HAVSTOVAN
FAROE MARINE RESEARCH INSTITUTE

Fiskaaling
Aquaculture Research Station of the Faroes

Fróðskaparsetur Føroya

Current measurements in Sørvágsfjørður
Deployment SORA1004

Tórshavn · August 2010

Karin Margretha H. Larsen

Ebba Mortensen

Øystein Patursson

Knud Simonsen

HAVSTOVAN NR.: 10-08
TECHNICAL REPORT

Contents

Introduction

This report documents the SORA1004 deployment, which is one of two simultaneous deployments in Sørvágsfjørður. The aim of the deployments is to investigate current conditions in the fjord in relation to aquaculture.

Each of the deployments consists of a bottom frame with a current profiler. The instruments used are two Workhorse Sentinel (Teledyne RD Instruments) 600 kHz profilers, both equiped with temperature and pressure sensors. The profilers are set up with an interval of 10 minutes and the bin size is selected, depending on the bottom depth at the location, such that there are at least 10 useful bins. The exact details are listed on a page describing the deployment.

Quality control and calibration

The profiler data have been quality controlled by a standard procedure based upon consideration of profiler performance (error velocity etc.) and data variation with time in relation to neighbouring bins (spikes). The editing has been done manually using an interactive graphical software package developed by Faroe Marine Research Institute (FAMRI), based upon MATLAB. The editing has been done with a philosophy of minimal interference. Thus, only observations, which were considered clearly erroneous, were flagged. The series have been edited up to and including the surface layer, which is the uppermost layer considered not to be influenced by the sea surface according to the profiler manual. Bins above this level have not been included. The velocity direction has been corrected for magnetic deviation, by adding a constant as indicated in the meta data. The instrument depths are found using the data from the instrument pressure sensor.

The temperature and depth data are edited for spikes, but these data are not plotted in this report.

The Workhorse Sentinel data include intensity (average of the four beams) for each bin. These data have also been corrected, but only clear single spikes are error flagged.

Report format

The report contains several pages with plots and tables of the profiler data. The first page has a figure of the deployment location and details of the deployment, while the second page has information on the the mooring details. After that, there are some pages describing the profiler data, beginning with a page with error statistics. The next one or two pages are Hovmüller diagrams of the east/west and north/south velocities. Then there is a page with timeseries of the speed at three selected layers (bins). These layers usually are the bottom and surface layers (i.e. the first and the last bin) and then a centre layer at approximately 15 meters depth, which is close to the bottom of the aquaculture nets. If the bottom depth at the mooring location is less than 25 meters, the centre layer is chosen to be halfway between the bottom and surface layers. The same three layers are highlighted several times in the report. After the timeseries page there are two pages, one with polar plots of direction and one with progressive vector diagrams, again for the three selected layers.

Then there are a number of pages with several tables. The first two tables are frequency distributions of speeds for each bin, which list the frequency (in parts per thousand) of high and low speeds (scalar), respectively. Then two tables list the duration (in hourly intervals) of high and low speed periods, respectively, for each of the three selected layers. Note, that in the calculation of these tables, error flagged velocities are ignored.

A tidal analysis is also performed on the data and the next three tables present the whole analysis (all constituents) for the three selected layers. Then five tables contain data for the constituents M2, S2, N2, O1, and K1, respectively, for all layers. Each table, containing tidal data, lists for each bin the amplitude and Greenwich phase lag for the east and north velocity components and lists also major and minor semiaxes of the tidal ellipse for the constituent as well as its inclination (Fig. 1) and sense of rotation (cyclonic = C, anticyclonic = A). The tidal constants were computed by an adapted version of the Foreman FORTRAN package.

