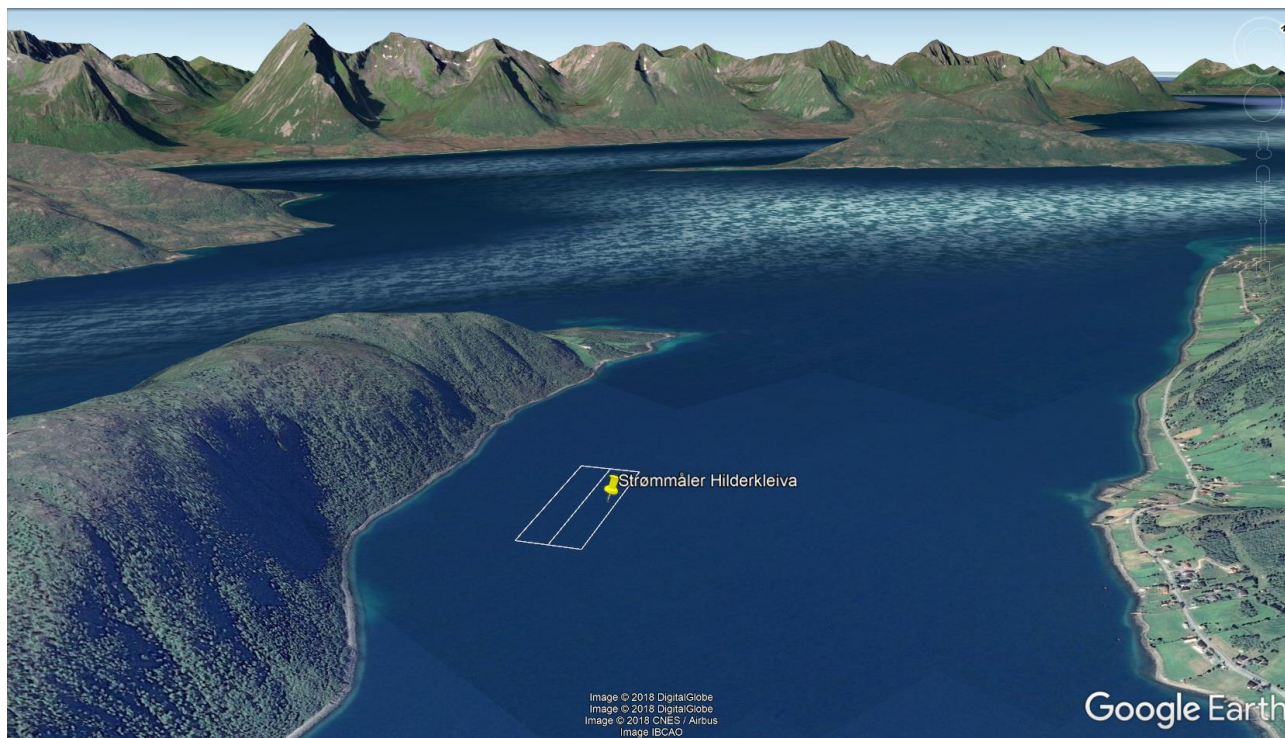


# Strømmåling

## Hilderkleiva



28.12.2018

Kleiva Fiskefarm AS og Gratanglaks AS

Report writer

Svein Erik Endresen

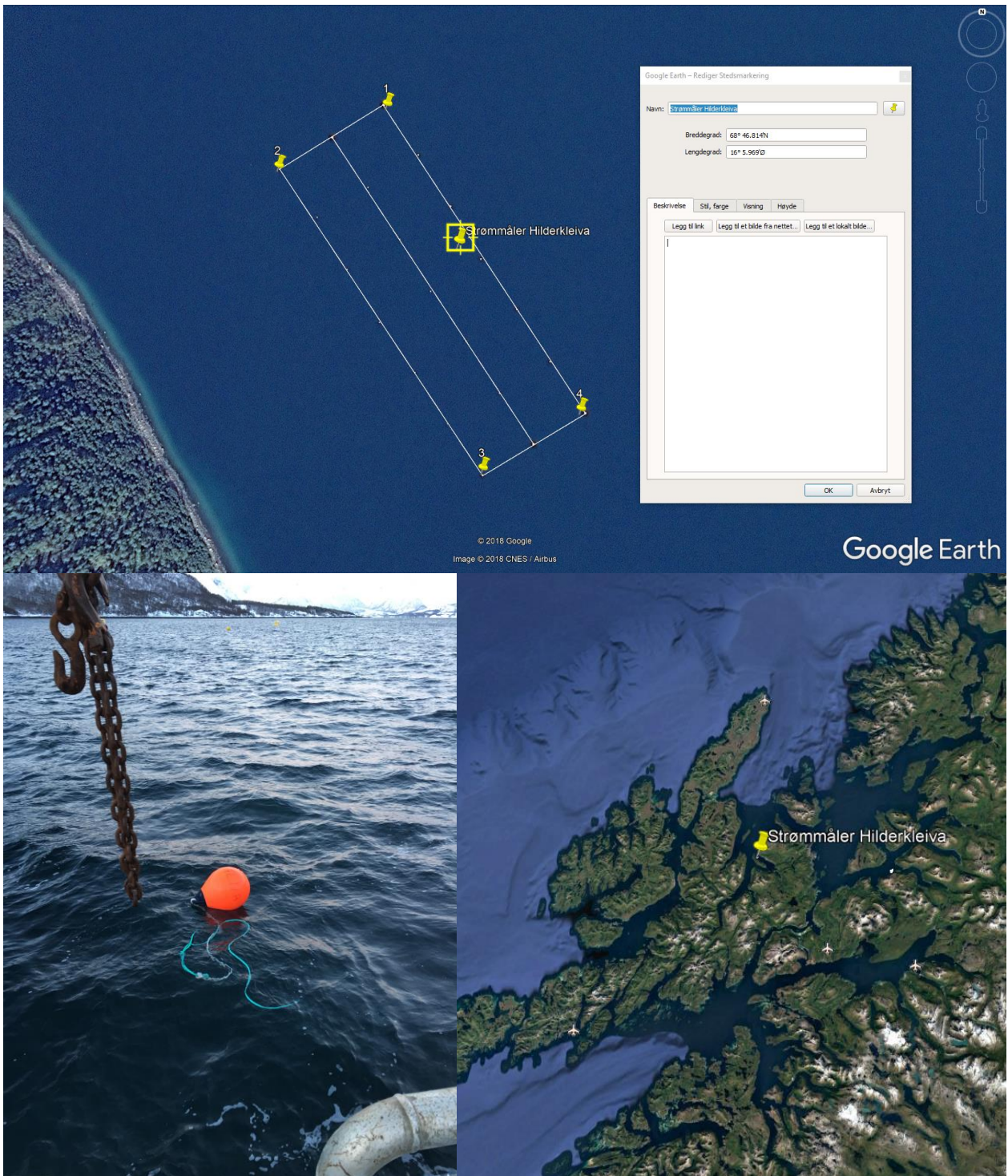
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# Summary

## Posisjoner





## Details

### Instrument

---

Head Id	AQP 6063
Board Id	AQD11167
Frequency	400000

### Configuration

---

File	Hilder01.prf
Start	25.11.2018 20:45
End	27.12.2018 16:55
Data Records	4586
Longitude	16° 5.97'E
Latitude	68° 46.81'N
Orientation	DOWN
Cells	20
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	26.11.2018 10:25
Selected End	27.12.2018 13:15
Compass Offset	0
Pressure Offset	0
Selected Records	4482
Reference	Water Surface
Top Depth [m]	5
Top Invalid Data	0
Middle Depth [m]	10
Middle Invalid Data	0
Bottom Depth [m]	15
Bottom Invalid Data	0

## Manually removed data

---

**Start Time**

**End Time**

**Comment**

## Statistics

---

### Top [5.0m]

---

Mean current [m/s]	0.18
Max current [m/s]	0.42
Min current [m/s]	0.00
Measurements used/total [#]	4482 / 4482
Std.dev [m/s]	0.09
Significant max velocity [m/s]	0.27
Significant min velocity [m/s]	0.08
10 year return current [m/s]	0.688
50 year return current [m/s]	0.772
Most significant directions [°]	315°, 300°, 285°, 330°
Most significant speeds [m/s]	0.20, 0.25, 0.15, 0.30
Most flow	3807.97m <sup>3</sup> / day at 300-315°
Least flow	15.04m <sup>3</sup> / day at 60-75°
Neumann parameter	0.77
Residue current	0.14 m/s at 289°
Zero current [%] - [HH:mm]	0.49% - 00:10

### Middle [10.0m]

---

Mean current [m/s]	0.08
Max current [m/s]	0.33
Min current [m/s]	0.00
Measurements used/total [#]	4482 / 4482
Std.dev [m/s]	0.07
Significant max velocity [m/s]	0.16
Significant min velocity [m/s]	0.03
10 year return current [m/s]	0.542
50 year return current [m/s]	0.608
Most significant directions [°]	270°, 285°, 255°, 240°
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Most flow	1213.92m <sup>3</sup> / day at 255-270°
Least flow	33.53m <sup>3</sup> / day at 45-60°
Neumann parameter	0.65
Residue current	0.05 m/s at 245°
Zero current [%] - [HH:mm]	2.66% - 00:20

### Bottom [15.0m]

---

Mean current [m/s]	0.08
Max current [m/s]	0.31
Min current [m/s]	0.00
Measurements used/total [#]	4482 / 4482
Std.dev [m/s]	0.06
Significant max velocity [m/s]	0.14
Significant min velocity [m/s]	0.03

10 year return current [m/s]	0.519
50 year return current [m/s]	0.582
Most significant directions [°]	270°, 285°, 255°, 240°
Most significant speeds [m/s]	0.05, 0.10, 0.15, 0.20
Most flow	1036.59m <sup>3</sup> / day at 255-270°
Least flow	36.13m <sup>3</sup> / day at 0-15°
Neumann parameter	0.61
Residue current	0.05 m/s at 241°
Zero current [%] - [HH:mm]	2.86% - 00:20



## Direction with return period

---

### Top [5.0m]

---

<b>Direction</b>	<b>Mean</b>	<b>Max</b>	<b>Mean 10y</b>	<b>Max 10y</b>	<b>Mean 50y</b>	<b>Max 50y</b>
0	0.124	0.337	0.205	0.557	0.230	0.624
45	0.075	0.289	0.124	0.477	0.138	0.535
90	0.099	0.321	0.163	0.529	0.183	0.594
135	0.117	0.292	0.193	0.482	0.217	0.540
180	0.118	0.300	0.194	0.495	0.218	0.555
225	0.135	0.327	0.222	0.539	0.249	0.604
270	0.182	0.410	0.300	0.677	0.337	0.759
315	0.206	0.417	0.340	0.688	0.381	0.772

### Middle [10.0m]

---

<b>Direction</b>	<b>Mean</b>	<b>Max</b>	<b>Mean 10y</b>	<b>Max 10y</b>	<b>Mean 50y</b>	<b>Max 50y</b>
0	0.040	0.137	0.066	0.227	0.074	0.254
45	0.034	0.112	0.056	0.185	0.063	0.208
90	0.038	0.135	0.062	0.223	0.069	0.250
135	0.057	0.268	0.094	0.443	0.105	0.497
180	0.084	0.278	0.139	0.459	0.156	0.514
225	0.094	0.292	0.155	0.481	0.174	0.539
270	0.115	0.329	0.190	0.542	0.213	0.608
315	0.058	0.271	0.096	0.447	0.107	0.502

