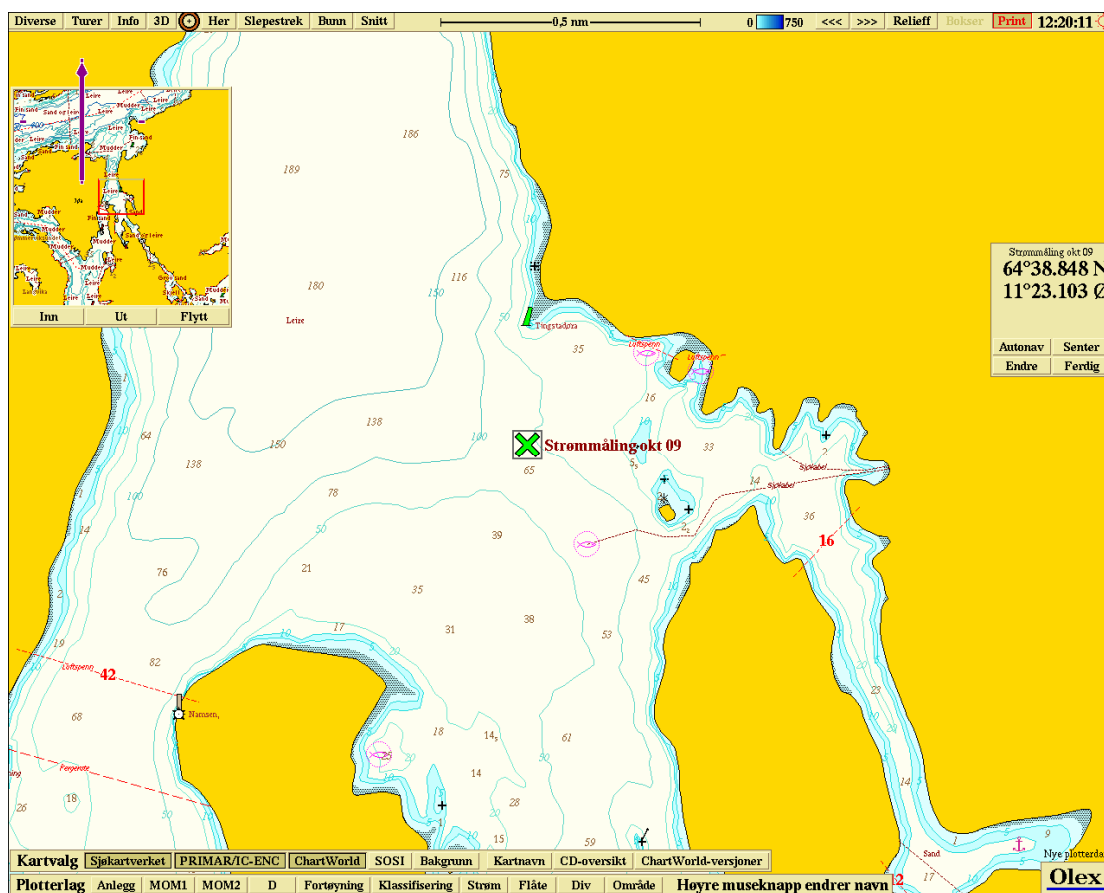


Strømmåling med Aquapro 400 kHz i perioden 25.09.2009-26.10.2009

Marine Harvest AS

Lokalitet: Kjølneset (øst)

Fosnes




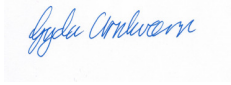
Figur 1: Kart med plassering av strømmåleren. Posisjon er angitt på kartet. Kilde: Olex™

Dybde på målested: 61m Plassering av måler: 59 m dypt, vendt oppover
Intervalltid: 2 min/10 min - 31 døgn

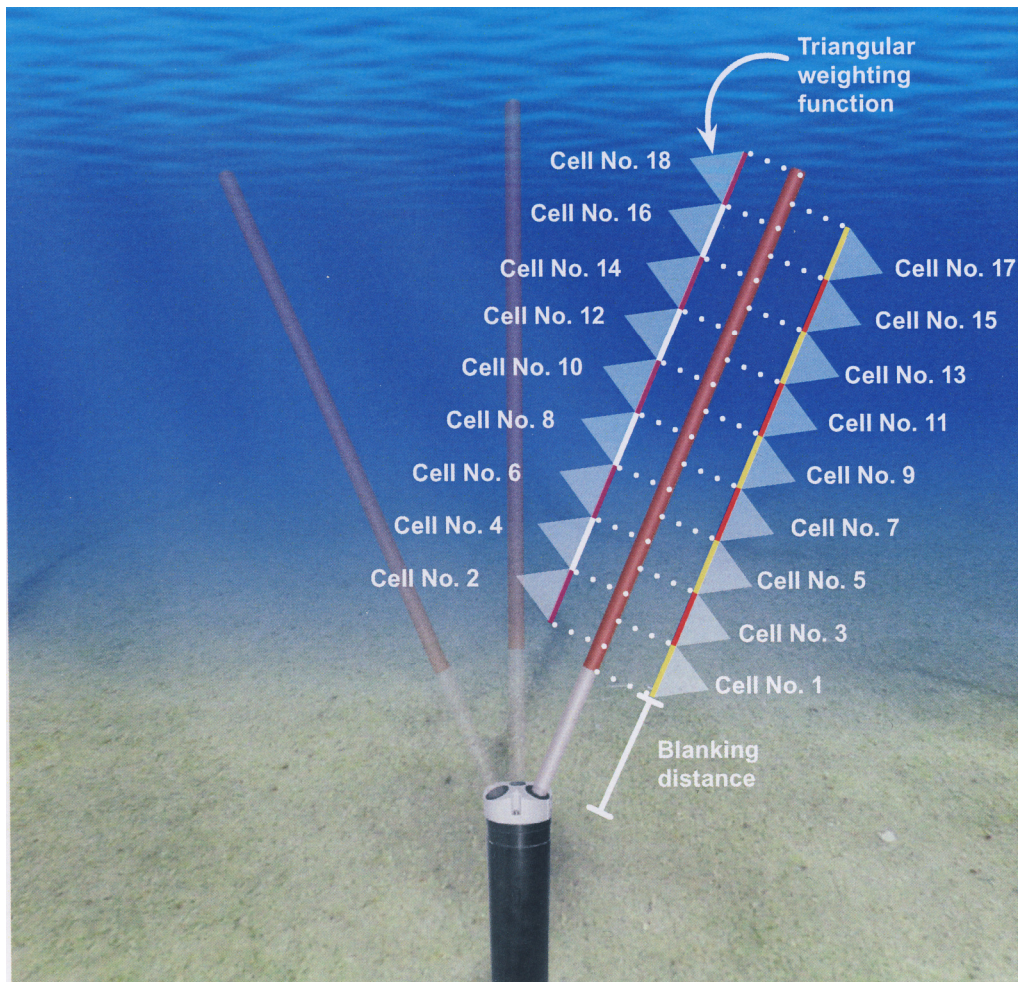
Tabell 1: Sammendrag av målingene fra utvalgte dyp

Dyp for måling	Gjennomsnitt	Maksimum	% 0-1 målinger
6	14,8	66,4	0,8
14	7,1	32,8	1,9
24	7,0	27,6	1,7
56	9,3	41,4	1,1

Det kan tas ut data fra flere dyp hvis ønskelig

Rapportnr: 100-10-9S	Deres referanse: Knut Staven	Firma: Marine Harvest AS	Lokalitet: Kjelneset
Dato: 3.11.09			
Utarbeidet av: Anders Waldemar Olsen	<i>Aqua Kompetanse AS</i>	Kvalitetssikret av: Gyda Arnkværn	
<i>Anders W. Olsen</i>			

Til strømmålingene ble det brukt en Doppler-måler av type Aquapro 400 kHz fra Nortek. Målingene ble gjennomført i perioden 25.9.2009-26.10.2009. Måleren ble satt ut på 60 meters dybde, forankret til bunnen og til en blåse på overflaten (figur 2).



Figur 2: Eksempel på oppsett med Doppler-måler

Innledning

På oppdrag fra Marine Harvest AS har Aqua Kompetanse AS satt opp, og lest av en akustisk strømmåler av typen Aquapro 400 kHz fra Nortek. Oppdragsgiver eier måleren, og har selv satt den ut, og tatt den opp. Vi har vurdert dataene og kvalitetssikret dem for bruk i denne rapporten. Totalt er det gyldige data fra og med 56 meters dyp helt opp til overflaten. På oppdragsgivers ønske er det plukket ut data fra 56 meters dyp (bunnstrøm), 24 meters dyp (spredningsstrøm), 14 meters dyp, og 6 meters dyp (overflatestrøm).

Oppsummering fra målingene

Overflatestrømmen har i perioden et gjennomsnitt på 14,8 cm/s, og et maksimum på 66,4 cm/s. Andelen strømstille (mellom 0 og 1 cm/s) er 0,8 %. Størst vannutskiftning er det i nordlig retning (345 – 360 grader). Størst andel av målinger er innenfor hastighetsgruppene 15-25 cm/s (21,7 %) og 10-15 cm/s (19,8 %). Overflatestrømmen var i perioden lite ensrettet (Neumanns parameter = 0,392).

På 14 meters dyp har strømmen i perioden et gjennomsnitt på 7,1 cm/s og et maksimum på 32,8 cm/s. Andelen strømstille var 1,9 %, og størst vannutskiftning var det nordvestlig retning (330-345 grader). Størst andel av målinger var det i hastighetsgruppene 6-8 cm/s (18,8 %) og 10-15 cm/s (15,5 %). Strømmen var i perioden lite ensrettet (Neumanns parameter = 0,096).

Spredningsstrømmen (24 meter) hadde et gjennomsnitt på 7,0 cm/s, og et maksimum på 27,6 cm/s. Andelen strømstille var 1,7 %, og størst vannutskiftning var det i sørøstlig retning (135-150 grader). Størst andel av målinger var det i hastighetsklassene 6-8 cm/s (18,2 %) og 10-15 cm/s (15,5 %). Strømmen var i perioden lite ensrettet (Neumanns parameter = 0,254).

Bunnstrømmen (56 meter) hadde gjennomsnittlig hastighet 9,3 cm/s, og maksimums hastighet 41,4 cm/s. Andelen strømstille var 1,1 %. Størst vannutskiftning var det i nordvestlig retning (300-315 grader). Det var flest målinger i hastighetsgruppene 10-15 cm/s (20,7 %) og 6-8 cm/s (16,4 %). Strømmen var lite ensrettet (Neumanns parameter = 0,247).

