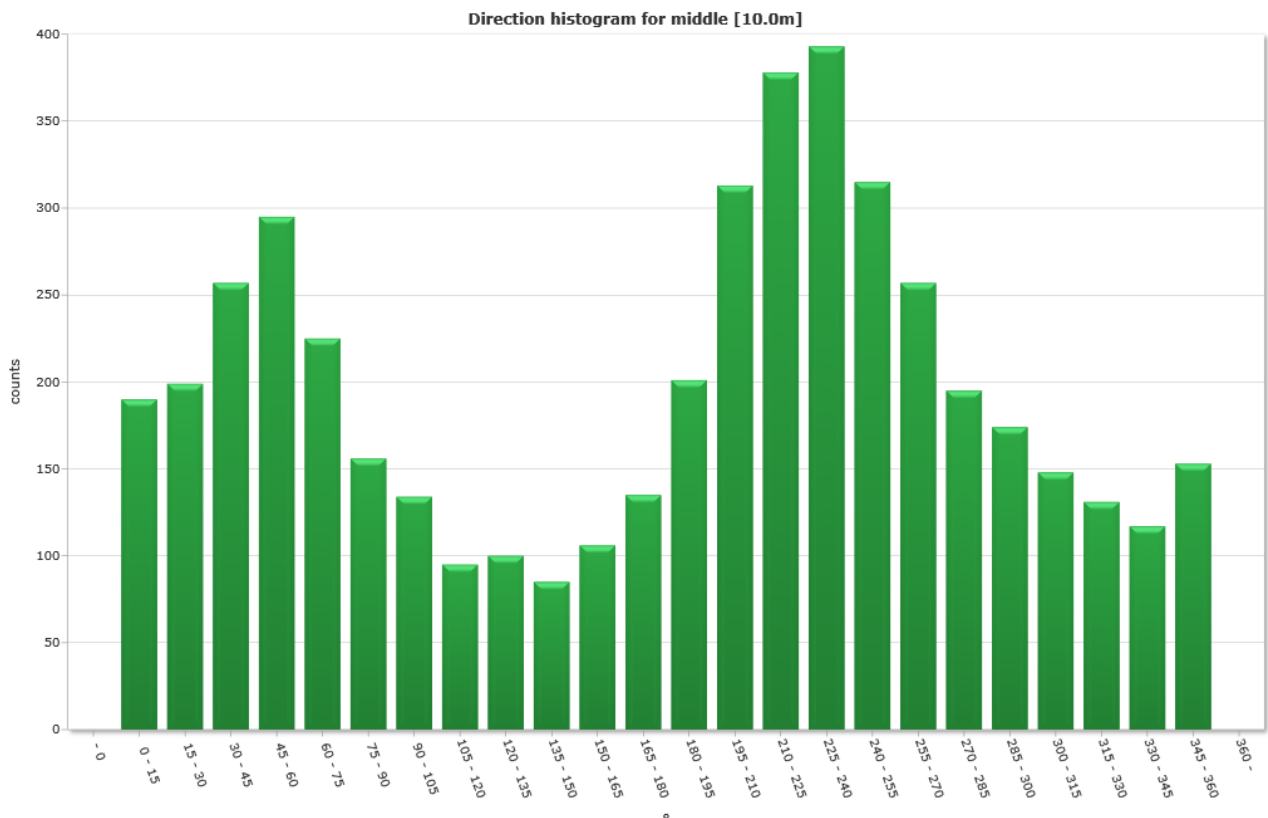


Direction histogram

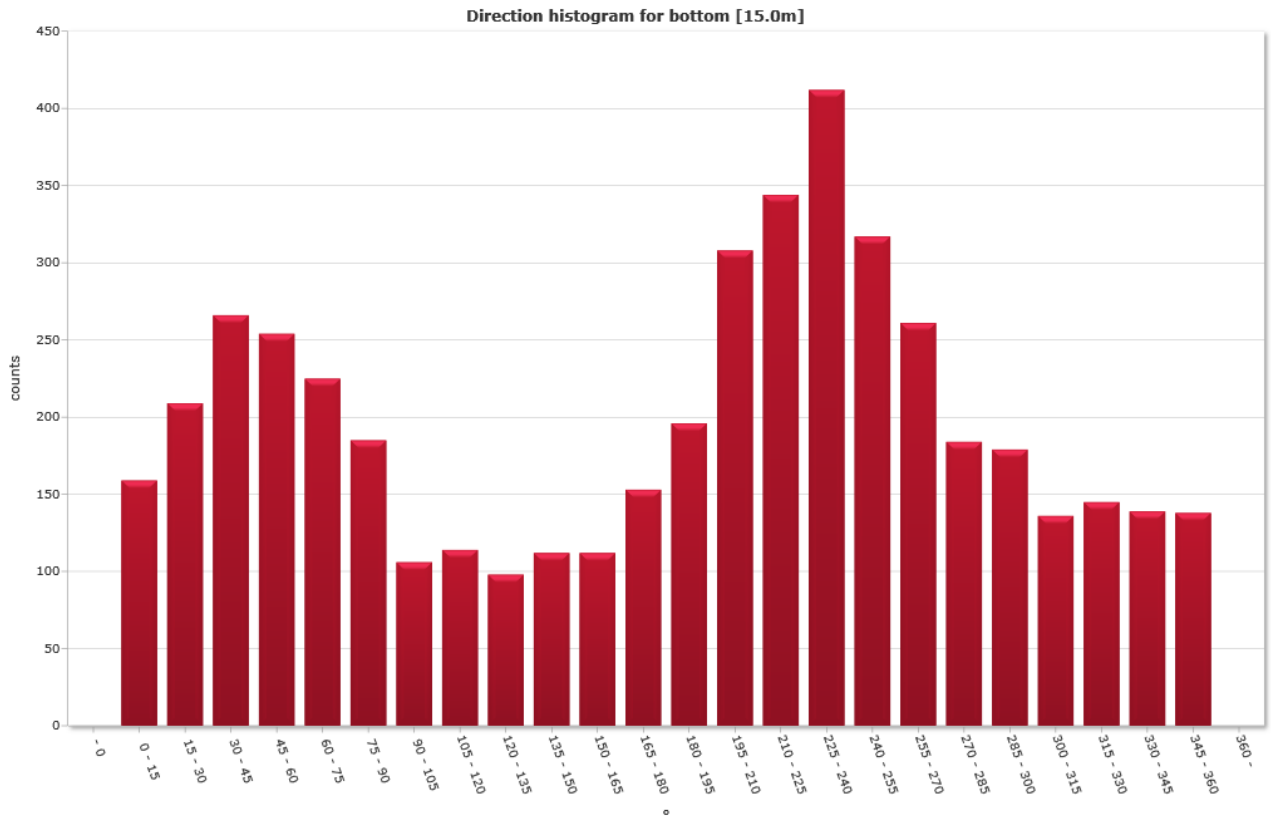
Top [5,0m]



Middle [10,0m]



Bottom [15,0m]



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																											
0.05	51	51	36	49	36	38	36	31	39	42	46	50	62	77	87	81	70	56	71	60	55	57	54	56	35.9	1291	
0.10	42	51	53	44	51	48	22	27	22	28	35	52	67	83	123	120	118	91	81	49	36	32	36	45	37.7	1356	
0.15	12	17	27	25	17	12	4	2	4	3	3	4	26	64	88	118	66	34	24	13	13	11	7	13	16.9	607	
0.20	1	8	12	25	6	3	0	0	0	0	0	1	5	23	48	49	22	15	4	1	1	0	0	2	6.3	226	
0.25	1	0	2	3	2	0	0	0	0	0	0	0	3	13	27	20	3	0	0	1	0	0	0	0	2.1	75	
0.30	1	0	0	0	0	0	0	0	0	0	0	0	4	11	6	10	3	0	0	0	0	0	0	0	1.0	35	
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0.1	4	
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0.1	3	
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.0	1	
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	
%	3.0	3.5	3.6	4.1	3.1	2.8	1.7	1.7	1.8	2.0	2.3	3.0	4.5	7.3	10.7	11.0	8.1	5.6	5.0	3.4	2.9	2.8	2.7	3.2	100.0	100.0	
Sum	108	127	130	146	112	101	62	60	65	73	84	107	163	264	385	397	292	200	180	124	105	100	97	116	100.0	3598	

Middle [10,0m]

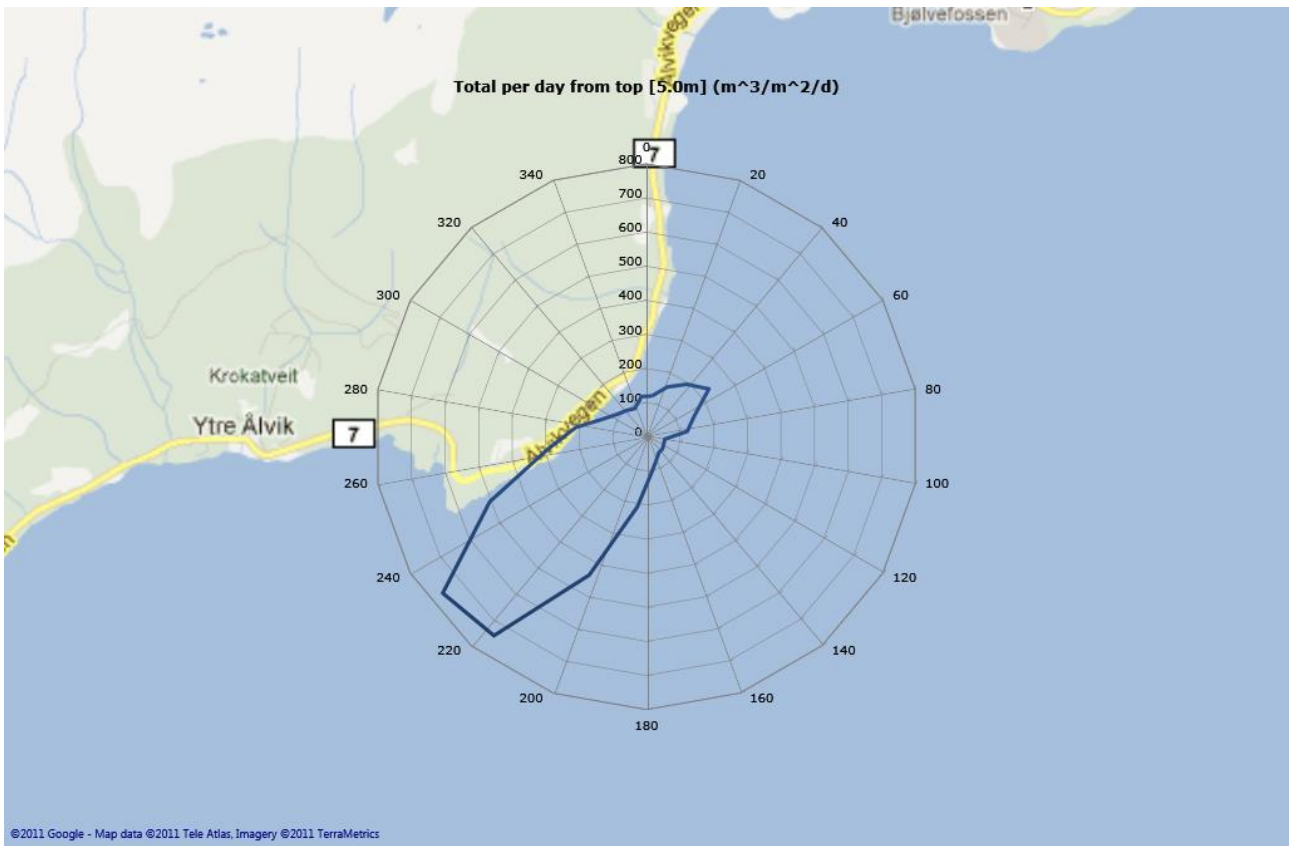
* m/s	Direction/speed matrix for middle [10.0m]																									%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
0.0																											
0.05	90	74	90	86	58	63	78	64	67	54	59	67	88	101	111	111	87	97	94	89	82	66	67	72	40.3	1915	
0.10	78	82	103	120	102	59	46	27	30	28	46	61	82	142	179	167	165	124	88	70	56	56	43	61	42.4	2015	
0.15	21	39	55	51	43	23	9	4	3	3	1	7	29	59	66	92	50	35	13	14	10	9	7	17	13.9	660	
0.20	1	4	9	26	14	9	1	0	0	0	0	0	2	11	21	23	11	1	0	1	0	0	0	3	2.9	137	
0.25	0	0	0	10	6	1	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0.4	20	
0.30	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	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	
%	4.0	4.2	5.4	6.2	4.7	3.3	2.8	2.0	2.1	1.8	2.2	2.8	4.2	6.6	8.0	8.3	6.6	5.4	4.1	3.7	3.1	2.8	2.5	3.2	100.0	100.0	
Sum	190	199	257	295	225	156	134	95	100	85	106	135	201	313	378	393	315	257	195	174	148	131	117	153	100.0	4752	

Bottom [15,0m]

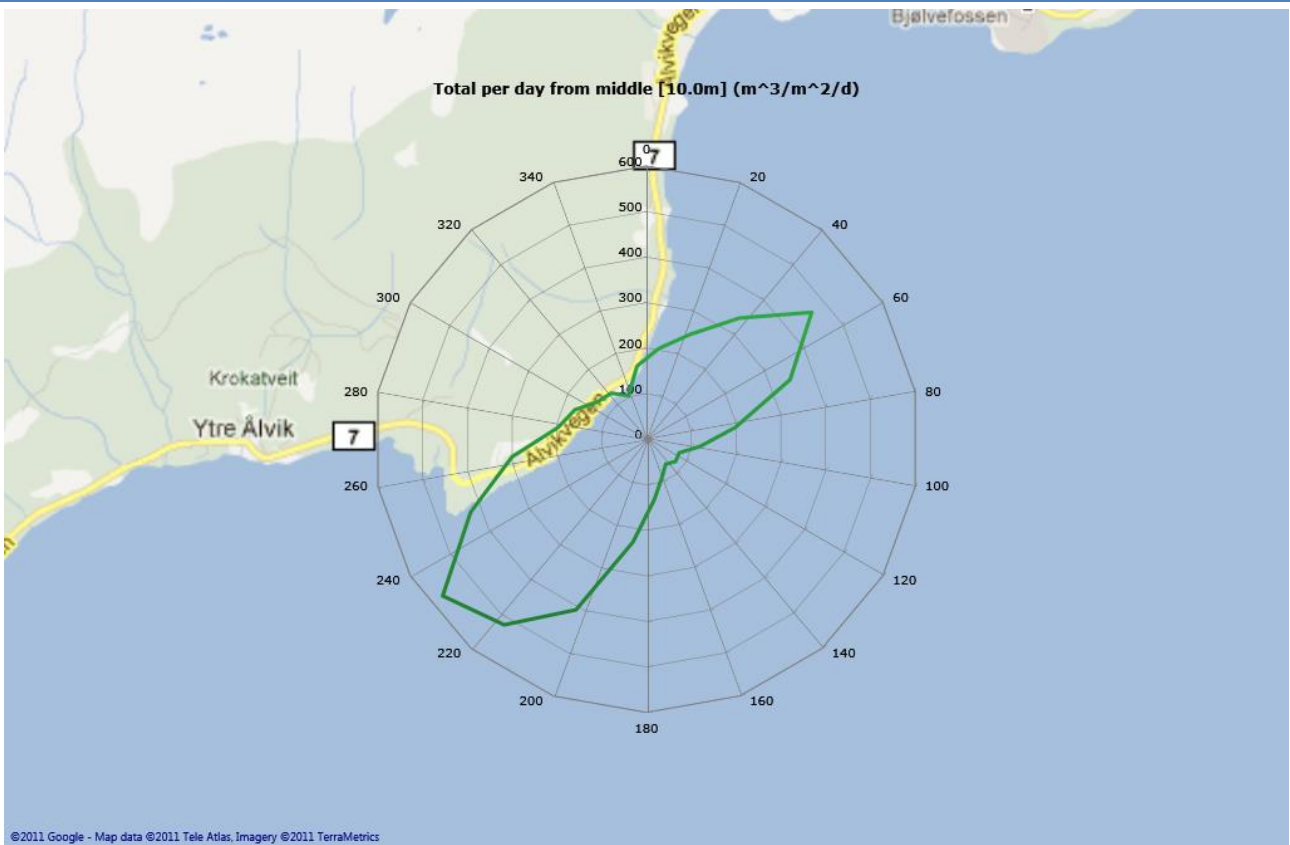
° m/s	Direction/speed matrix for bottom [15.0m]																								%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360		
0.0																										
0.05	87	88	94	78	82	79	68	82	73	75	71	74	84	116	104	134	110	128	90	100	88	99	89	83	45.8	2176
0.10	63	97	129	113	95	88	30	30	24	34	36	66	95	129	178	179	153	103	85	75	46	45	46	48	41.8	1987
0.15	9	22	31	50	38	15	8	2	1	3	5	13	16	56	51	81	48	26	9	4	2	1	4	6	10.5	501
0.20	0	2	10	11	10	2	0	0	0	0	0	0	1	7	11	13	6	4	0	0	0	0	0	1	1.6	78
0.25	0	0	2	2	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0.2	9
0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.0	1
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
%	3.3	4.4	5.6	5.3	4.7	3.9	2.2	2.4	2.1	2.4	2.4	3.2	4.1	6.5	7.2	8.7	6.7	5.5	3.9	3.8	2.9	3.1	2.9	2.9	100.0	100.0
Sum	159	209	266	254	225	185	106	114	98	112	112	153	196	308	344	412	317	261	184	179	136	145	139	138	100.0	4752

Flow

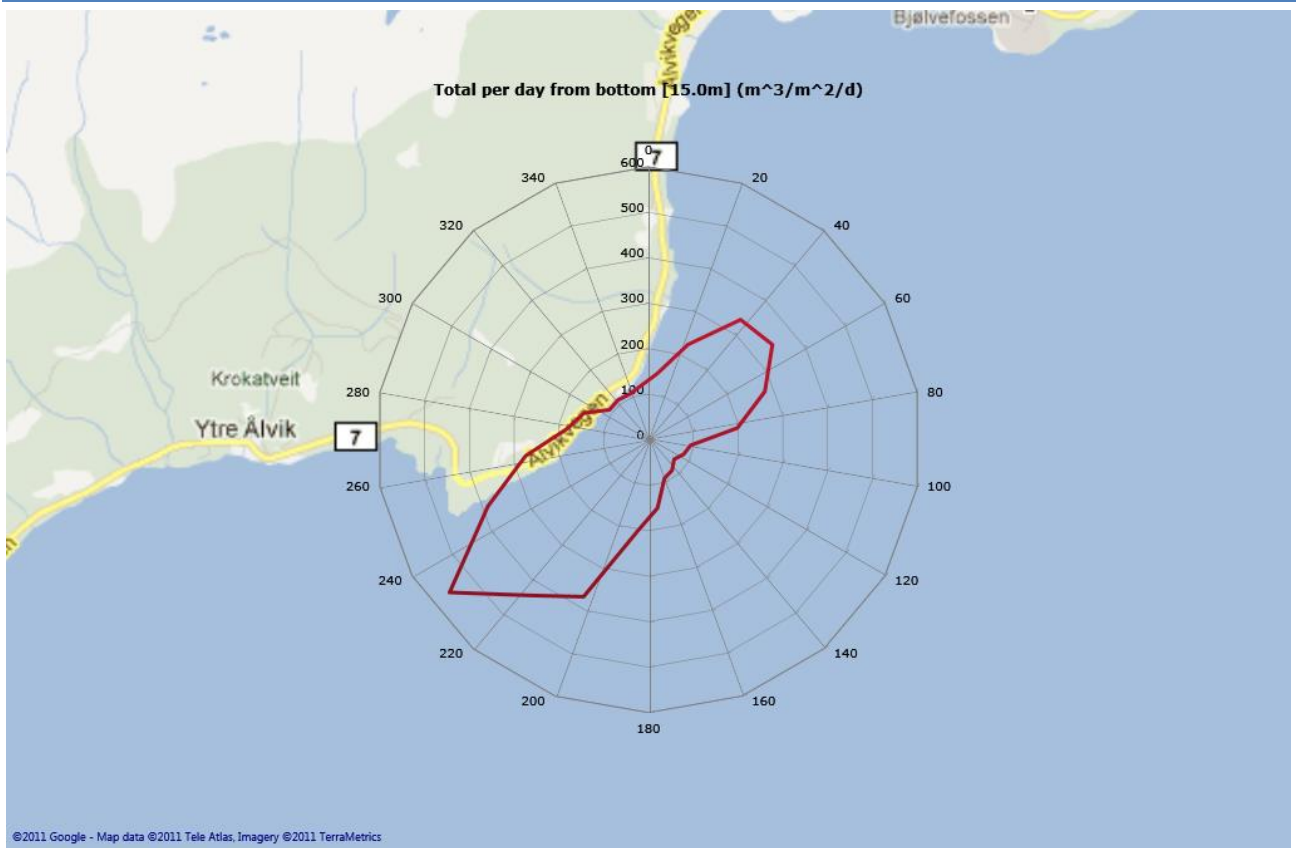
Top [5,0m]



Middle [10,0m]

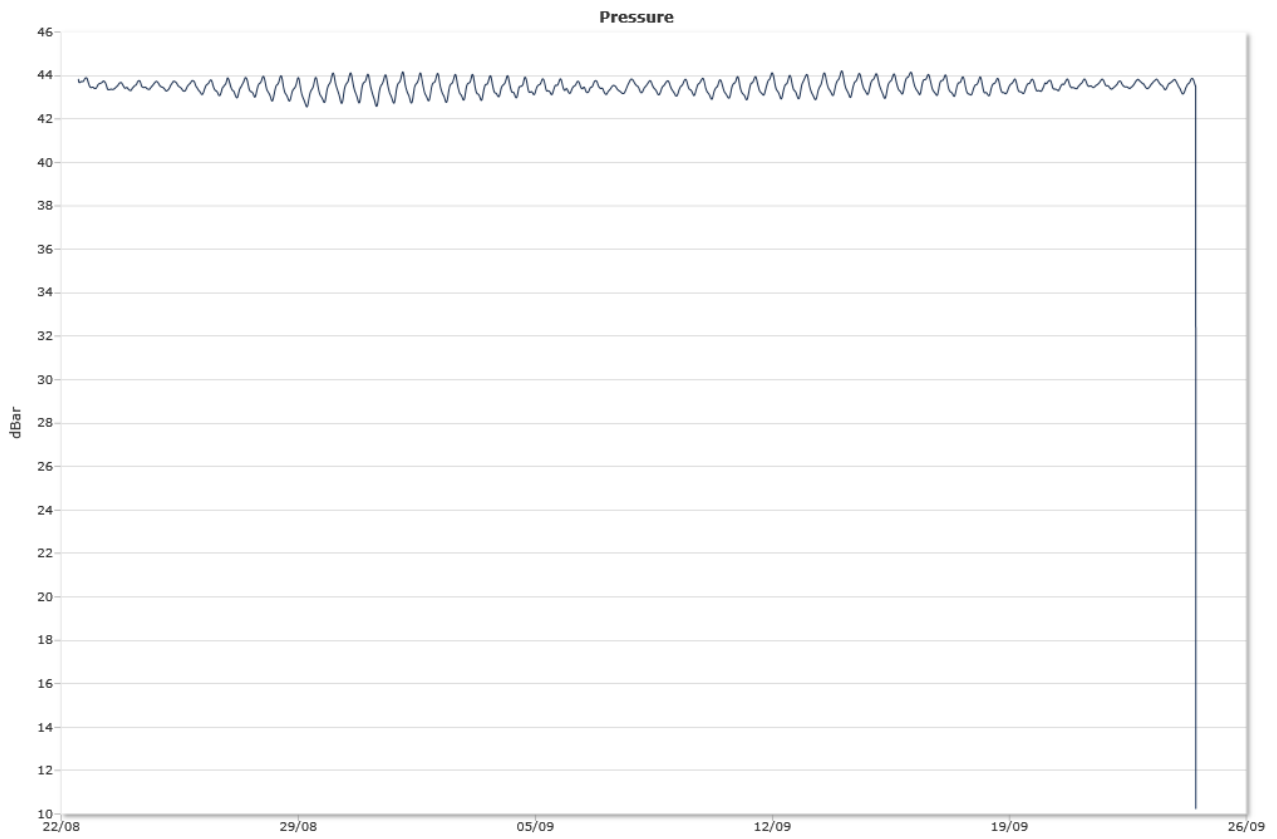


Bottom [15,0m]



Sensors

Pressure



Tilt



Temperature



Straummåling Tveitnes S1

Spreiingsstraum

16.10.2011

Resipientanalyse

Frode Berge-Haveland

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Bottom [50,0m].....	18
Sensors.....	19
Pressure.....	19
Tilt.....	19
Temperature.....	20

Sammendrag

Detaljer

Instrument

Head Id	AQP 4368
Frequency	400000

Oppsett

Start	22.08.2011 11:00
End	25.09.2011 11:40
Data records	4901
Longitude	6° 24,04'E
Latitude	60° 24,70'N
Orientation	DOWN
Cells	40
Cell size(m)	2
Blanking distance(m)	0,99
Measurement interval(sec)	600

Kvalitet

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

Post prosessering

Selected Start	22.08.2011 11:40
Selected End	24.09.2011 11:40
Selected Records	4753
Reference	Water Surface
Top Depth(m)	35
Top invalid data	4699
Middle Depth(m)	40
Middle invalid data	4651
Bottom invalid data	4007

Statistikk

Top [35,0m]

Mean current [m/s]	0.09
Max current [m/s]	0.21
Min current [m/s]	0.01
Measurements [#]	54
Std.dev [m/s]	0.05
Significant max velocity [m/s]	0.15
Significant min velocity [m/s]	0.04
10 year return current [m/s]	0.349
50 year return current [m/s]	0.392
Most significant directions [°]	105.00, 90.00, 75.00, 285.00
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Least flow	0.00m ³ by 150-165°.