Finally, there are three figures (one for each of the selected layers) showing the original currents and non-tidal currents in the east-west and north-south directions, respectively. Here, the tidal prediction is done in a Matlab package, which also is an adapted

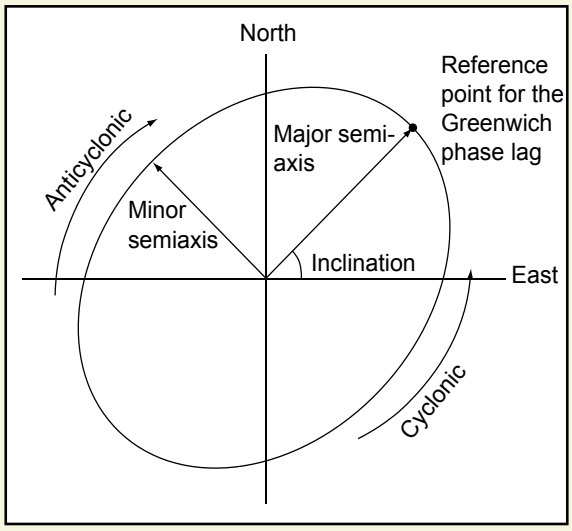


Figure 1. Parameters of the tidal ellipse for a given constituent. The reference point for the Greenwich phase lag is always chosen to be above the east-west axis.

version of the Foreman program (Pawlowicz, R., B. Beardsley, and S. Lentz, Classical Tidal Harmonic Analysis Including Error Estimates in MATLAB using T_TIDE, Computers and Geosciences, 28 (2002), 929-937). Only sicnificant constituents are included in the prediction of the tidal currents. The fraction of the predicted variance for each of the layers is indicated in the figure text.

All times in this report and in the data are in UTC.

Meta data

Deployment description:

Deployment ID: SORA1004

Latitude: 62°04.686´N

Longitude: 07°24.193´W

Bottom depth: 21 m

Time of deployment: 2010 04 13 09:20

Time of recovery: 2010 06 04 13:55

Current profiler:

Instrument type: Workhorse Sentinel

Serial no.: 1358

Instrument frequency: 600 kHz

Height above bottom: 1 m

Depth: 20 m

Time of first data: 2010 04 13 09:30

Time of last data: 2010 06 04 13:30

Sample interval: 10 min

No. of ensembles: 7513

Pings per ens.: 50

Binlength: 2 m

Depth of first bin: 17 m

No. of bins: 15

Magnetic deviation offset: -7°

Data:

OK.

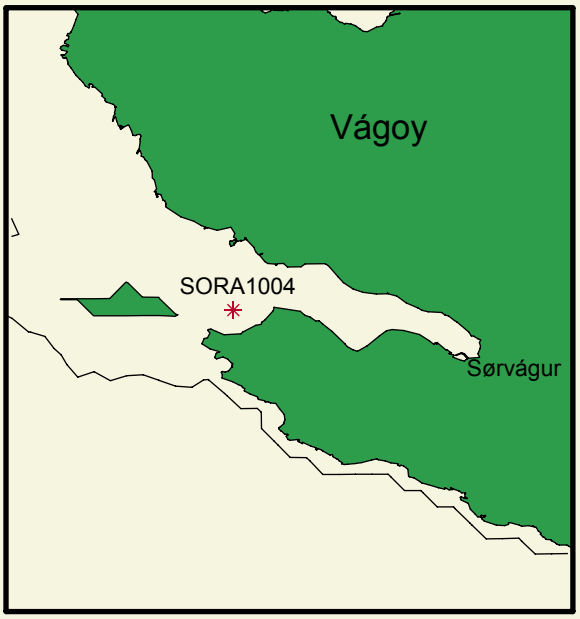


Figure 2. Map showing the deployment position.