### Bottom [15.0m]

---

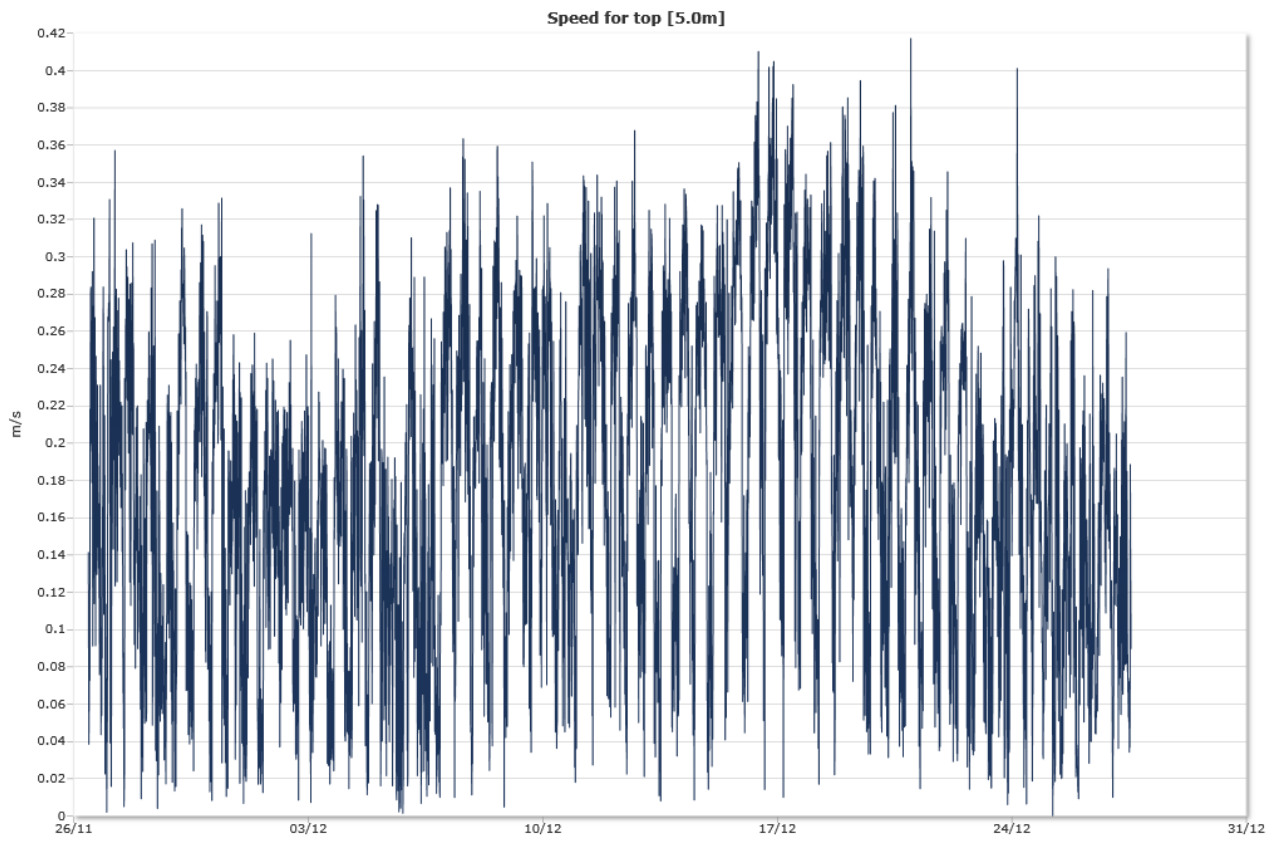
<b>Direction</b>	<b>Mean</b>	<b>Max</b>	<b>Mean 10y</b>	<b>Max 10y</b>	<b>Mean 50y</b>	<b>Max 50y</b>
0	0.035	0.128	0.058	0.211	0.065	0.236
45	0.033	0.126	0.054	0.209	0.061	0.234
90	0.037	0.130	0.061	0.215	0.068	0.241
135	0.055	0.248	0.090	0.409	0.101	0.458
180	0.072	0.278	0.120	0.459	0.134	0.515
225	0.085	0.313	0.141	0.516	0.158	0.579
270	0.107	0.315	0.177	0.519	0.199	0.582
315	0.056	0.209	0.092	0.345	0.103	0.387

## Time series

---

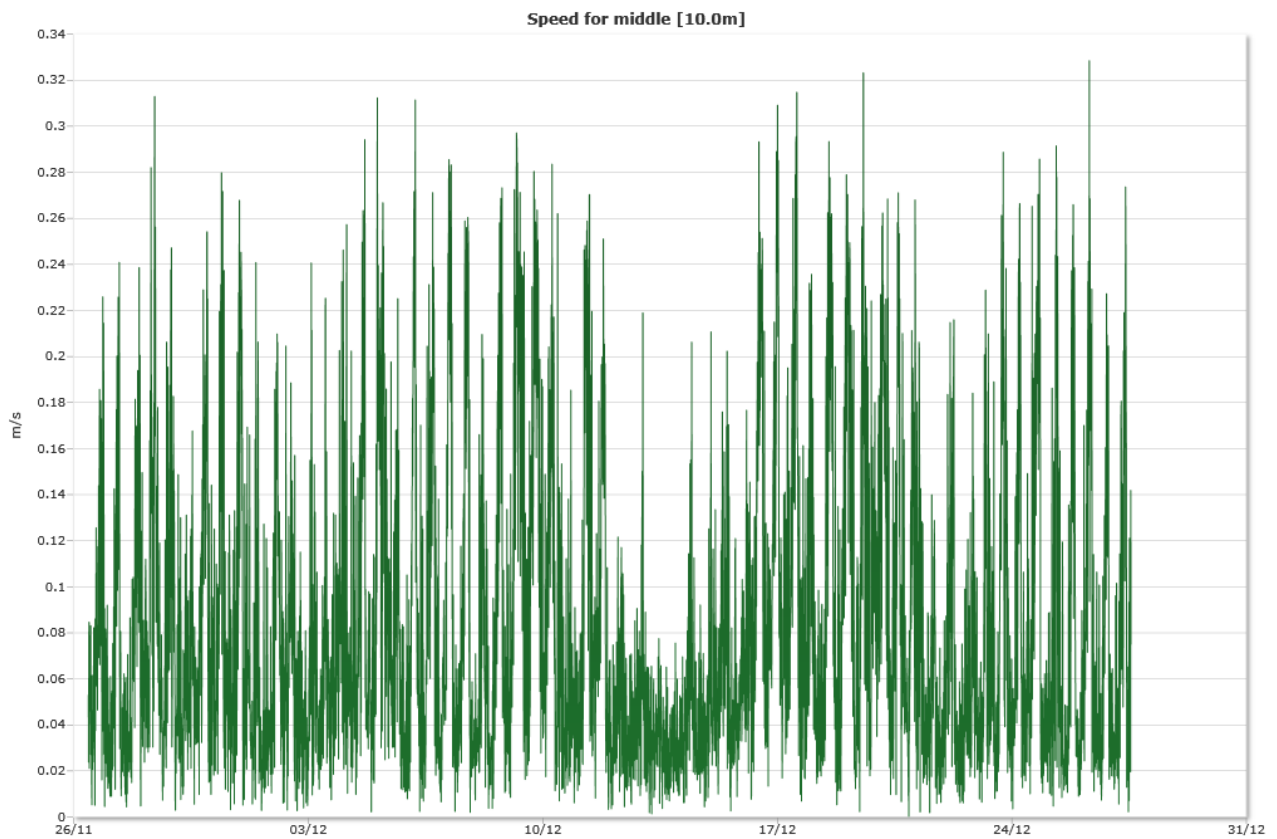
### Top [5.0m]