Middle [40,0m]

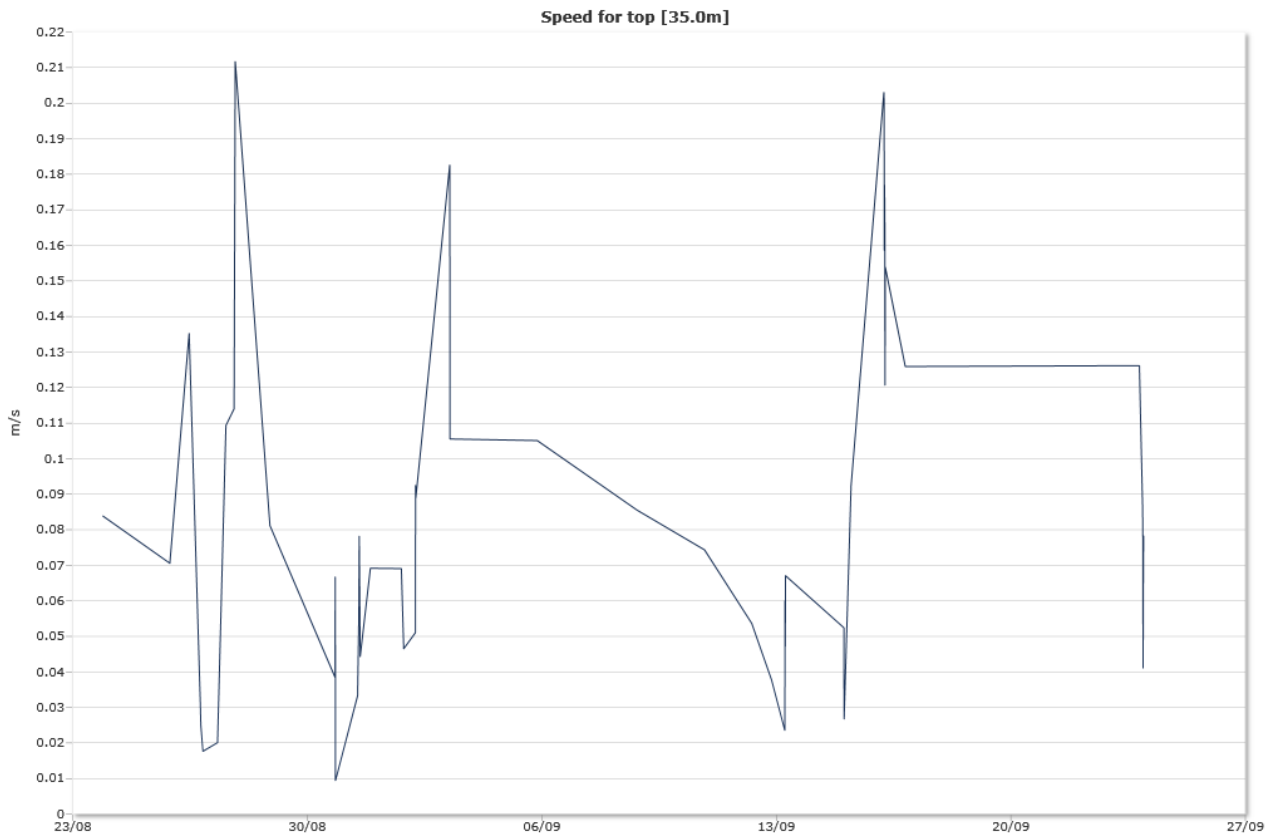
Mean current [m/s]	0.07
Max current [m/s]	0.20
Min current [m/s]	0.00
Measurements [#]	102
Std.dev [m/s]	0.05
Significant max velocity [m/s]	0.13
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.322
50 year return current [m/s]	0.361
Most significant directions [°]	90.00, 75.00, 60.00, 225.00
Most significant speeds [m/s]	0.10, 0.05, 0.15, 0.20
Least flow	0.00m ³ by 0-15°.

Bottom [50,0m]

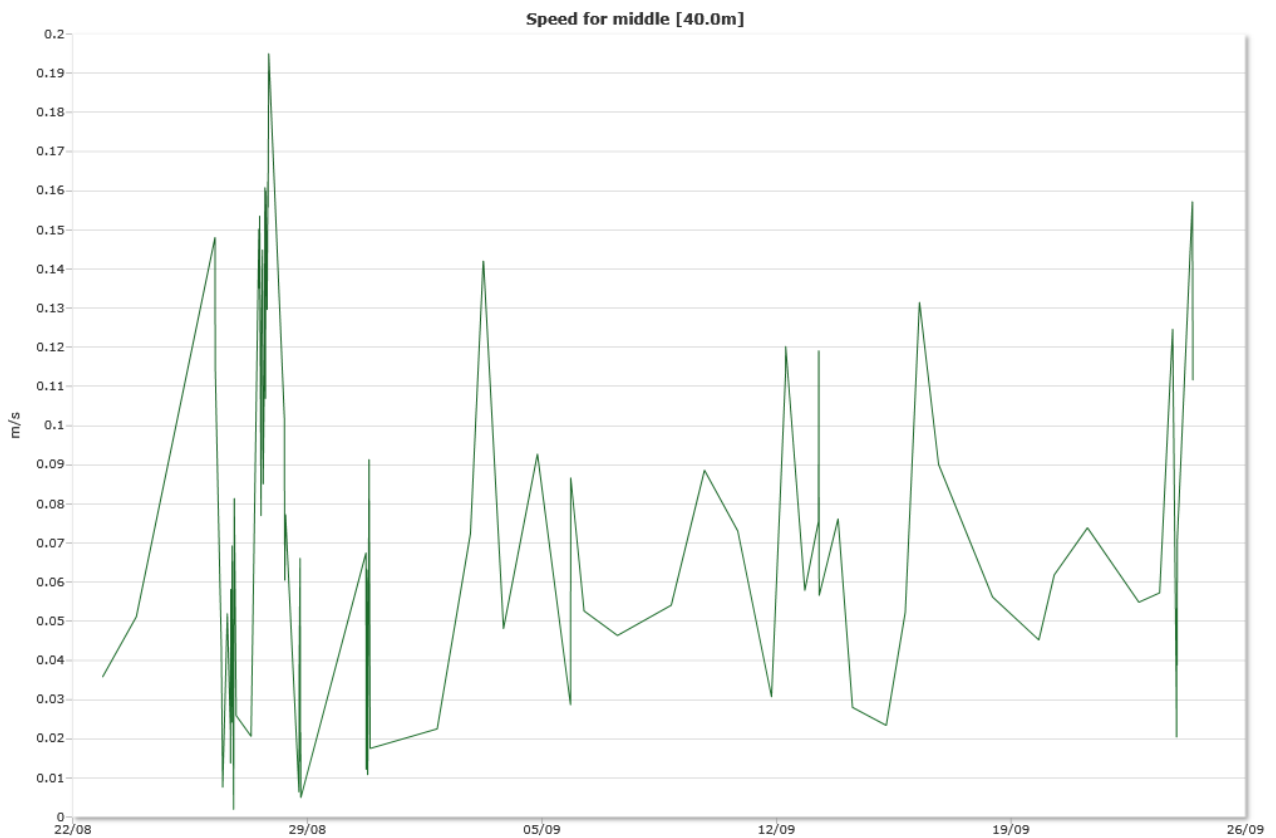
Mean current [m/s]	0.05
Max current [m/s]	0.16
Min current [m/s]	0.00
Measurements [#]	746
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.08
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.269
50 year return current [m/s]	0.302
Most significant directions [°]	255.00, 210.00, 270.00, 195.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	415.78m ³ by 105-120°.

Time series

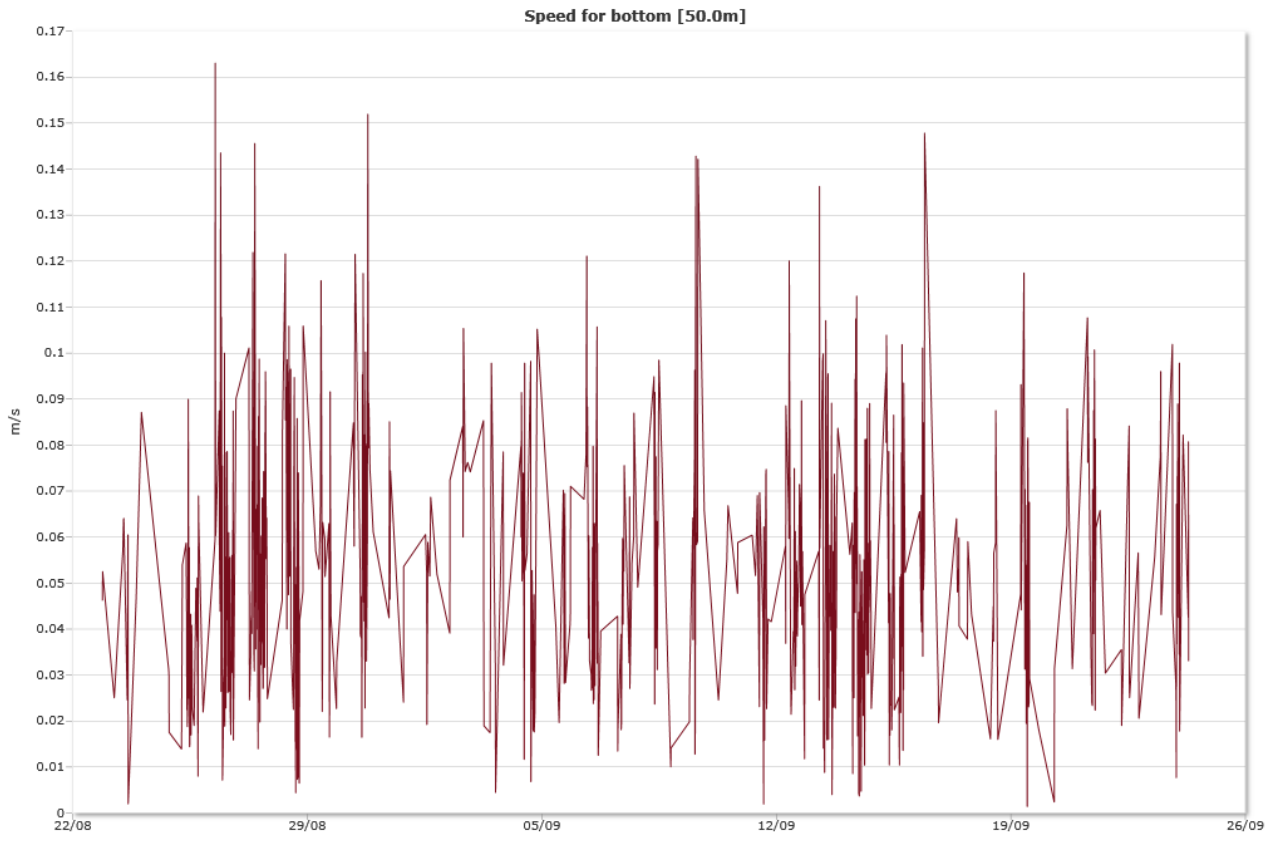
Top [35,0m]



Middle [40,0m]

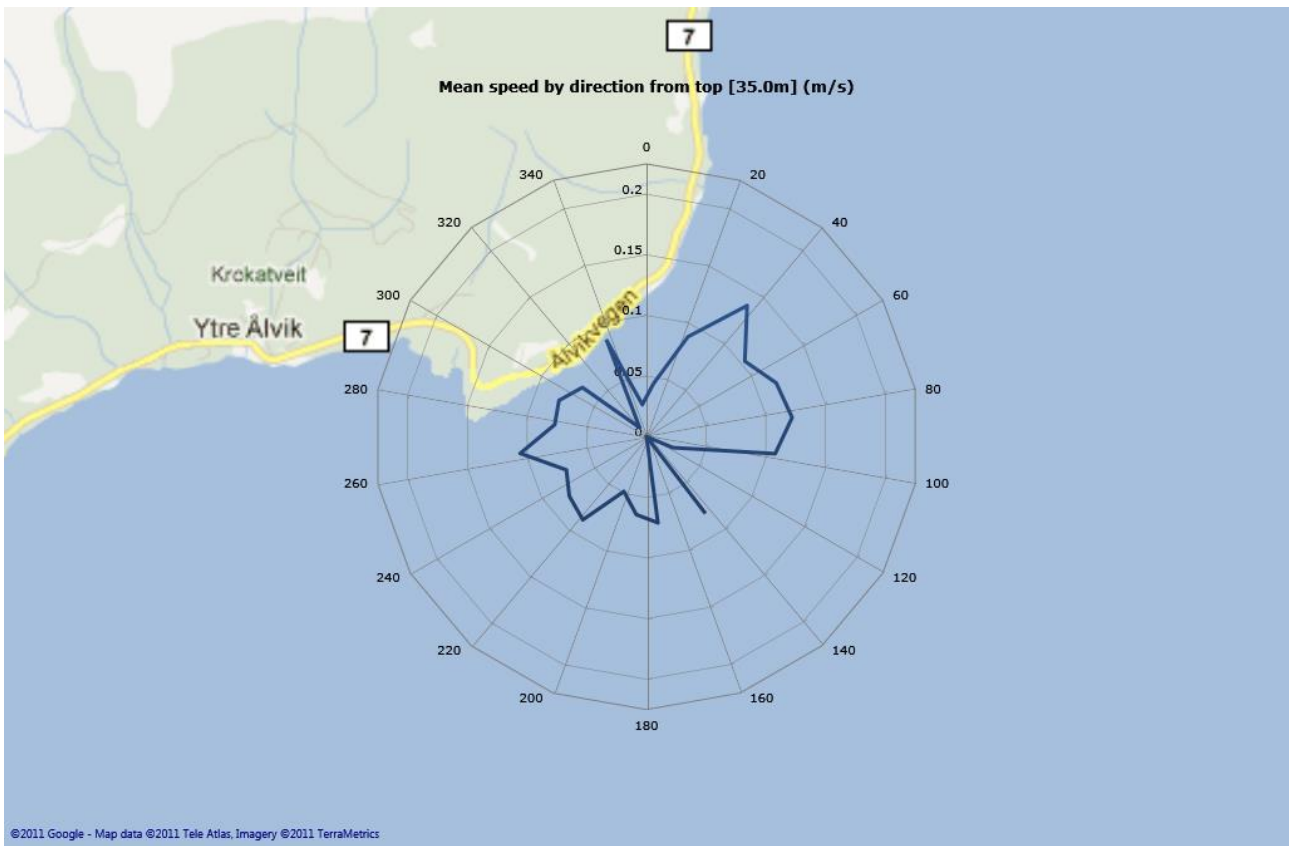


Bottom [50,0m]



Mean speed - roseplot

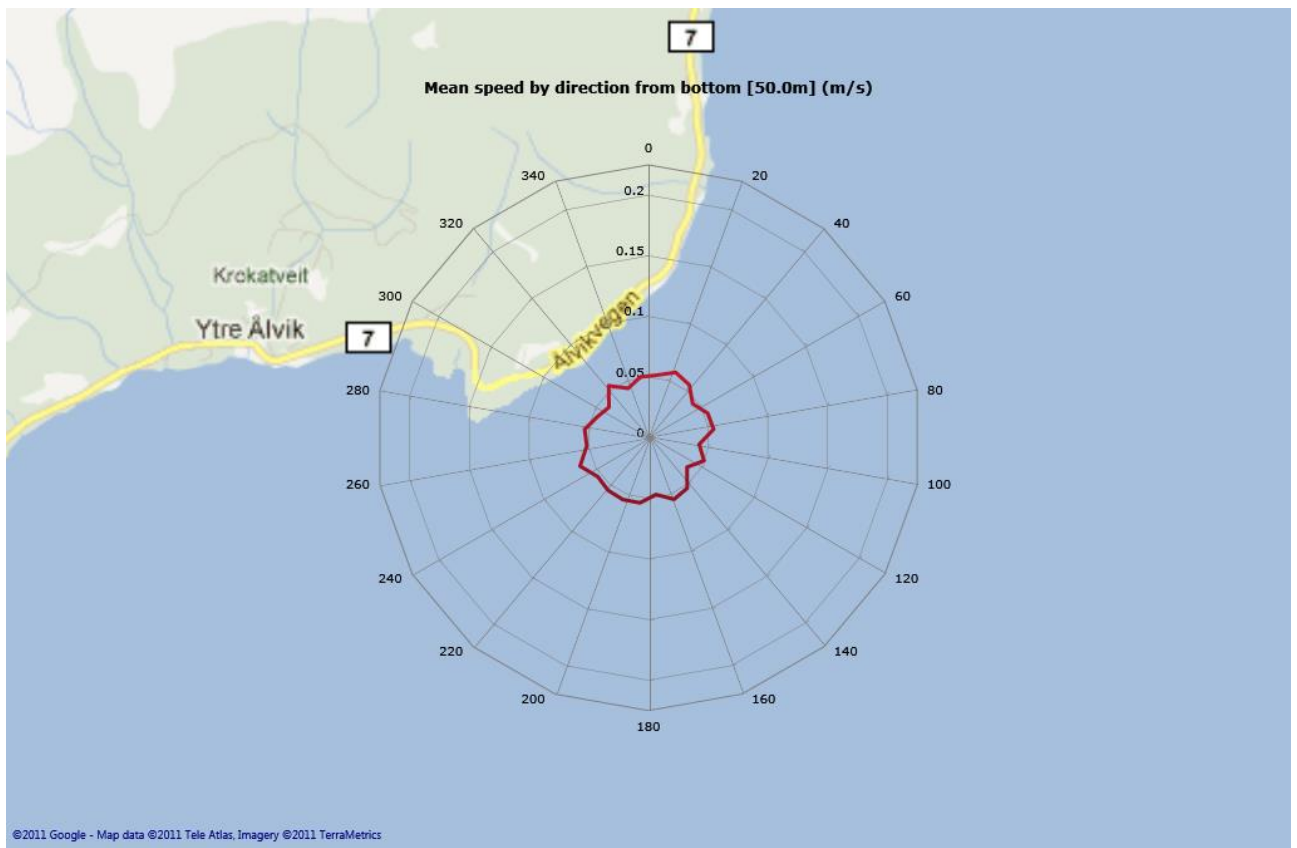
Top [35,0m]



Middle [40,0m]

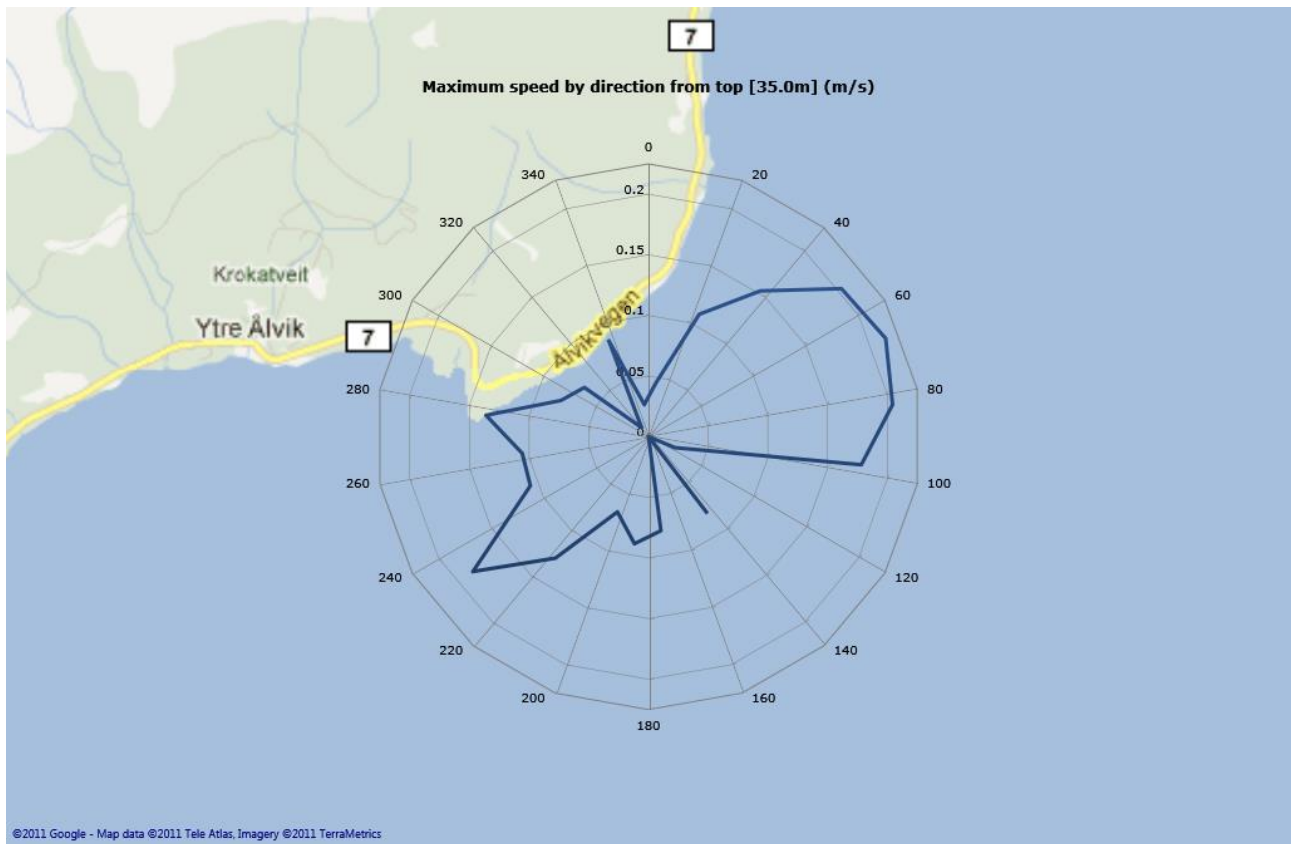


Bottom [50,0m]

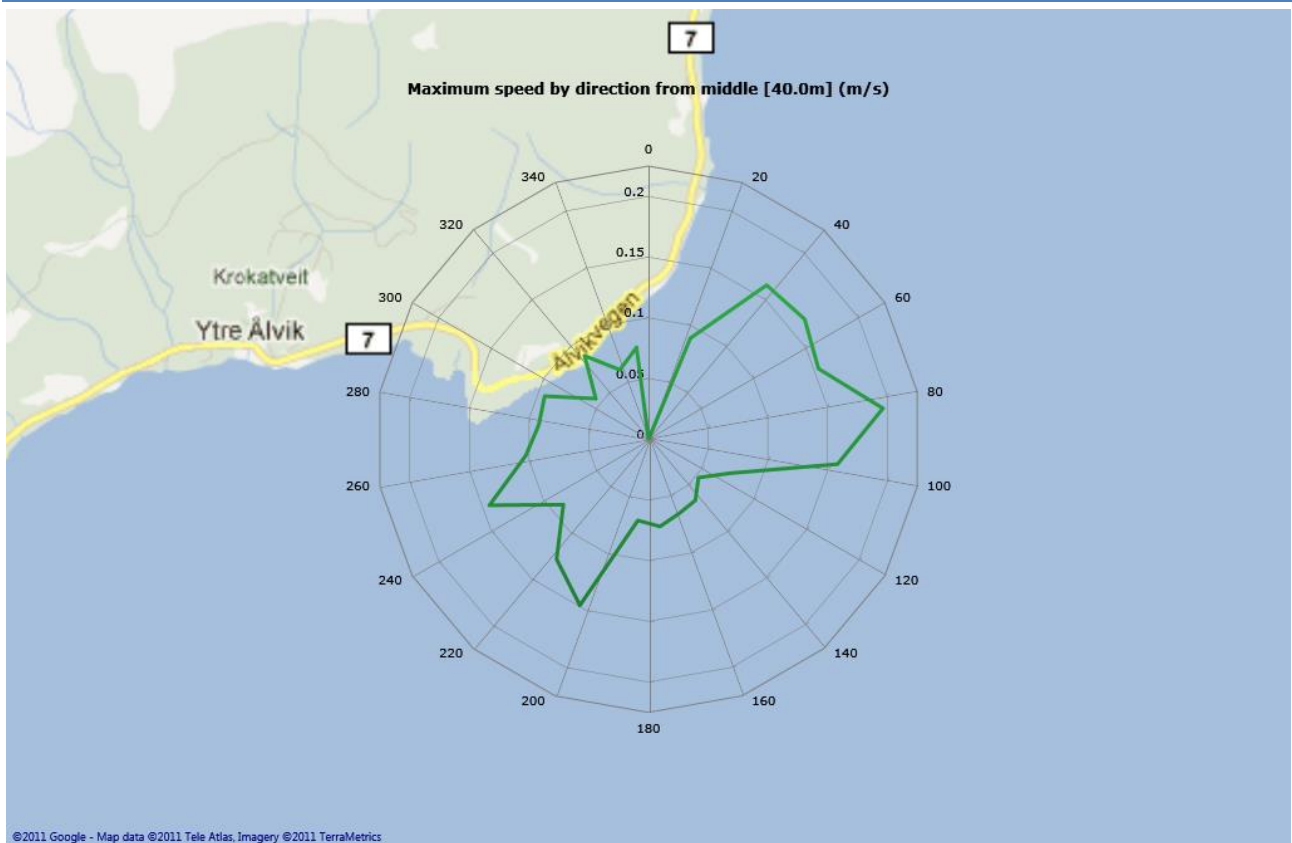


Max speed - roseplot

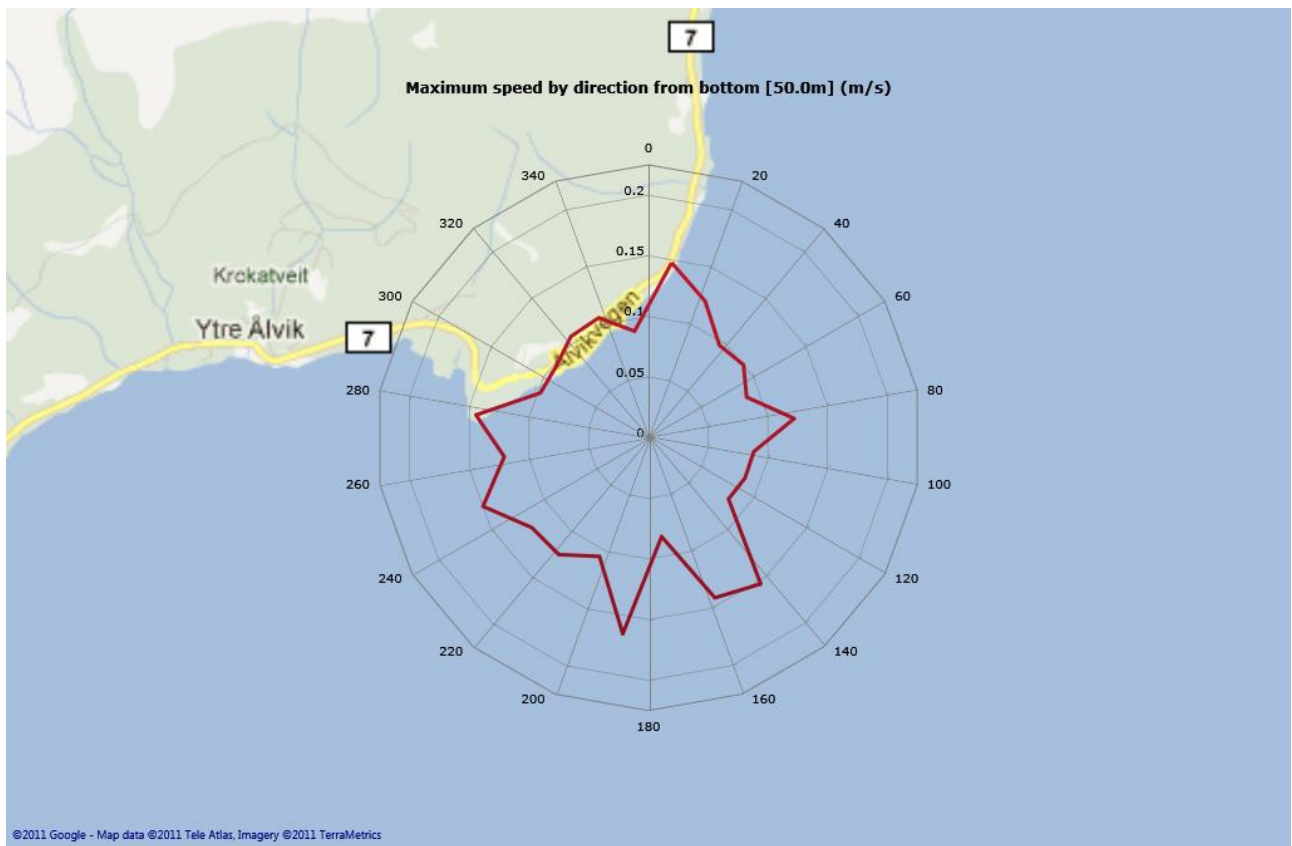
Top [35,0m]