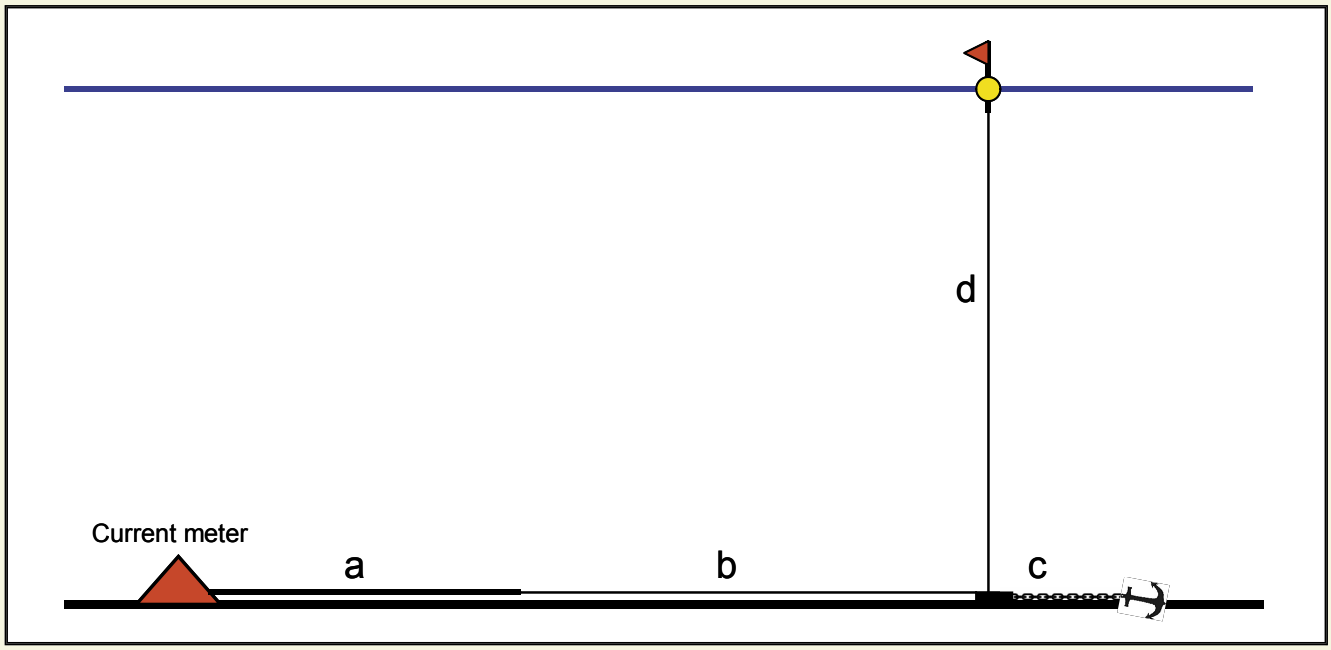


Figure 3. Illustration of the mooring rig. Details of the mooring are given in the table below.

```
Describtion of the mooring parts as given in Figure 3
=====================================================================
 a| 20 mm polysteel with continuous 3 kg/m weight, length 10 m
 b| 20 mm polysteel with continuous 3 kg weight per 5 m, length 30 m
 c| ~100 kg anchor assembly
 d| 16 mm polysteel, length 40 m
```

Error statistics

Updated 2010/07/09

Depth edited by KMHL in Jun 2010
Heading, pitch and roll not edited
Temperature edited by KMHL in Jun 2010
Velocity edited up to and including bin 8 by KMHL in Jun 2010
Intensity edited up to and including bin 8 by KMHL in Jun 2010

Total number of ensembles: 7513
Interval between ensembles: 10 min
Original number of bins: 15
Number of acceptable velocity bins: 8
Number of acceptable intensity bins: 8

Flagged values have been replaced by error codes: -999.99 for temperature and depth, -999 for velocity and intensity. For observations where velocity is flagged, error codes have been inserted into speed, direction and vertical velocity files

Number of depth ens. flagged : 0
Number of temperature ens. flagged: 8

Below are for each bin listed ensembles flagged for intensity in number and for velocity in number and % of total ens.number. For velocity is also shown the number of gaps of various lengths (gap length = number of consecutive flagged ens.)

Bin	Int. ens. flgd	Velocity ens. flgd	% flgd	Number of velocity gaps of length: 1	2	3	4	5	6-10	11-20	21-30	31-50	>50
1	1	1	0	1	0	0	0	0	0	0	0	0	0
2	1	1	0	1	0	0	0	0	0	0	0	0	0
3	0	1	0	1	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	3	7	0	3	2	0	0	0	0	0	0	0	0
6	3	15	0	13	1	0	0	0	0	0	0	0	0
7	2	42	1	27	3	0	0	0	1	0	0	0	0
8	0	222	3	85	12	10	2	1	4	3	0	0	0