Vår vurdering

Lokaliteten har en meget god og jevnt sterk strøm gjennom hele vannsøyla. Det er meget lite stillstand, og det er kraftige strømstøt i alle dyp. Med tanke på oppdrett er dette positivt. Etter all sannsynlighet vil et slikt strømbilde gi god vannutskiftning i alle dyp, og dermed også god oksygentilførsel og god spredning av organisk avfall fra anlegget. Lokaliteten burde egne seg meget godt for oppdrett.

Vedlegg:

Spesifikasjons- og resultatoversikt
Statistisk sammendrag av data

SPESIFIKASJONS- OG RESULTATOVERSIKT.

Firma: Marine Harvest AS

Lokalitet: Kjølneiset, Fosnes kommune.

Generelle spesifikasjoner, periode, frekvens og resultater.

Tekst	6 meters dyp	14 meters dyp	24 meters dyp
Tidsrom for registreringer	25.9.2009-26.10.2009	25.9.2009-26.10.2009	25.9.2009-26.10.2009
Dybde på målestedet. Ca.	60	60	60
Dybde for registreringer (meter). Ca.	6	14	24
Måler type - nummer	Nortek. Doppler. MHM2	Nortek. Doppler. MHM2	Nortek. Doppler. MHM2
Type måling	Kontinuerlig	Kontinuerlig	Kontinuerlig
Frekvens – varighet*4	2 min/10 min - 31 døgn	2 min/10 min - 31 døgn	2 min/10 min - 31 døgn
GPS-Posisjon	64 ⁰ 38.848N 11 ⁰ 22.752Ø	64 ⁰ 38.848N 11 ⁰ 22.752Ø	64 ⁰ 38.848N 11 ⁰ 22.752Ø
% strøm mindre enn 1 cm/sek.(ca)	0,8 %	1,9 %	1,7 %
Gjennomsnittsstrøm (cm/s)	14,8	7,1	7,0
Rest strøm	5,8	0,7	1,8
Neumanns parameter	0,392	0,096	0,254
De 4 hyppigst forekommende retningene strømmen beveger seg mot (grader) *1	345, 330, 0, 15	150, 135, 180, 330	135, 150, 120, 165
De 4 hyppigst forekommende strømhastighetene (cm /sek) *1	15-25, 10-15, 25-50, 8-10	6-8, 10-15, 8-10, 1-3	6-8, 10-15, 8-10, 1-3
Mest vannutskiftning / retning / 15 graders sektor.*2	67172m ³ ved 345-360 grader. 2167m ³ /m ² /døgn	13654m ³ ved 330-345 grader. 440m ³ /m ² /døgn	21647m ³ ved 135-150 grader. 698m ³ /m ² /døgn
Minst vannutskiftning / retning / 15 graders sektor.*2	5461m ³ ved 105-120 grader. 176m ³ /m ² /døgn	3348m ³ ved 60-75 grader. 108m ³ /m ² /døgn	3350m ³ ved 30-45 grader. 108m ³ /m ² /døgn
Gjennomsnittlig total vannutskiftning pr.døgn. Alle retninger	12811m ³ /døgn	6173m ³ /døgn	6038m ³ /døgn
Maksimum strøm – signifikant maksimum strøm (cm/sek) *3	66,4 – 27,2	32,8 – 12,0	27,6 – 11,6

*1: gruppert i synkende rekkefølge *2: vann som passerer gjennom hver loddrett plassert kvadratmeter.*3: gjennomsnittet av 1/3 målingene som viser høyest verdi. *4: måleren måler hvert 2 minutt, hvert 10 minutt gir måleren et gjennomsnitt av verdiene for 5 målinger.

Tekst	56 meters dyp
Tidsrom for registreringer	25.09.2009-26.10.2009
Dybde på målestedet. Ca.	60
Dybde for registreringer (meter). Ca.	56
Måler type - nummer	Nortek. Doppler. MHM2
Type måling	Kontinuerlig
Frekvens – varighet*4	2 min/10 min - 31 døgn
GPS-Posisjon	64 ⁰ 38.848N 11 ⁰ 22.752Ø
% strøm mindre enn 1 cm/sek.(ca)	1,1 %
Gjennomsnittsstrøm (cm/s)	9,3
Rest strøm	2,3
Neumanns parameter	0,247
De 4 hyppigst forekommende retningene strømmen beveger seg mot (grader) *1	300, 285, 315, 150
De 4 hyppigst forekommende strømhastighetene (cm /sek) *1	10-15, 6-8, 8-10, 15-25
Mest vannutskiftning / retning / 15 graders sektor.*2	48978m ³ ved 300-315 grader. 1580m ³ /m ² /døgn
Minst vannutskiftning / retning / 15 graders sektor.*2	2166m ³ ved 30-45 grader. 70m ³ /m ² /døgn
Gjennomsnittlig total vannutskiftning pr.døgn. Alle retninger	8076m ³ /døgn
Maksimum strøm – signifikant maksimum strøm (cm/sek) *3	41,4 – 16,2

6 meters dyp - overflatestrøm

CURRENT SPEED

File name: Kjølneset.nr2-26.SD6

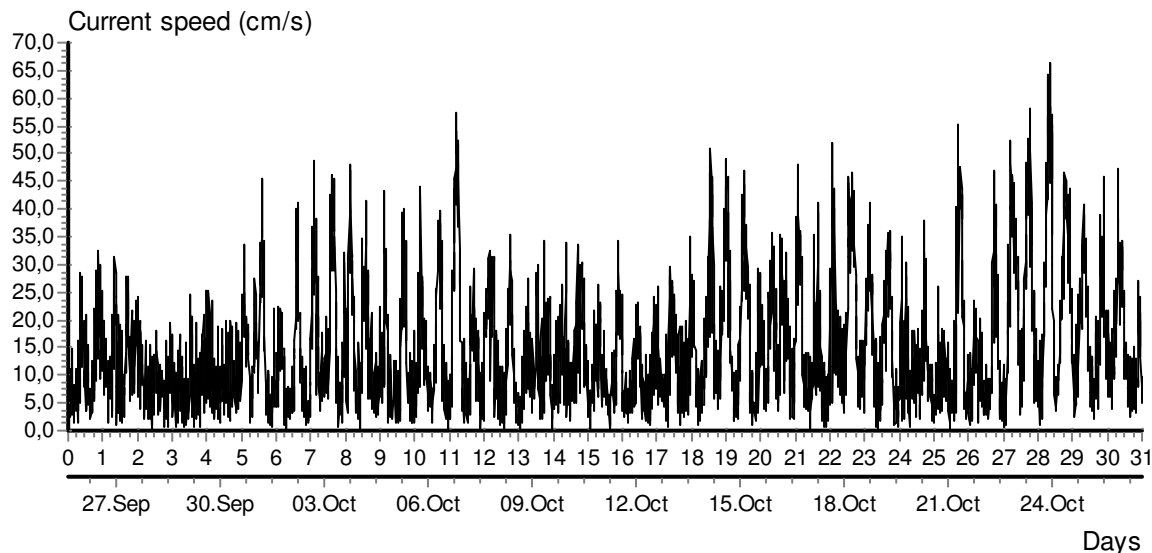
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED BAR CHART

File name: Kjølneset.nr2-26.SD6

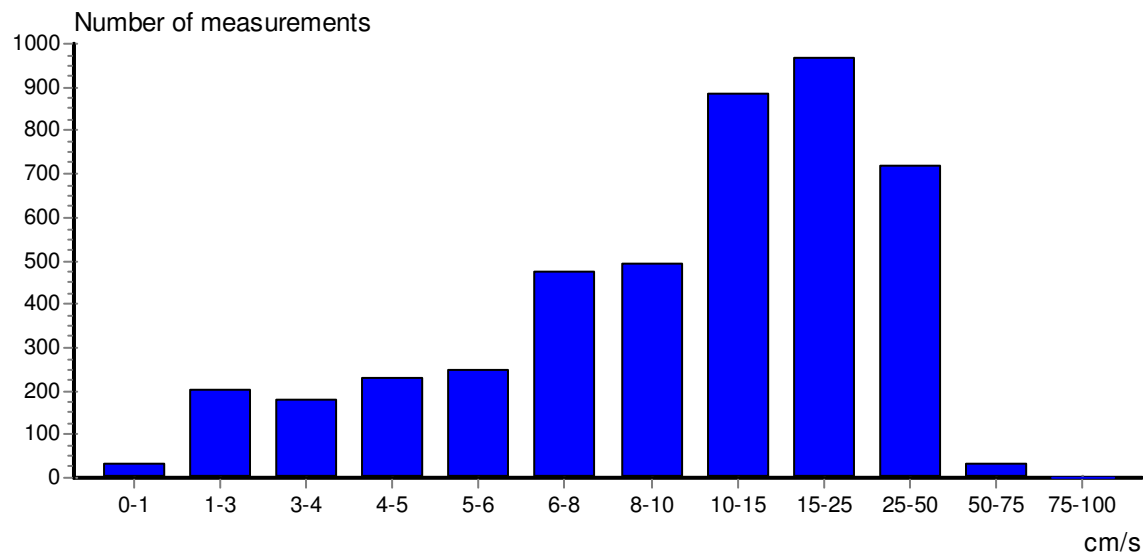
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT DIRECTION BAR CHART

File name: Kjølneset.nr2-26.SD6

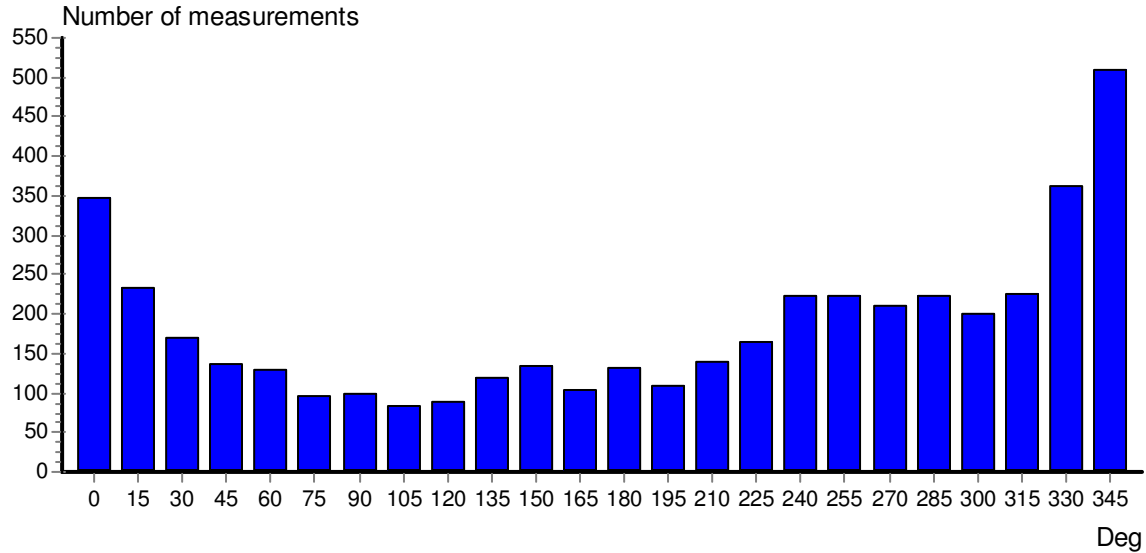
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