Middle [40,0m]

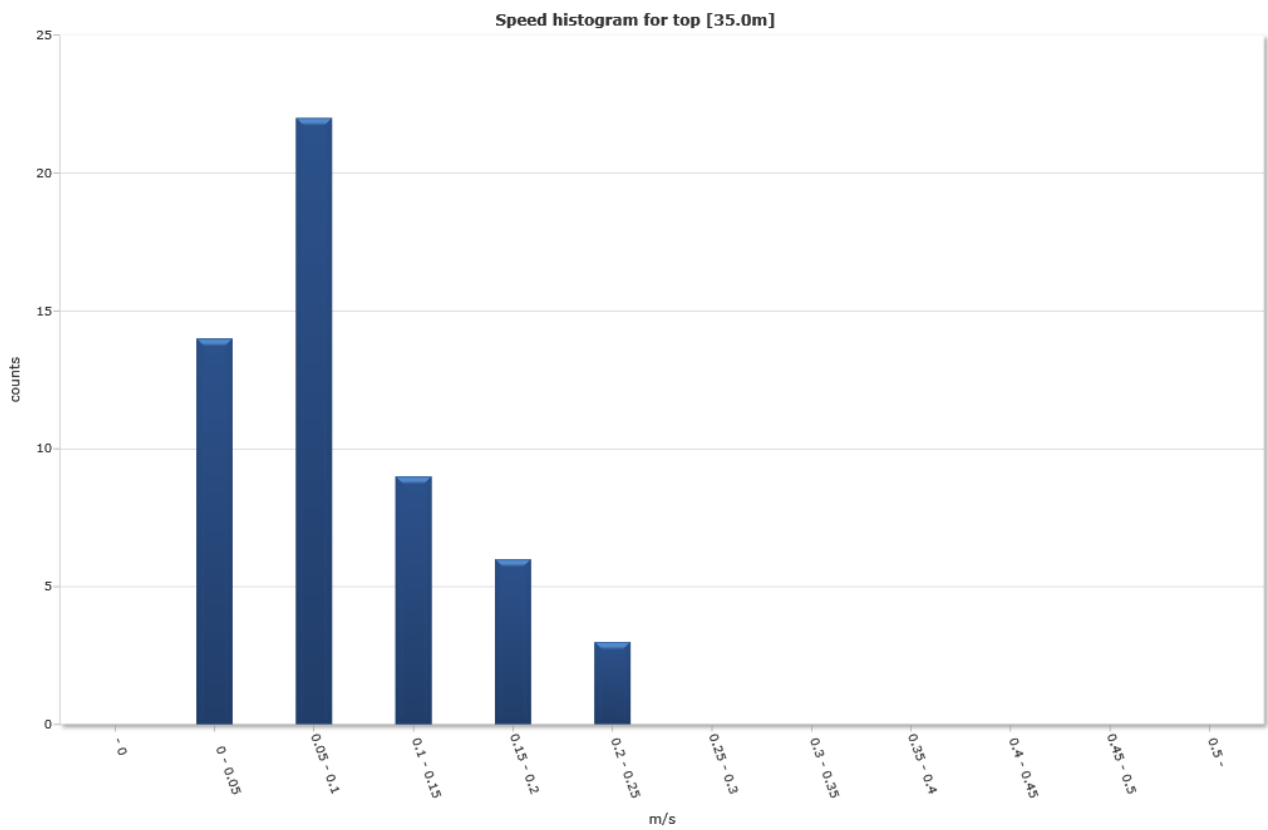


Bottom [50,0m]

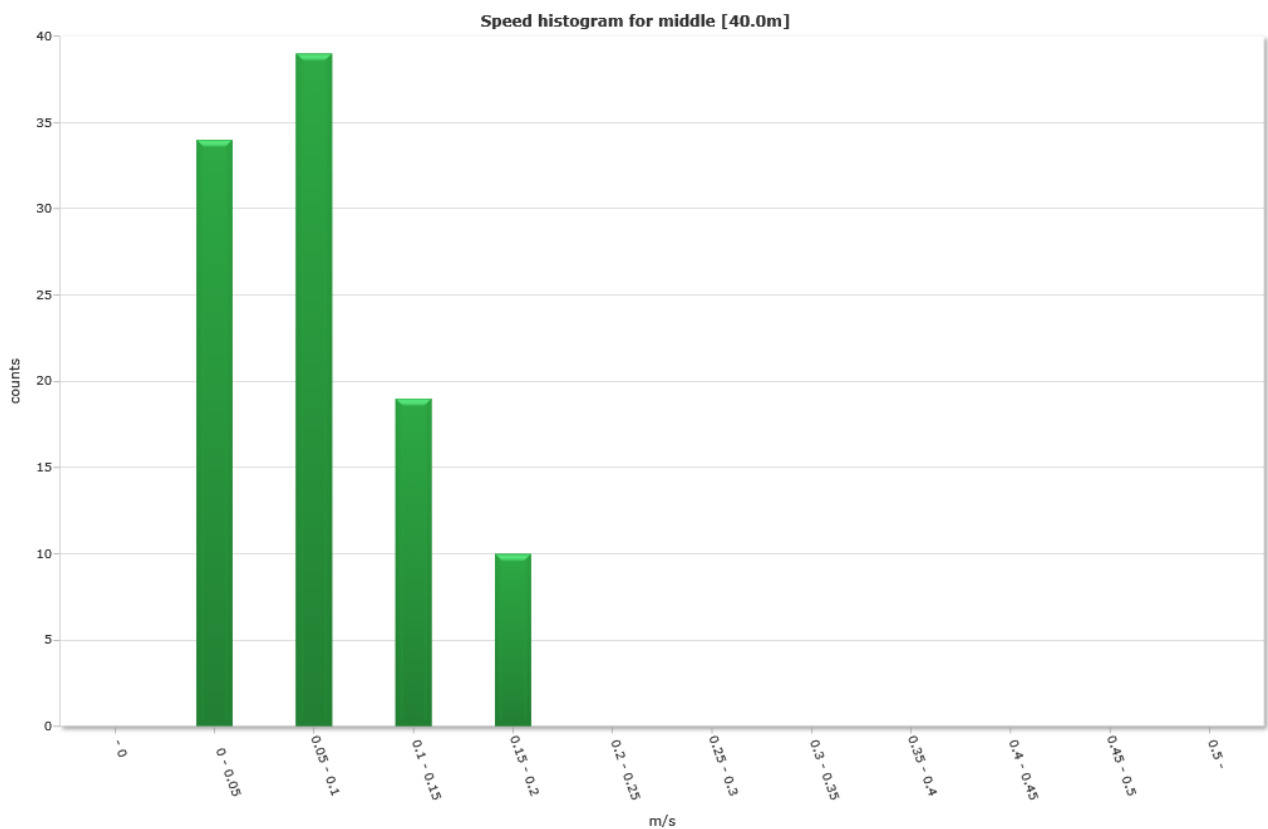


Speed histogram

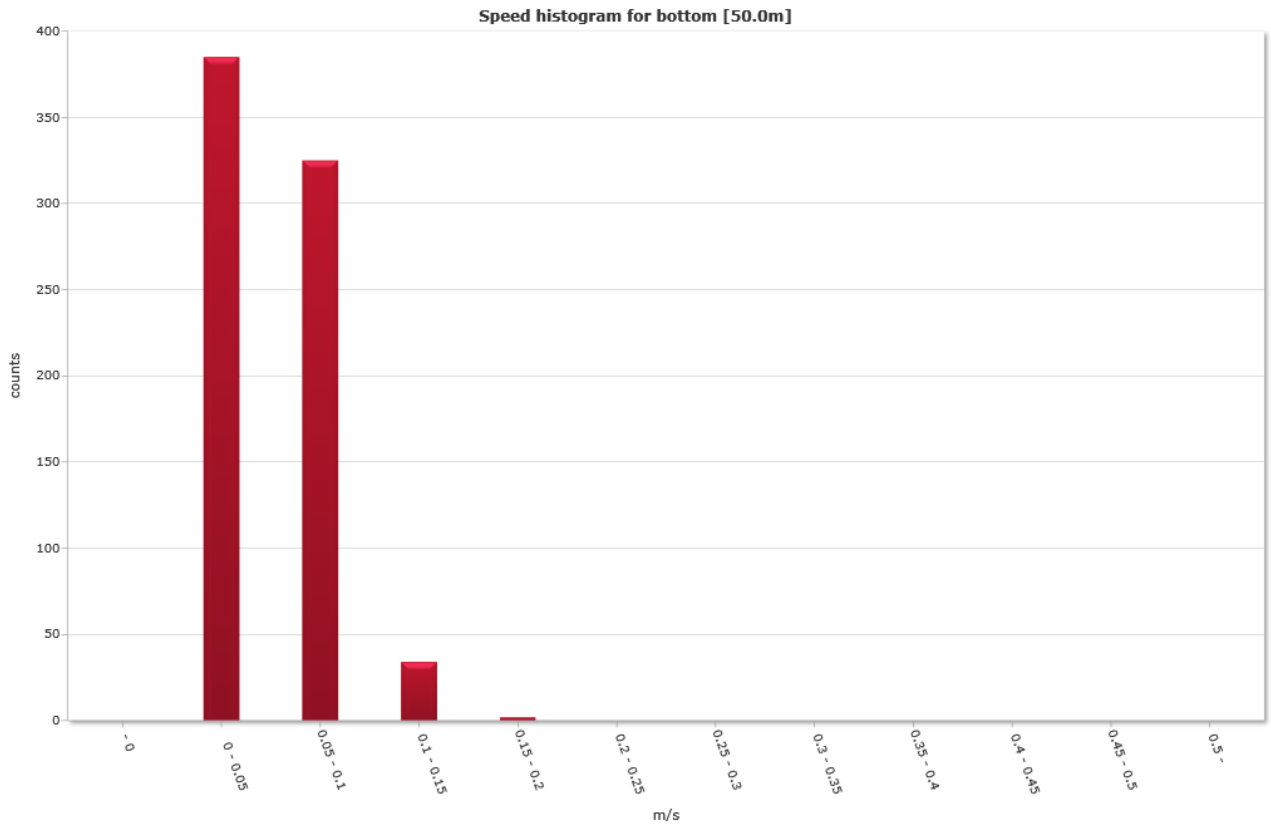
Top [35,0m]



Middle [40,0m]

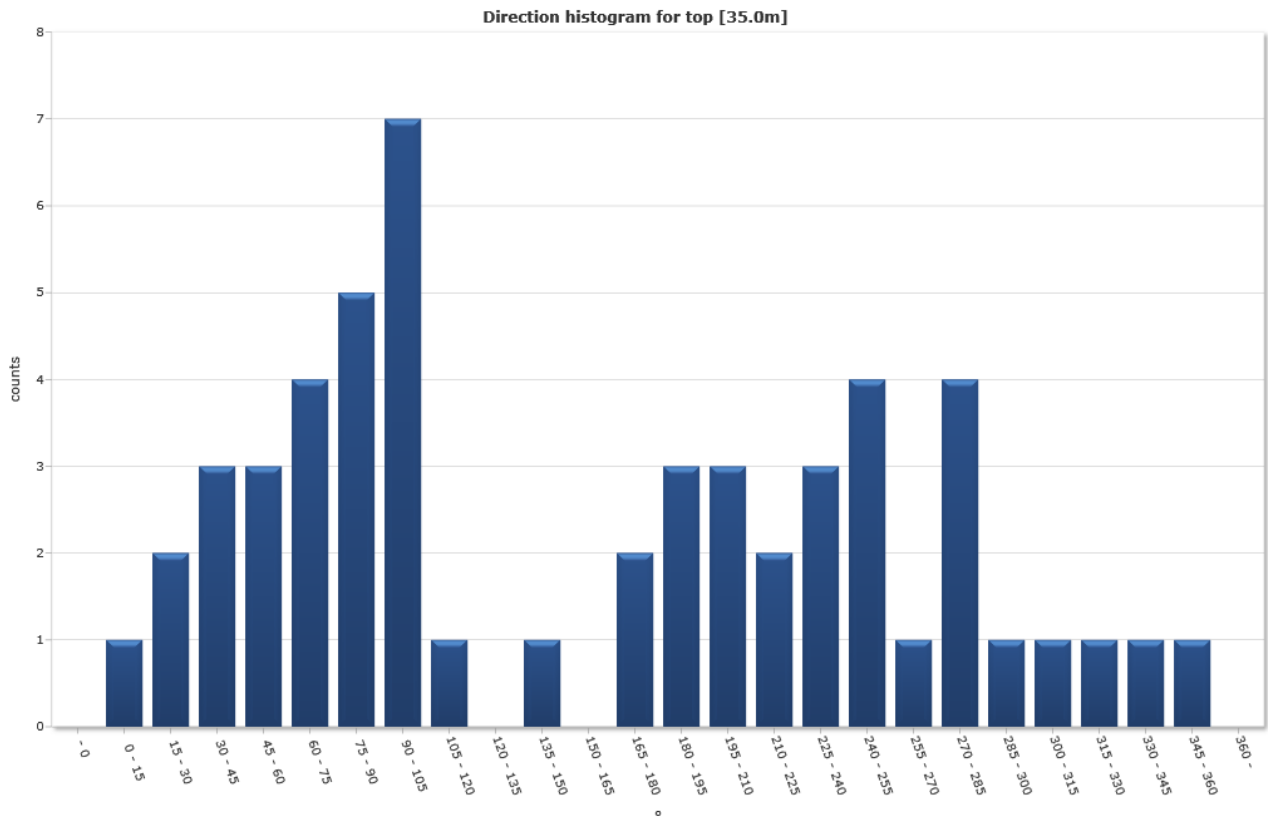


Bottom [50,0m]

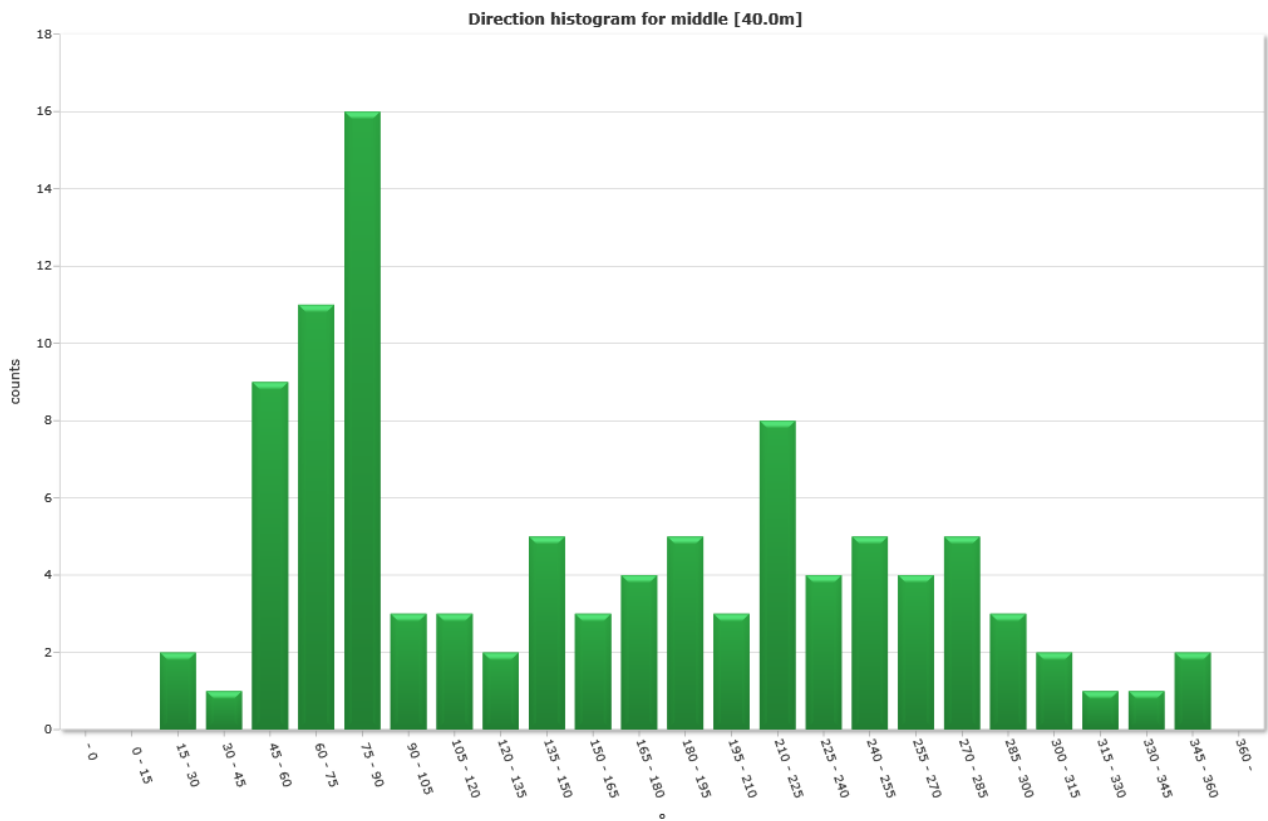


Direction histogram

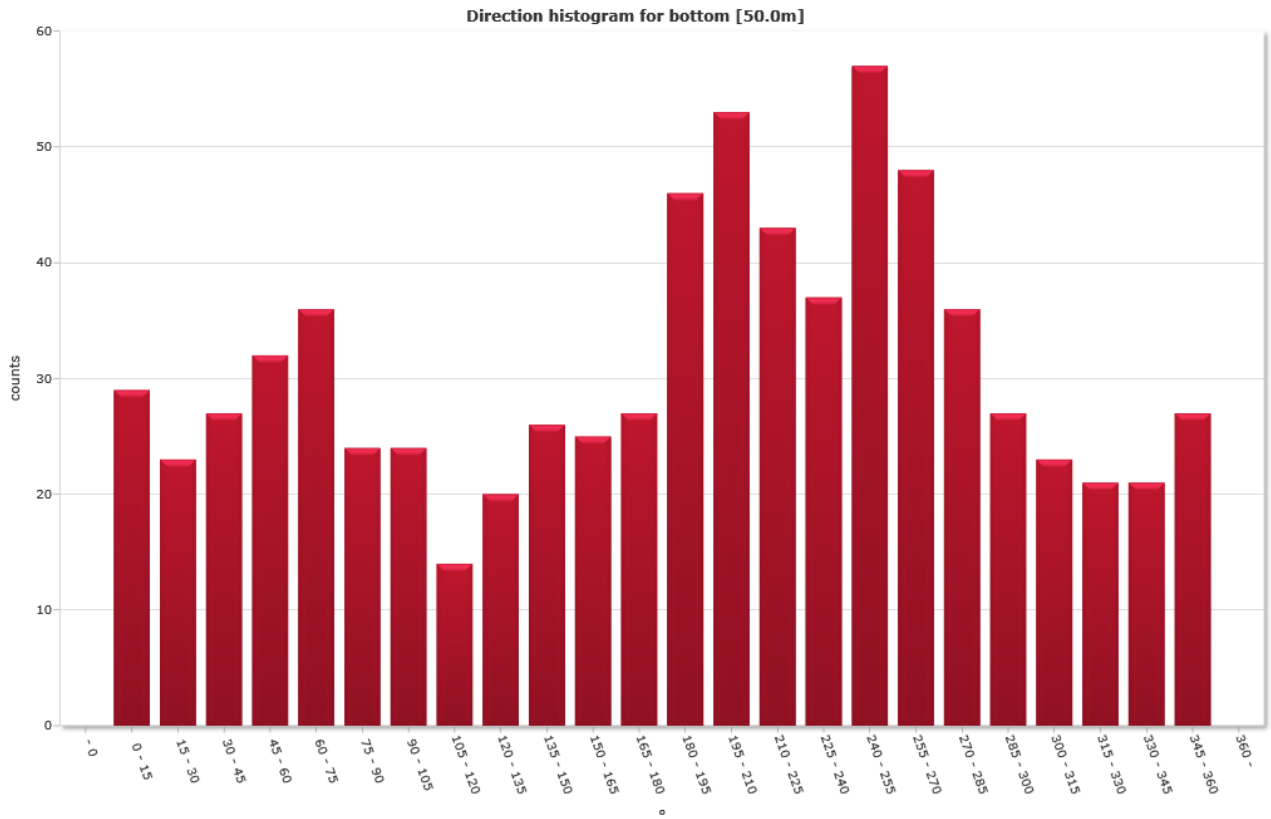
Top [35,0m]



Middle [40,0m]



Bottom [50,0m]



Direction/Speed histogram

Top [35,0m]

		Direction/speed matrix for top [35.0m]																									
m/s		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
0.0																											
0.05		1	0	0	0	2	1	0	1	0	0	0	0	0	2	1	2	1	0	1	0	0	1	0	1	25.9	14
0.10		0	1	0	2	0	1	4	0	0	1	0	2	3	1	0	0	2	0	2	1	1	0	1	0	40.7	22
0.15		0	1	2	0	0	1	1	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	16.7	9
0.20		0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	11.1	6
0.25		0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.6	3
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
%		1.9	3.7	5.6	5.6	7.4	9.3	13.0	1.9	0.0	1.9	0.0	3.7	5.6	5.6	3.7	5.6	7.4	1.9	7.4	1.9	1.9	1.9	1.9	1.9	100.0	100.0
Sum		1	2	3	3	4	5	7	1	0	1	0	2	3	3	2	3	4	1	4	1	1	1	1	1	100.0	54

Middle [40,0m]

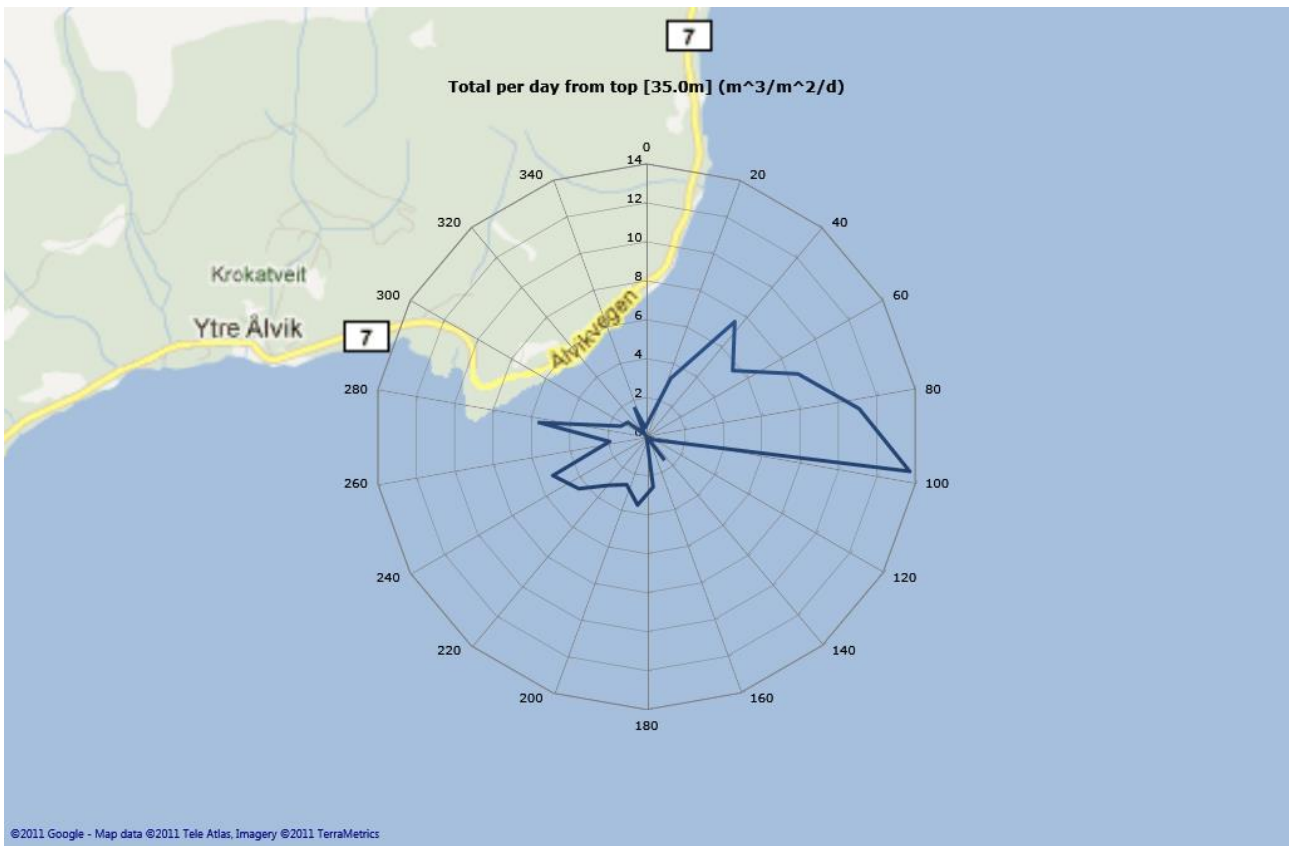
		Direction/speed matrix for middle [40.0m]																									
m/s		15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	%	Sum
0.0																											
0.05		0	0	0	2	2	4	0	1	1	3	1	2	3	1	5	0	1	3	3	0	1	0	0	1	33.3	34
0.10		0	2	0	0	4	4	1	2	1	2	2	2	2	1	1	4	2	0	2	3	1	1	1	1	38.2	39
0.15		0	0	0	3	3	6	1	0	0	0	0	0	0	1	2	0	2	1	0	0	0	0	0	0	18.6	19
0.20		0	0	1	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.8	10
0.25		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
0.30		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
%		0.0	2.0	1.0	8.8	10.8	15.7	2.9	2.9	2.0	4.9	2.9	3.9	4.9	2.9	7.8	3.9	4.9	3.9	4.9	2.9	2.0	1.0	1.0	2.0	100.0	100.0
Sum		0	2	1	9	11	16	3	3	2	5	3	4	5	3	8	4	5	4	5	3	2	1	1	2	100.0	102