---

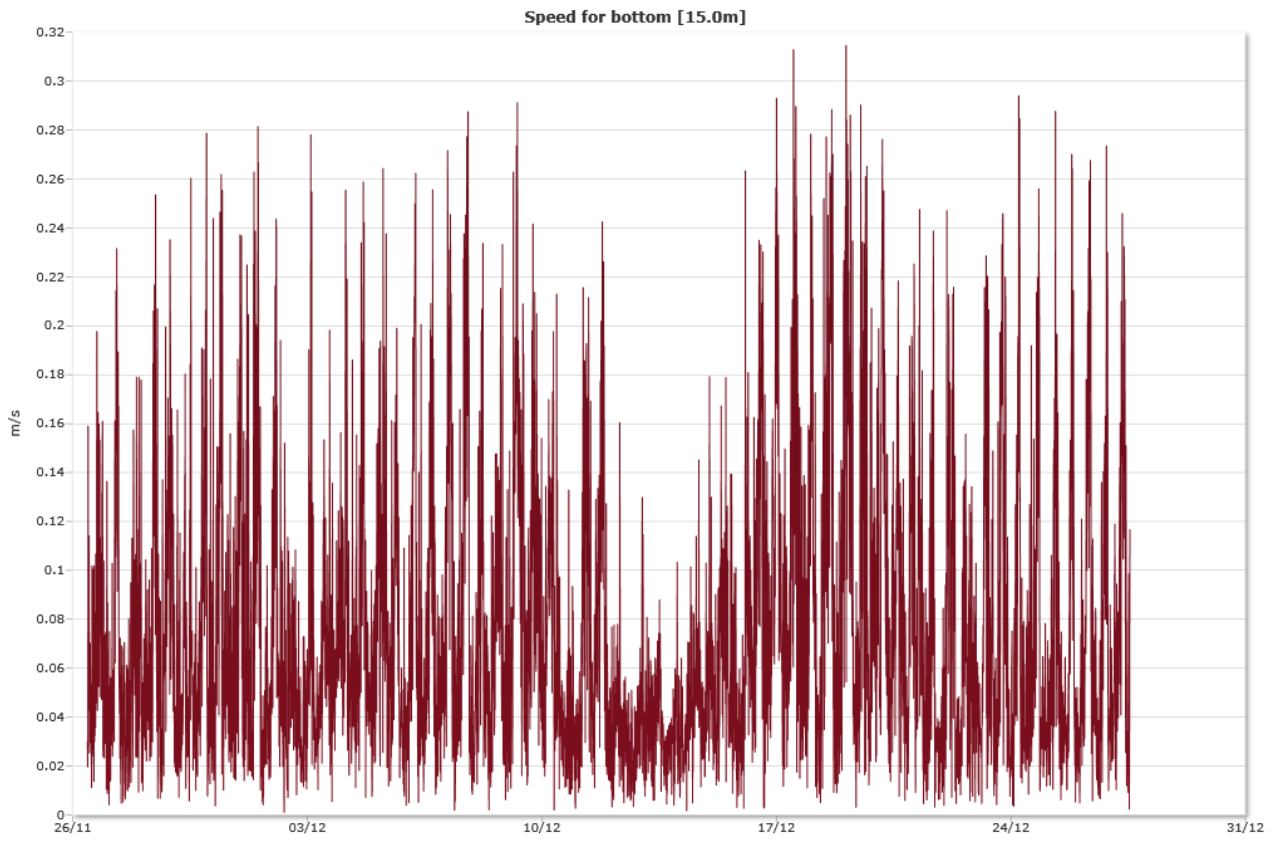


### Middle [10.0m]

---

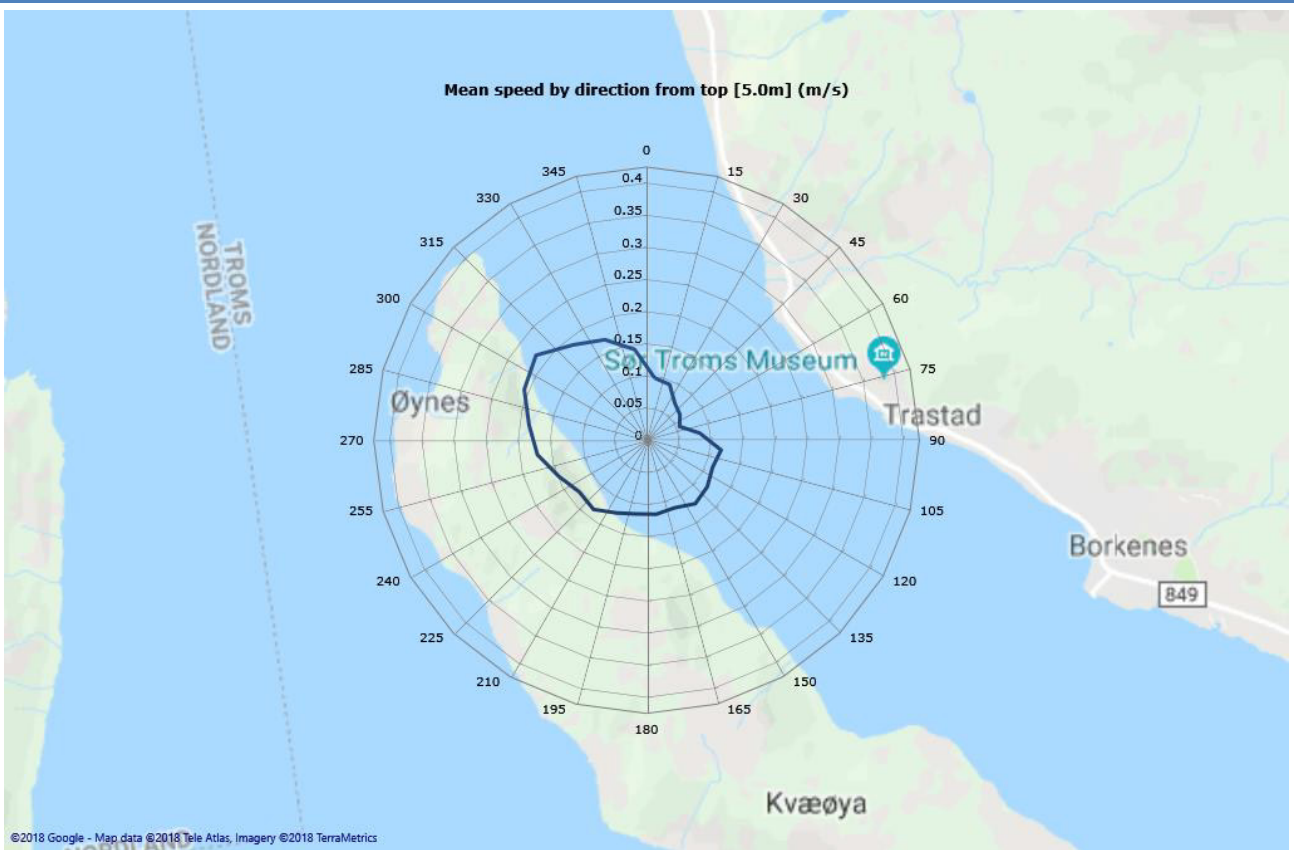


## Bottom [15.0m]

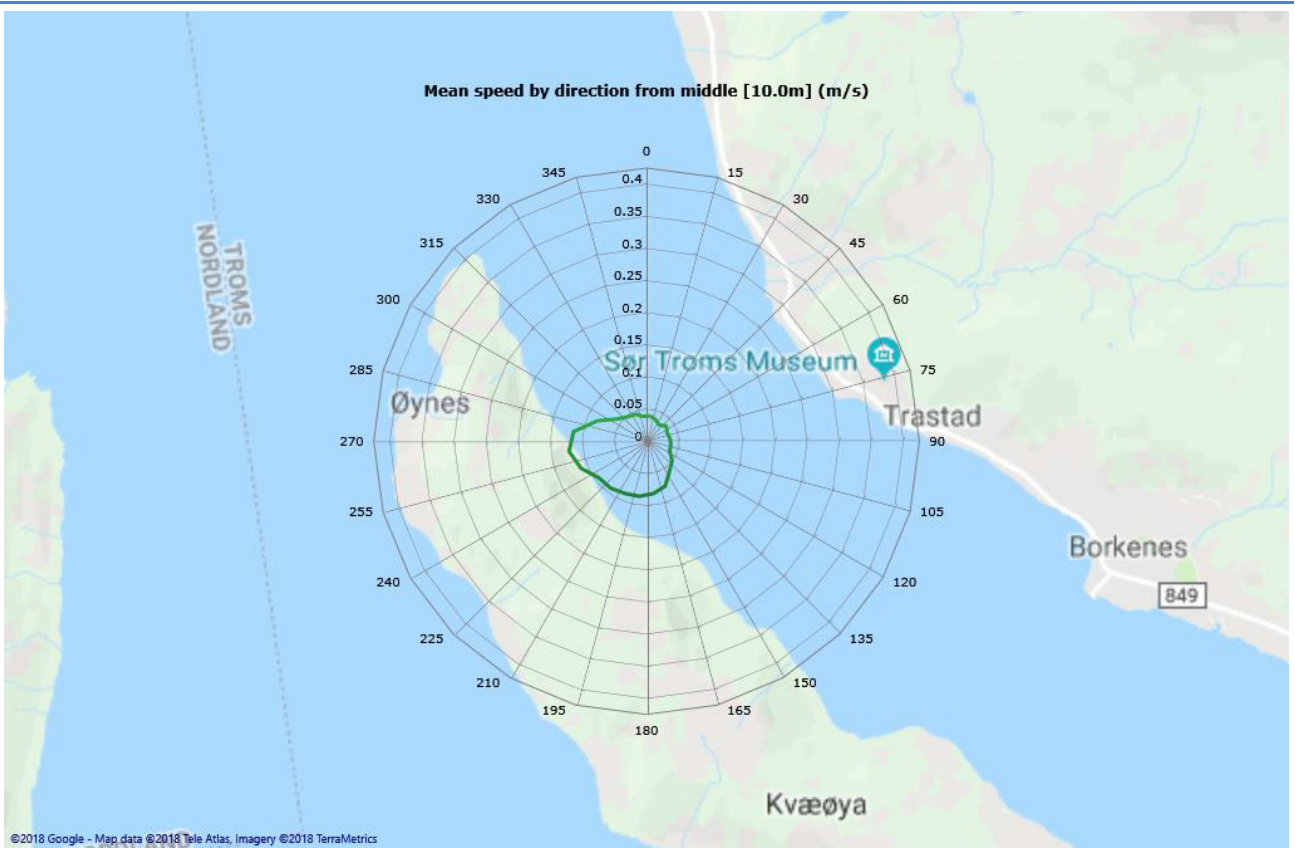


# Mean speed - roseplot

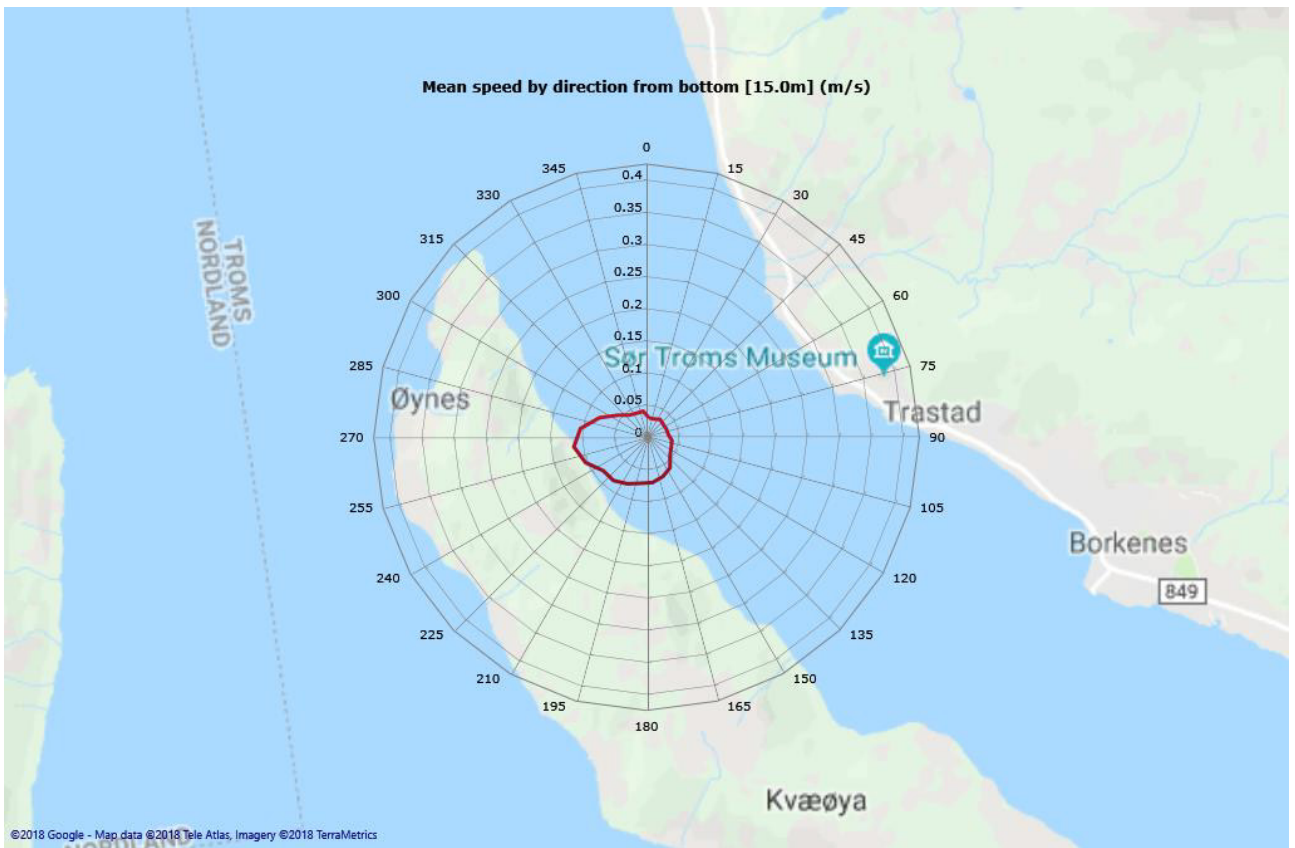
## Top [5.0m]



## Middle [10.0m]



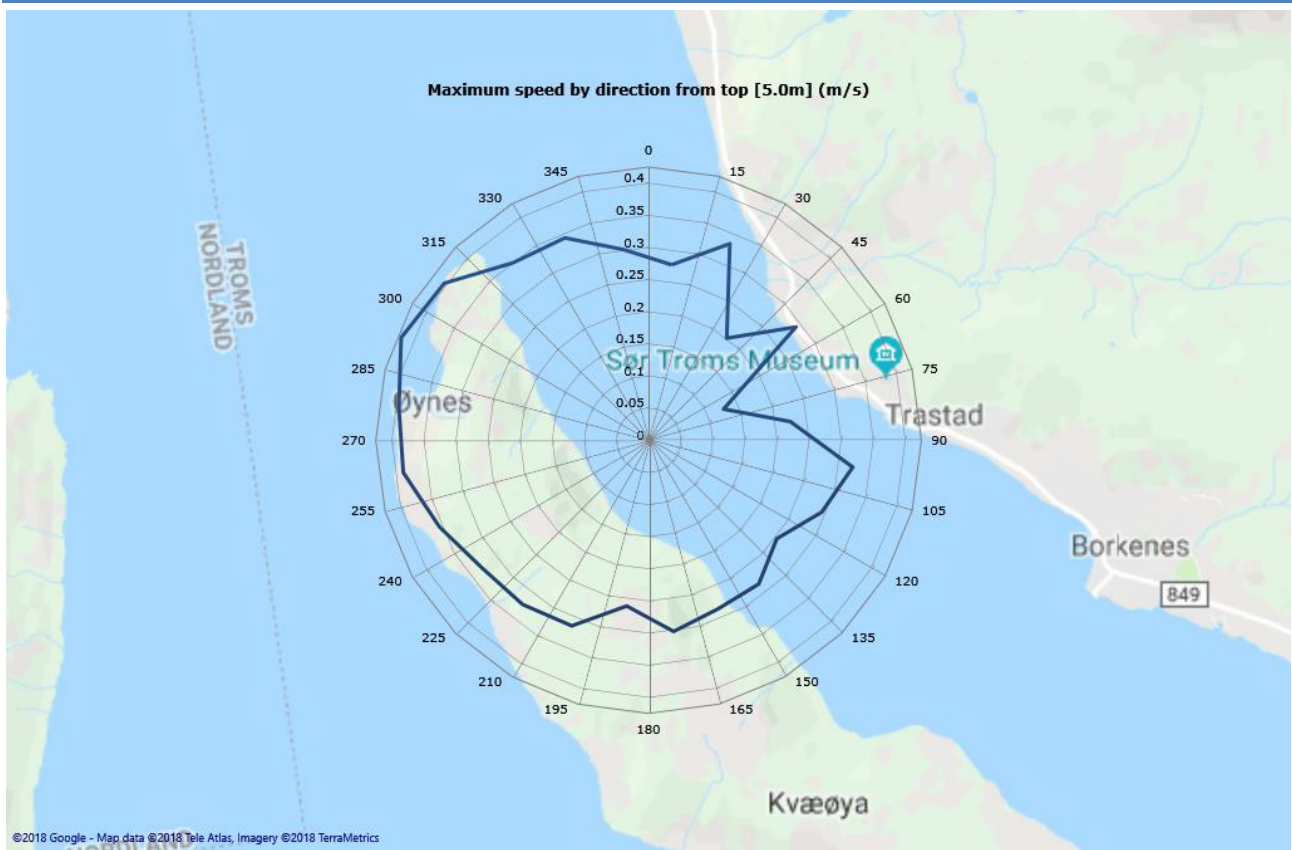
Bottom [15.0m]