PROGRESSIVE VECTOR

File name: Kjølneset.nr2-26.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

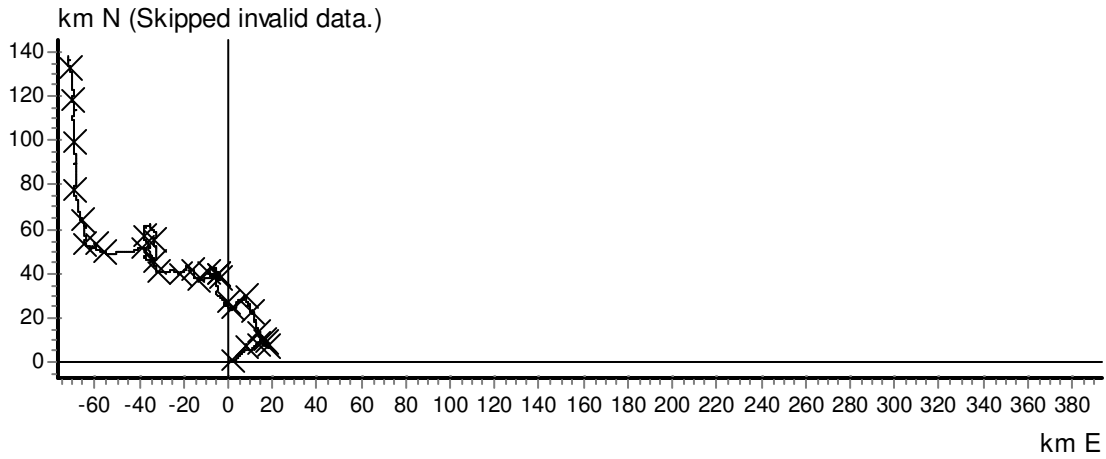
Neumann parameter: 0.392

Rest speed: 5.8 cm/s

Valid data points: 4464

Average speed: 14.8 cm/s

Rest direction: 333 deg.



CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-26.SD6

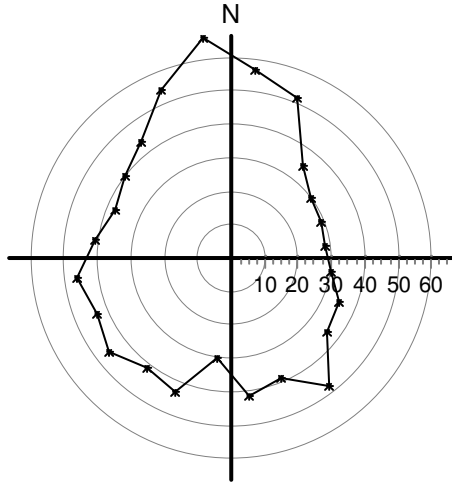
Series number: 1

Number of measurements in data set: 4465

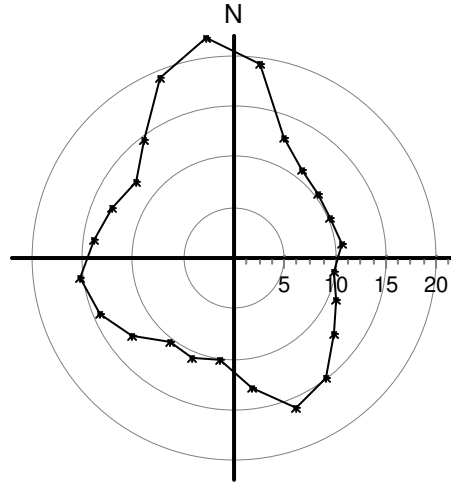
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Maximum velocity (cm/s)
per 15 deg sector



Mean velocity (cm/s)
per 15 deg sector

CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-26.SD6

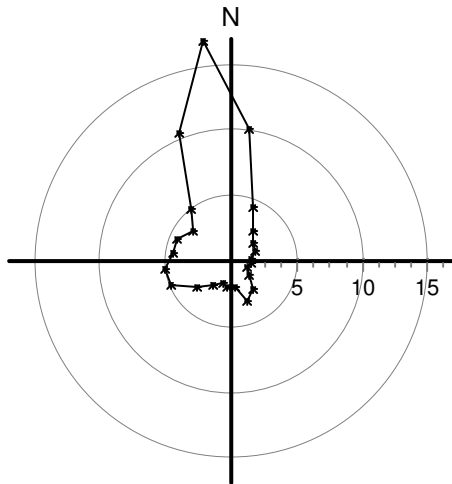
Series number: 1

Number of measurements in data set: 4465

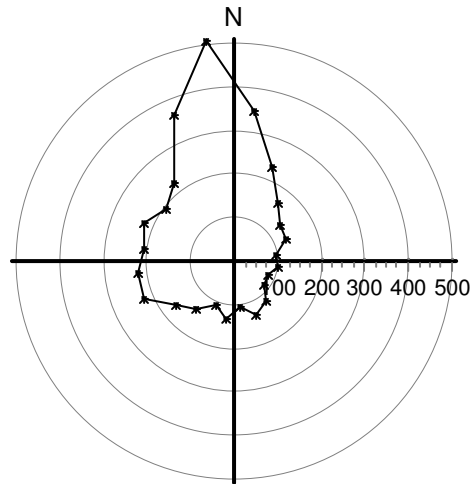
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Relative water flux (%)
per 15 deg sector



Number of measurements
per 15 deg sector

STICK DIAGRAM

File name: Kjelneset.nr2-26.SD6

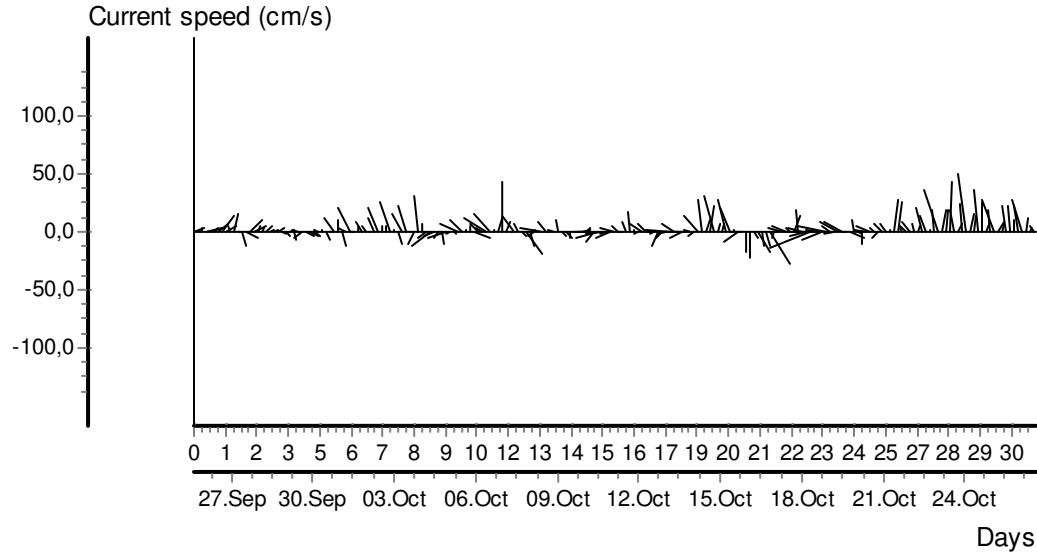
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED / DIRECTION MATRIX

File name: Kjelneset.nr2-26.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

	Current speed groups													Total flow		Max curr
	1	3	4	5	6	8	10	15	25	50	75	100	Sum%	m ³ /m ²	%	
0	1	8	9	15	15	20	31	56	91	95	7	0	7.8	40563	10.2	56.9
15	2	11	9	14	15	33	38	39	46	25	1	0	5.2	17944	4.5	51.9
30	0	10	6	10	15	26	27	45	16	14	0	0	3.8	11244	2.8	34.9
45	1	8	6	3	9	17	25	42	24	1	0	0	3.0	8536	2.1	29.9
60	2	8	4	8	11	19	20	31	22	3	0	0	2.9	7880	2.0	28.9
75	0	10	5	6	6	15	10	20	18	7	0	0	2.2	6309	1.6	28.1
90	4	12	6	2	7	11	11	30	15	2	0	0	2.2	5932	1.5	30.4
105	0	5	5	7	3	13	12	19	15	4	0	0	1.9	5461	1.4	35.0
120	0	8	4	5	5	14	8	16	19	10	0	0	2.0	6600	1.7	36.1
135	1	6	4	9	6	15	8	16	32	21	0	0	2.6	10674	2.7	48.0
150	1	4	5	5	5	12	13	21	42	27	0	0	3.0	12959	3.3	38.7
165	2	3	6	4	5	14	15	22	23	11	0	0	2.4	8221	2.1	41.8
180	0	8	8	13	14	19	11	32	26	2	0	0	3.0	8066	2.0	30.1
195	2	9	7	8	5	13	14	24	22	4	0	0	2.4	6950	1.8	43.2
210	1	6	7	15	13	18	27	28	18	7	0	0	3.1	8850	2.2	41.4
225	2	9	4	9	10	27	17	34	36	18	0	0	3.7	12745	3.2	45.8
240	1	11	11	9	12	21	28	50	42	39	0	0	5.0	19362	4.9	43.6
255	2	3	15	7	8	19	17	55	64	32	0	0	5.0	20356	5.1	46.4
270	1	10	5	13	6	22	30	39	56	28	0	0	4.7	17673	4.5	41.2
285	1	8	11	11	18	30	25	42	51	27	0	0	5.0	17526	4.4	37.7
300	3	9	9	10	19	27	23	39	43	17	0	0	4.5	14594	3.7	39.8
315	0	10	10	15	11	17	25	46	51	40	0	0	5.0	19754	5.0	43.9
330	3	9	14	15	15	24	23	58	83	116	2	0	8.1	41763	10.5	54.2
345	4	19	11	16	14	28	35	79	113	170	21	0	11.4	67172	16.9	66.4
Sum%	0.8	4.6	4.1	5.1	5.5	10.6	11.0	19.8	21.7	16.1	0.7	0.0		397135		66.4