Bottom [50,0m]

° m/s	Direction/speed matrix for bottom [50.0m]																								%	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	16	10	10	21	16	10	17	7	14	15	10	16	22	25	21	19	23	28	19	17	16	8	14	11	51.6	385
0.05	12	11	17	11	20	12	7	7	6	8	13	11	22	25	19	15	27	17	14	10	7	12	6	16	43.6	325
0.10	1	2	0	0	0	2	0	0	0	2	2	0	1	3	3	3	7	3	3	0	0	1	1	0	4.6	34
0.15	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.3	2
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
0.25	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
0.30	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
%	3.9	3.1	3.6	4.3	4.8	3.2	3.2	1.9	2.7	3.5	3.4	3.6	6.2	7.1	5.8	5.0	7.6	6.4	4.8	3.6	3.1	2.8	2.8	3.6	100.0	100.0
Sum	29	23	27	32	36	24	24	14	20	26	25	27	46	53	43	37	57	48	36	27	23	21	21	27	100.0	746

Flow

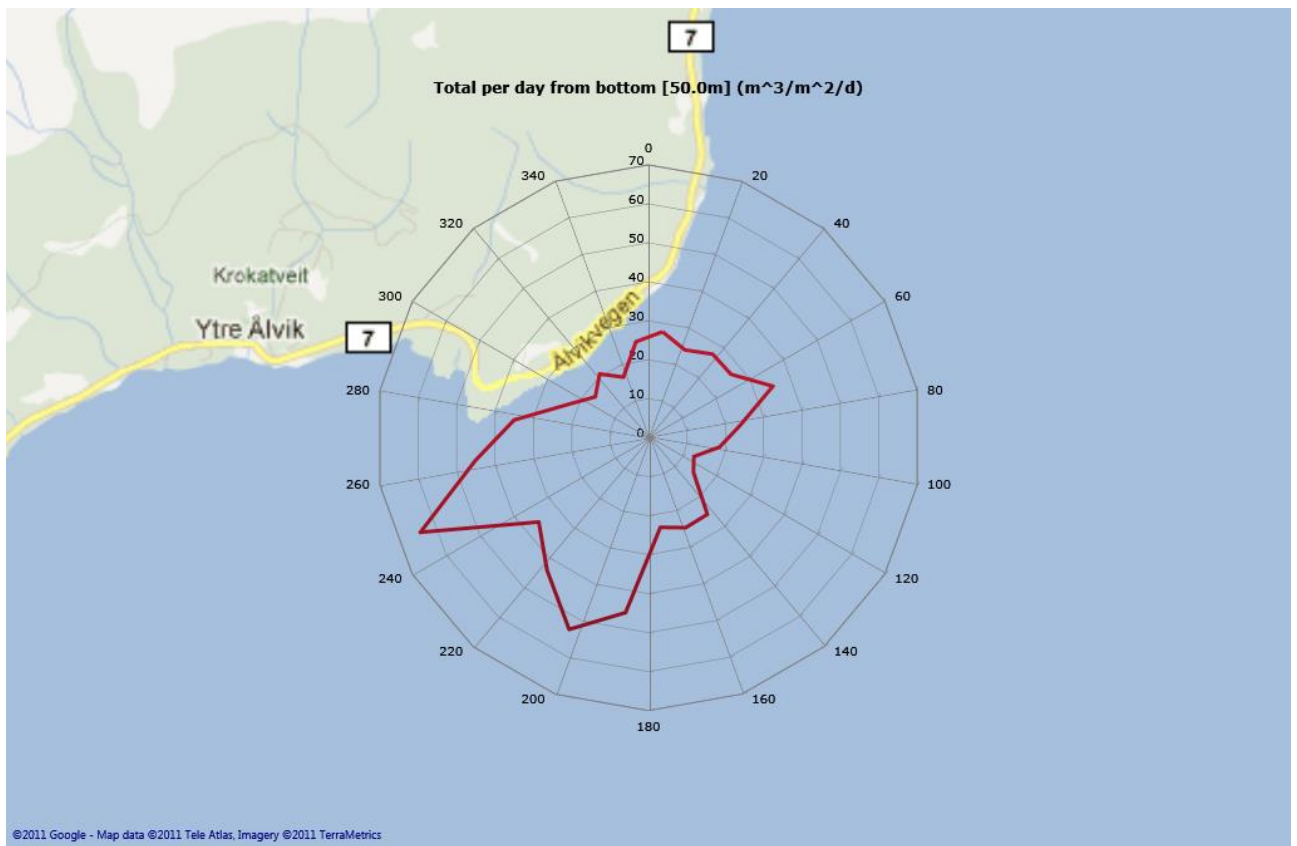
Top [35,0m]



Middle [40,0m]

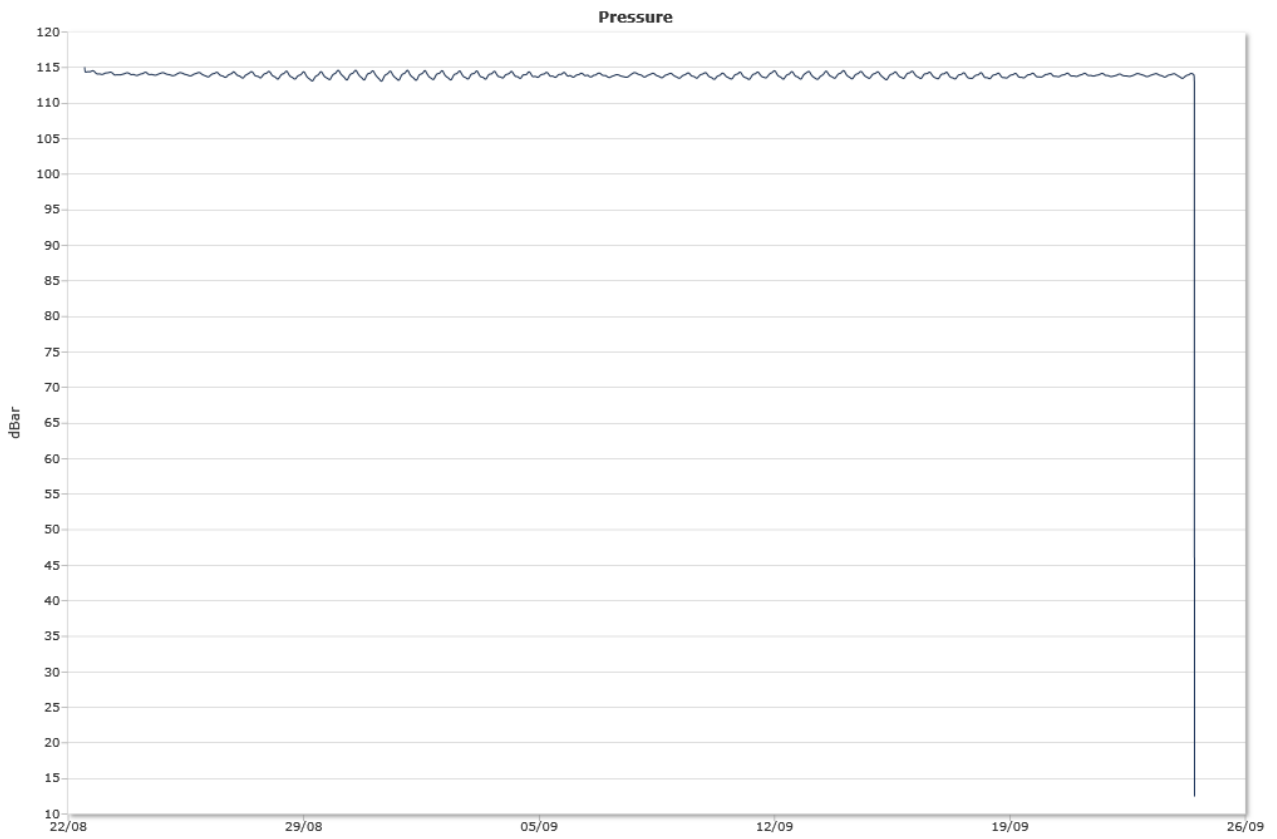


Bottom [50,0m]

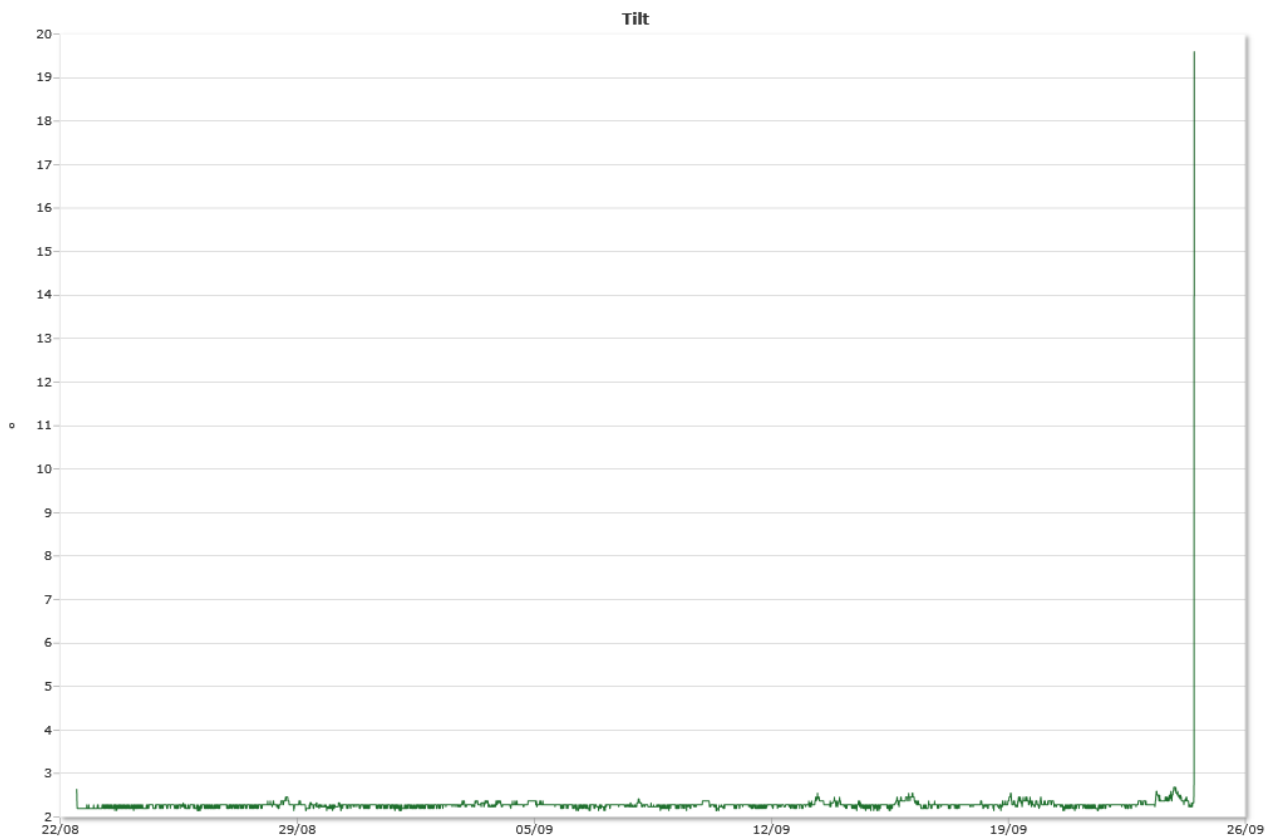


Sensors

Pressure



Tilt



Temperature



Straummåling Tveitnes S2

Spreiingsstraum

16.10.2011

Resipientanalyse

Frode Berge-Haveland

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Sammendrag

Detaljer

Instrument

Head Id	AQP 4663
Frequency	400000

Oppsett

Start	22.08.2011 11:00
End	25.09.2011 12:40
Data records	4907
Longitude	6° 24,19'E
Latitude	60° 24,91'N
Orientation	DOWN
Cells	40
Cell size(m)	2
Blanking distance(m)	0,99
Measurement interval(sec)	600

Kvalitet

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

Post prosessering

Selected Start	22.08.2011 12:10
Selected End	24.09.2011 12:10
Selected Records	4753
Reference	Water Surface
Top Depth(m)	20
Top invalid data	1
Middle Depth(m)	30
Middle invalid data	1
Bottom invalid data	1

Statistikk

Top [20,0m]

Mean current [m/s]	0.06
Max current [m/s]	0.24
Min current [m/s]	0.00
Measurements [#]	4752
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]	0.395
50 year return current [m/s]	0.443
Most significant directions [°]	240.00, 255.00, 225.00, 210.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2657.64m ³ by 120-135°.

Middle [30,0m]

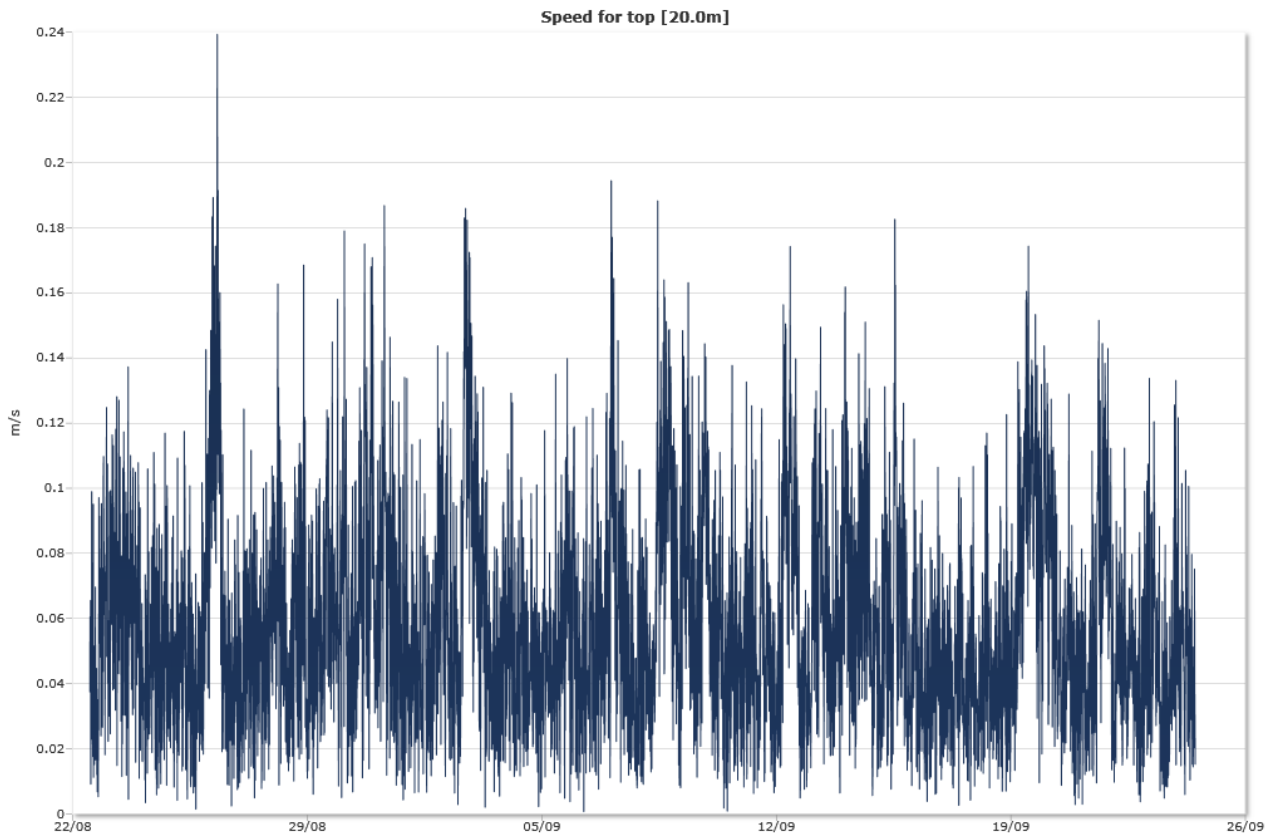
Mean current [m/s]	0.05
Max current [m/s]	0.23
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.08
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.385
50 year return current [m/s]	0.432
Most significant directions [°]	240.00, 255.00, 225.00, 270.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2629.72m ³ by 165-180°.

Bottom [40,0m]

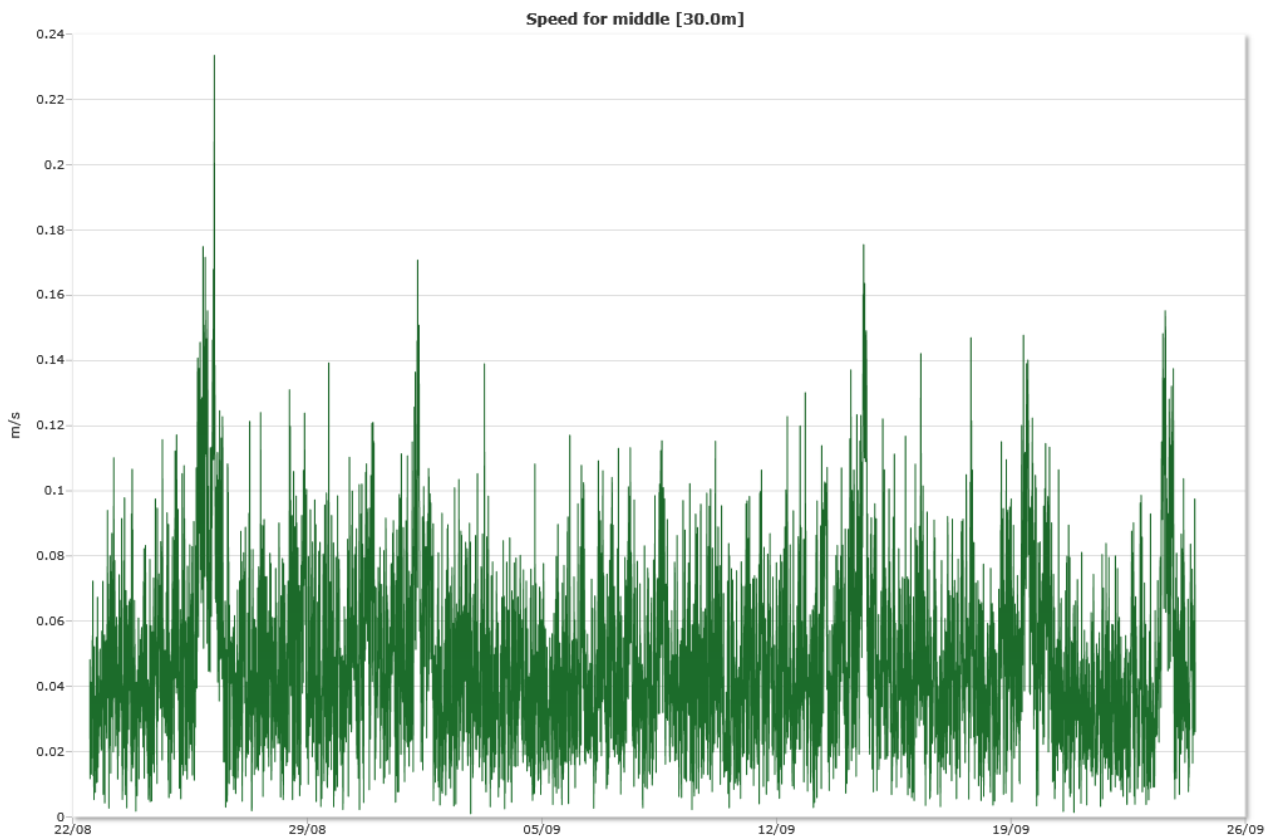
Mean current [m/s]	0.05
Max current [m/s]	0.20
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.03
Significant max velocity [m/s]	0.09
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.327
50 year return current [m/s]	0.366
Most significant directions [°]	255.00, 240.00, 270.00, 285.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2813.29m ³ by 135-150°.

Time series

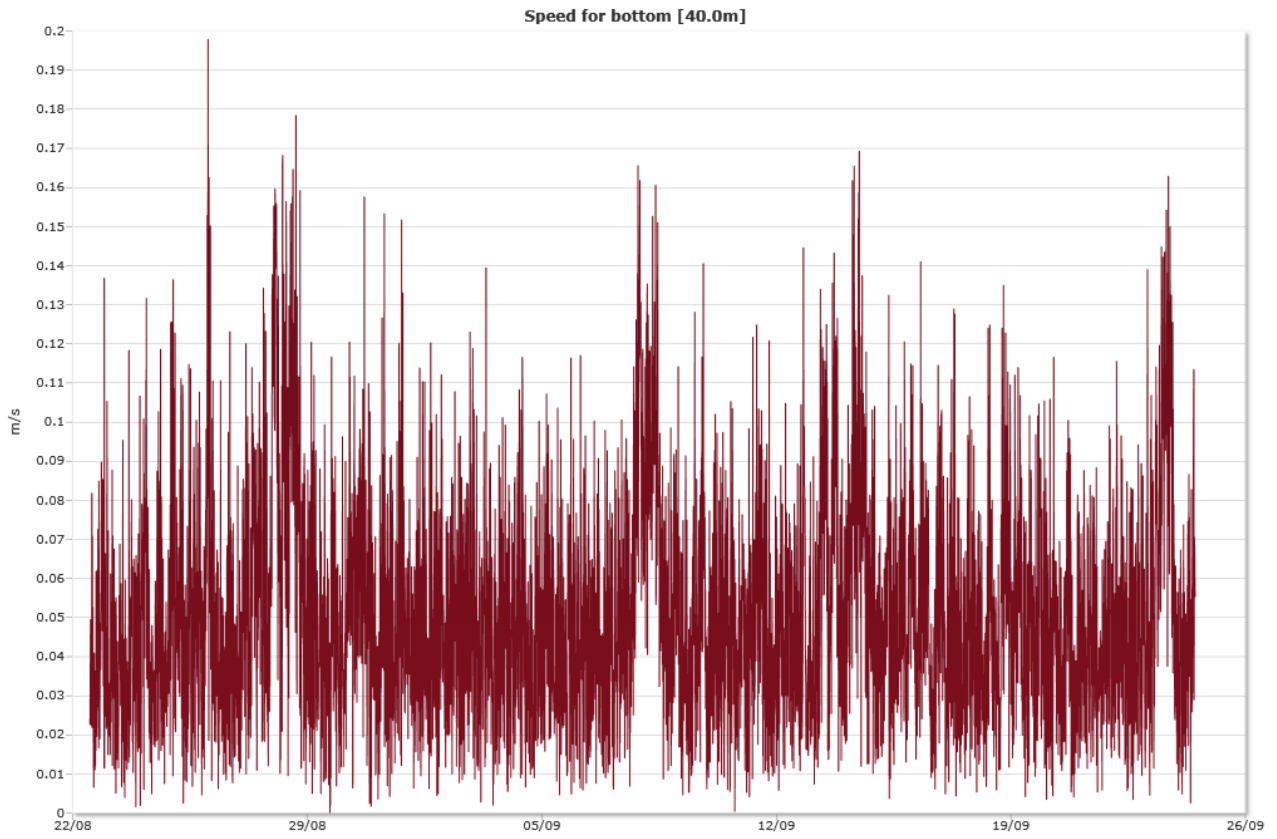
Top [20,0m]



Middle [30,0m]

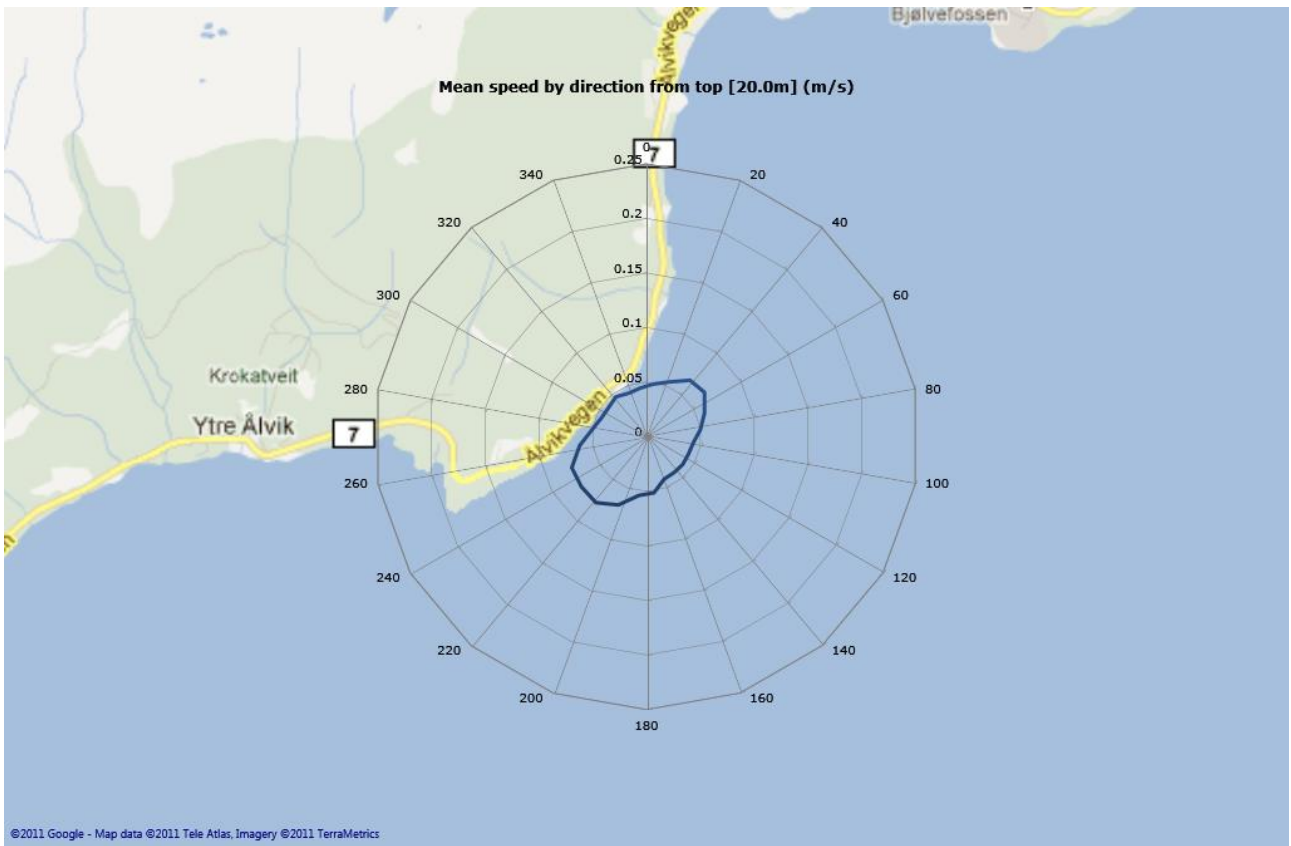


Bottom [40,0m]