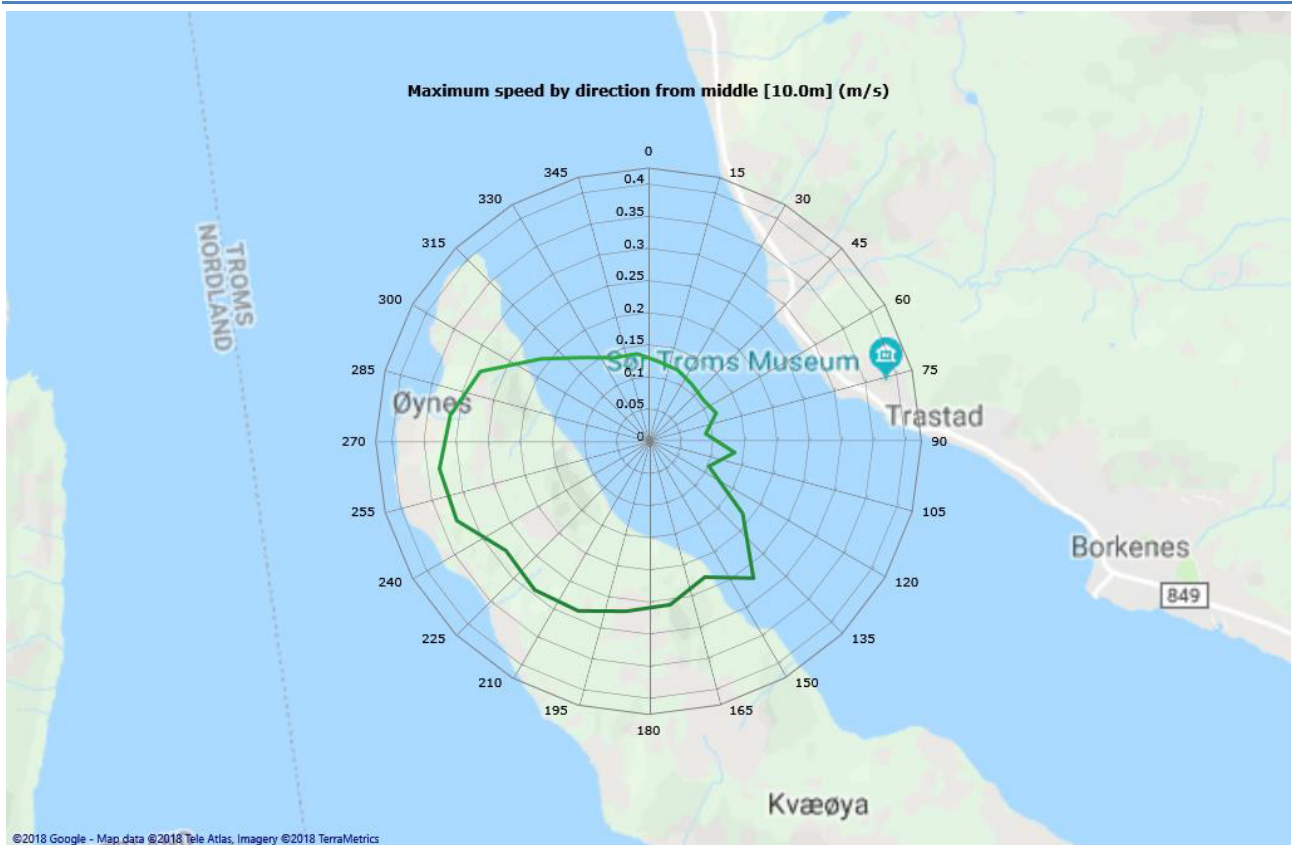


## Max speed - roseplot

Top [5.0m]

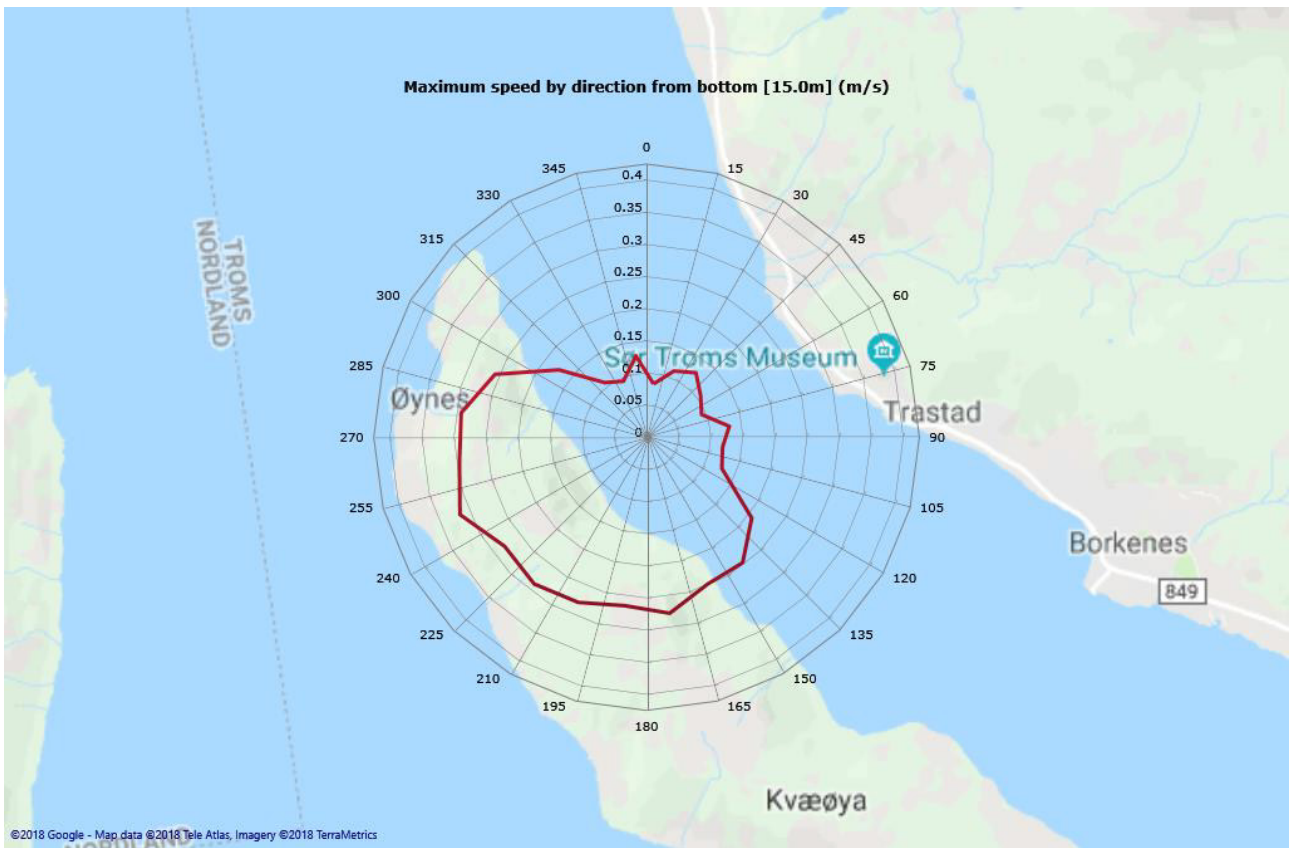


Middle [10.0m]



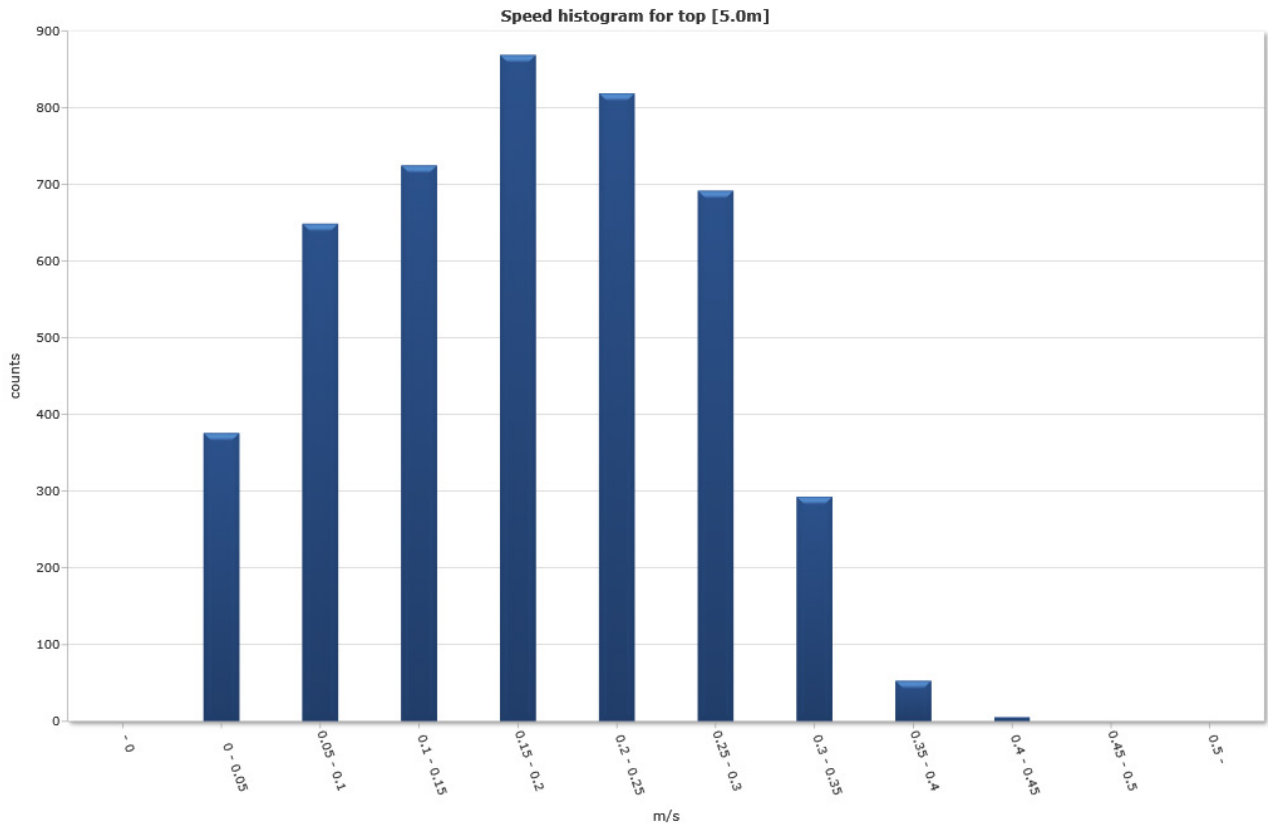


Bottom [15.0m]