STATISTICAL SUMMARY

	Total	East / west	North / south
Mean current speed (cm/s)	14,8	7,7	10,7
Variance (cm/s)²	114,283	48,311	111,596
Standard deviation (cm/s)	10,690	6,951	10,564
Mean standard deviation	0,721	0,907	0,983
Maximum current velocity	66,4		
Minimum current velocity	0,1		
Significant max velocity	27,2		
Significant min velocity	5,2		

14 meters dyp

CURRENT SPEED

File name: Kjølneset.nr2-22.SD6

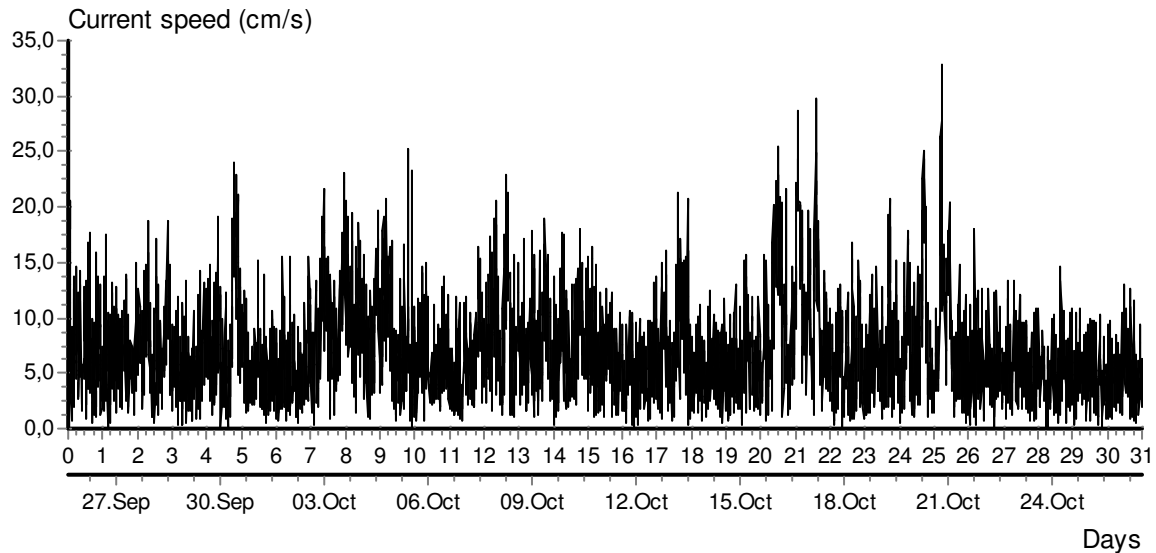
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED BAR CHART

File name: Kjølneset.nr2-22.SD6

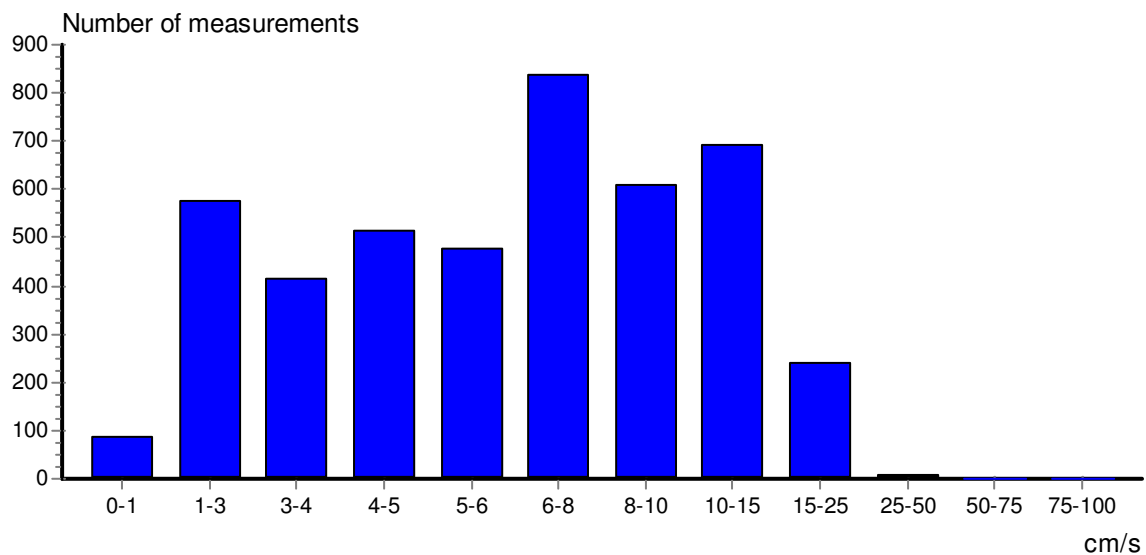
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT DIRECTION BAR CHART

File name: Kjølneset.nr2-22.SD6

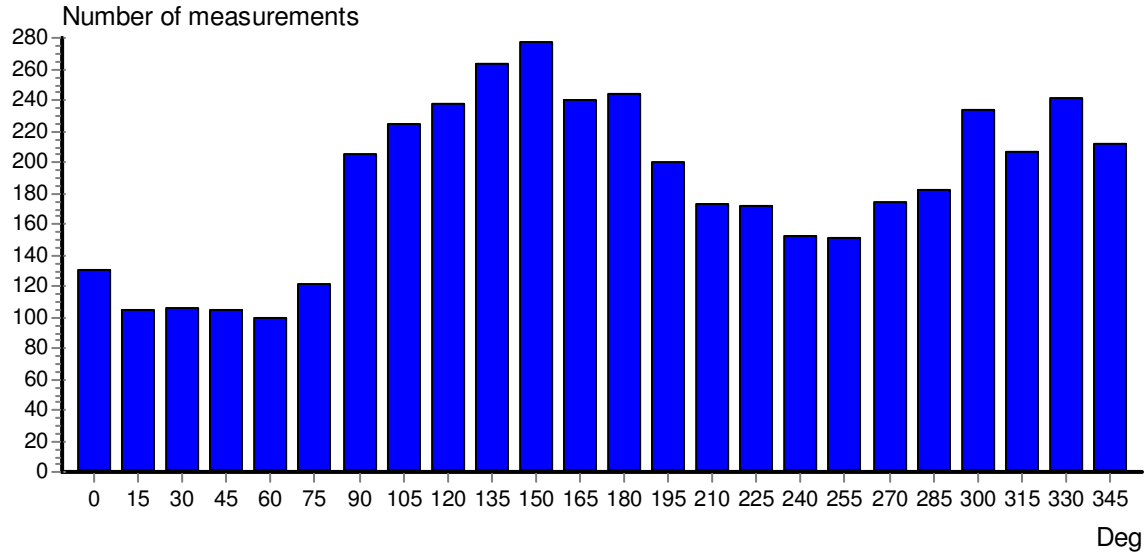
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



PROGRESSIVE VECTOR

File name: Kjølneset.nr2-22.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

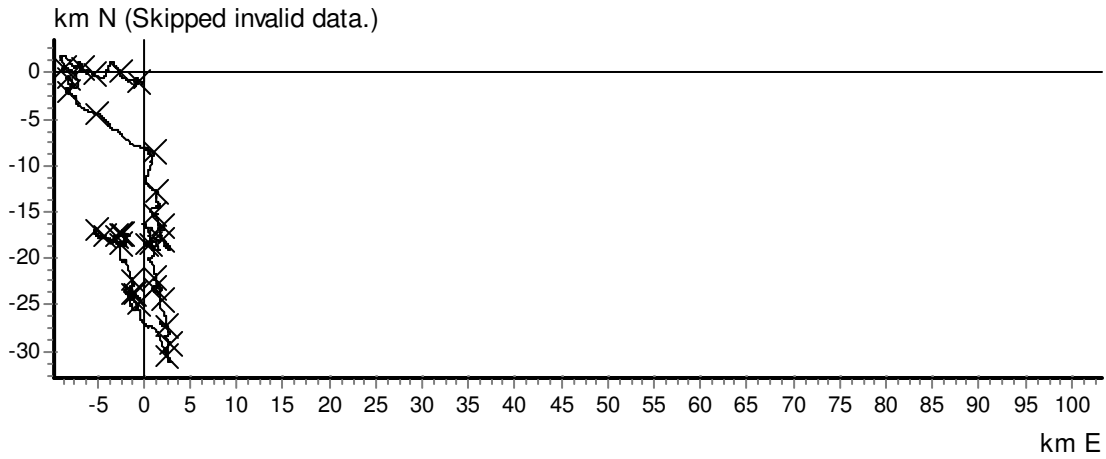
Neumann parameter: 0.096

Rest speed: 0.7 cm/s

Valid data points: 4463

Average speed: 7.1 cm/s

Rest direction: 194 deg.



CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-22.SD6

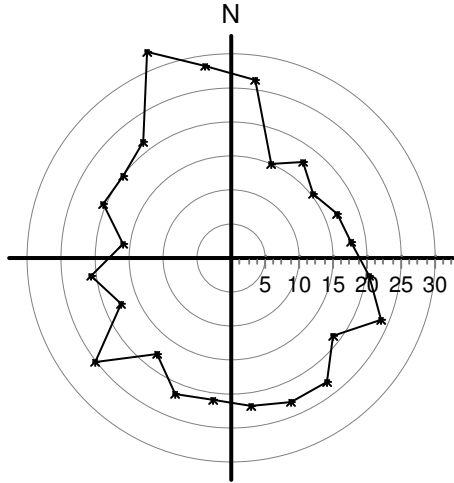
Series number: 1

Number of measurements in data set: 4465

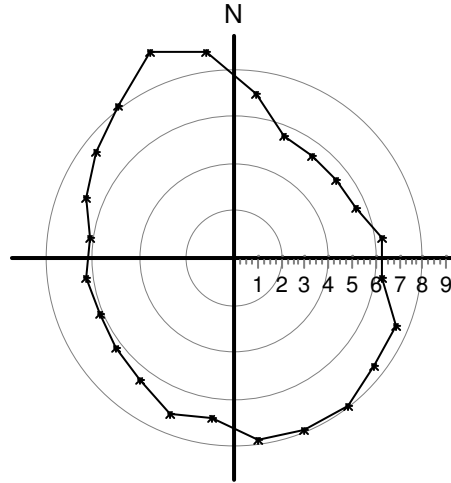
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Maximum velocity (cm/s)
per 15 deg sector