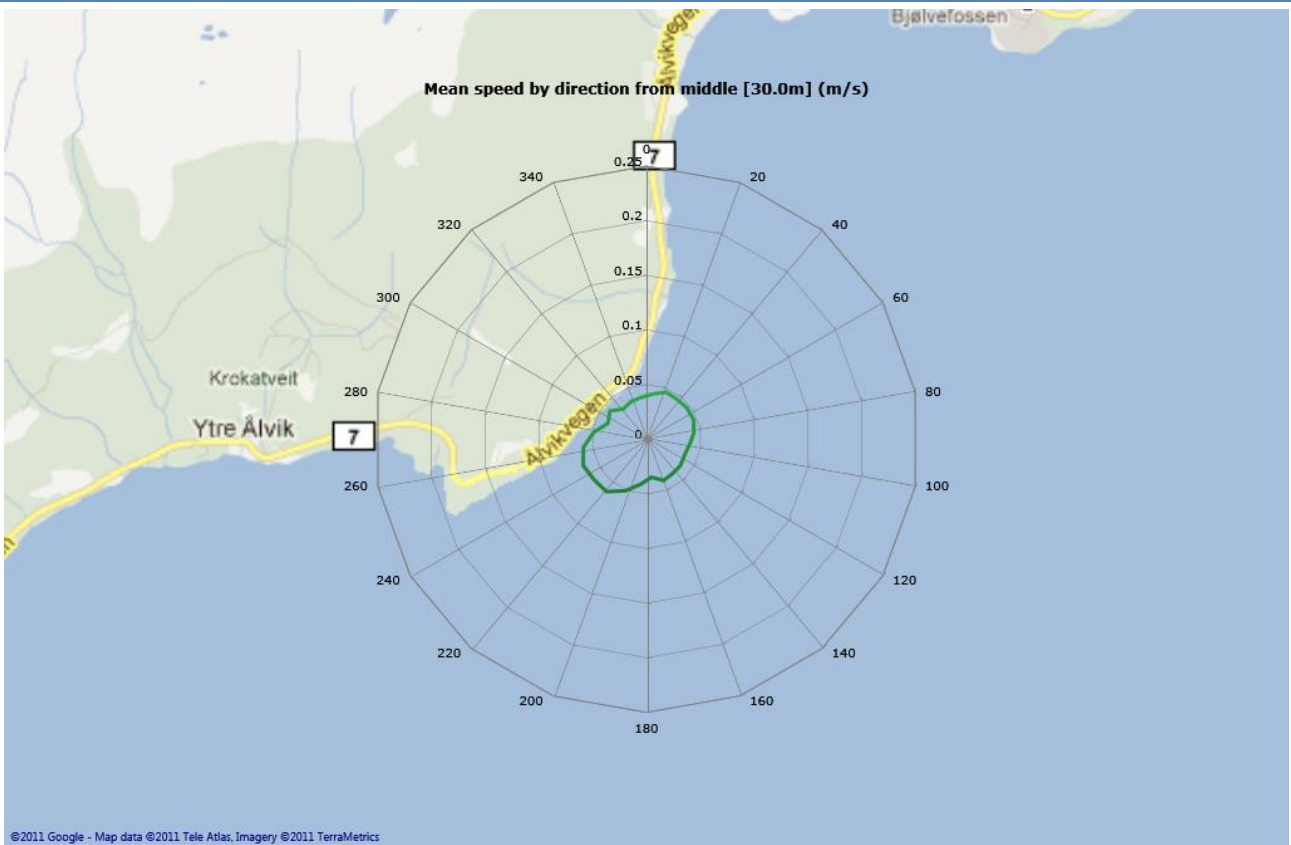


Mean speed - roseplot

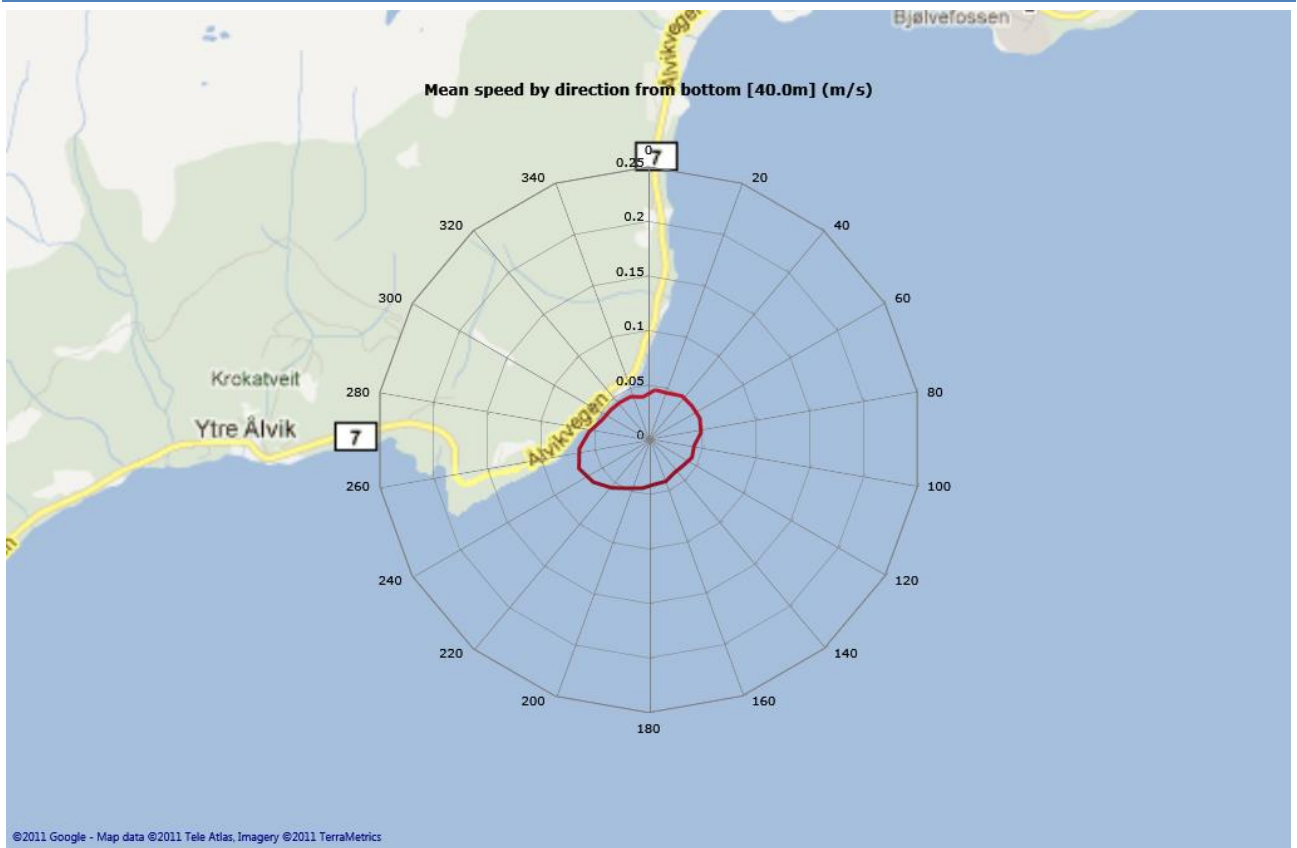
Top [20,0m]



Middle [30,0m]

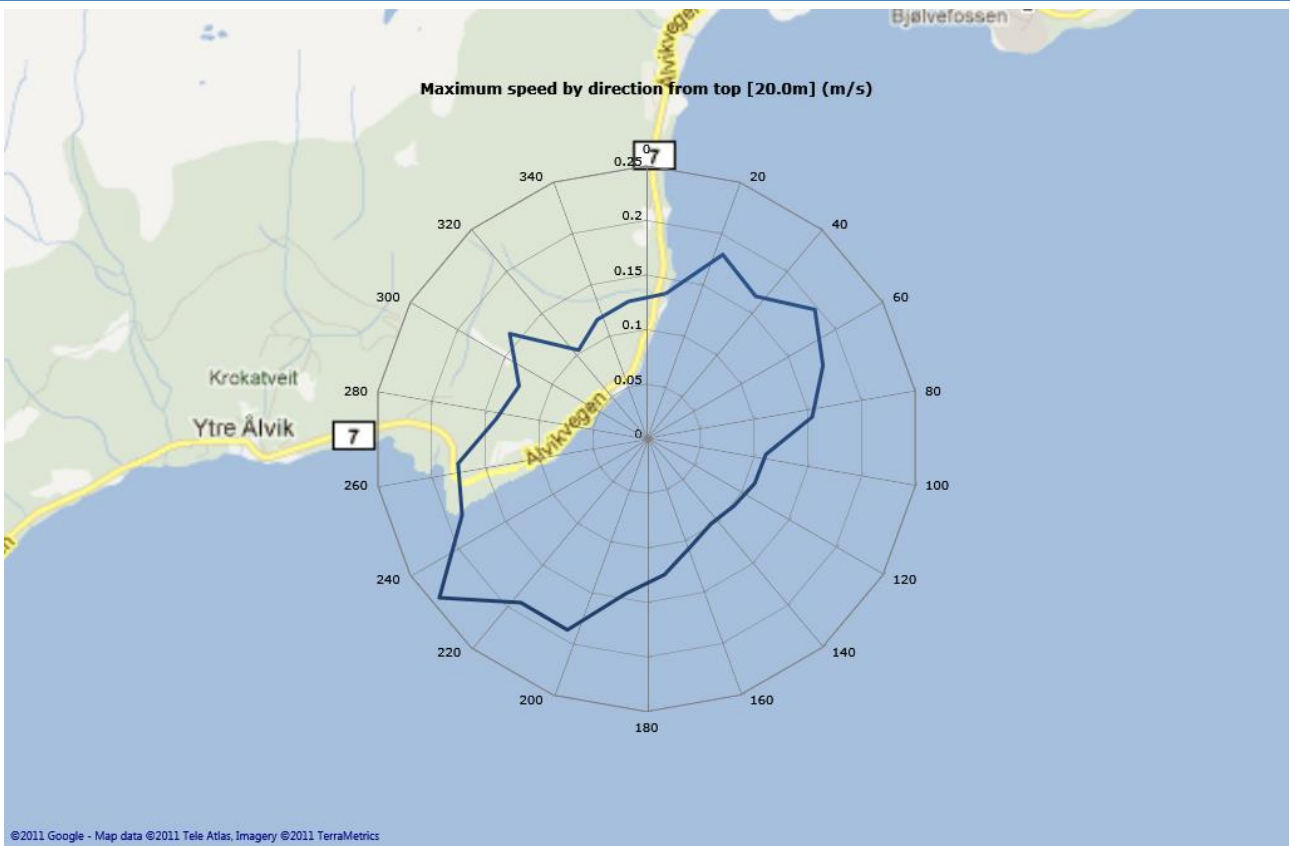


Bottom [40,0m]

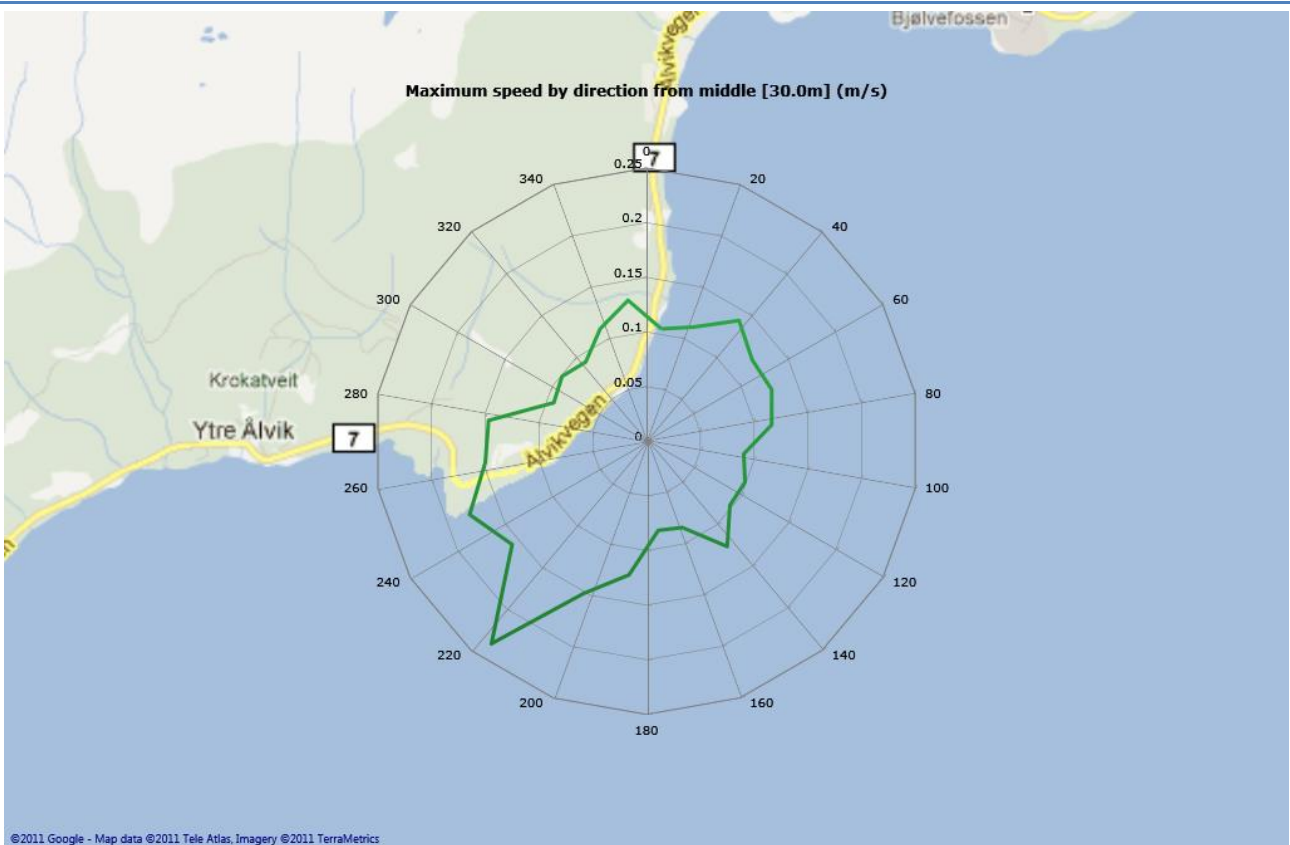


Max speed - roseplot

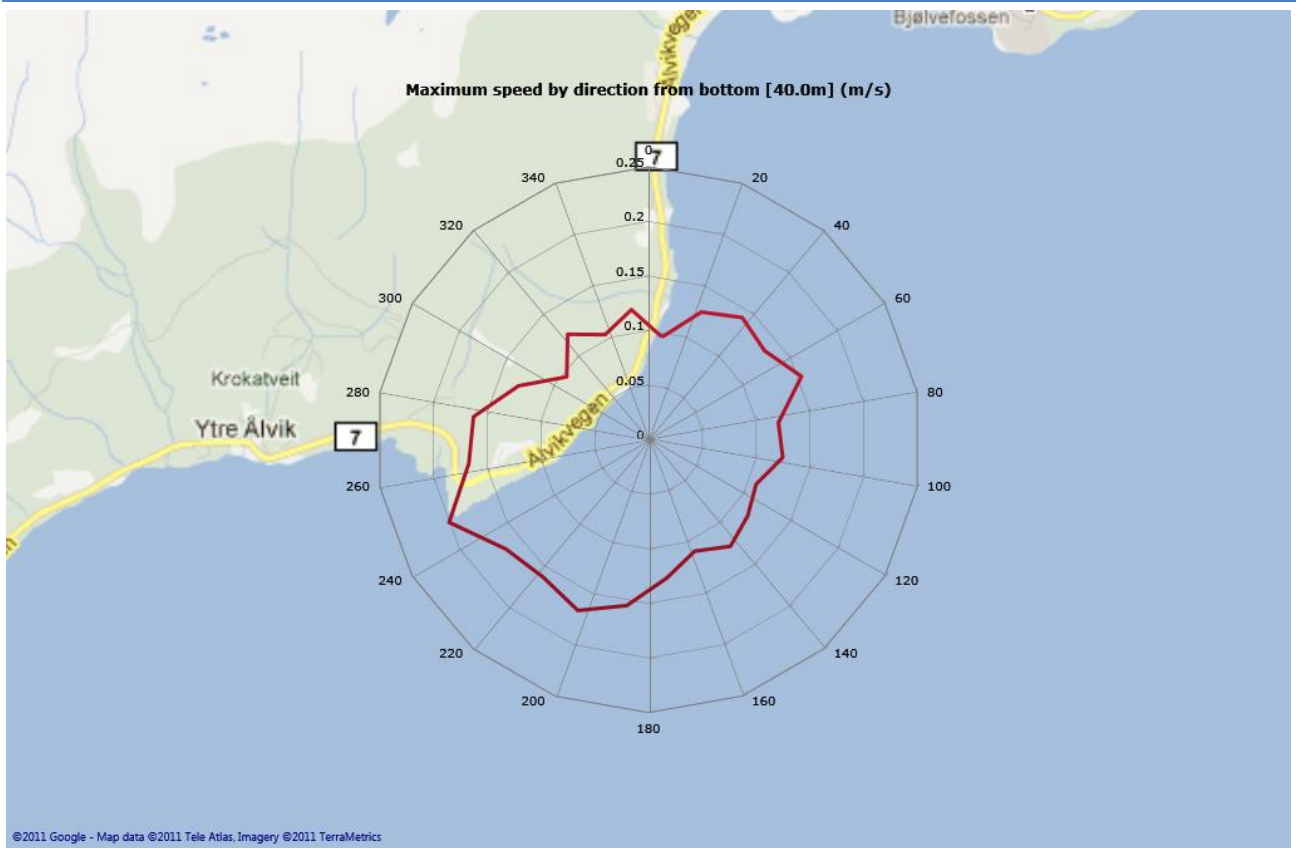
Top [20,0m]



Middle [30,0m]

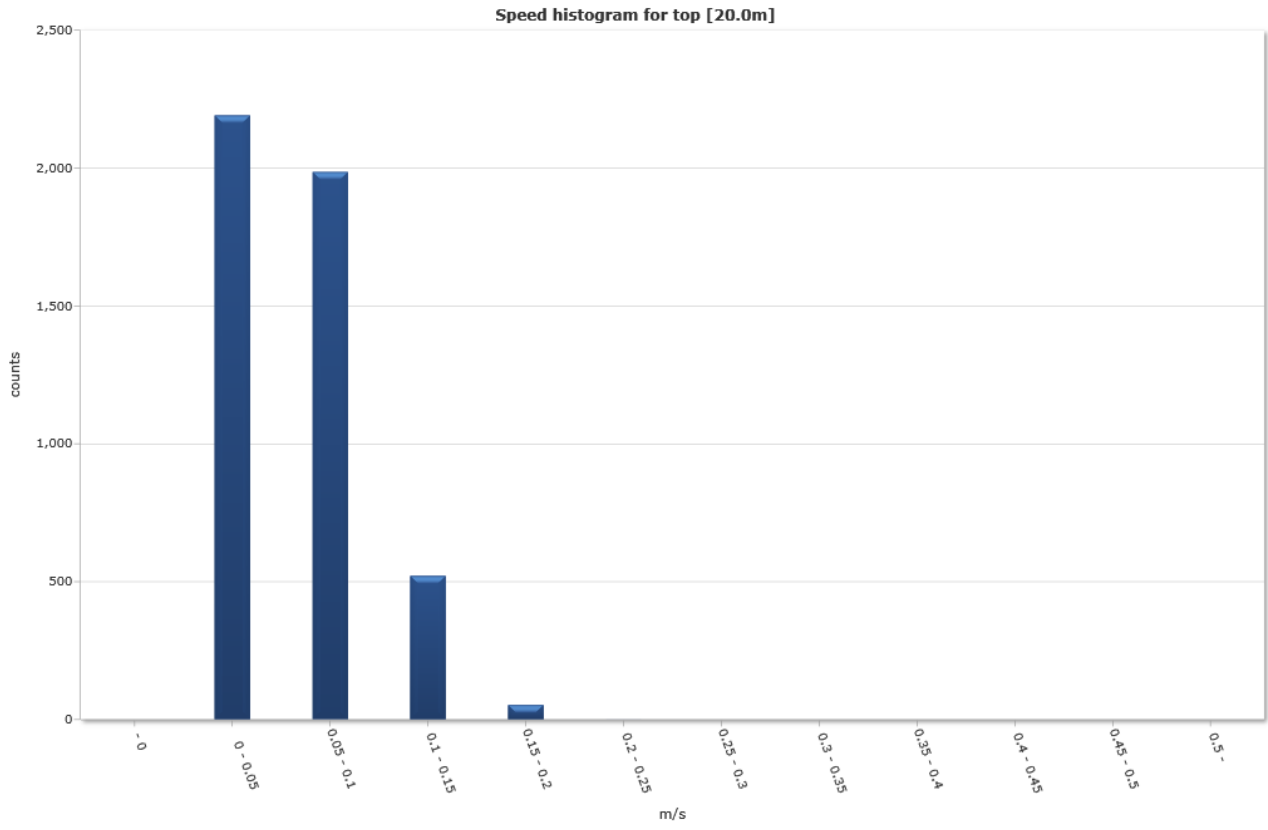


Bottom [40,0m]

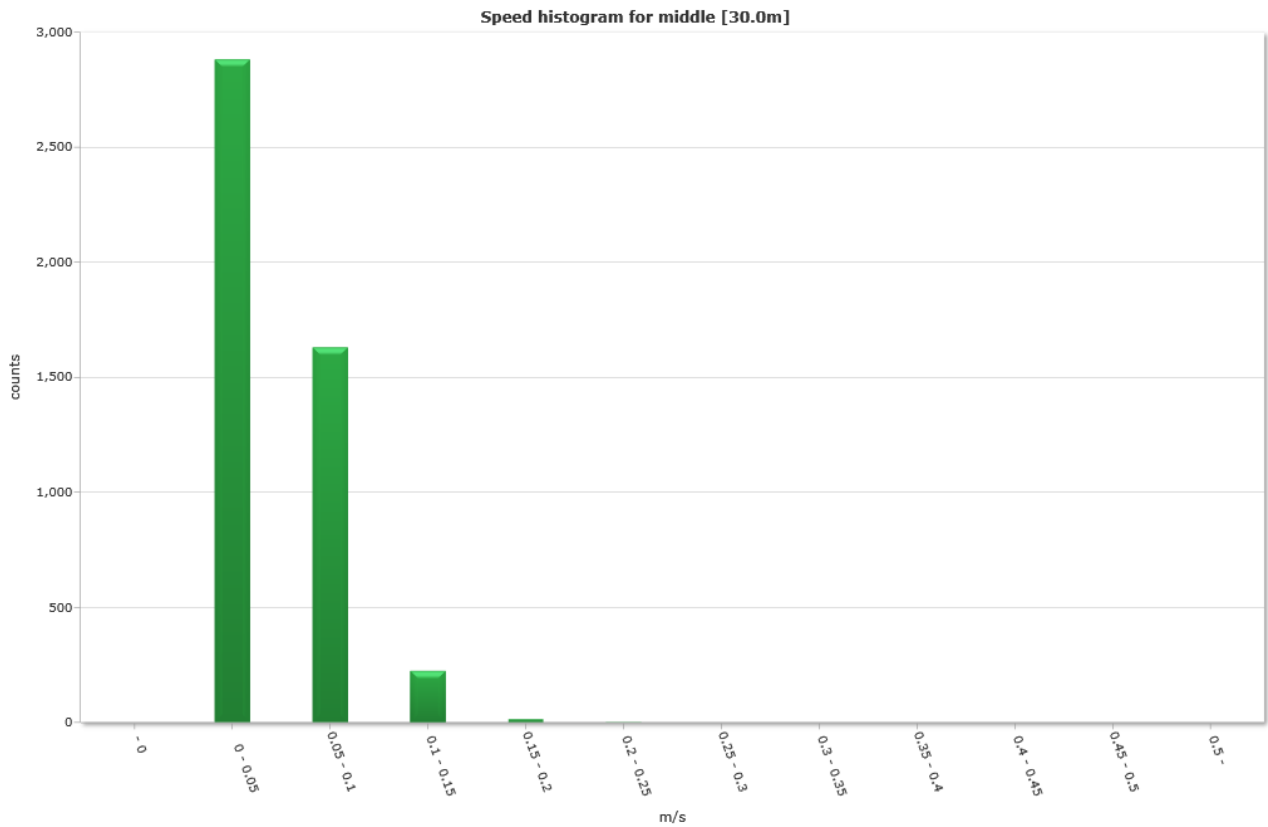


Speed histogram

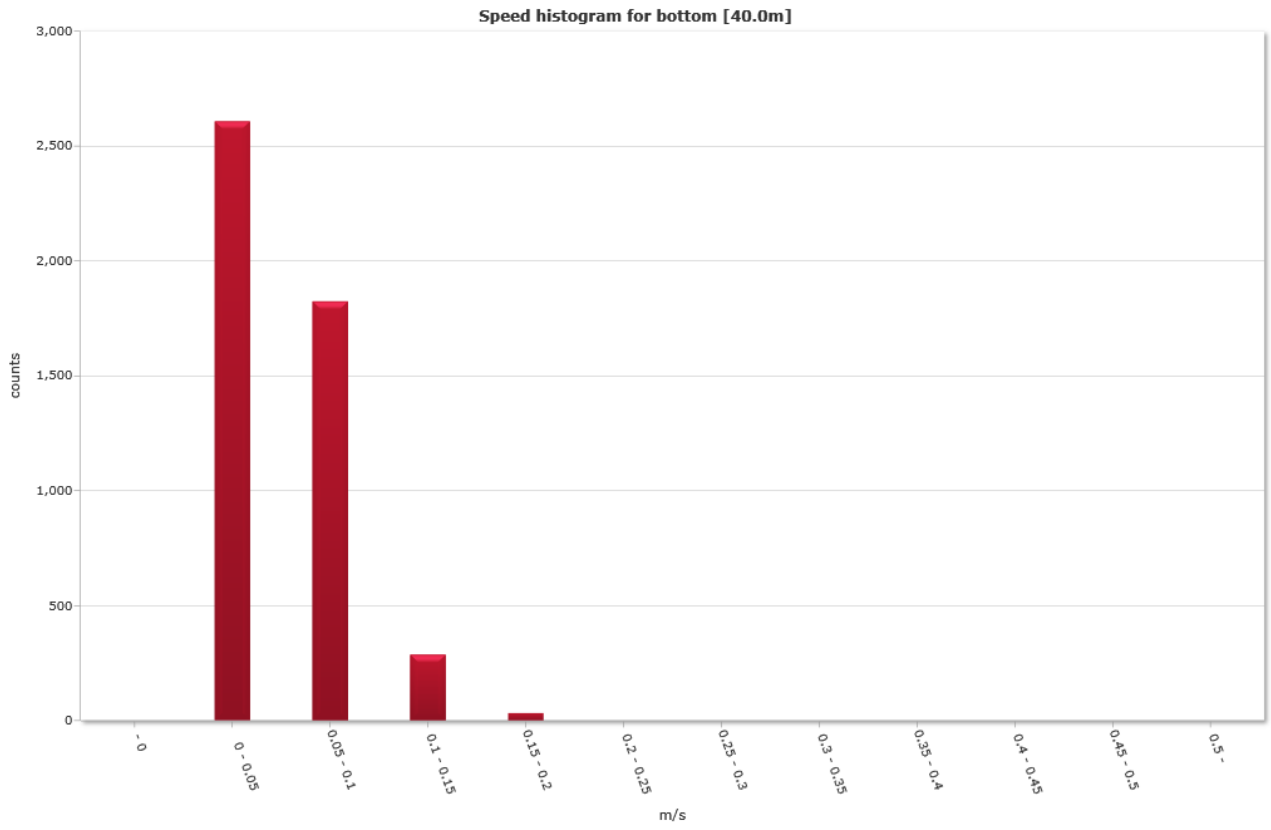
Top [20,0m]