Hovmüller diagrams of east/west velocities

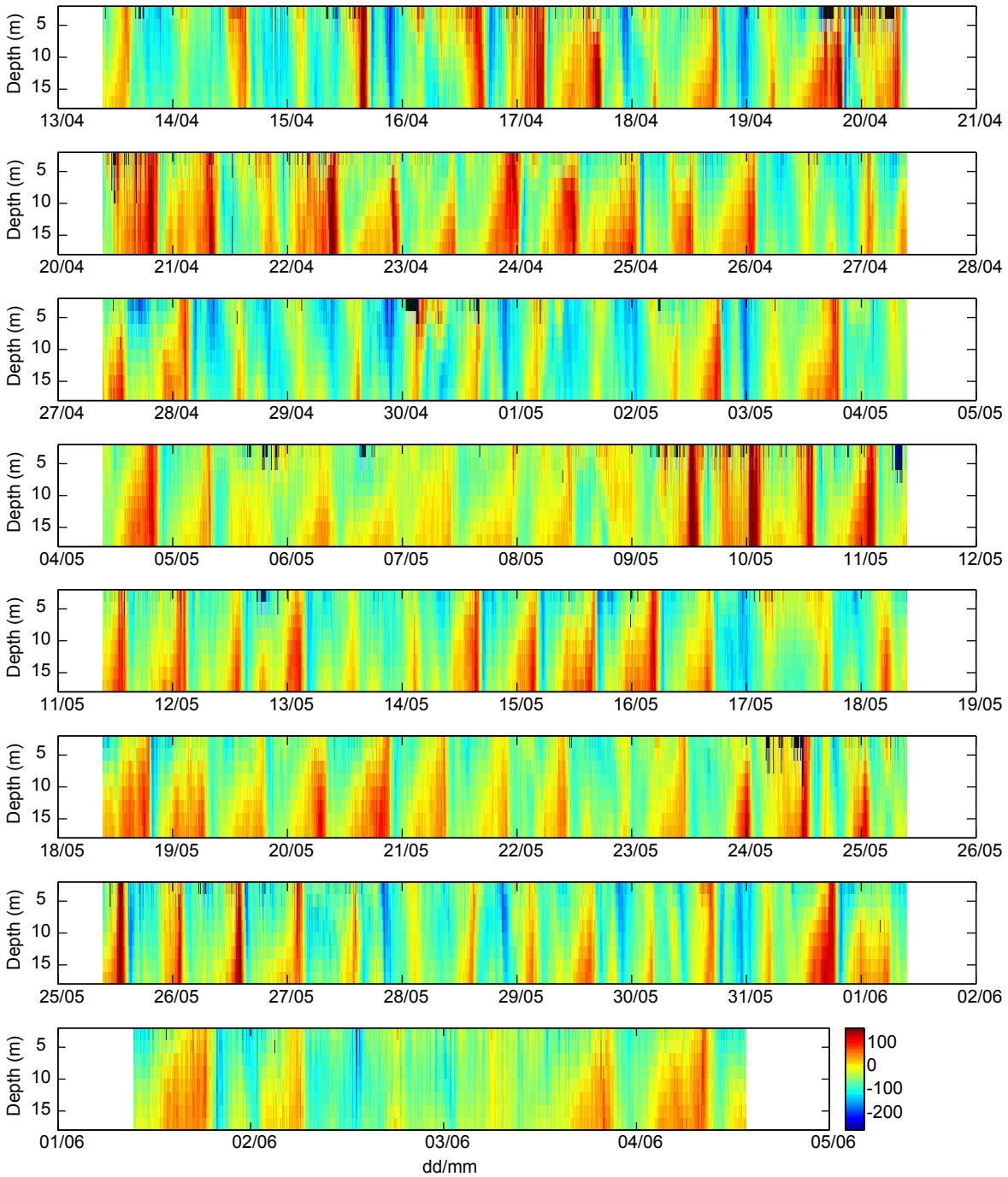


Figure 4. Hovmüller diagram of east/west velocities for the whole deployment period. Note that the last panel may not have the same horizontal scale as the other panels. The velocity scale is in mm/s and is the same as in Figure 5.