Mean velocity (cm/s)
per 15 deg sector

CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-22.SD6

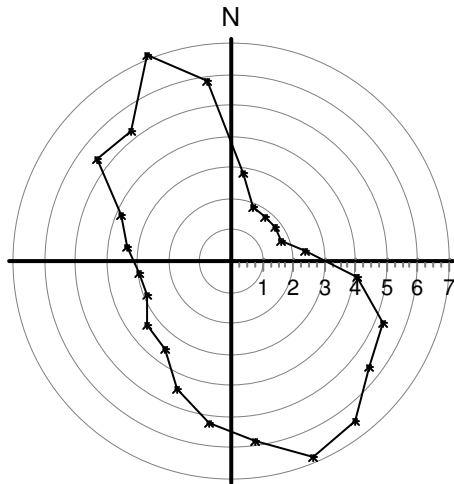
Series number: 1

Number of measurements in data set: 4465

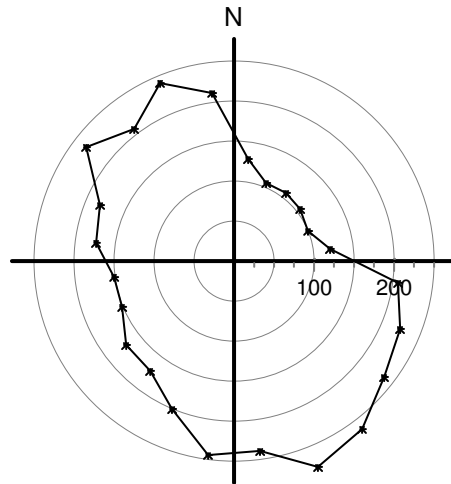
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Relative water flux (%)
per 15 deg sector



Number of measurements
per 15 deg sector

STICK DIAGRAM

File name: Kjølneset.nr2-22.SD6

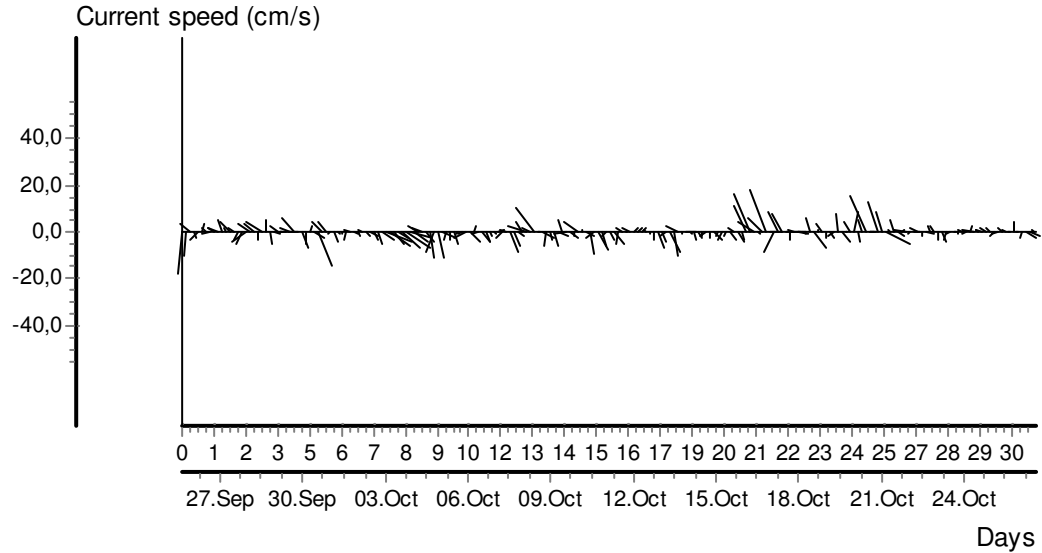
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED / DIRECTION MATRIX

File name: Kjølneset.nr2-22.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

	Current speed groups												Total flow		Max curr	
	1	3	4	5	6	8	10	15	25	50	75	100	Sum%	m ³ /m ²		%
0	0	21	17	24	10	19	10	19	8	2	0	0	2.9	5490	2.9	26.3
15	4	22	11	15	14	17	9	12	1	0	0	0	2.4	3538	1.8	15.1
30	5	17	16	15	15	22	7	8	1	0	0	0	2.4	3434	1.8	17.7
45	5	19	12	15	13	20	14	6	1	0	0	0	2.4	3403	1.8	15.4
60	4	21	10	14	10	17	14	8	1	0	0	0	2.2	3348	1.7	16.8
75	0	13	15	19	20	25	11	16	3	0	0	0	2.7	4644	2.4	17.9
90	12	32	17	29	19	41	17	30	9	0	0	0	4.6	7826	4.1	20.4
105	1	29	23	19	20	44	36	41	12	0	0	0	5.0	10075	5.3	23.9
120	5	26	14	26	31	42	36	42	16	0	0	0	5.3	10649	5.6	19.1
135	5	22	22	16	38	43	48	54	16	0	0	0	5.9	12477	6.5	23.1
150	3	25	25	26	30	43	47	63	16	0	0	0	6.2	13097	6.8	22.9
165	1	17	24	25	26	51	39	40	18	0	0	0	5.4	11217	5.9	22.1
180	6	35	21	37	17	47	35	33	13	0	0	0	5.5	10014	5.2	21.1
195	2	18	19	22	23	49	26	36	5	0	0	0	4.5	8547	4.5	21.6
210	2	27	23	25	19	21	27	23	6	0	0	0	3.9	6754	3.5	18.0
225	6	28	17	21	14	39	24	20	2	1	0	0	3.9	6450	3.4	25.3
240	5	22	17	17	21	30	20	18	2	0	0	0	3.4	5604	2.9	17.5
255	0	25	13	20	19	35	23	11	5	0	0	0	3.4	5692	3.0	20.7
270	2	36	14	18	25	31	23	25	1	0	0	0	3.9	6488	3.4	16.0
285	0	19	21	23	25	36	27	28	3	0	0	0	4.1	7361	3.8	20.5
300	1	29	23	26	17	51	36	40	11	0	0	0	5.2	10346	5.4	20.0
315	4	25	16	20	10	42	25	49	16	0	0	0	4.6	10039	5.2	21.4
330	4	25	13	23	22	41	23	46	43	2	0	0	5.4	13654	7.1	32.8
345	10	25	12	20	18	32	33	25	33	4	0	0	4.8	11203	5.9	28.6
Sum%	1.9	13.0	9.3	11.5	10.7	18.8	13.7	15.5	5.4	0.2	0.0	0.0		191350		32.8

STATISTICAL SUMMARY

	Total	East / west	North / south
Mean current speed (cm/s)	7,1	4,2	4,9
Variance (cm/s)²	18,796	10,923	17,275
Standard deviation (cm/s)	4,335	3,305	4,156
Mean standard deviation	0,607	0,786	0,849
Maximum current velocity	32,8		
Minimum current velocity	0,0		
Significant max velocity	12,0		
Significant min velocity	3,0		

24 meters dyp - spredningsstrøm

CURRENT SPEED

File name: Kjølneset.nr2-17.SD6

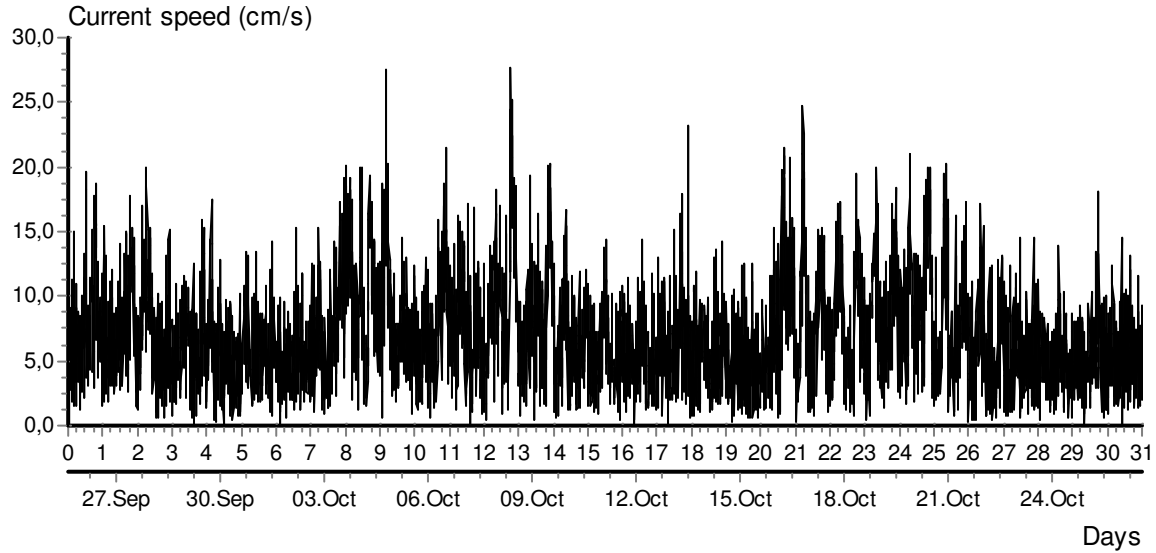
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED BAR CHART

File name: Kjølneset.nr2-17.SD6

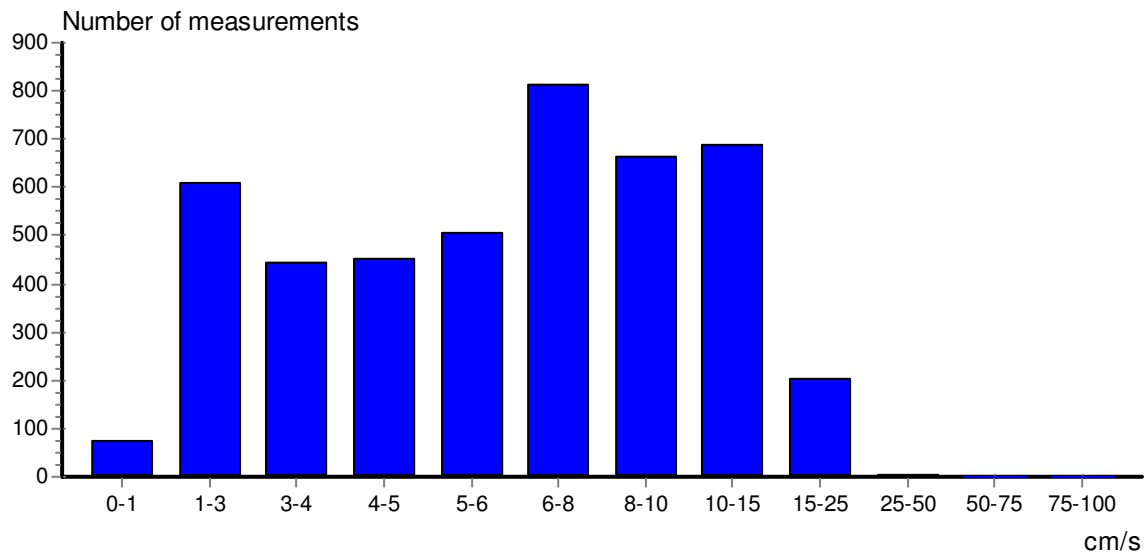
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT DIRECTION BAR CHART