Middle [30,0m]

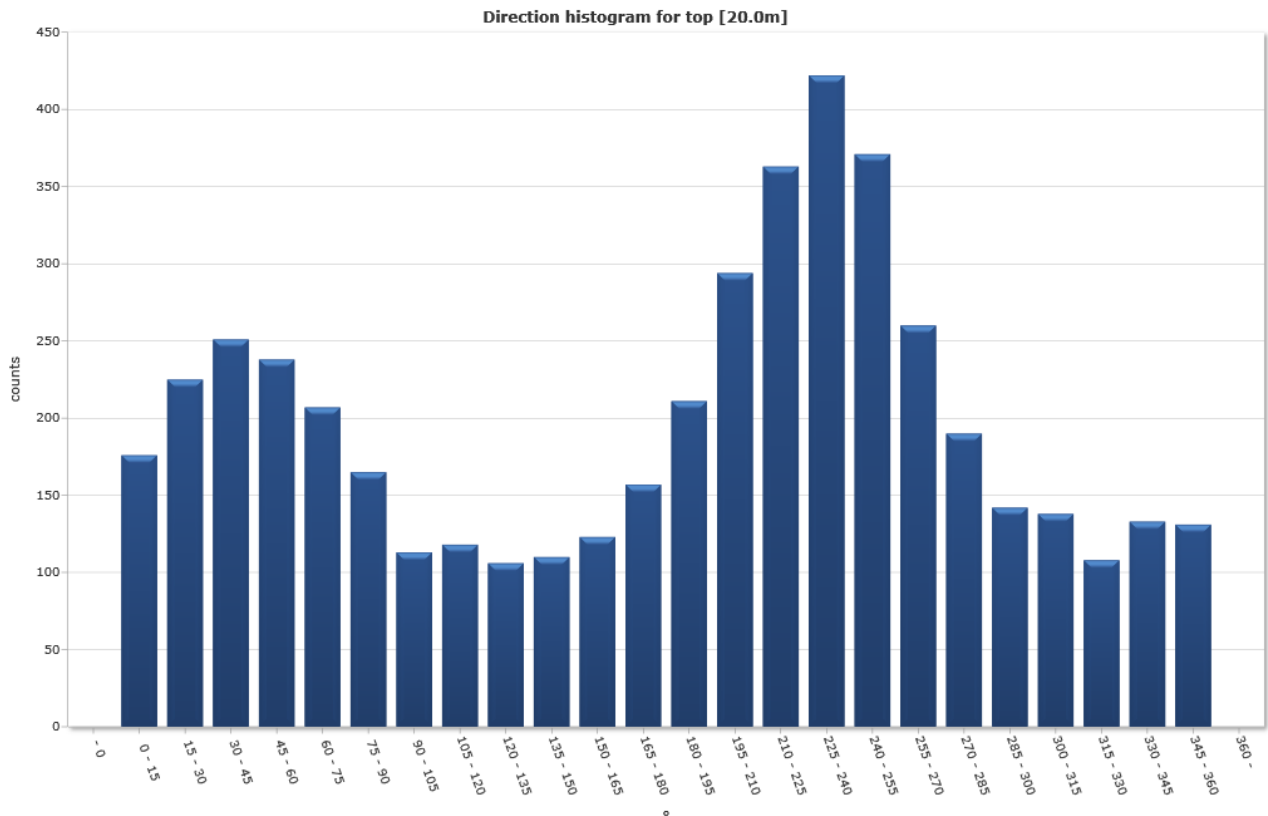


Bottom [40,0m]

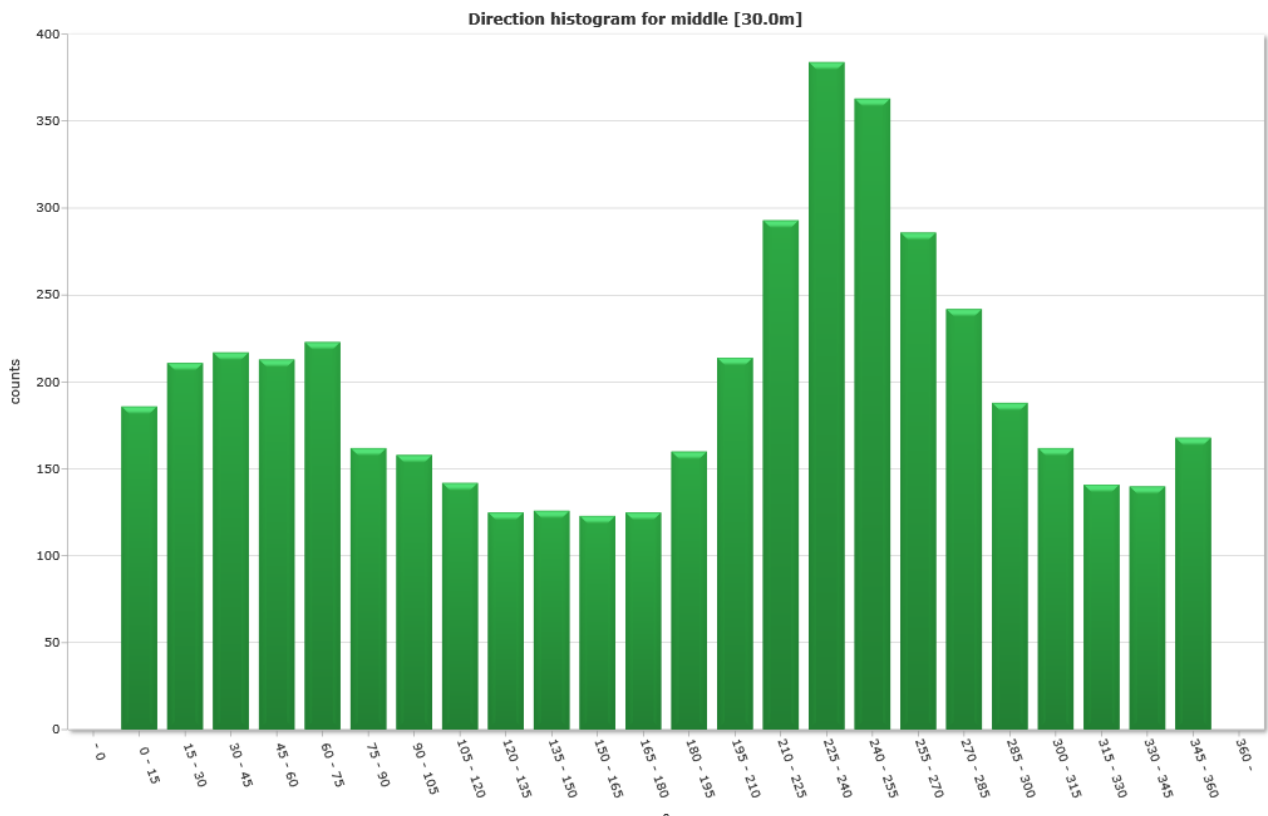


Direction histogram

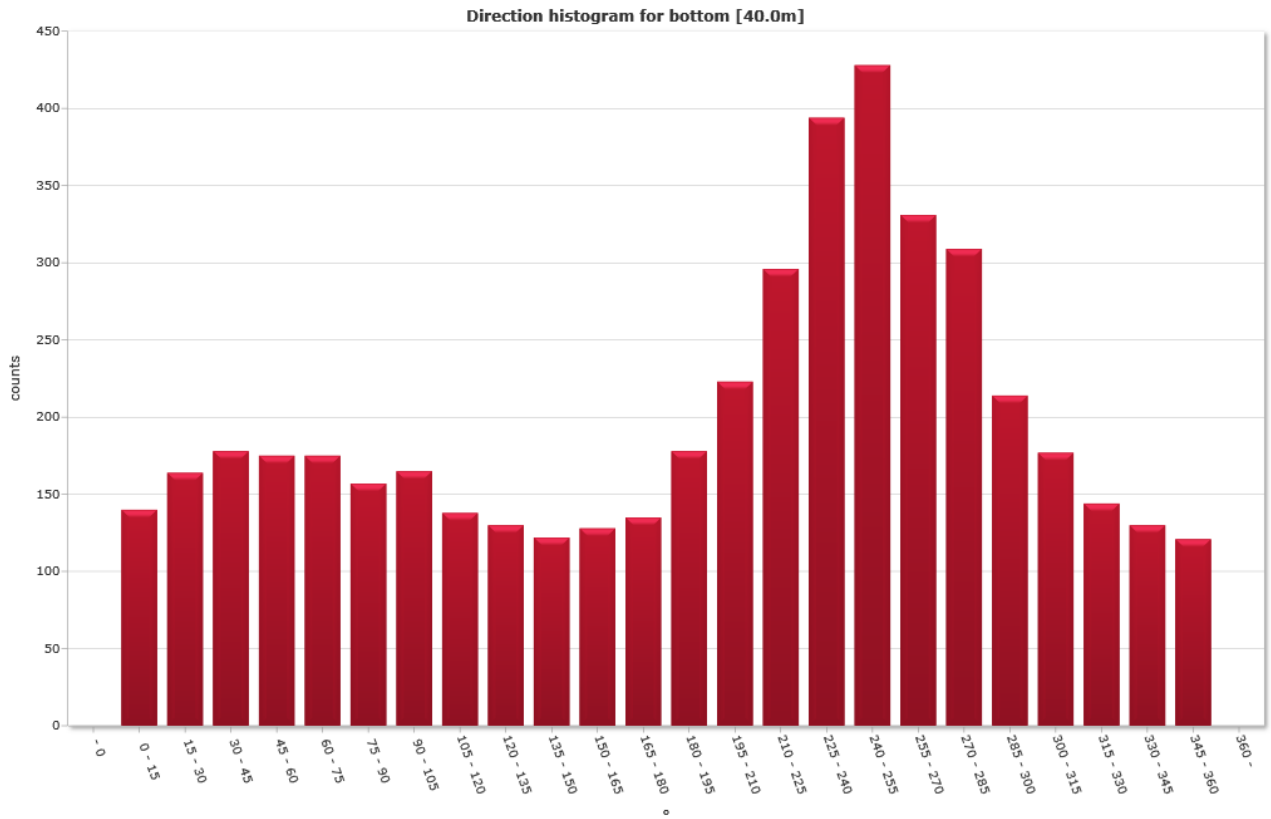
Top [20,0m]



Middle [30,0m]



Bottom [40,0m]



Direction/Speed histogram

Top [20,0m]

* m/s	Direction/speed matrix for top [20.0m]																								%	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	100	112	95	80	90	94	73	78	73	76	80	78	105	109	94	123	111	108	98	87	87	71	87	82	46.1	2191
0.10	70	92	112	118	93	62	38	38	32	34	41	70	90	130	174	195	178	115	81	52	46	36	44	45	41.8	1986
0.15	6	20	39	35	22	8	2	2	1	0	2	9	16	50	86	91	72	35	11	3	4	1	2	4	11.0	521
0.20	0	1	5	5	2	1	0	0	0	0	0	0	0	5	9	12	10	2	0	0	1	0	0	0	1.1	53
0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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
%	3.7	4.7	5.3	5.0	4.4	3.5	2.4	2.5	2.2	2.3	2.6	3.3	4.4	6.2	7.6	8.9	7.8	5.5	4.0	3.0	2.9	2.3	2.8	2.8	100.0	100.0
Sum	176	225	251	238	207	165	113	118	106	110	123	157	211	294	363	422	371	260	190	142	138	108	133	131	100.0	4752

Middle [30,0m]

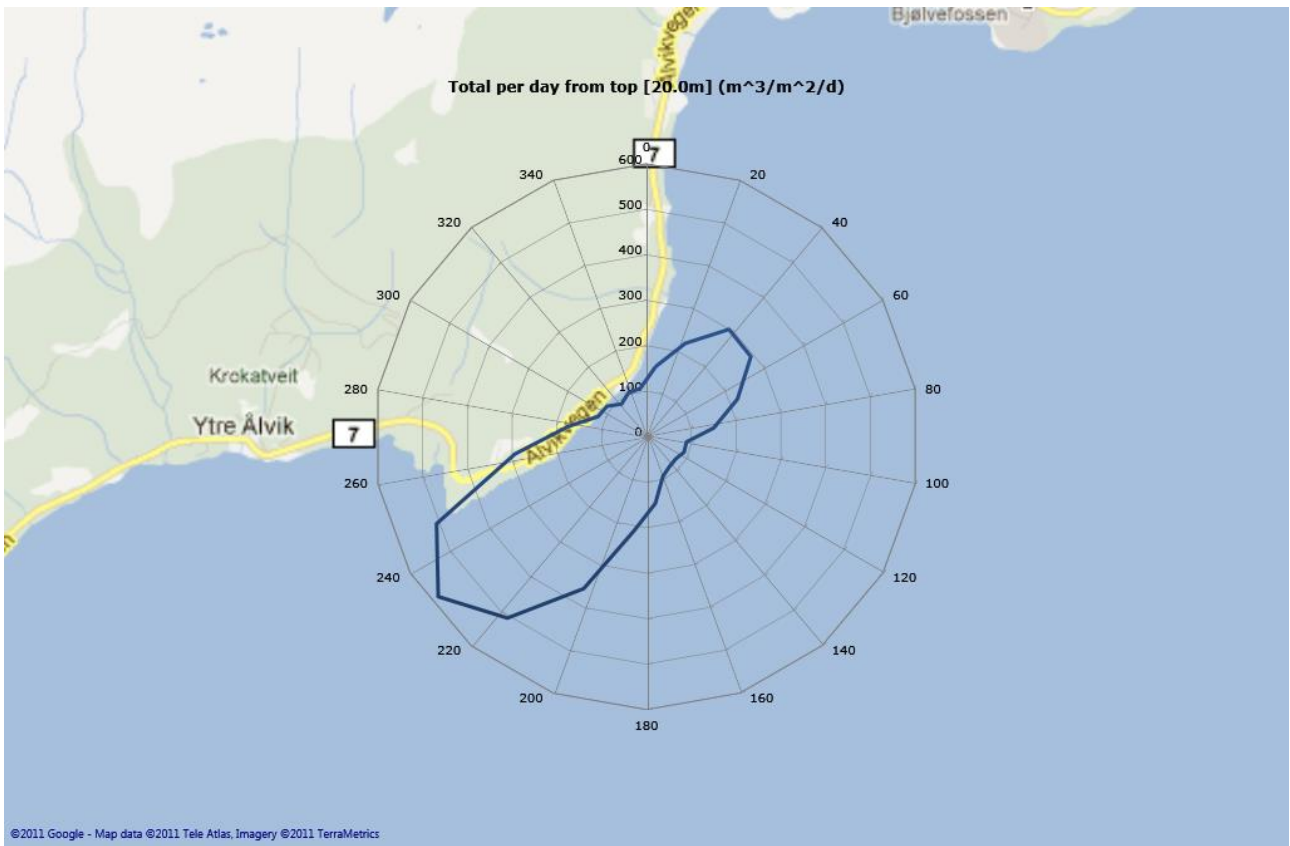
* m/s	Direction/speed matrix for middle [30.0m]																								%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360		
0.0																										
0.05	129	127	132	123	144	113	114	97	89	94	84	97	109	125	125	168	150	134	136	142	111	115	101	123	60.6	2882
0.10	56	82	78	83	72	47	44	45	36	31	39	28	47	70	128	169	156	122	93	46	51	26	38	43	34.3	1630
0.15	1	2	7	7	7	2	0	0	0	1	0	0	4	18	33	45	51	30	13	0	0	0	1	2	4.7	224
0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	2	6	0	0	0	0	0	0	0	0.3	15
0.25	0	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	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
%	3.9	4.4	4.6	4.5	4.7	3.4	3.3	3.0	2.6	2.7	2.6	2.6	3.4	4.5	6.2	8.1	7.6	6.0	5.1	4.0	3.4	3.0	2.9	3.5	100.0	100.0
Sum	186	211	217	213	223	162	158	142	125	126	123	125	160	214	293	384	363	286	242	188	162	141	140	168	100.0	4752

Bottom [40,0m]

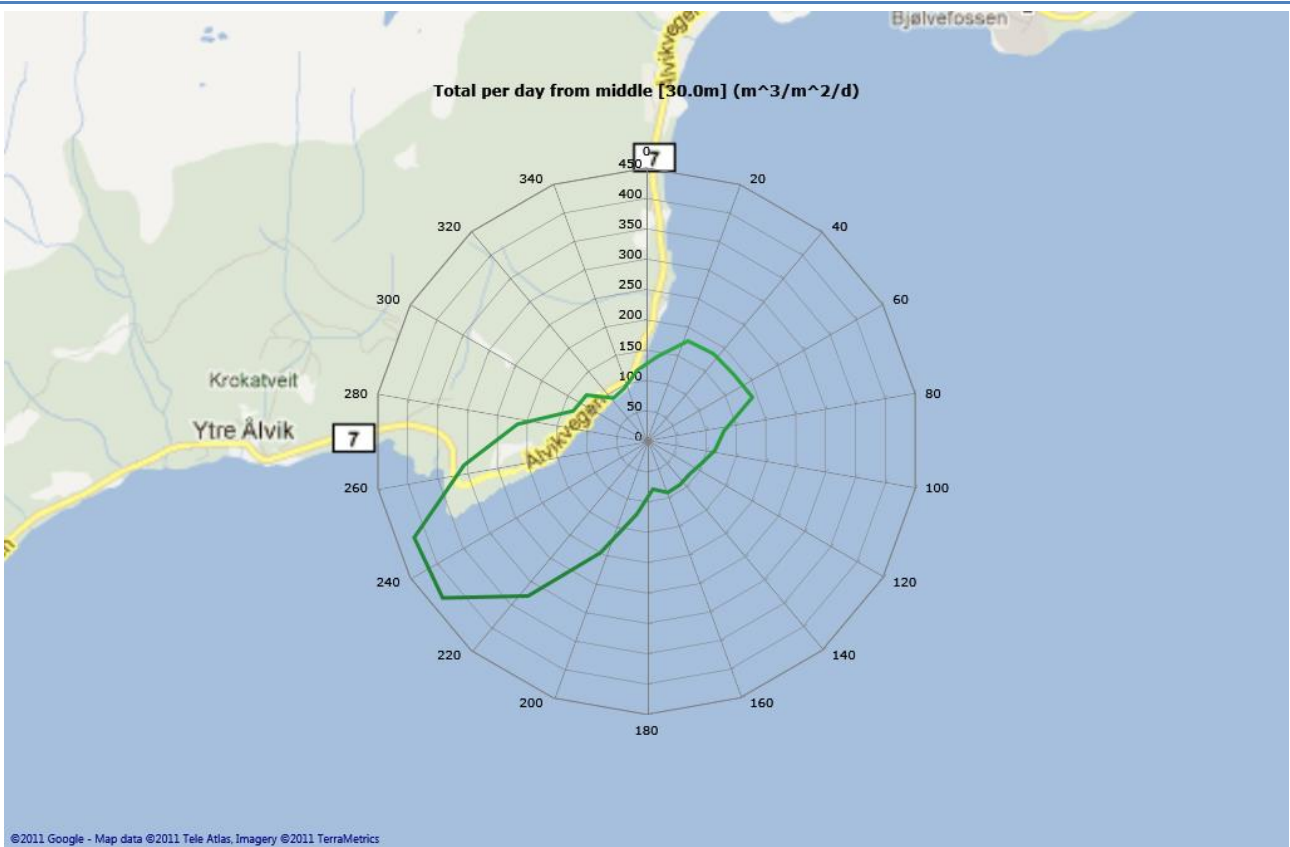
° m/s	Direction/speed matrix for bottom [40.0m]																									%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
0.0	84	103	103	94	99	92	109	89	104	88	90	89	112	132	142	154	153	120	140	133	109	93	88	88	54.9	2608	
0.05	56	55	59	75	65	57	52	48	22	32	36	44	63	79	127	186	193	163	148	76	68	50	40	30	38.4	1824	
0.10	0	6	16	6	10	8	4	1	4	2	2	2	2	9	23	48	71	42	20	5	0	1	2	3	6.0	287	
0.15	0	0	0	0	1	0	0	0	0	0	0	0	1	3	4	6	11	6	1	0	0	0	0	0	0	0.7	33
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	
0.25	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	
0.30	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	
%	2.9	3.5	3.7	3.7	3.7	3.3	3.5	2.9	2.7	2.6	2.7	2.8	3.7	4.7	6.2	8.3	9.0	7.0	6.5	4.5	3.7	3.0	2.7	2.5	100.0	100.0	
Sum	140	164	178	175	175	157	165	138	130	122	128	135	178	223	296	394	428	331	309	214	177	144	130	121	100.0	4752	

Flow

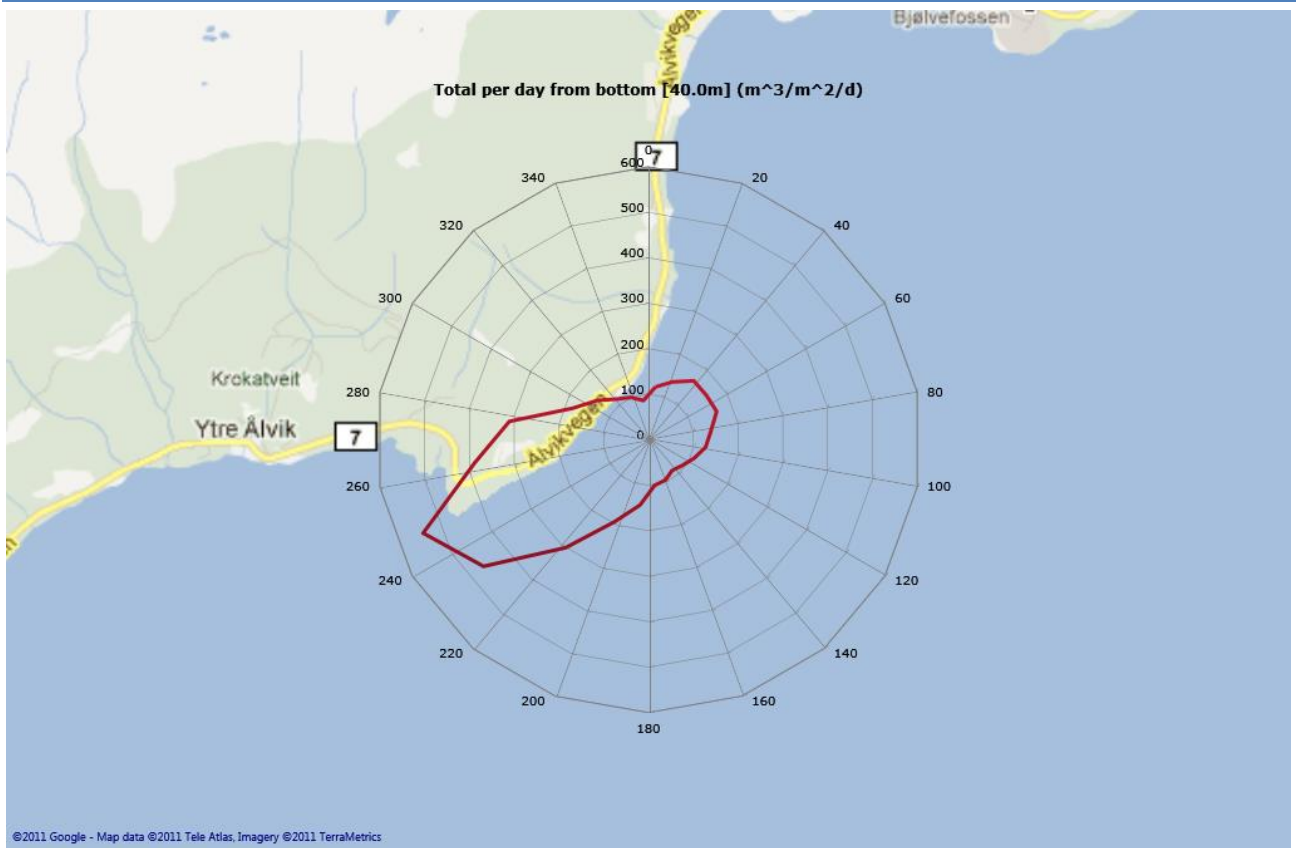
Top [20,0m]



Middle [30,0m]