Hovmüller diagrams of north/south velocities

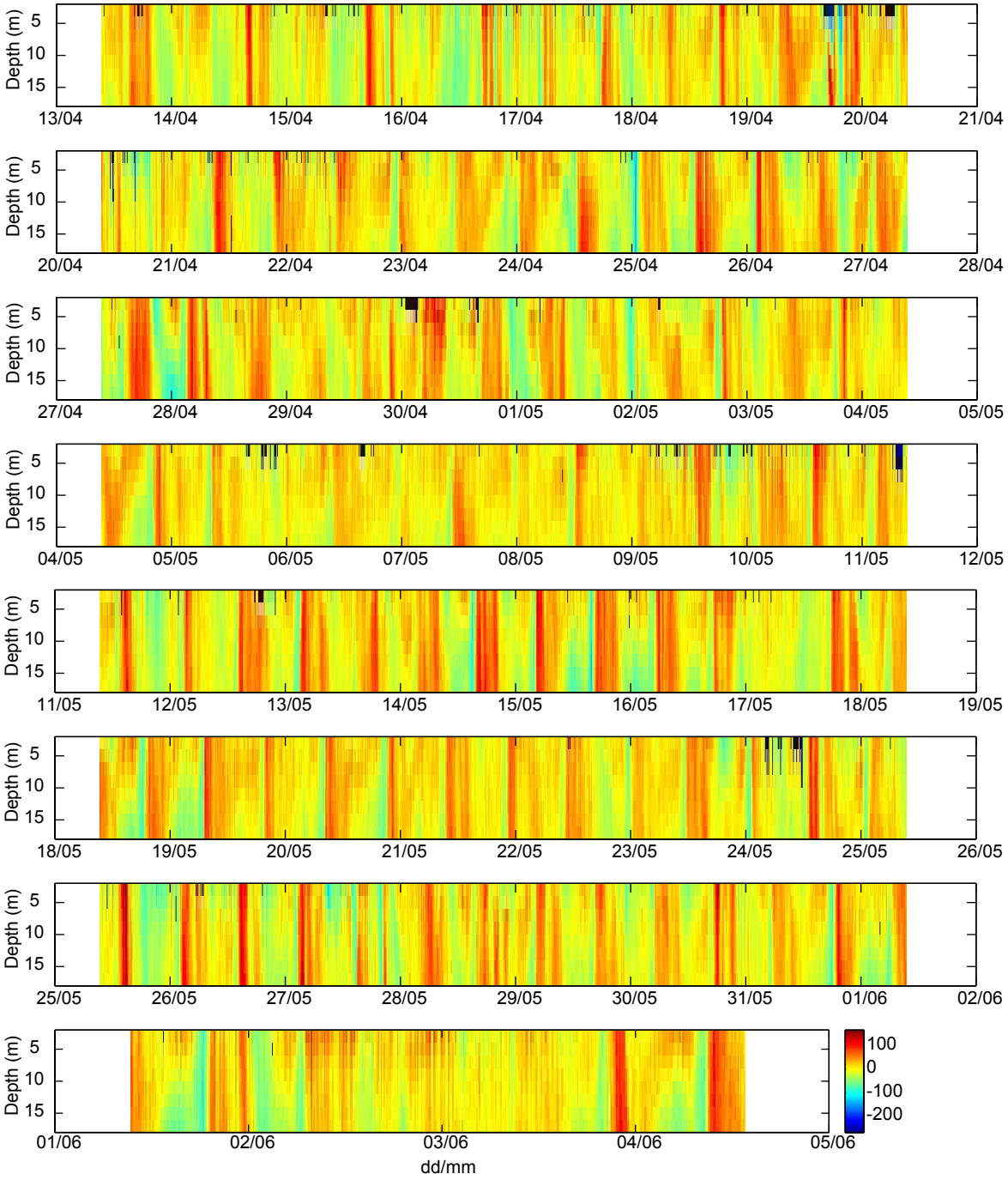


Figure 5. Hovmüller diagram of north/south velocities for the whole deployment period. Note that the last panel may not have the same horizontal scale as the other panels. The velocity scale is in mm/s and is the same as in Figure 4.