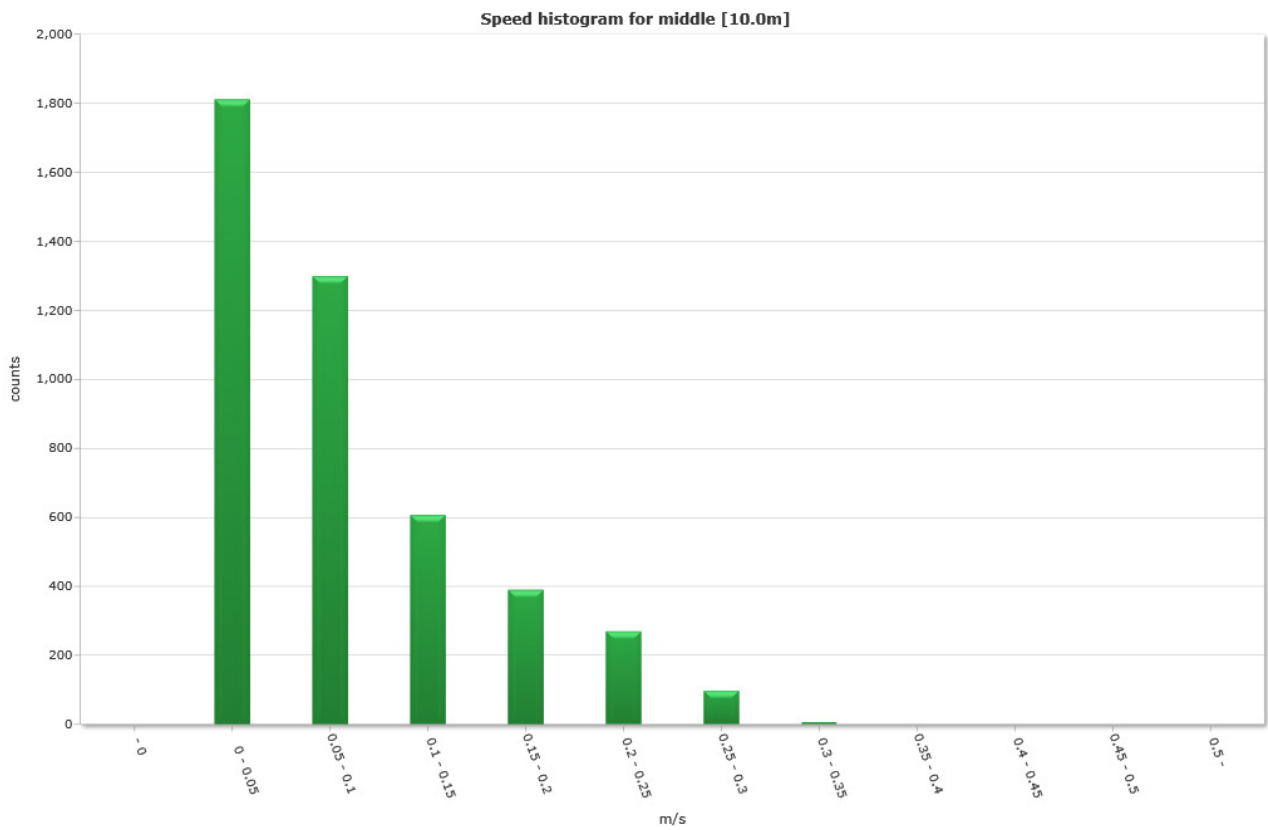


## Speed histogram

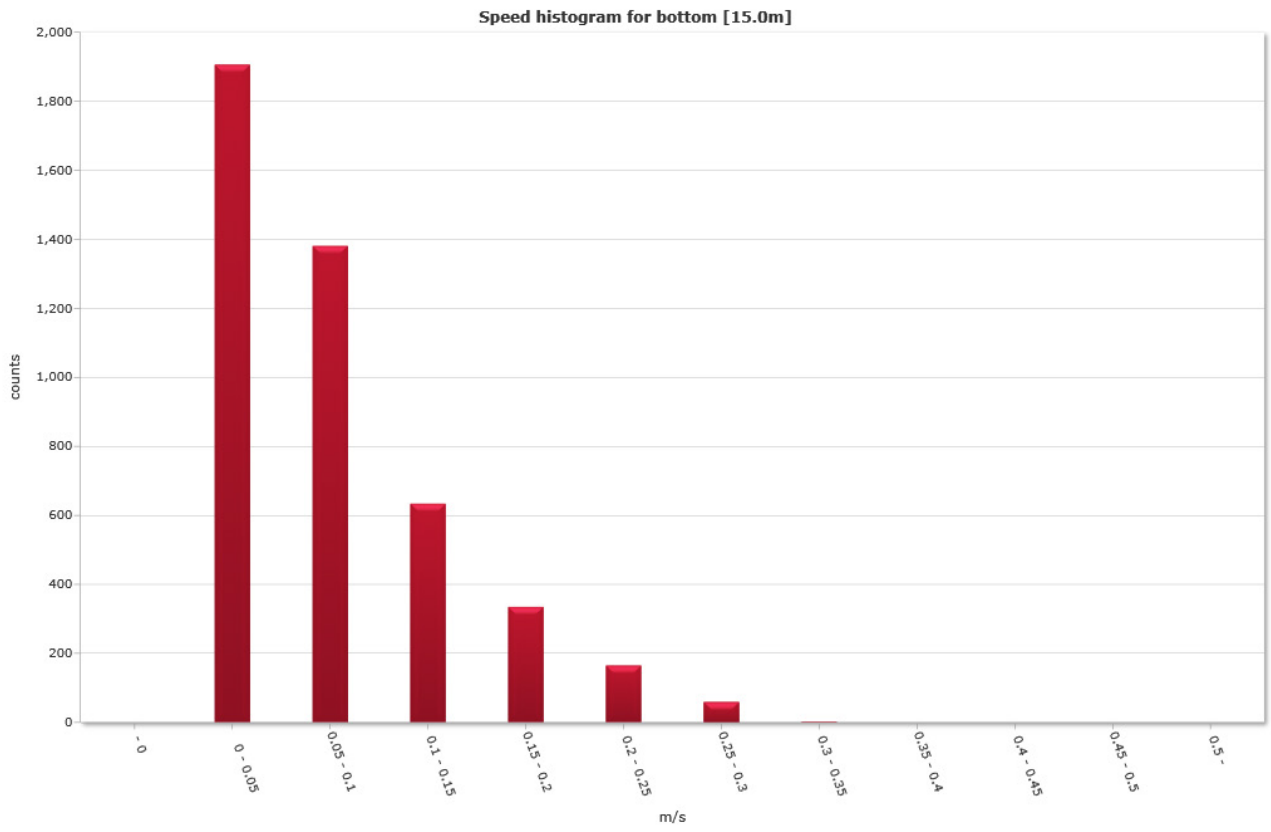
### Top [5.0m]