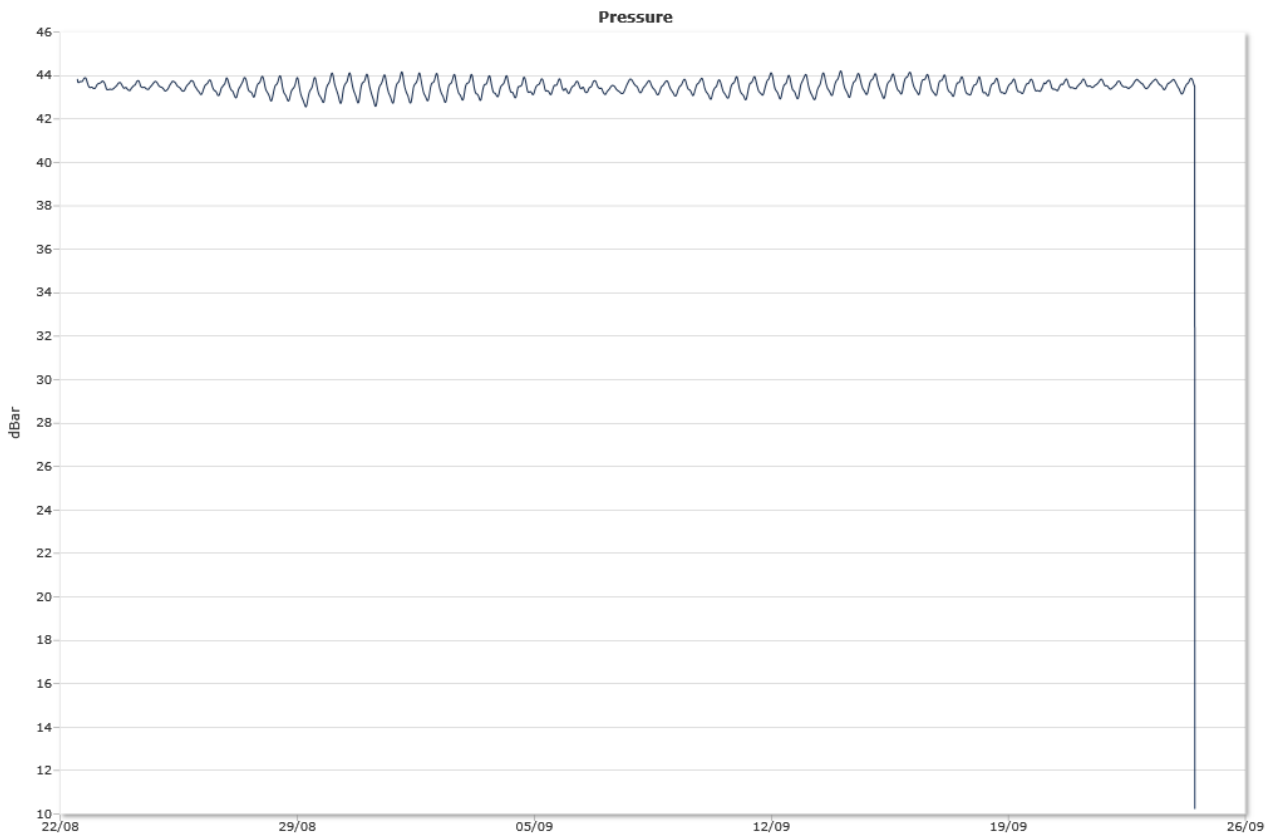


Bottom [40,0m]



Sensors

Pressure



Tilt



Temperature



Straummåling Tveitnes S1

Botnstraum

16.10.2011

Resipientanalyse

Frode Berge-Haveland

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Detaljer

Instrument

Head Id	AQP 4368
Frequency	400000

Oppsett

Start	22.08.2011 11:00
End	25.09.2011 11:40
Data records	4901
Longitude	6° 24,04'E
Latitude	60° 24,70'N
Orientation	DOWN
Cells	40
Cell size(m)	2
Blanking distance(m)	0,99
Measurement interval(sec)	600

Kvalitet

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

Post prosessering

Selected Start	22.08.2011 11:40
Selected End	24.09.2011 11:40
Selected Records	4753
Reference	Water Surface
Top Depth(m)	80
Top invalid data	26
Middle Depth(m)	100
Middle invalid data	1
Bottom invalid data	1

Statistikk

Top [80,0m]

Mean current [m/s]	0.04
Max current [m/s]	0.23
Min current [m/s]	0.00
Measurements [#]	4727
Std.dev [m/s]	0.02
Significant max velocity [m/s]	0.07
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.376
50 year return current [m/s]	0.421
Most significant directions [°]	240.00, 225.00, 255.00, 210.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2685.09m ³ by 315-330°.

Middle [100,0m]

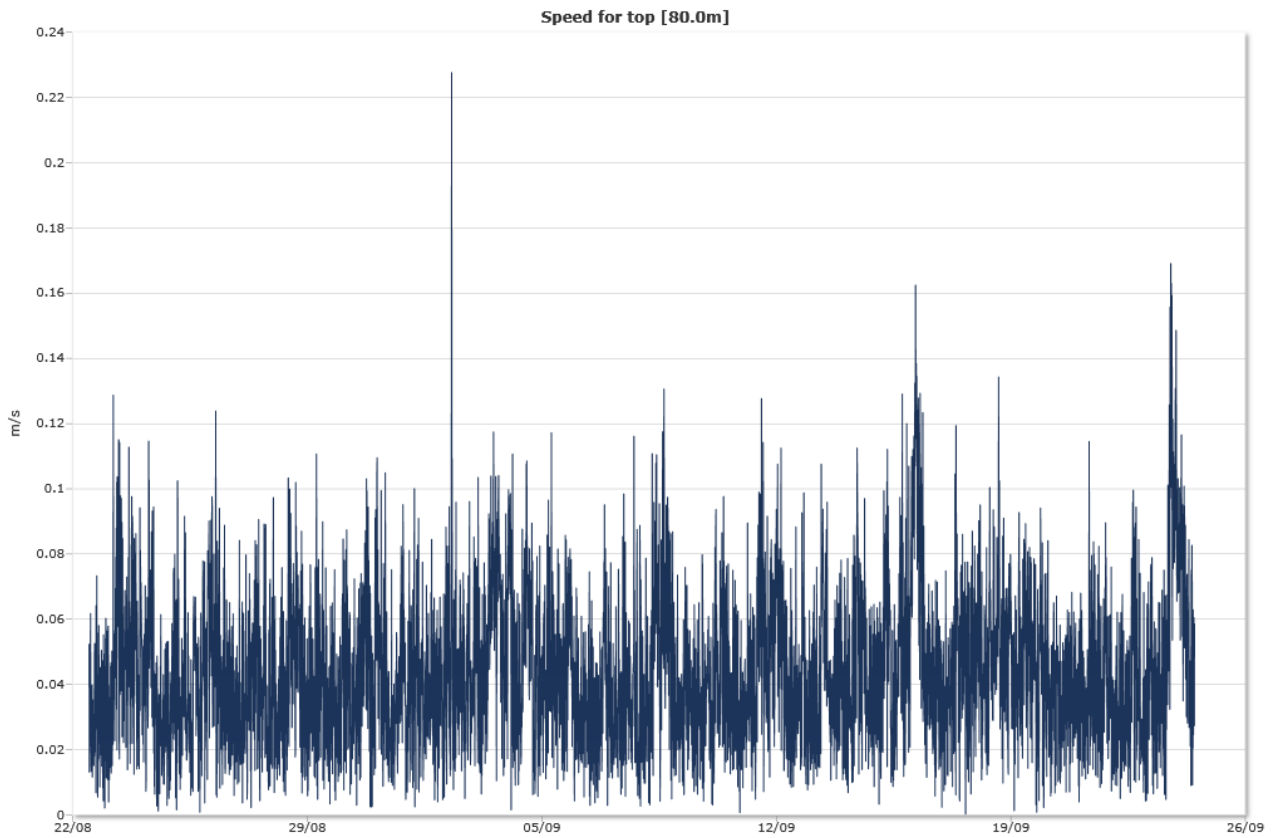
Mean current [m/s]	0.04
Max current [m/s]	0.16
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.02
Significant max velocity [m/s]	0.07
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.268
50 year return current [m/s]	0.300
Most significant directions [°]	240.00, 225.00, 210.00, 255.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Least flow	2571.65m ³ by 315-330°.

Bottom [110,0m]

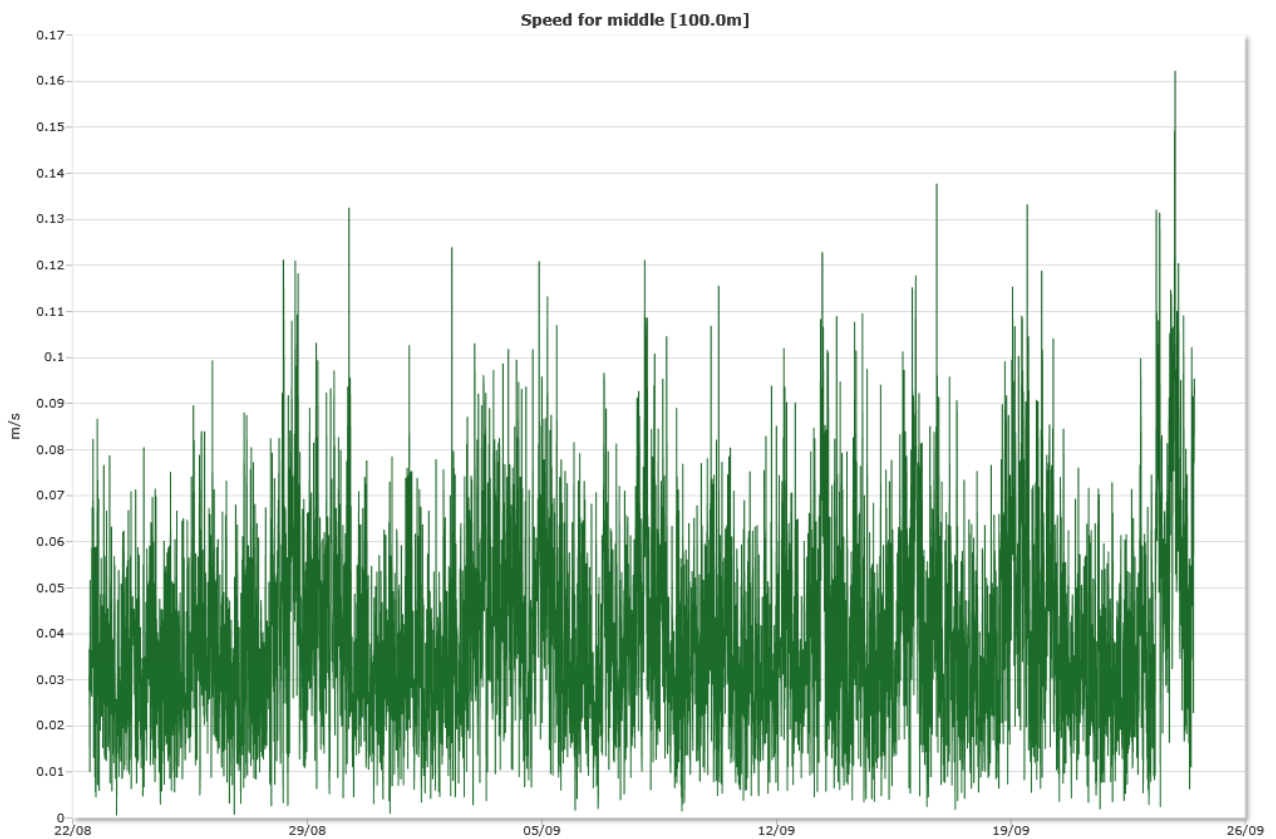
Mean current [m/s]	0.04
Max current [m/s]	0.13
Min current [m/s]	0.00
Measurements [#]	4752
Std.dev [m/s]	0.02
Significant max velocity [m/s]	0.06
Significant min velocity [m/s]	0.02
10 year return current [m/s]	0.221
50 year return current [m/s]	0.248
Most significant directions [°]	240.00, 225.00, 210.00, 255.00
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.40
Least flow	2941.87m ³ by 120-135°.

Time series

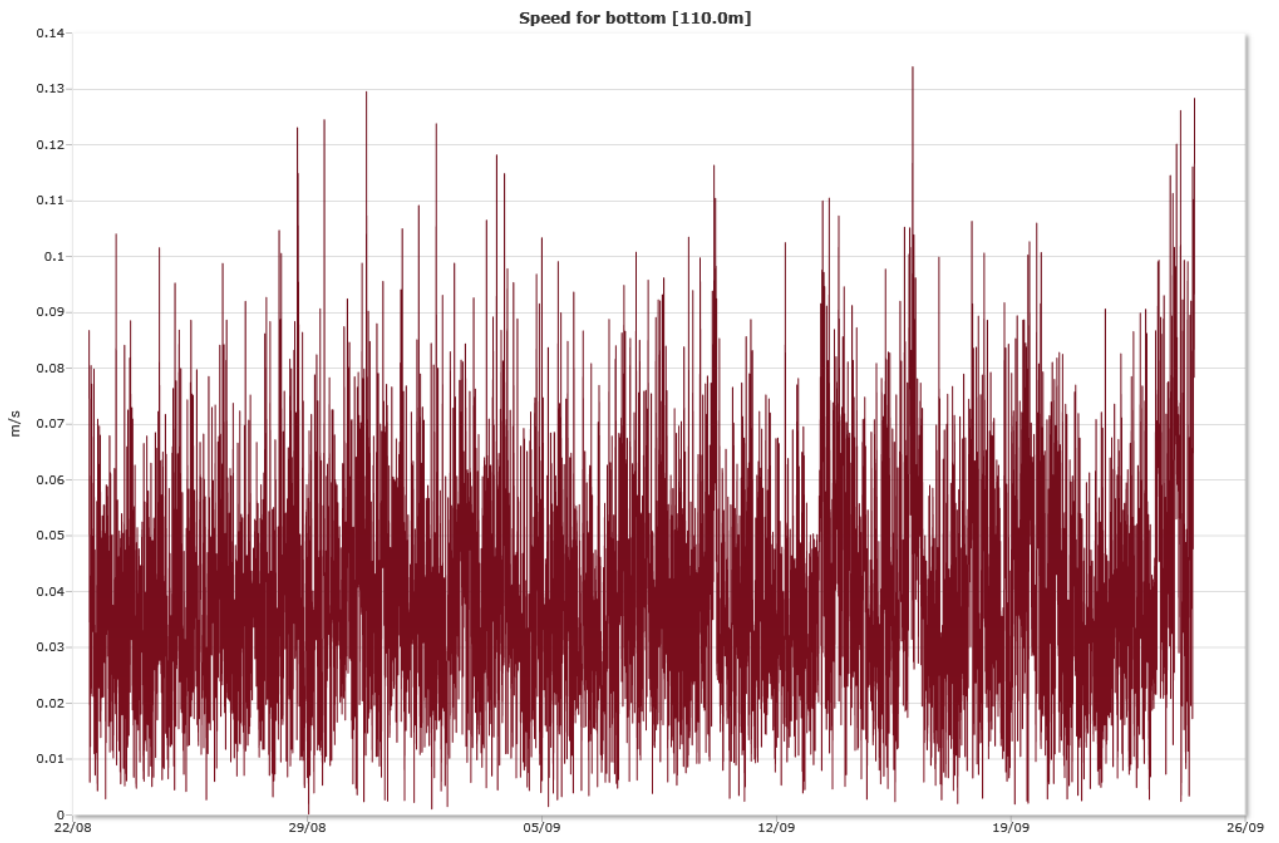
Top [80,0m]



Middle [100,0m]



Bottom [110,0m]



Mean speed - roseplot

Top [80,0m]



Middle [100,0m]



Bottom [110,0m]

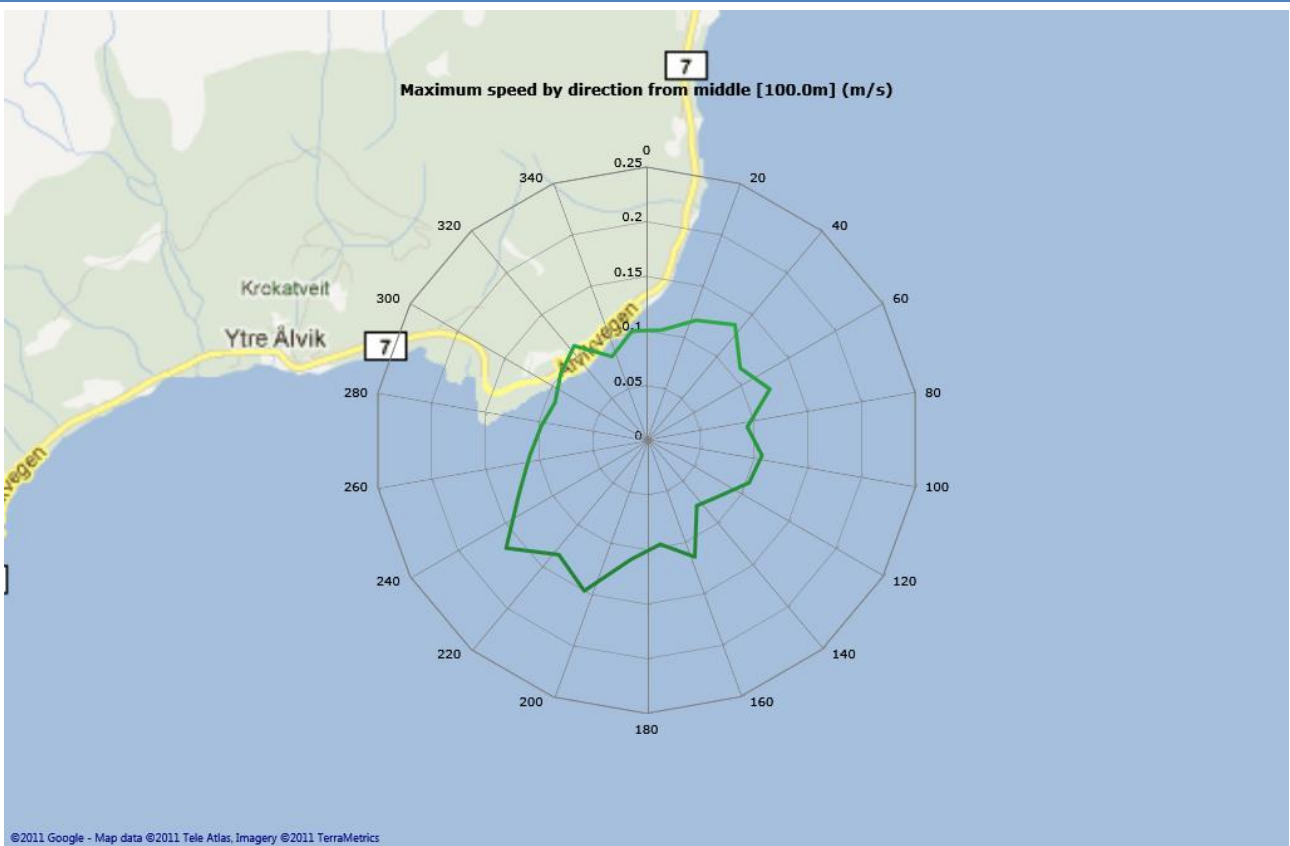


Max speed - roseplot

Top [80,0m]



Middle [100,0m]

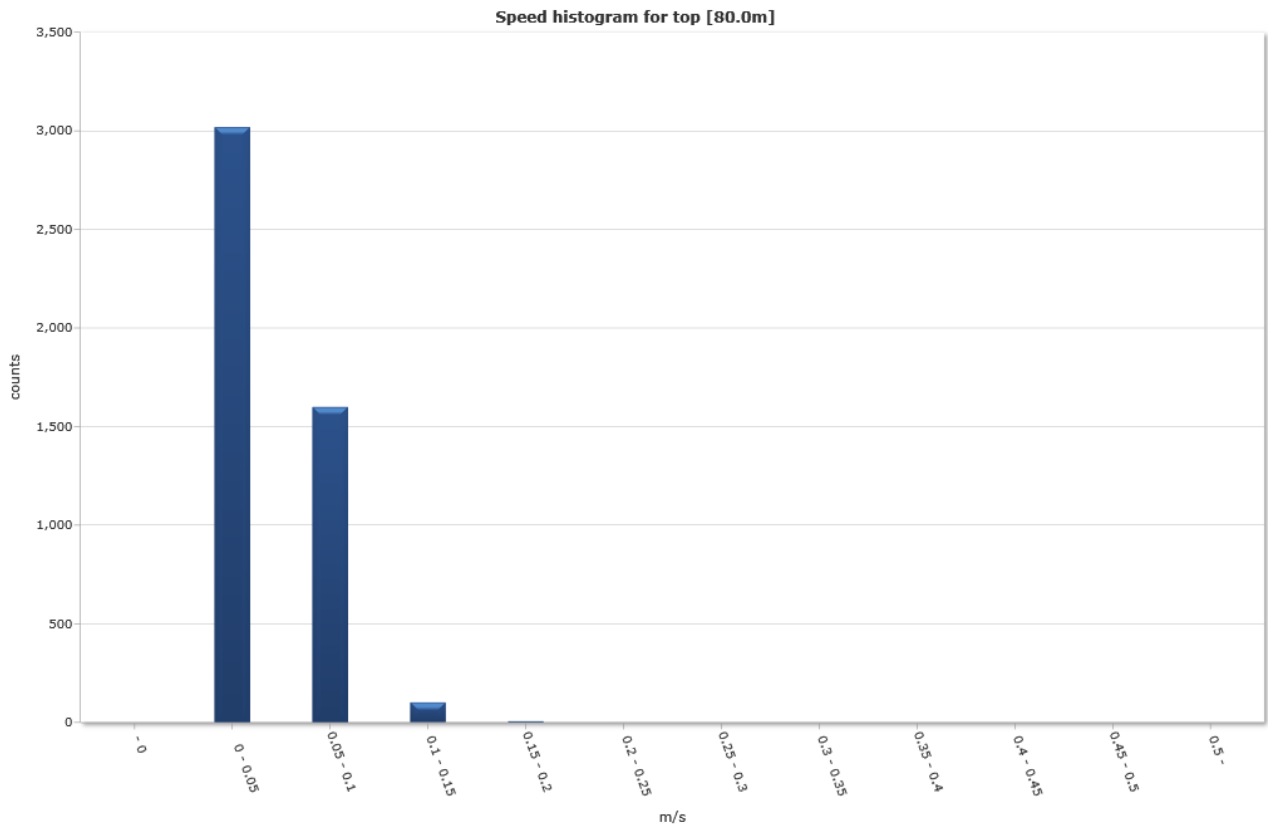


Bottom [110,0m]

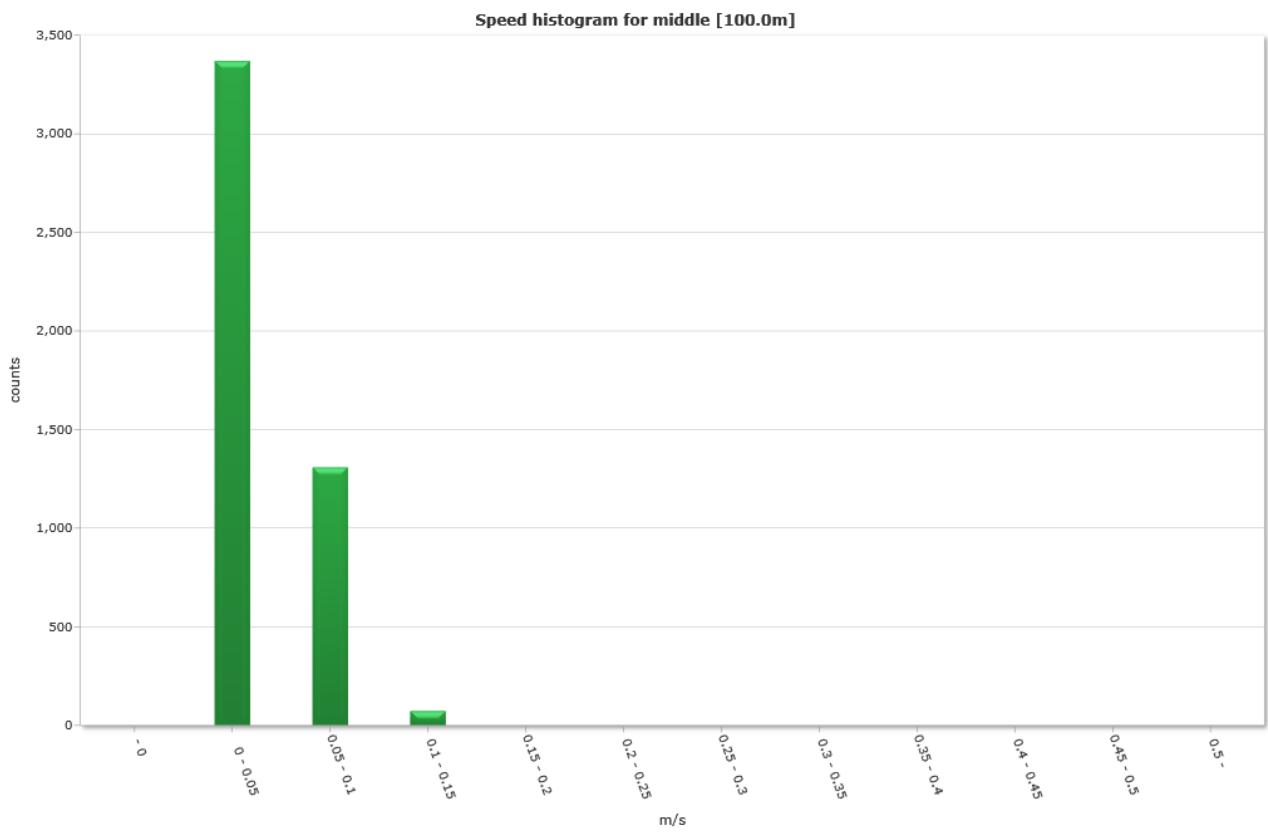


Speed histogram

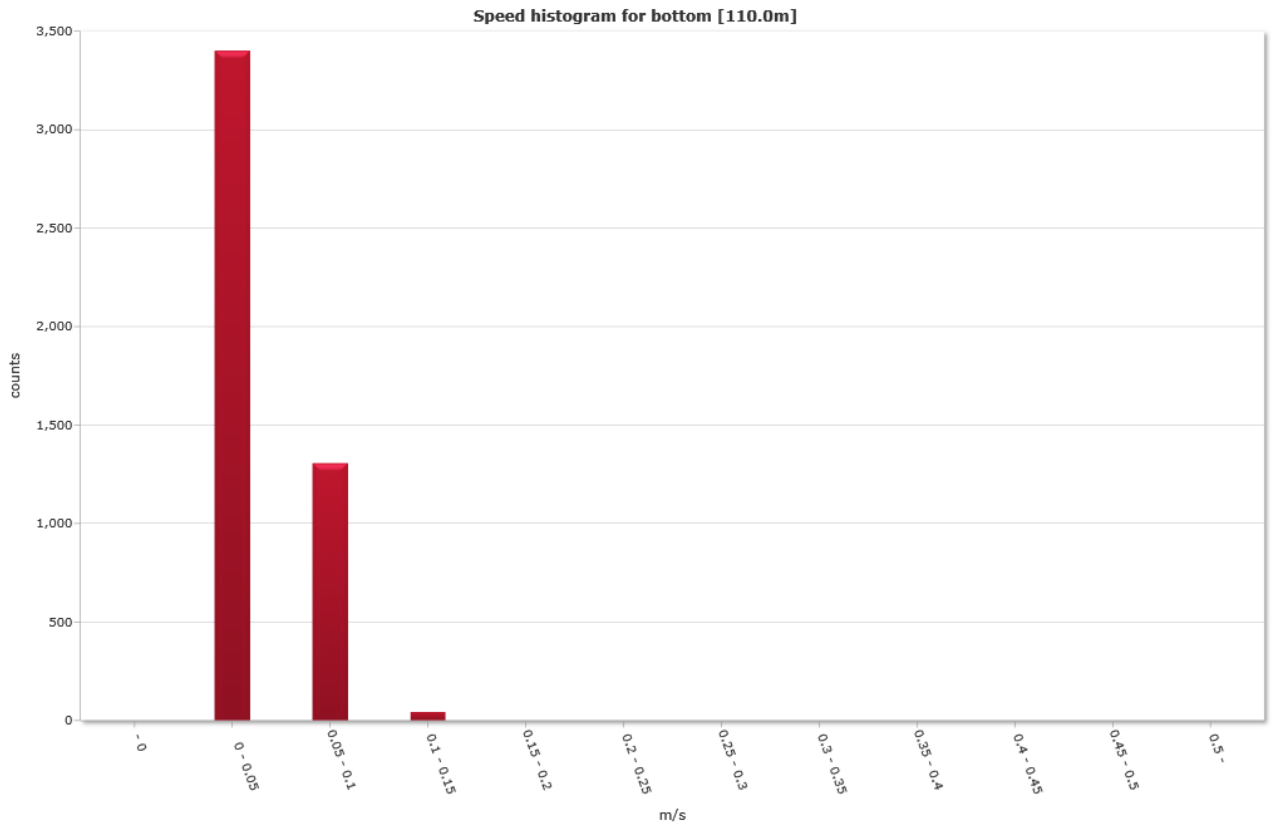
Top [80,0m]