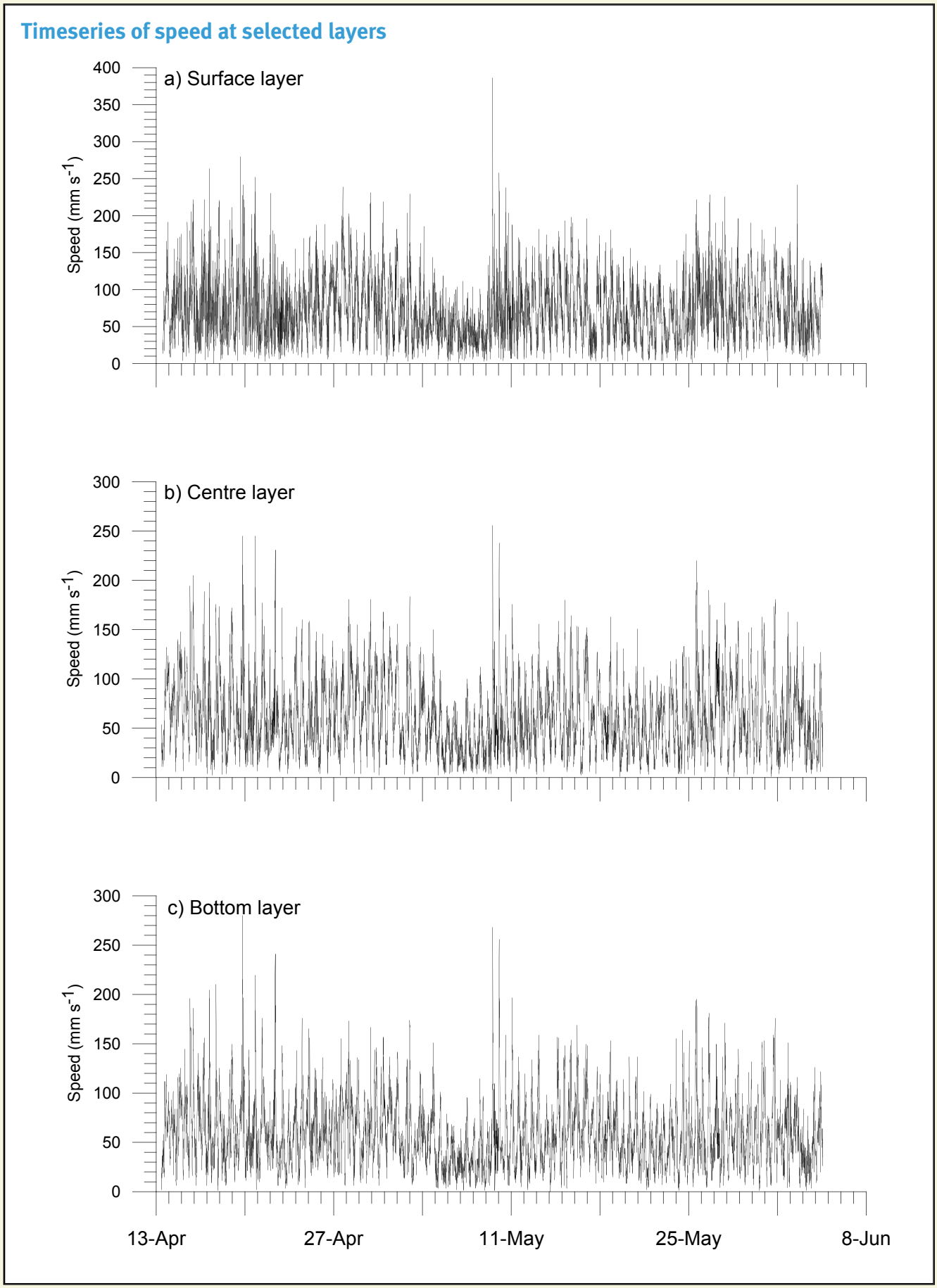


Figure 6. Timeseries of speed at three selected bins: a) Bin 8 at 3 m depth, b) Bin 4 at 11 m depth, and c) Bin 1 at 17 m depth.