### Middle [10.0m]

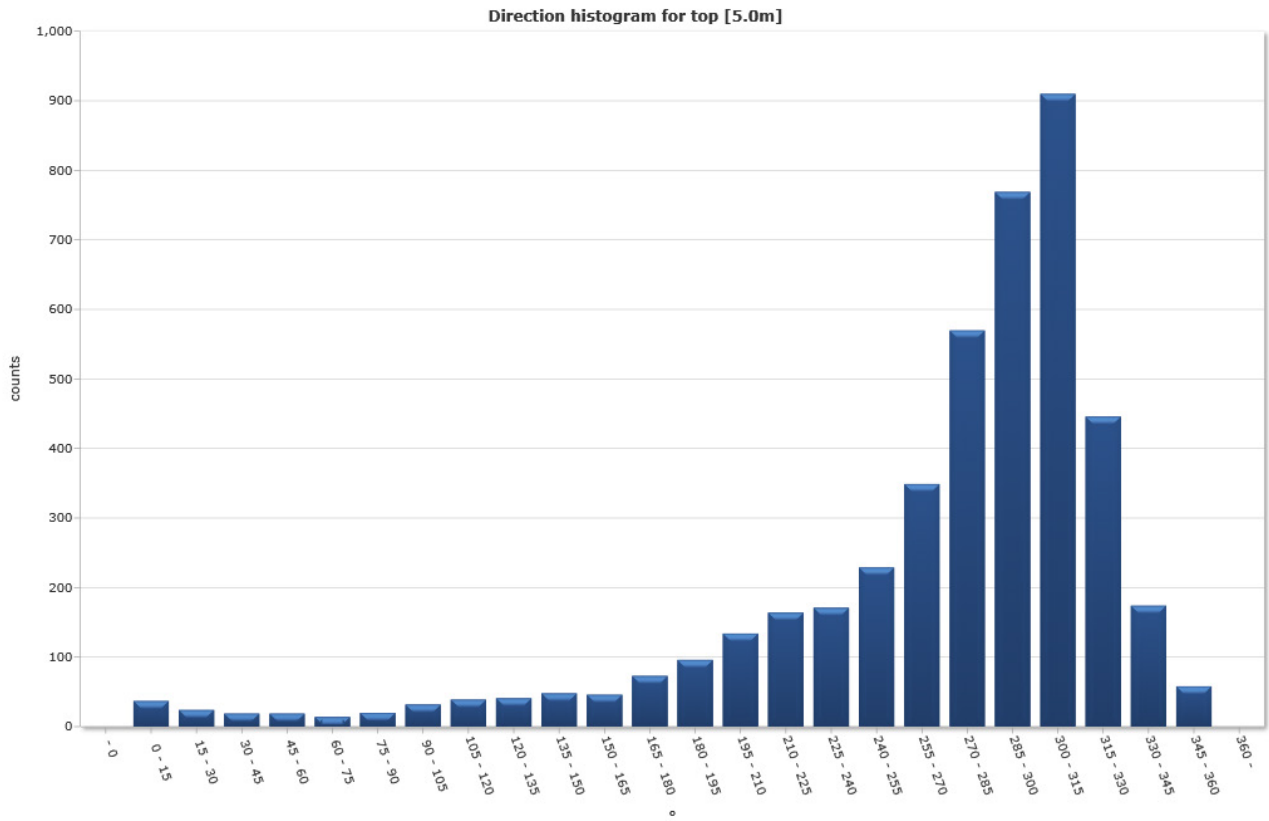


## Bottom [15.0m]

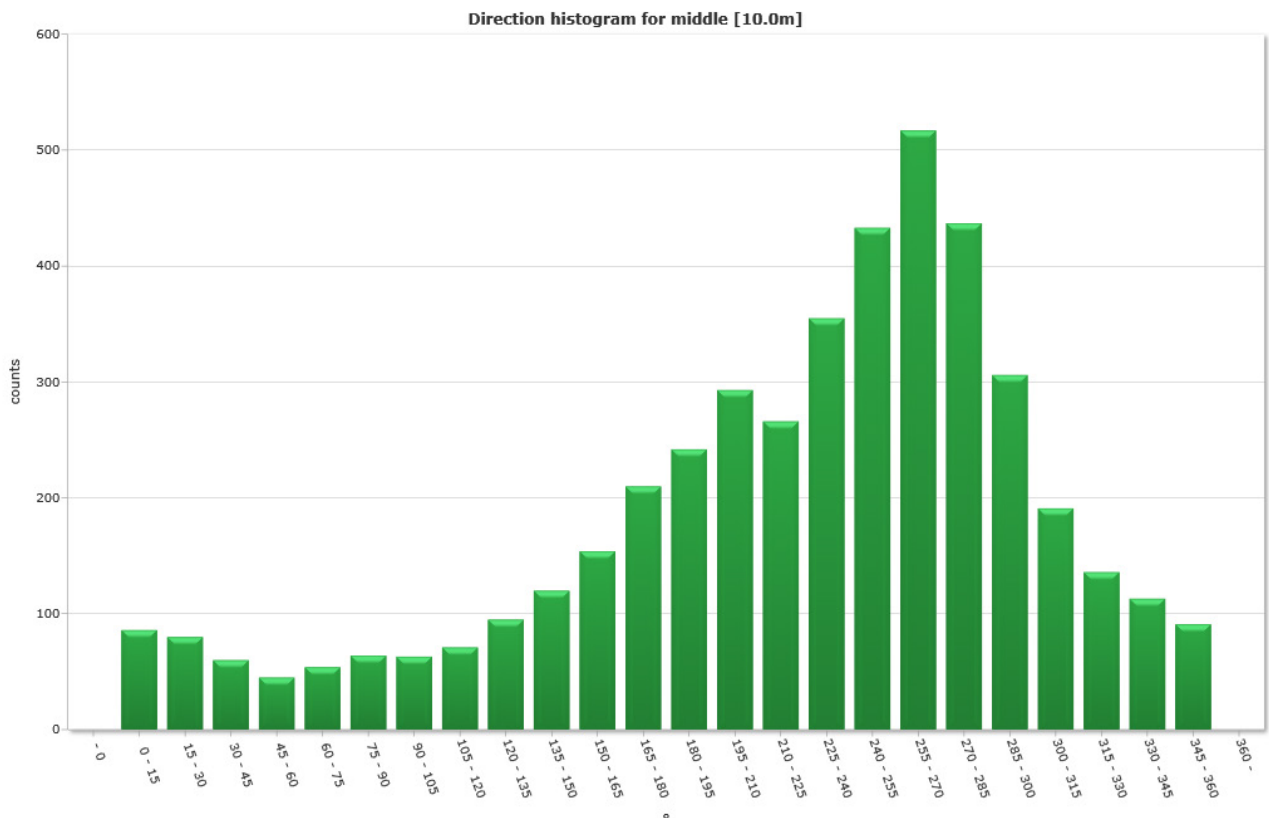


## Direction histogram

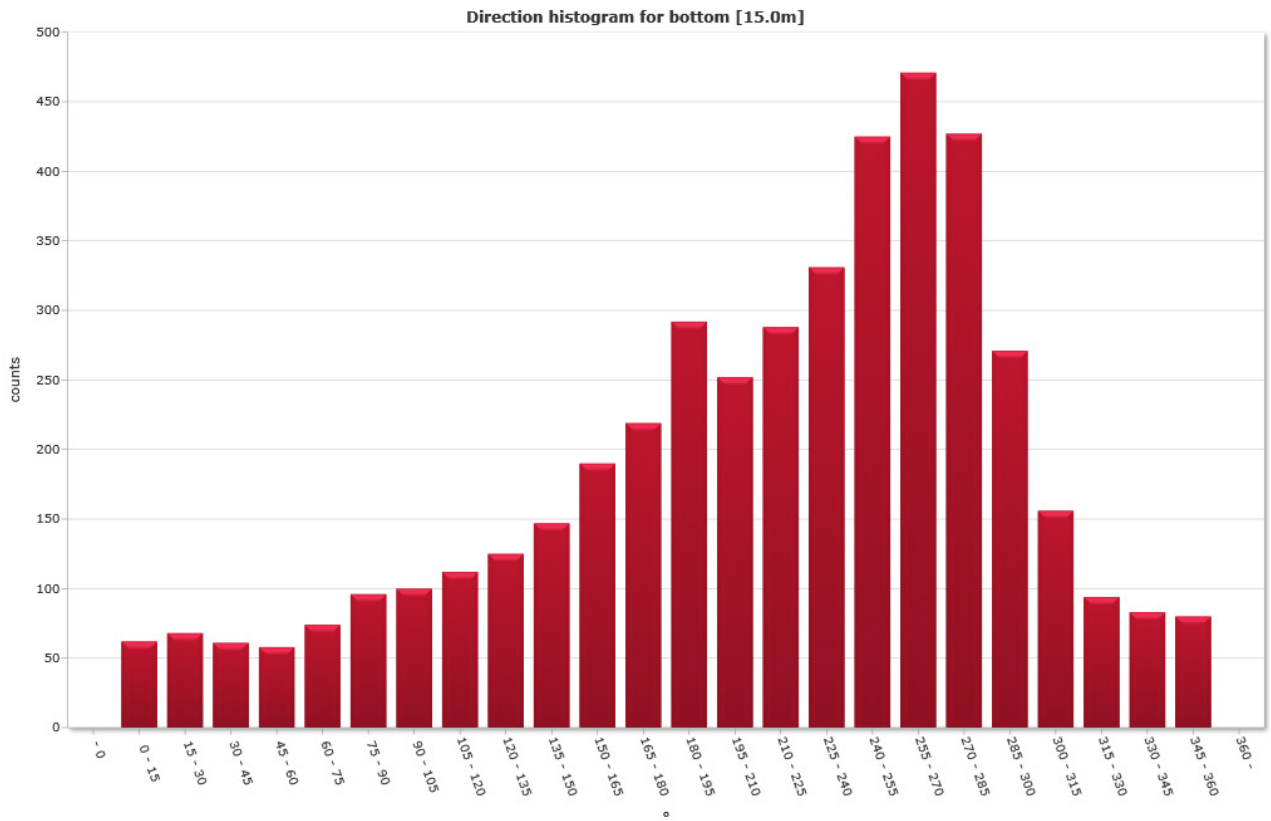
### Top [5.0m]



### Middle [10.0m]



# Bottom [15.0m]



## Direction/Speed histogram

### Top [5.0m]

		Direction/speed matrix for top [5.0m]																													
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		12	9	8	9	7	7	10	13	5	14	11	14	22	24	22	21	27	23	29	28	13	23	15	10	8.4	376				
0.10		12	8	7	7	6	7	4	4	15	7	13	19	27	33	39	51	47	66	75	72	54	49	15	12	14.5	649				
0.15		5	3	2	2	1	3	8	9	7	7	9	16	16	30	37	33	52	64	102	102	112	59	38	8	16.2	725				
0.20		5	1	1	0	0	1	4	10	7	9	6	16	17	23	34	29	42	67	115	154	169	106	44	9	19.4	869				
0.25		0	1	1	0	0	2	3	1	6	8	3	7	10	13	18	25	32	42	101	157	229	109	37	14	18.3	819				
0.30		3	1	0	1	0	0	2	2	1	3	4	0	4	10	12	10	23	60	90	156	210	75	20	5	15.4	692				
0.35		0	1	0	0	0	0	1	0	0	0	0	1	0	1	2	2	5	21	47	74	108	25	5	0	6.5	293				
0.40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	11	21	14	0	0	0	1.2	53				
0.45		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	0.1	6				
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				
%		0.8	0.5	0.4	0.4	0.3	0.4	0.7	0.9	0.9	1.1	1.0	1.6	2.1	3.0	3.7	3.8	5.1	7.8	12.7	17.2	20.3	10.0	3.9	1.3	100.0	100.0				
Sum		37	24	19	19	14	20	32	39	41	48	46	73	96	134	164	171	229	349	570	769	910	446	174	58	100.0	4482				

### Middle [10.0m]

		Direction/speed matrix for middle [10.0m]																													
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		63	66	50	33	44	50	47	48	56	62	67	72	88	100	85	115	114	111	102	119	95	83	73	68	40.4	1811				
0.10		21	10	9	11	9	14	15	22	30	42	49	74	81	95	80	100	126	126	118	83	80	46	37	21	29.0	1299				
0.15		2	4	1	1	1	0	1	1	7	10	19	36	33	48	50	70	58	101	81	63	9	6	3	2	13.5	607				
0.20		0	0	0	0	0	0	0	0	2	5	7	16	18	21	28	39	74	88	60	25	6	1	0	0	8.7	390				
0.25		0	0	0	0	0	0	0	0	0	0	12	11	17	23	20	24	38	56	57	11	1	0	0	0	6.0	270				
0.30		0	0	0	0	0	0	0	0	0	1	0	1	5	6	3	7	22	30	18	5	0	0	0	0	2.2	98				
0.35		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	0	0	0	0	0	0.2	7				
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	1.8	1.3	1.0	1.2	1.4	1.4	1.6	2.1	2.7	3.4	4.7	5.4	6.5	5.9	7.9	9.7	11.5	9.8	6.8	4.3	3.0	2.5	2.0	100.0	100.0				
Sum		86	80	60	45	54	64	63	71	95	120	154	210	242	293	266	355	433	517	437	306	191	136	113	91	100.0	4482				