File name: Kjølneset.nr2-17.SD6

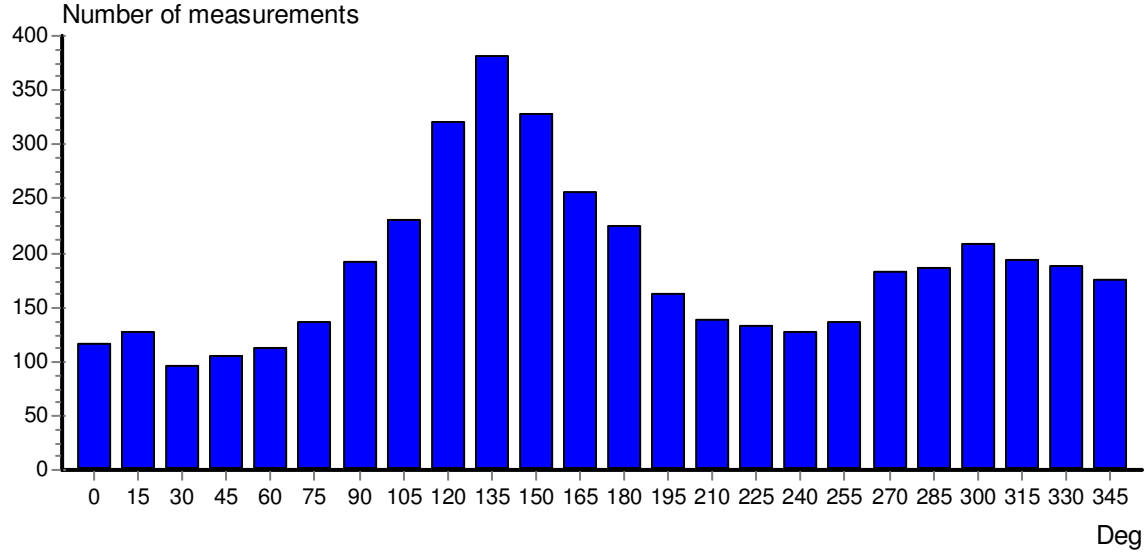
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



PROGRESSIVE VECTOR

File name: Kjølneset.nr2-17.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

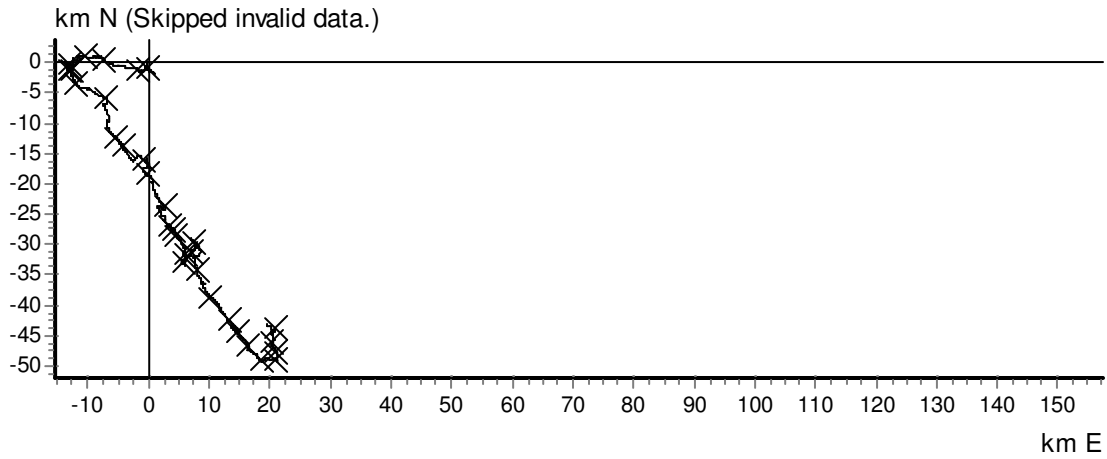
Neumann parameter: 0.254

Rest speed: 1.8 cm/s

Valid data points: 4462

Average speed: 7.0 cm/s

Rest direction: 156 deg.



CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-17.SD6

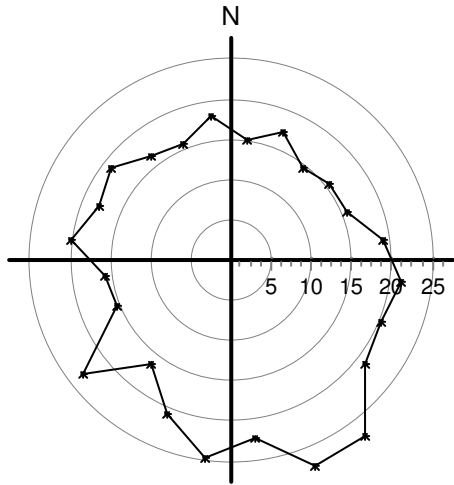
Series number: 1

Number of measurements in data set: 4465

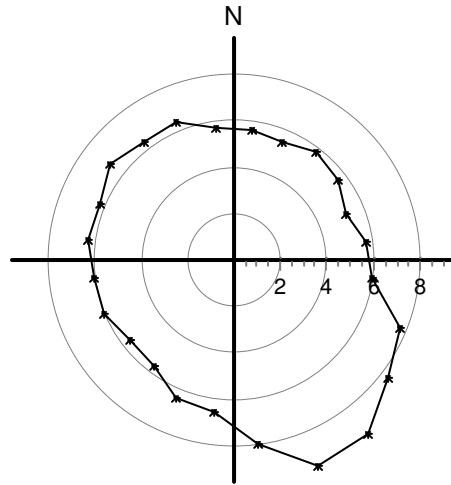
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Maximum velocity (cm/s)
per 15 deg sector



Mean velocity (cm/s)
per 15 deg sector

CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-17.SD6

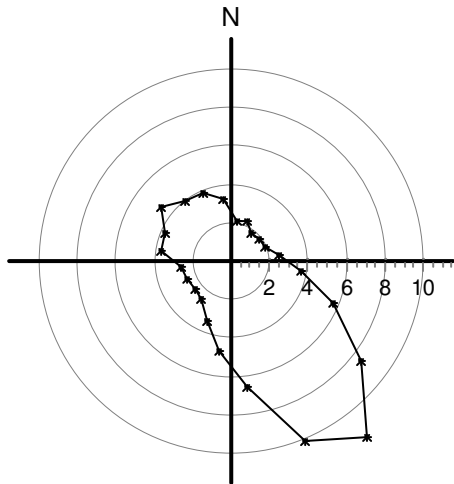
Series number: 1

Number of measurements in data set: 4465

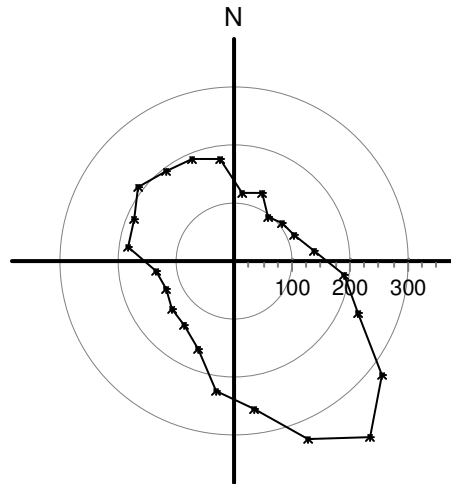
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Ref. number: 0

Interval time: 10 Minutes



Relative water flux (%)
per 15 deg sector



Number of measurements
per 15 deg sector

STICK DIAGRAM

File name: Kjølneset.nr2-17.SD6

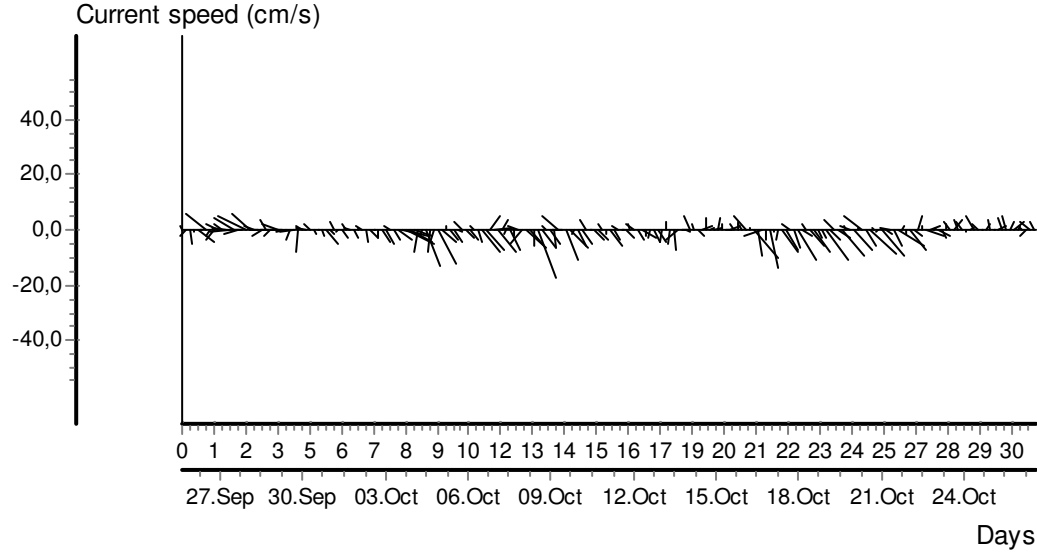
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED / DIRECTION MATRIX

File name: Kjølneset.nr2-17.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