Rose diagrams at selected layers

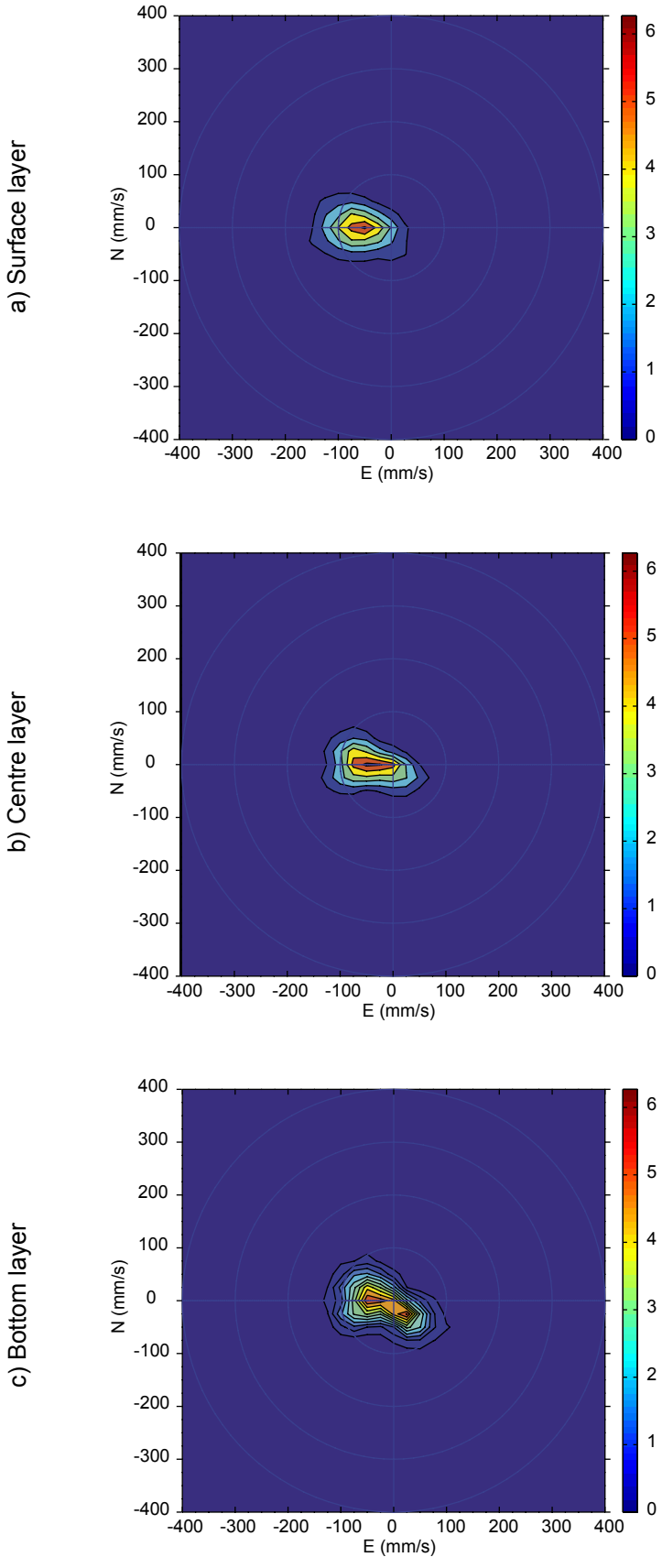


Figure 7. Distribution (in % of good observations) of velocity vectors: a) Bin 8 at 3 m depth, b) Bin 4 at 11 m depth, and c) Bin 1 at 17 m depth.