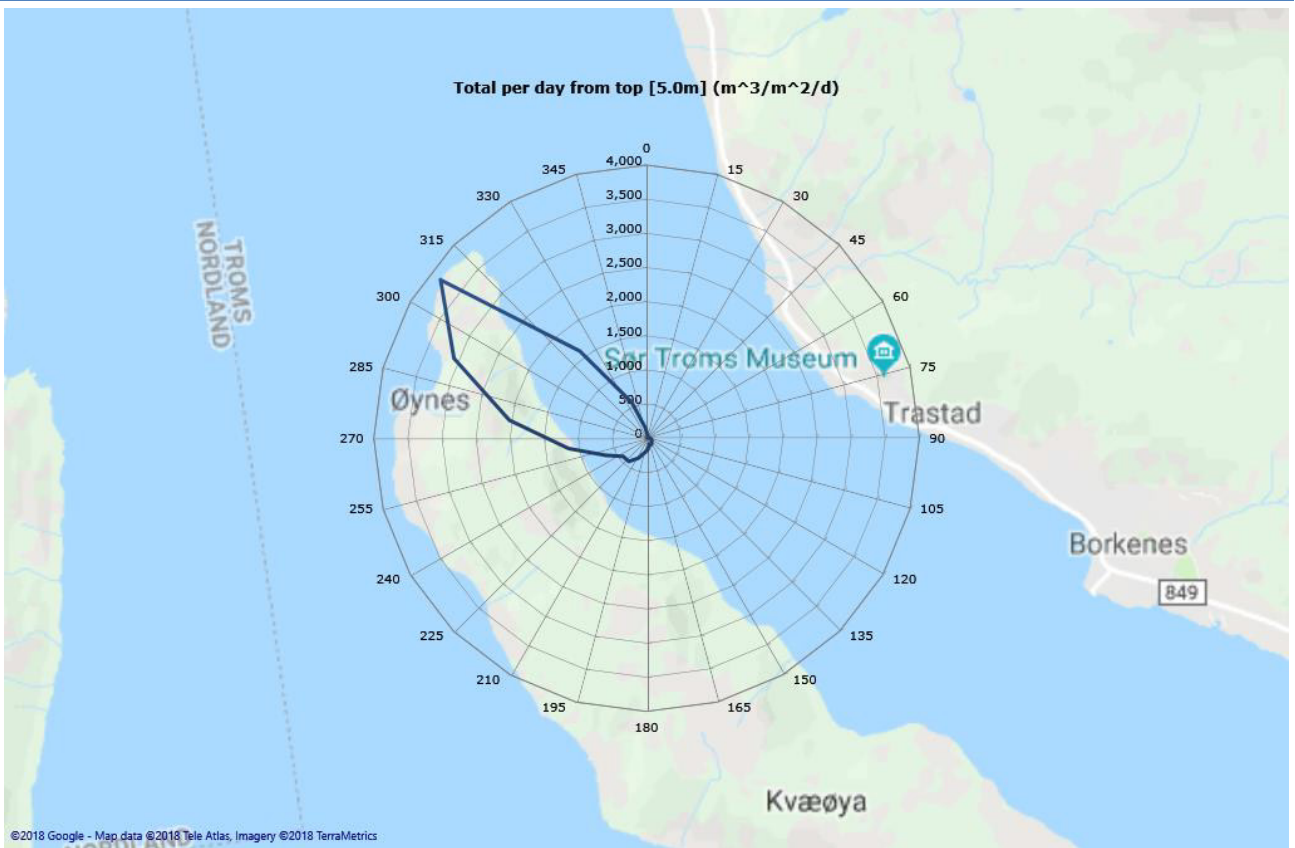


## Bottom [15.0m]

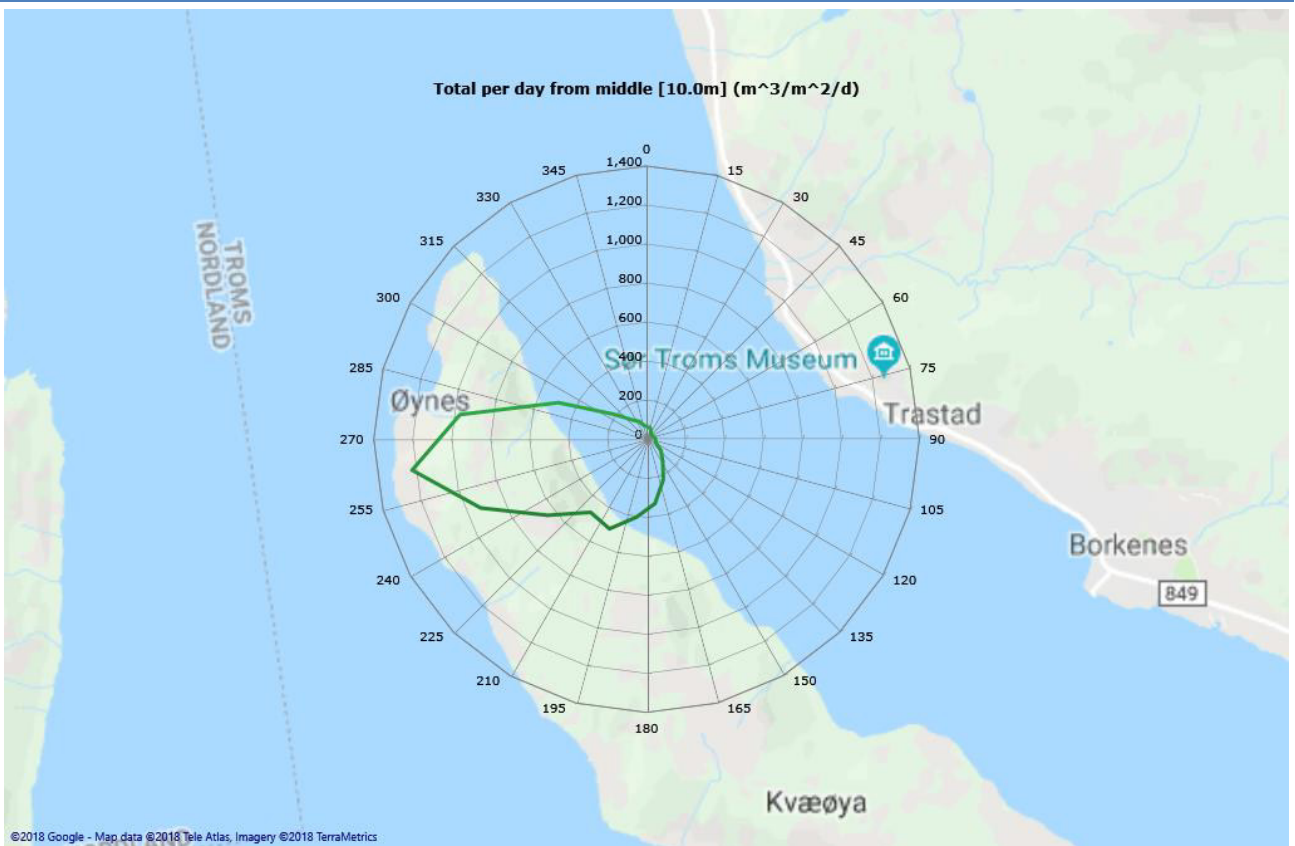
* m/s	Direction/speed matrix for bottom [15.0m]																								%	Sum	
	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360			
0.0																											
0.05	54	58	51	53	62	78	71	76	75	79	89	104	128	85	97	110	105	88	91	99	73	62	58	60	42.5	1906	
0.10	8	9	9	4	12	15	27	33	44	49	65	65	97	95	97	116	126	144	140	90	63	31	25	17	30.8	1381	
0.15	0	1	1	1	0	3	2	3	5	11	21	31	39	44	52	49	95	103	101	49	19	1	0	3	14.1	634	
0.20	0	0	0	0	0	0	0	0	0	4	7	9	16	17	23	37	62	73	61	25	1	0	0	0	7.5	335	
0.25	0	0	0	0	0	0	0	0	1	4	8	6	10	6	14	15	25	42	27	7	0	0	0	0	3.7	165	
0.30	0	0	0	0	0	0	0	0	0	0	0	4	2	5	5	4	10	21	7	1	0	0	0	0	1.3	59	
0.35	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	
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	
%	1.4	1.5	1.4	1.3	1.7	2.1	2.2	2.5	2.8	3.3	4.2	4.9	6.5	5.6	6.4	7.4	9.5	10.5	9.5	6.0	3.5	2.1	1.9	1.8	100.0	100.0	
Sum	62	68	61	58	74	96	100	112	125	147	190	219	292	252	288	331	425	471	427	271	156	94	83	80	100.0	4482	

# Flow

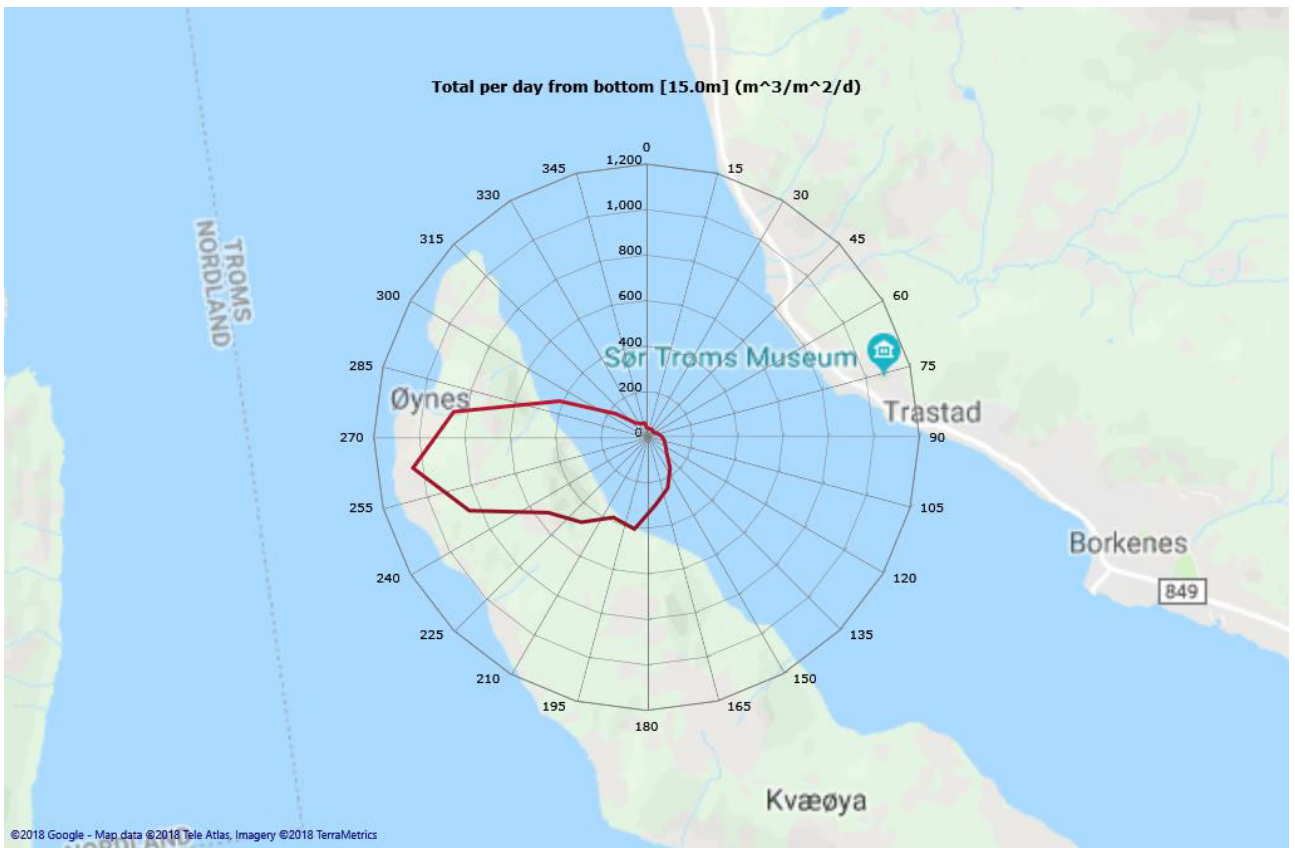
## Top [5.0m]



## Middle [10.0m]



Bottom [15.0m]