	Current speed groups												Total flow		Max curr	
	1	3	4	5	6	8	10	15	25	50	75	100	Sum%	m ³ /m ²		%
0	2	23	18	13	13	19	20	8	1	0	0	0	2.6	3952	2.1	15.1
15	1	27	14	24	13	28	12	8	1	0	0	0	2.9	4200	2.2	17.1
30	2	17	8	12	17	18	14	8	0	0	0	0	2.2	3350	1.8	14.6
45	3	16	16	9	19	23	11	7	1	0	0	0	2.4	3531	1.9	15.4
60	7	19	21	13	14	17	15	6	1	0	0	0	2.5	3563	1.9	15.6
75	0	27	12	27	15	23	19	12	2	0	0	0	3.1	4736	2.5	19.2
90	4	42	20	15	17	42	29	17	5	0	0	0	4.3	6903	3.7	21.4
105	3	21	16	19	31	40	40	49	12	0	0	0	5.2	10721	5.7	20.1
120	2	28	29	24	29	47	62	77	23	0	0	0	7.2	16045	8.6	21.1
135	7	33	14	18	23	46	59	137	42	2	0	0	8.5	21647	11.6	27.5
150	1	28	16	16	23	50	57	90	47	1	0	0	7.4	18893	10.1	27.6
165	2	32	21	23	23	44	37	47	27	0	0	0	5.7	12342	6.6	22.3
180	5	40	25	26	26	35	22	33	12	0	0	0	5.0	8920	4.8	24.8
195	4	23	23	12	20	26	28	23	3	0	0	0	3.6	6275	3.4	20.8
210	3	24	17	22	21	21	14	15	2	0	0	0	3.1	4764	2.5	16.2
225	2	25	25	13	12	31	13	9	3	0	0	0	3.0	4477	2.4	23.2
240	4	20	13	11	12	36	21	10	1	0	0	0	2.9	4667	2.5	15.3
255	0	25	11	19	24	23	18	15	1	0	0	0	3.0	4965	2.7	15.8
270	8	22	16	26	20	39	25	21	5	0	0	0	4.1	6938	3.7	20.0
285	4	25	21	19	25	46	26	18	2	0	0	0	4.2	6990	3.7	17.9
300	0	23	22	21	29	47	34	27	6	0	0	0	4.7	8518	4.6	18.7
315	3	23	20	23	29	37	37	20	2	0	0	0	4.3	7480	4.0	16.4
330	3	23	23	25	21	36	31	22	4	0	0	0	4.2	7244	3.9	15.6
345	4	24	21	24	32	37	21	11	2	0	0	0	3.9	6047	3.2	18.1
Sum%	1.7	13.7	9.9	10.2	11.4	18.2	14.9	15.5	4.6	0.1	0.0	0.0		187166		27.6

STATISTICAL SUMMARY

	Total	East / west	North / south
Mean current speed (cm/s)	7,0	4,3	4,7
Variance (cm/s)²	16,486	10,612	14,320
Standard deviation (cm/s)	4,060	3,258	3,784
Mean standard deviation	0,581	0,764	0,802
Maximum current velocity	27,6		
Minimum current velocity	0,1		
Significant max velocity	11,6		
Significant min velocity	3,0		

56 meters dyp - bunnstrøm

TEMPERATURE

File name: Kjølneset.nr2-1.SD6

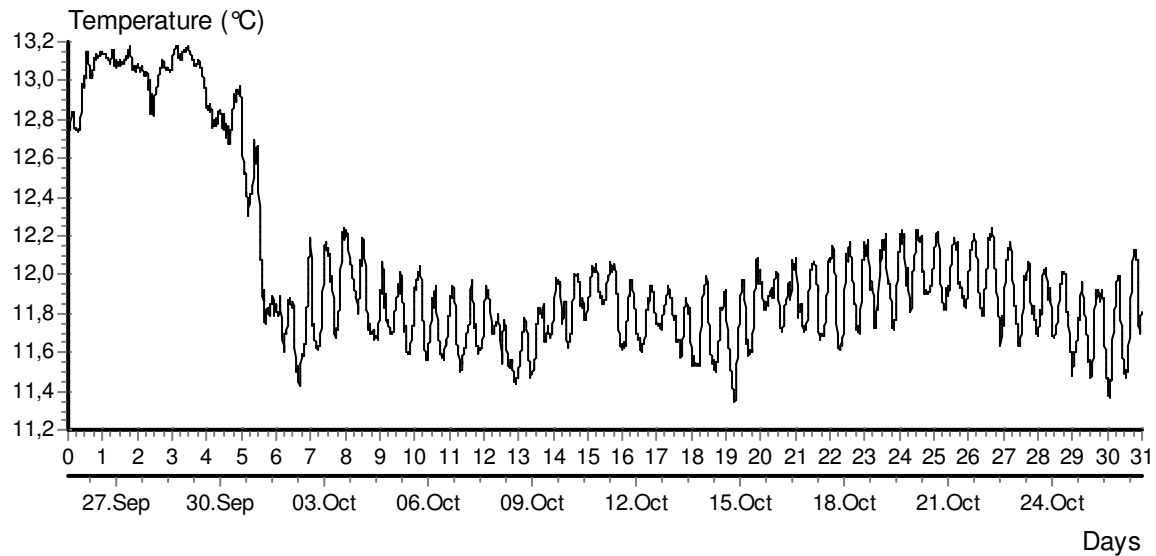
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED

File name: Kjølneset.nr2-1.SD6

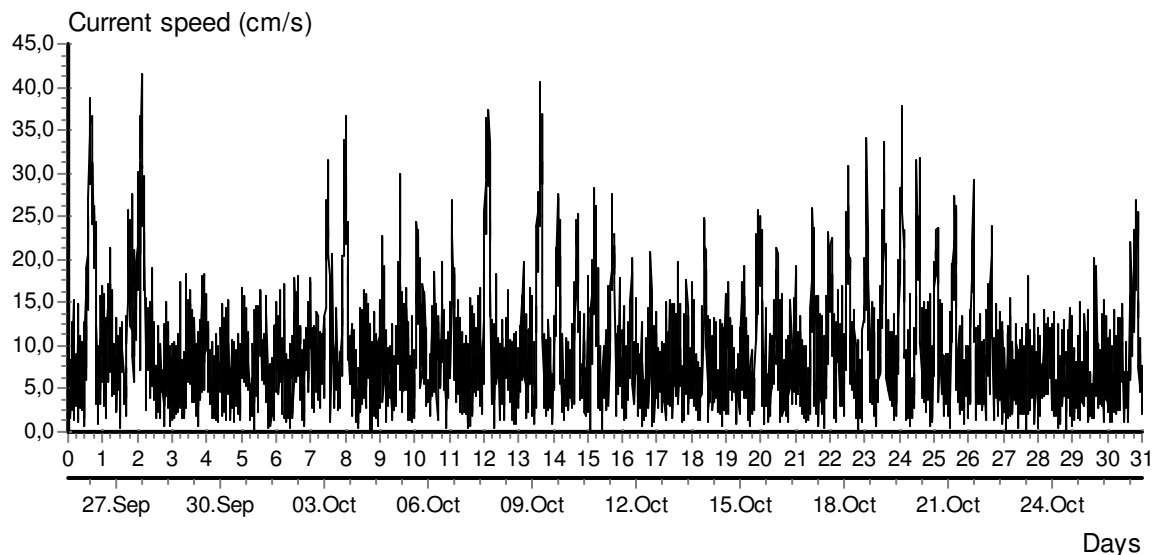
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED BAR CHART

File name: Kjølneset.nr2-1.SD6

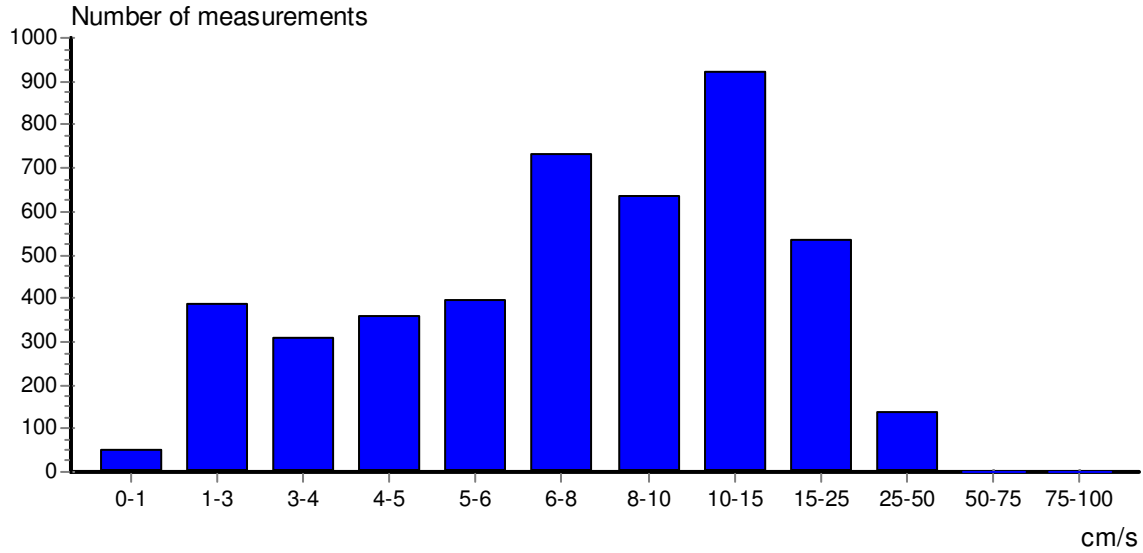
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT DIRECTION BAR CHART

File name: Kjølneset.nr2-1.SD6

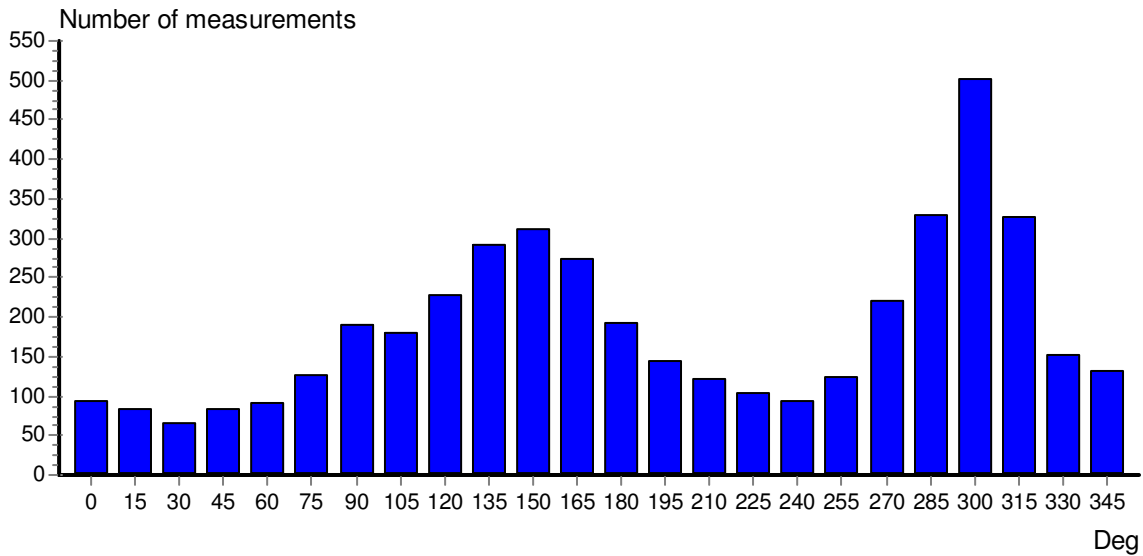
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