Middle [100,0m]

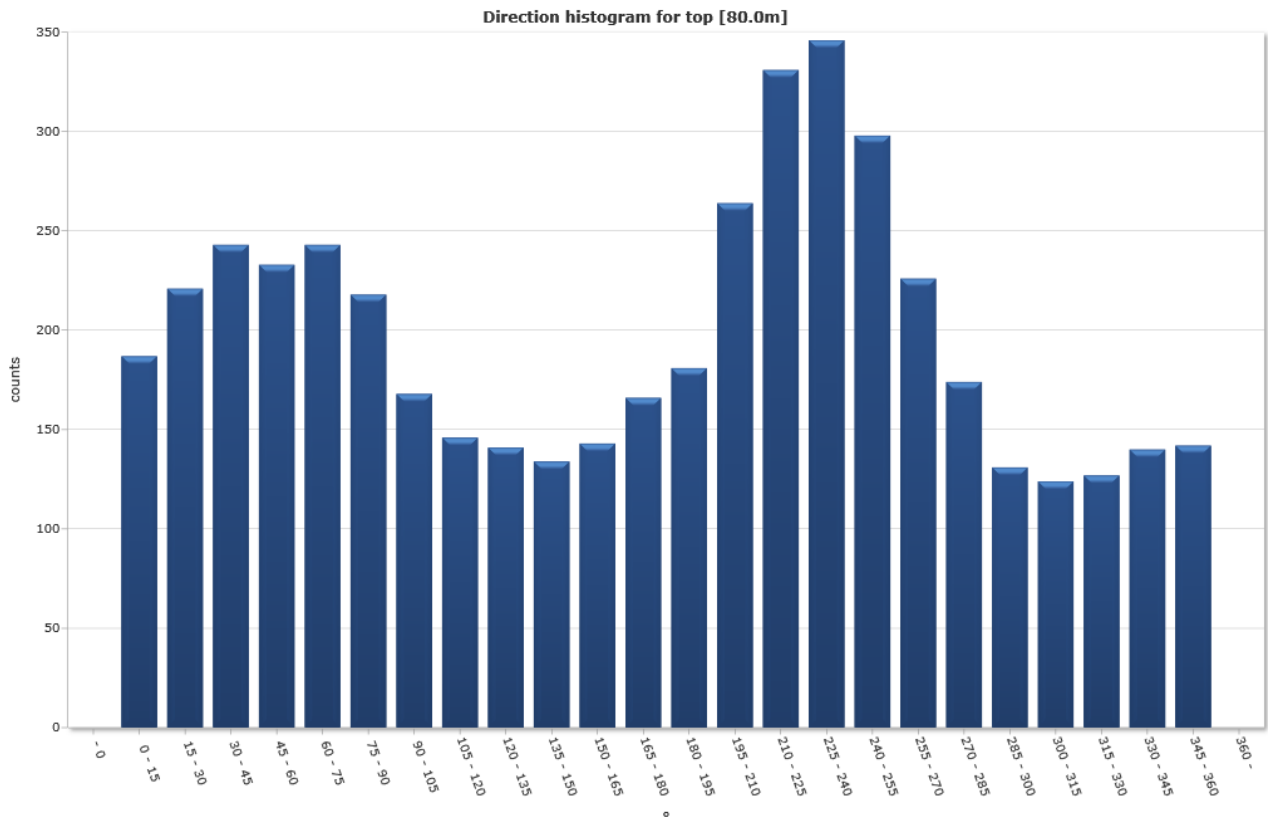


Bottom [110,0m]

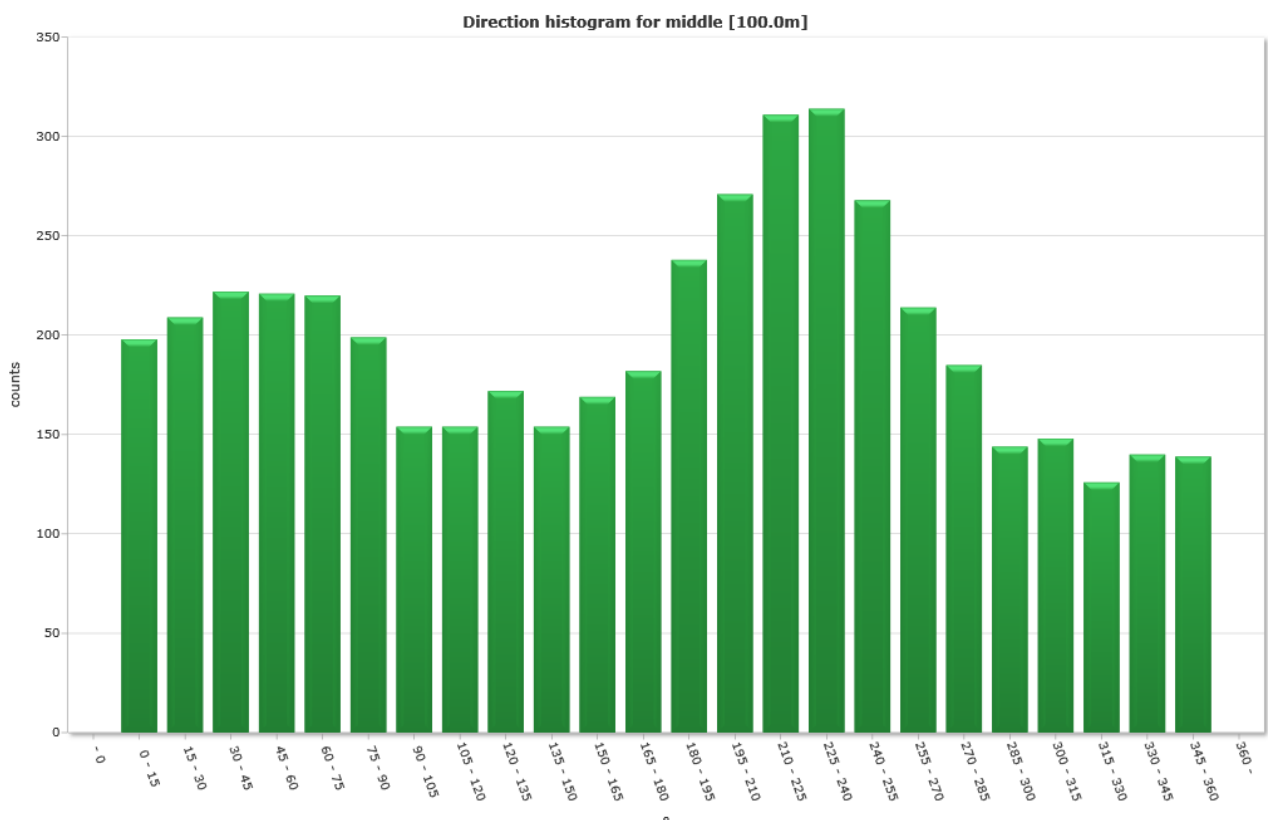


Direction histogram

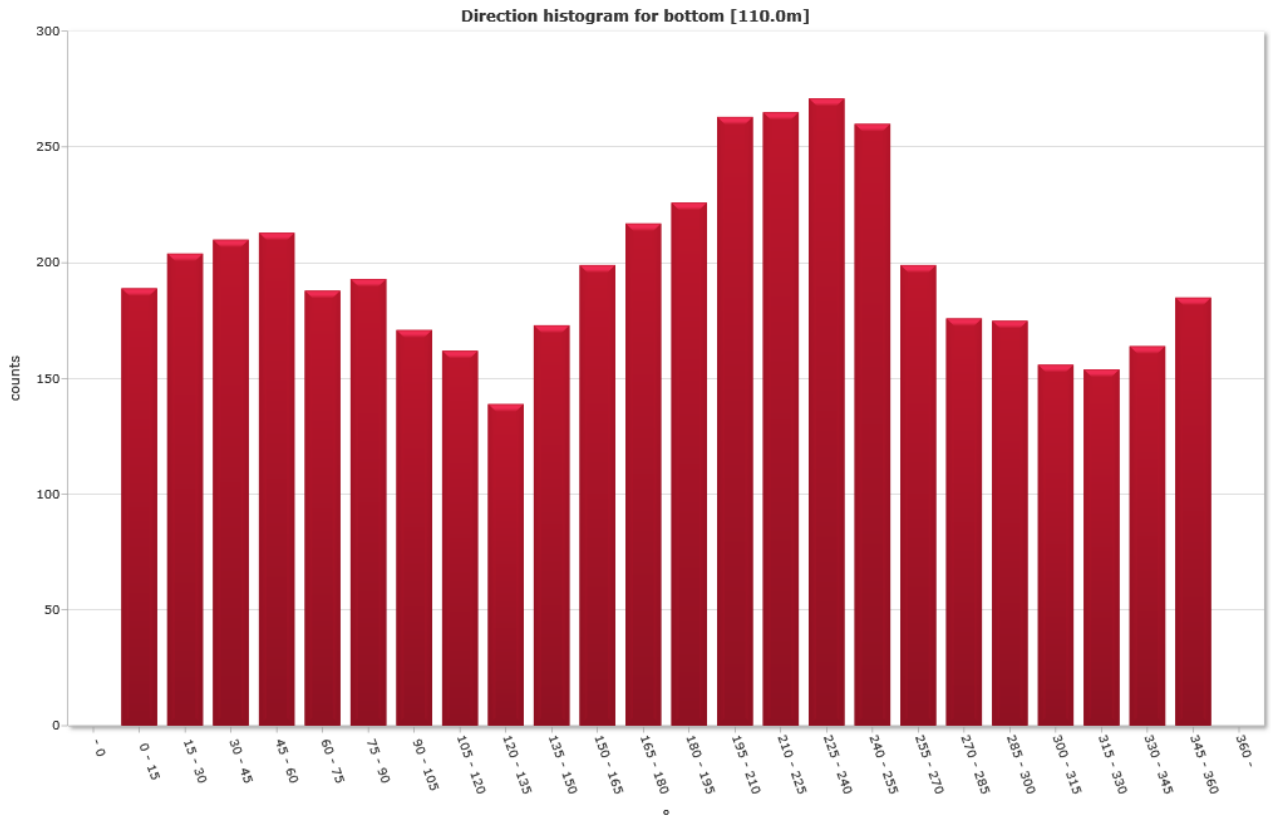
Top [80,0m]



Middle [100,0m]



Bottom [110,0m]



Direction/Speed histogram

Top [80,0m]

* m/s	Direction/speed matrix for top [80.0m]																										%	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	125	146	128	129	130	143	114	112	108	103	118	131	118	144	170	172	164	135	131	101	95	99	105	98	63.9	3019		
0.05	61	74	112	98	105	72	53	32	31	31	25	34	60	113	139	143	118	90	43	30	29	28	34	44	33.8	1599		
0.10	1	1	3	6	8	3	1	2	2	0	0	1	3	7	18	29	15	1	0	0	0	0	1	0	2.2	102		
0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	1	0	0	0	0	0	0	0	0.1	6		
0.20	0	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	1		
0.25	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		
0.30	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		
%	4.0	4.7	5.1	4.9	5.1	4.6	3.6	3.1	3.0	2.8	3.0	3.5	3.8	5.6	7.0	7.3	6.3	4.8	3.7	2.8	2.6	2.7	3.0	3.0	100.0	100.0		
Sum	187	221	243	233	243	218	168	146	141	134	143	166	181	264	331	346	298	226	174	131	124	127	140	142	100.0	4727		

Middle [100,0m]

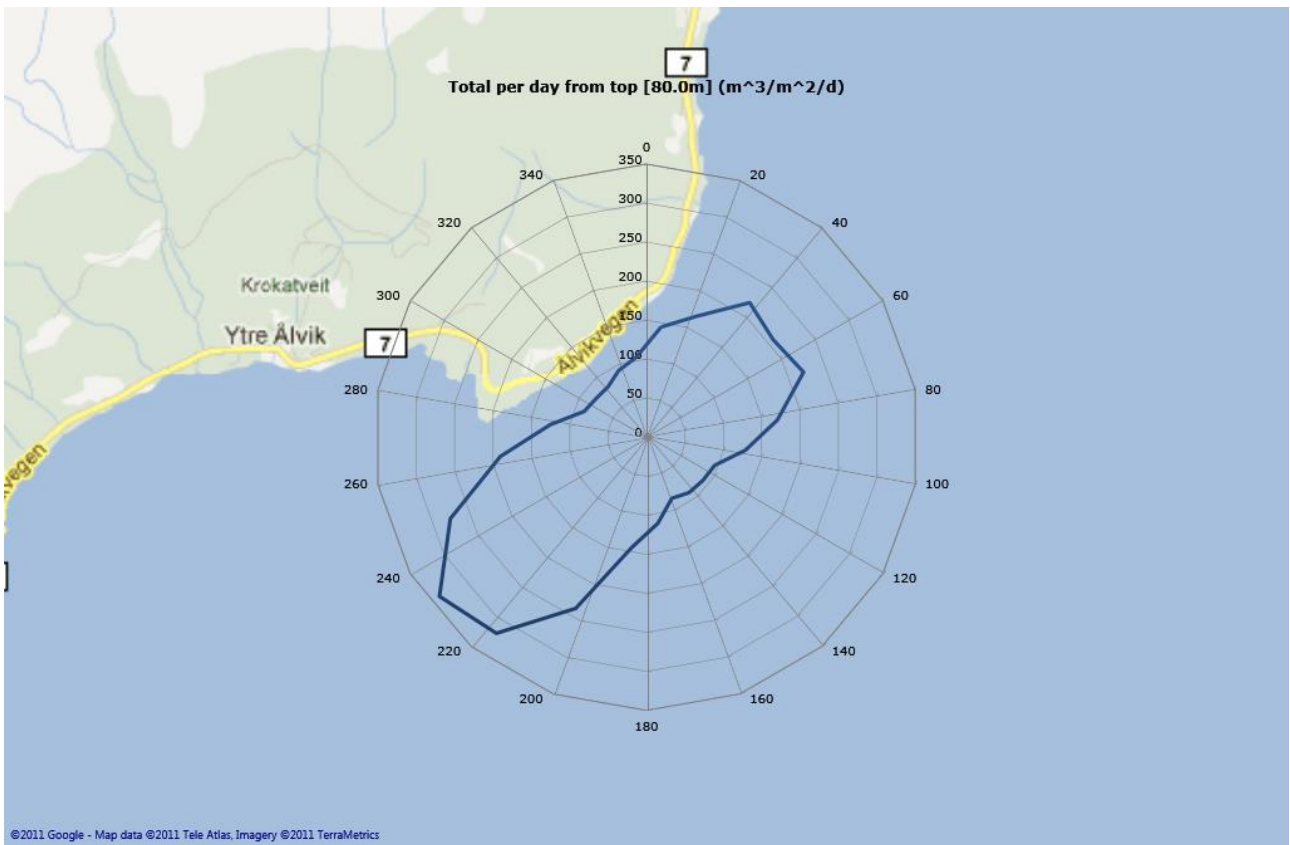
* m/s	Direction/speed matrix for middle [100.0m]																										%	Sum
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360				
0.0	143	144	139	133	149	132	114	125	147	125	143	146	170	173	184	175	168	153	130	125	119	108	119	105	70.9	3369		
0.05	53	62	75	85	66	67	37	28	25	29	25	36	67	90	117	122	92	59	55	19	29	17	21	33	27.5	1309		
0.10	2	3	8	3	5	0	3	1	0	0	1	0	1	8	10	16	8	2	0	0	0	1	0	1	1.5	73		
0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.0	1		
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		
0.25	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		
0.30	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		
%	4.2	4.4	4.7	4.7	4.6	4.2	3.2	3.2	3.6	3.2	3.6	3.8	5.0	5.7	6.5	6.6	5.6	4.5	3.9	3.0	3.1	2.7	2.9	2.9	100.0	100.0		
Sum	198	209	222	221	220	199	154	154	172	154	169	182	238	271	311	314	268	214	185	144	148	126	140	139	100.0	4752		

Bottom [110,0m]

° m/s	Direction/speed matrix for bottom [110.0m]																								%	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	136	136	131	143	134	147	121	129	113	142	163	158	159	146	169	170	165	144	144	136	125	124	126	140	71.6	3401	
0.10	53	66	76	69	49	44	49	32	25	31	36	57	67	111	91	94	92	52	31	39	31	30	37	45	27.5	1307	
0.15	0	2	3	1	5	2	1	1	1	0	0	2	0	6	5	7	3	3	1	0	0	0	1	0	0.9	44	
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	
0.25	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	
0.30	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	
%	4.0	4.3	4.4	4.5	4.0	4.1	3.6	3.4	2.9	3.6	4.2	4.6	4.8	5.5	5.6	5.7	5.5	4.2	3.7	3.7	3.3	3.2	3.5	3.9	100.0	100.0	
Sum	189	204	210	213	188	193	171	162	139	173	199	217	226	263	265	271	260	199	176	175	156	154	164	185	100.0	4752	

Flow

Top [80,0m]



Middle [100,0m]

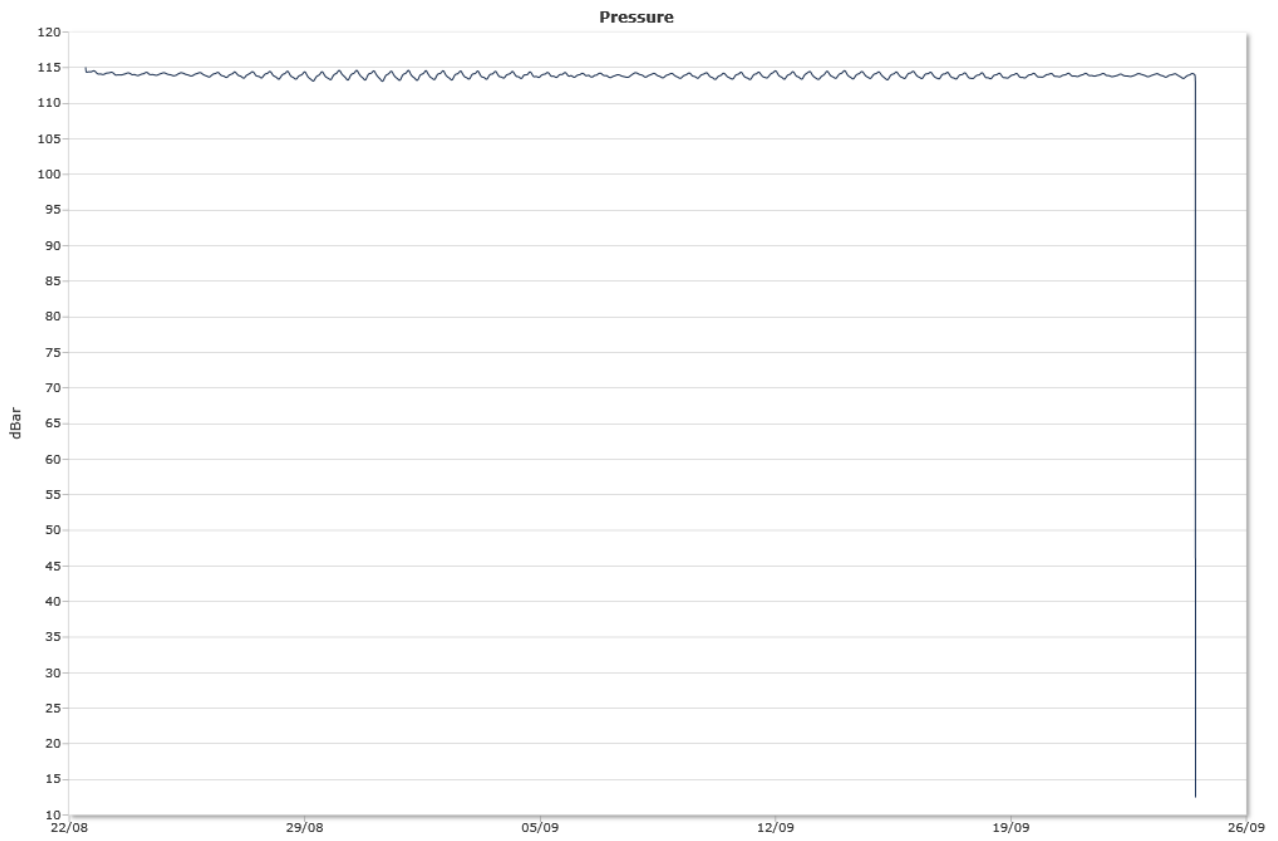


Bottom [110,0m]

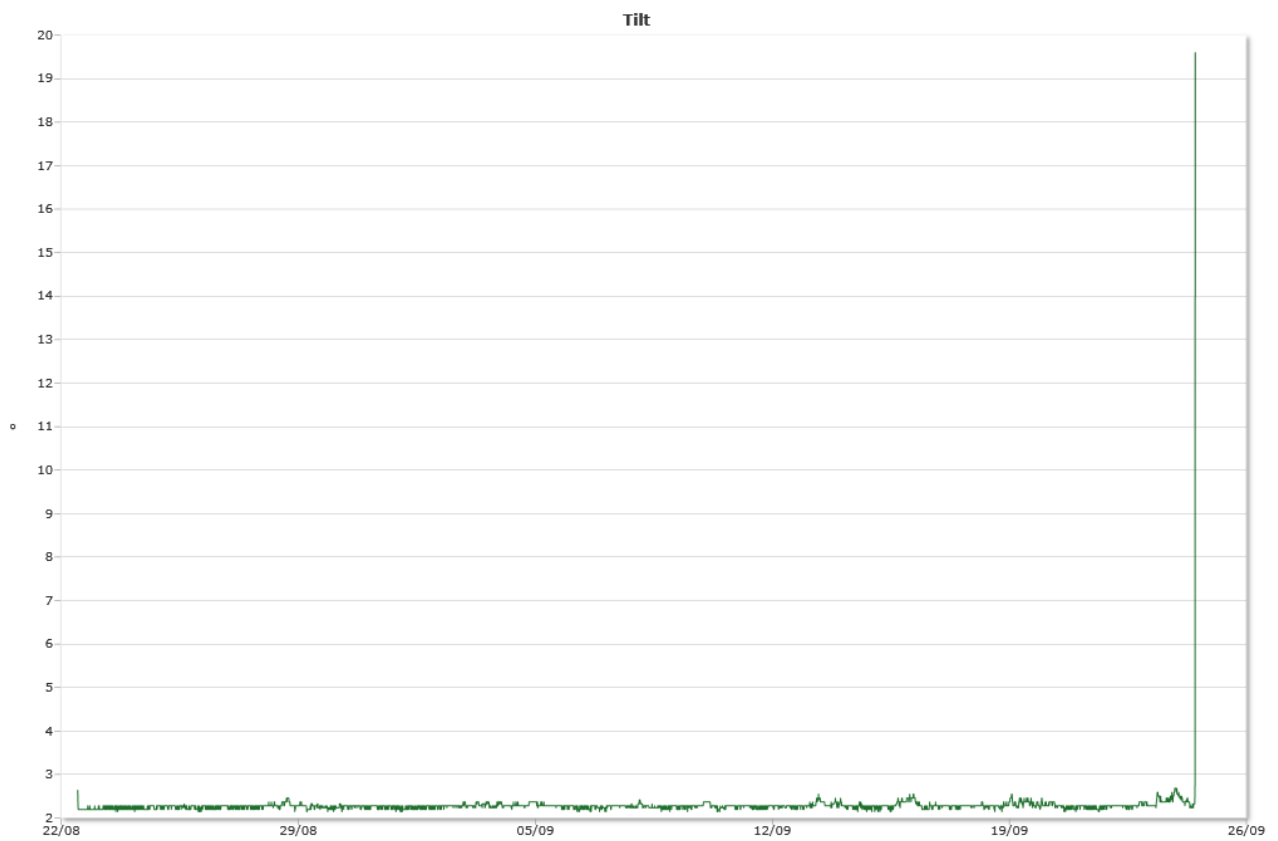


Sensors

Pressure



Tilt



Temperature