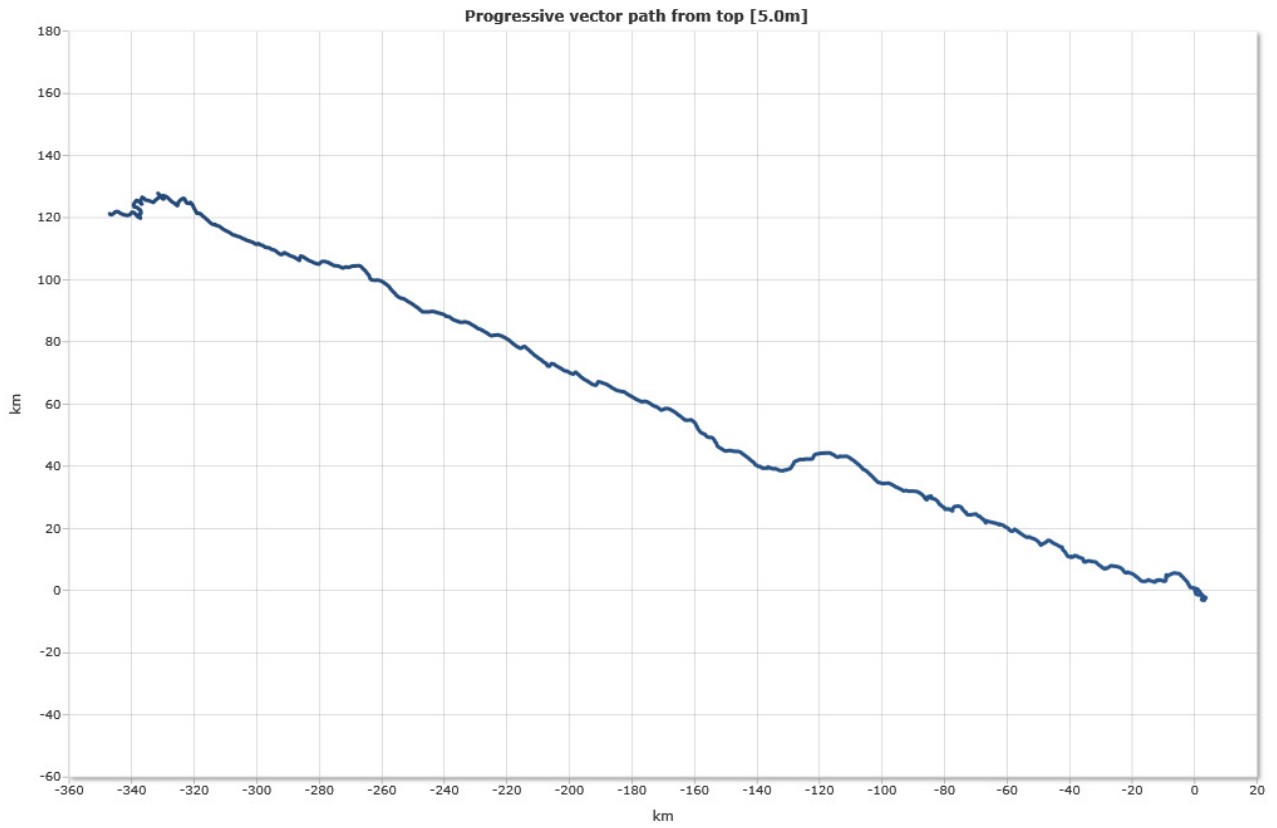


## Progressive vector

---

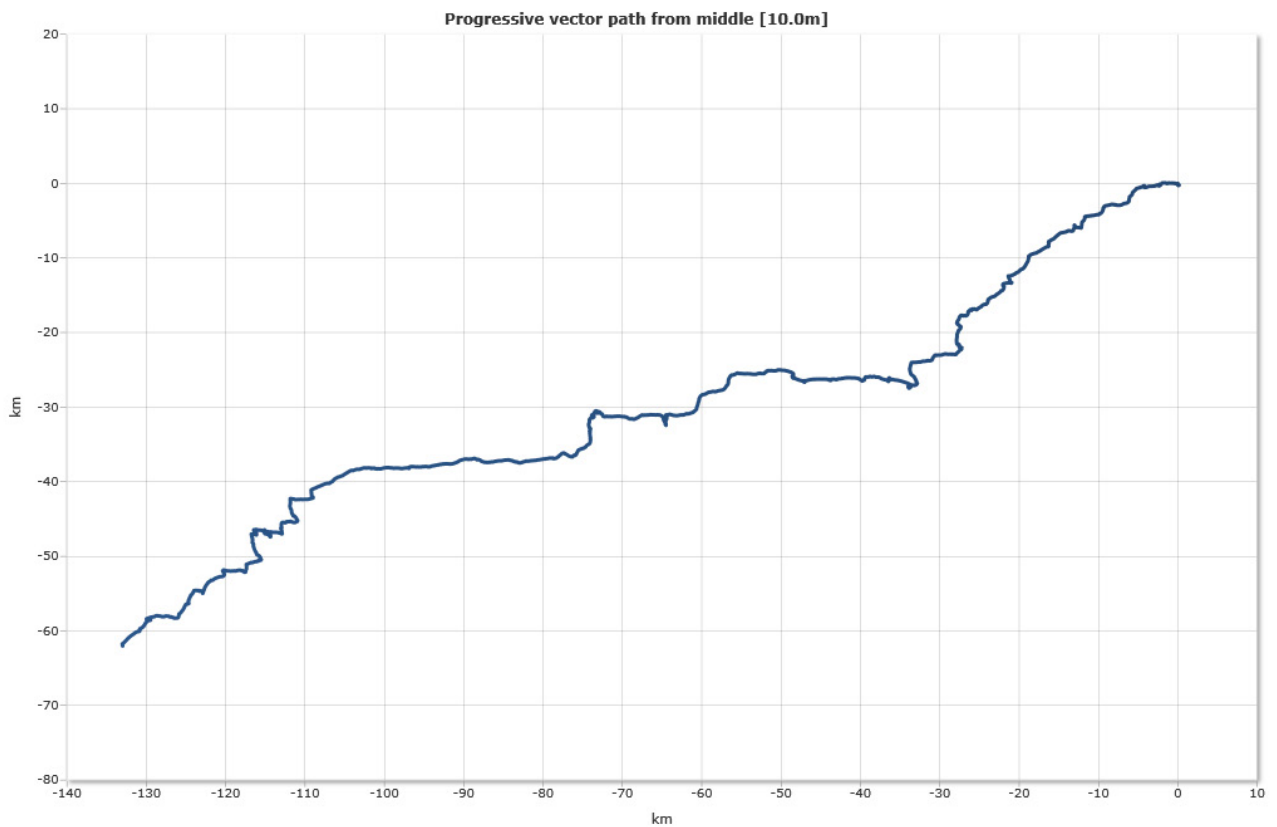
### Top [5.0m]

---



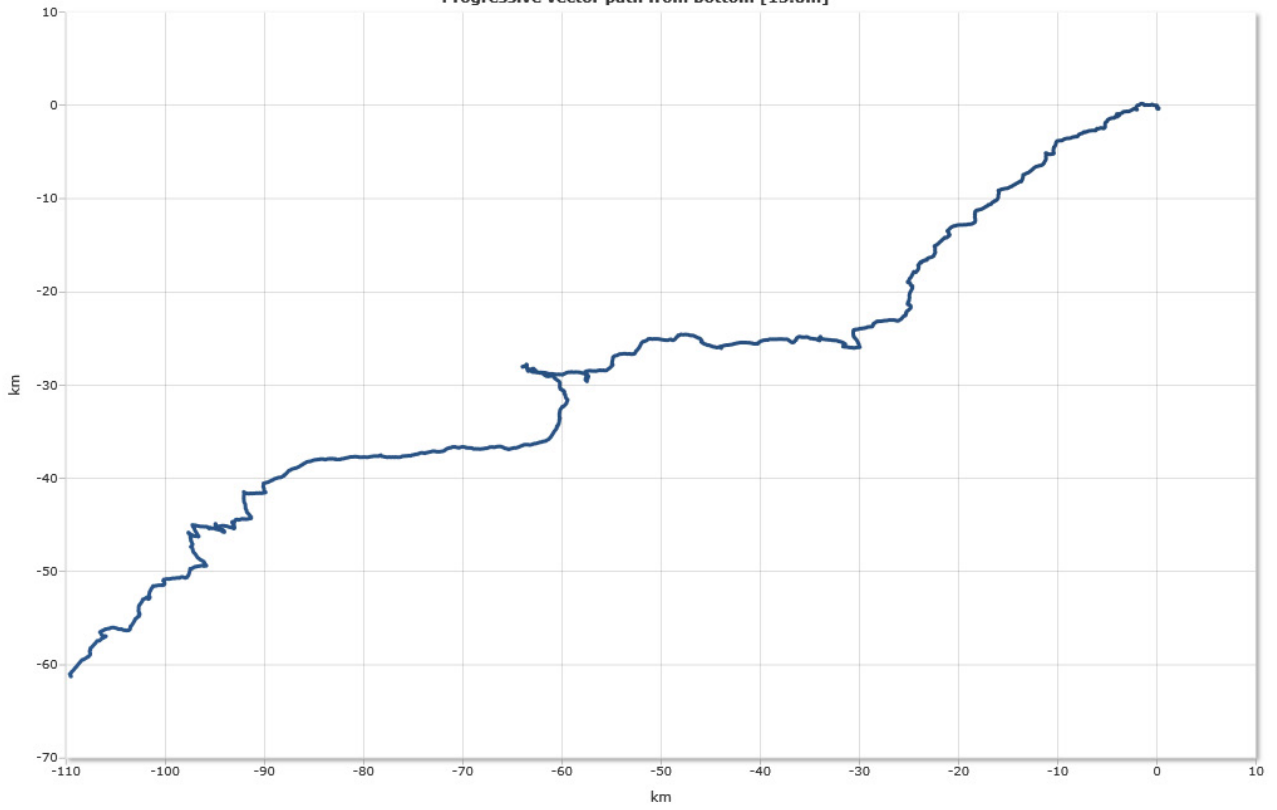
### Middle [10.0m]

---



# Bottom [15.0m]

Progressive vector path from bottom [15.0m]

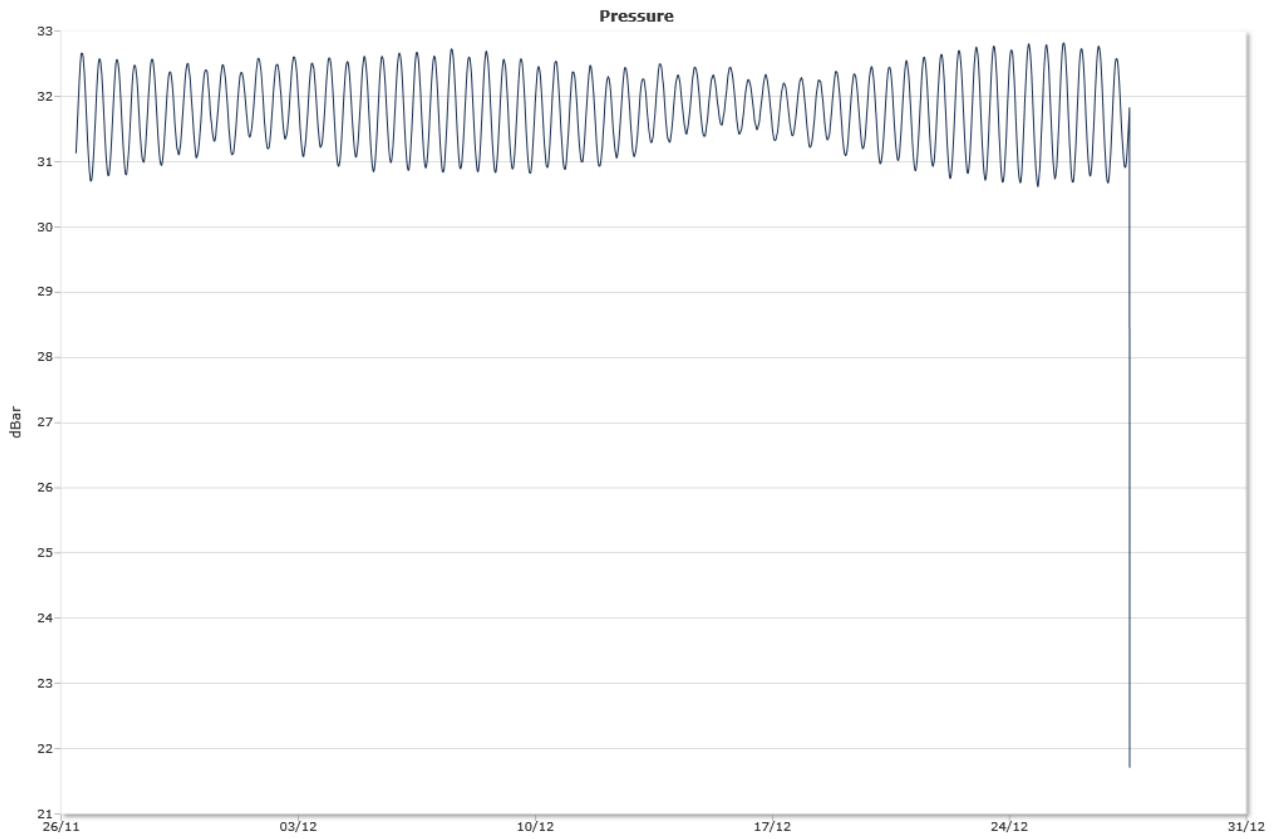


## Sensors

---

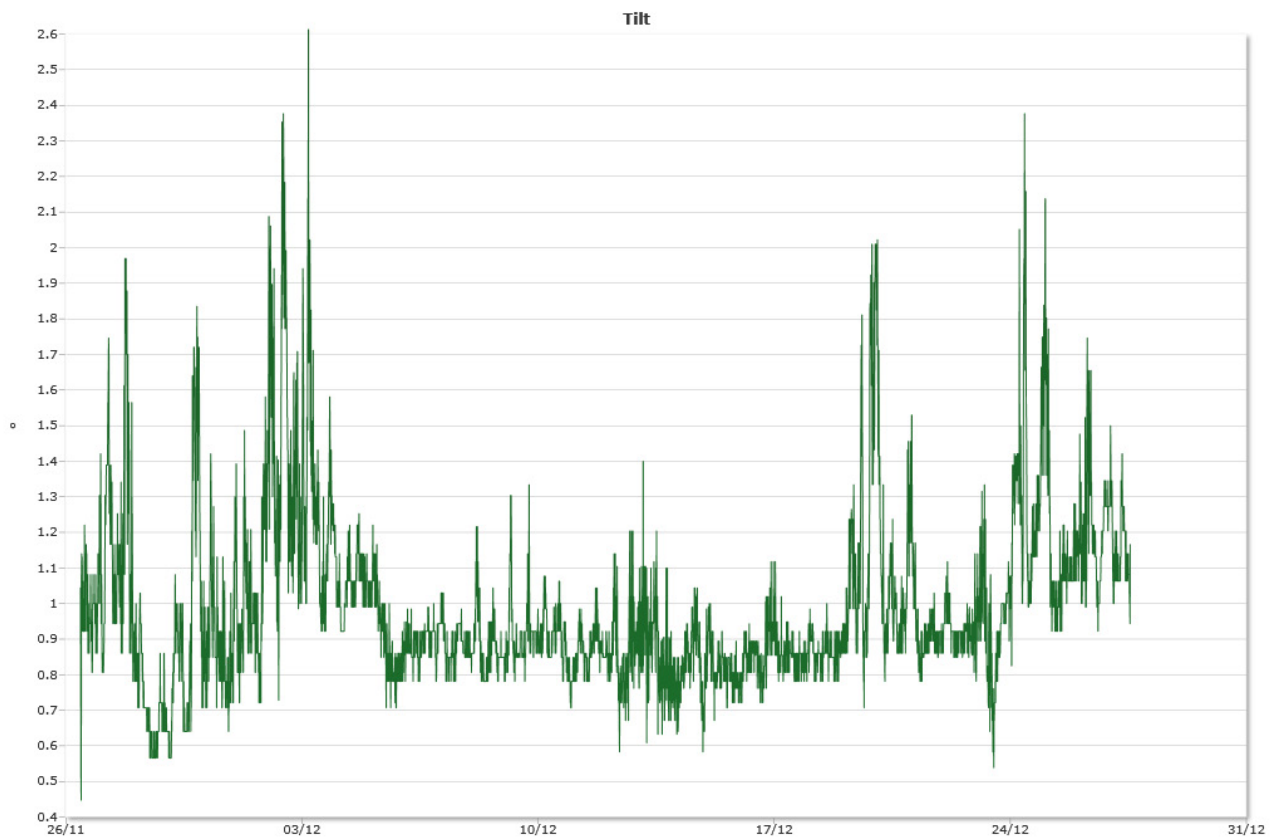
### Pressure

---



### Tilt

---





# Temperature