PROGRESSIVE VECTOR

File name: Kjølneset.nr2-1.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

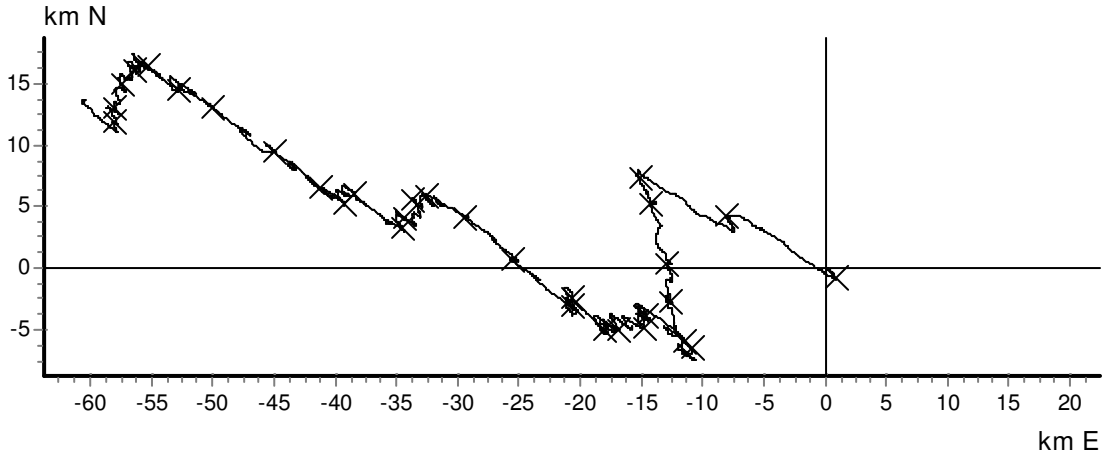
Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

Neumann parameter: 0.247

Rest speed: 2.3 cm/s

Average speed: 9.3 cm/s

Rest direction: 283 deg.



CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjølneset.nr2-1.SD6

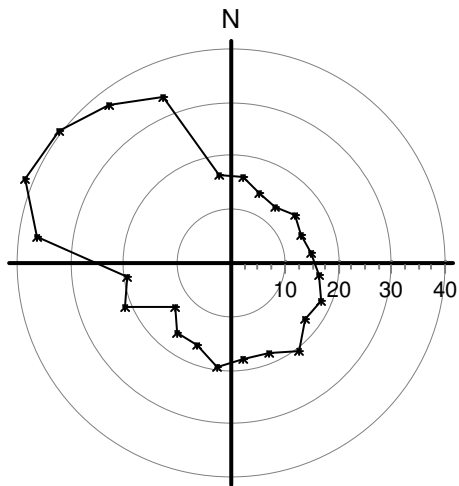
Ref. number: 0

Series number: 1

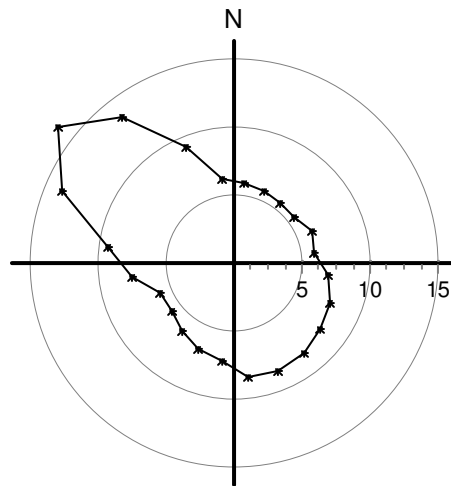
Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



Maximum velocity (cm/s)
per 15 deg sector



Mean velocity (cm/s)
per 15 deg sector

CURRENT VELOCITY DISTRIBUTION DIAGRAM

File name: Kjelneset.nr2-1.SD6

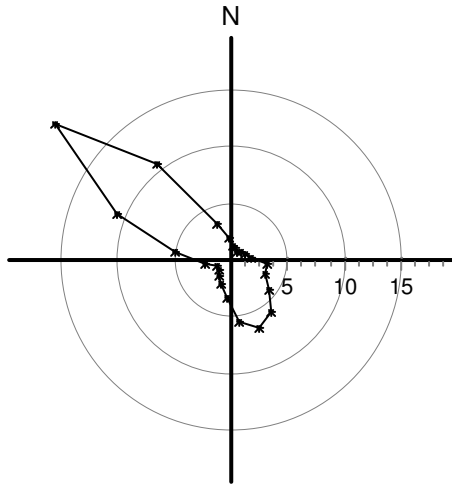
Ref. number: 0

Series number: 1

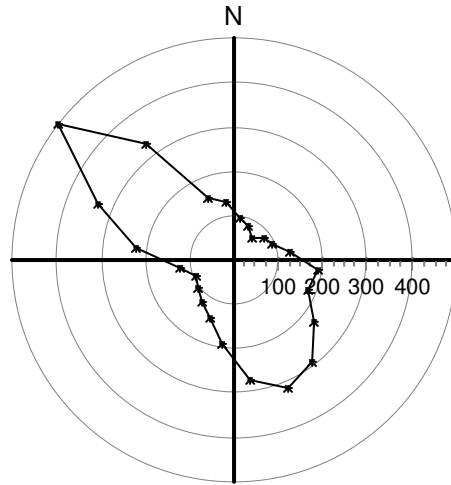
Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



Relative water flux (%)
per 15 deg sector



Number of measurements
per 15 deg sector

STICK DIAGRAM

File name: Kjelneset.nr2-1.SD6

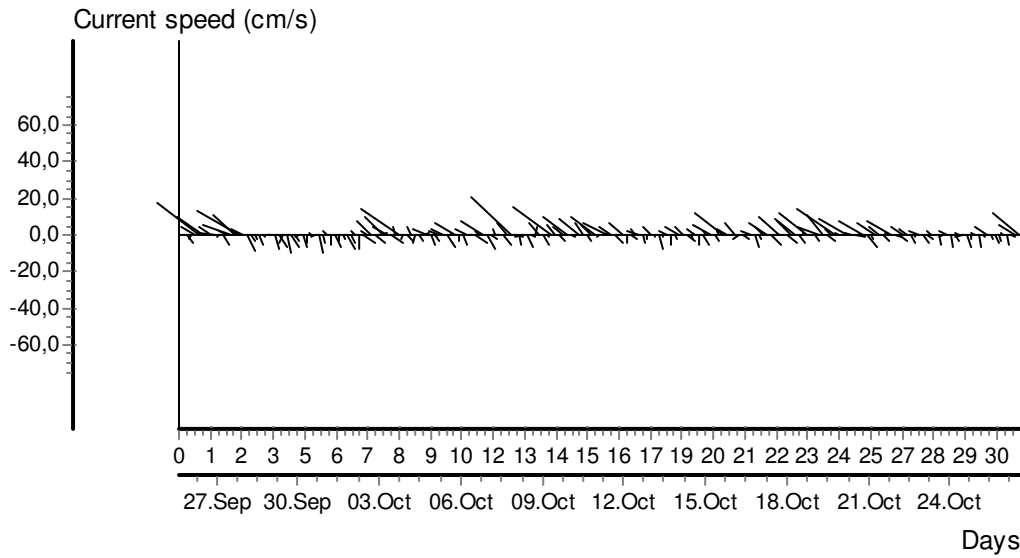
Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09



CURRENT SPEED / DIRECTION MATRIX

File name: Kjelneset.nr2-1.SD6

Ref. number: 0

Series number: 1

Interval time: 10 Minutes

Number of measurements in data set: 4465

Data displayed from: 15:00 - 25.Sep-09 To: 15:00 - 26.Oct-09

	Current speed groups													Total flow		Max curr
	1	3	4	5	6	8	10	15	25	50	75	100	Sum%	m ³ /m ²	%	
0	1	18	12	9	15	18	7	13	1	0	0	0	2.1	3320	1.3	16.0
15	0	17	19	10	5	16	5	12	0	0	0	0	1.9	2851	1.1	14.0
30	0	16	2	9	11	14	9	4	0	0	0	0	1.5	2166	0.9	13.2
45	2	14	6	13	16	16	9	7	0	0	0	0	1.9	2776	1.1	14.9
60	2	14	6	10	13	21	14	11	0	0	0	0	2.0	3412	1.4	14.1
75	0	19	19	20	14	24	17	13	1	0	0	0	2.8	4527	1.8	15.1
90	7	25	15	14	23	28	39	36	3	0	0	0	4.3	7863	3.1	16.7
105	4	10	12	22	18	28	36	47	3	0	0	0	4.0	8311	3.3	18.1
120	0	10	22	22	20	51	37	57	8	0	0	0	5.1	10814	4.3	17.2
135	5	19	15	24	20	52	64	77	15	0	0	0	6.5	14539	5.8	20.6
150	2	21	11	27	27	49	64	93	19	0	0	0	7.0	16186	6.5	18.2
165	1	13	15	30	30	43	44	89	10	0	0	0	6.2	13911	5.6	18.0
180	5	19	18	15	21	43	28	37	6	0	0	0	4.3	8332	3.3	19.7
195	2	14	21	13	14	32	24	21	3	0	0	0	3.2	5851	2.3	16.6
210	3	16	9	10	16	40	16	10	1	0	0	0	2.7	4502	1.8	16.3
225	4	15	11	13	13	24	19	5	0	0	0	0	2.3	3547	1.4	13.3
240	2	14	13	14	15	18	7	11	1	0	0	0	2.1	3357	1.3	21.3
255	1	10	14	8	9	28	24	24	6	0	0	0	2.8	5624	2.2	19.7
270	0	27	8	12	13	41	34	53	32	1	0	0	4.9	12376	4.9	36.7
285	0	15	7	14	17	37	34	69	111	26	0	0	7.4	27059	10.8	41.4
300	1	18	14	13	18	34	28	105	186	84	0	0	11.2	48978	19.6	40.7
315	2	15	15	11	15	24	35	83	105	23	0	0	7.3	26686	10.7	37.3
330	2	7	12	11	18	25	23	32	20	2	0	0	3.4	8433	3.4	33.5
345	4	20	14	17	14	28	19	14	3	0	0	0	3.0	4939	2.0	16.4
Sum%	1.1	8.6	6.9	8.1	8.8	16.4	14.2	20.7	12.0	3.0	0.0	0.0		250359		41.4

STATISTICAL SUMMARY

	Total	East / west	North / south
Mean current speed (cm/s)	9,3	6,3	5,9
Variance (cm/s) ²	38,938	31,098	21,018
Standard deviation (cm/s)	6,240	5,577	4,585
Mean standard deviation	0,668	0,891	0,775
Maximum current velocity	41,4		
Minimum current velocity	0,2		
Significant max velocity	16,2		
Significant min velocity	3,8		