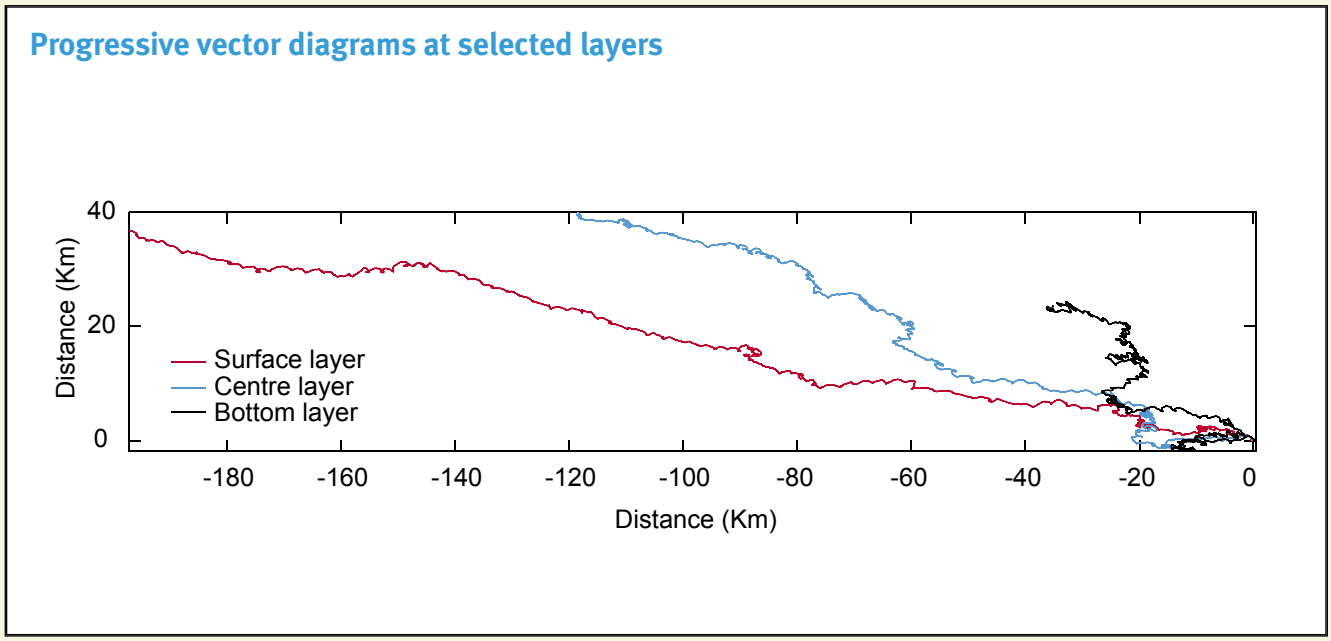


Figure 8. Progressive vector diagrams at three selected layers: Surface (Bin 8 at 3 m depth), centre (Bin 4 at 11 m depth), and bottom layer (Bin 1 at 17 m depth).

Frequency of high speeds

Frequency (in parts per thousand) of speeds equal to or exceeding specified values.

Bin no.	Depth m	Speed (mm/s) 50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1500
1	17	562	112	16	3	0.67	0	0	0	0	0	0	0	0	0	0	0
2	15	578	138	20	3	0.53	0	0	0	0	0	0	0	0	0	0	0
3	13	583	154	20	3	0.40	0	0	0	0	0	0	0	0	0	0	0
4	11	579	163	22	2	0.13	0	0	0	0	0	0	0	0	0	0	0
5	9	591	173	22	2	0.40	0	0	0	0	0	0	0	0	0	0	0
6	7	616	184	24	2	0.40	0	0	0	0	0	0	0	0	0	0	0
7	5	649	208	32	3	0.40	0.13	0	0	0	0	0	0	0	0	0	0
8	3	677	256	50	8	0.96	0.14	0.14	0	0	0	0	0	0	0	0	0

Frequency of low speeds

Frequency (in parts per thousand) of speeds less than specified values.

Bin no.	Depth m	Speed (mm/s) 50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1500
1	17	438	888	984	997	999	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
2	15	422	862	980	997	999	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
3	13	417	846	980	997	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
4	11	421	837	978	998	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
5	9	409	827	978	998	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6	7	384	816	976	998	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
7	5	351	792	968	997	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
8	3	323	744	950	992	999	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Duration of high speed periods

Occurrence (in parts per thousand) of contiguous periods longer than or equal to specified duration with speeds equal to or exceeding specified threshold values (Speed). Flagged ensembles are ignored.

Surface layer, bin no: 8

Speed mm/s	Duration (minutes) 60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50	488	391	315	265	232	164	132	66	24	9	9	0	0	0	0	0	0
100	110	56	29	8	0	0	0	0	0	0	0	0	0	0	0	0	0
150	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Centre layer, bin no: 4

Speed mm/s	Duration (minutes) 60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50	487	422	341	268	208	178	147	118	77	24	0	0	0	0	0	0	0
100	98	42	17	7	0	0	0	0	0	0	0	0	0	0	0	0	0
150	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bottom layer, bin no: 1

Speed mm/s	Duration (minutes) 60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50	472	405	305	225	163	104	73	43	23	8	0	0	0	0	0	0	0
100	58	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Duration of low speed periods

Occurrence (in parts per thousand) of contiguous periods longer than or equal to specified duration with speeds less than specified threshold values (Speed). Flagged ensembles are ignored.

Surface layer, bin no: 8

Speed|	Duration (minutes)																
mm/s|	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50|	148	82	39	13	10	5	0	0	0	0	0	0	0	0	0	0	0
100|	628	537	475	420	347	243	190	173	138	116	99	80	80	69	57	45	45
150|	926	895	879	842	813	794	778	741	720	681	630	528	456	434	398	386	386
200|	989	984	982	976	968	964	964	964	957	949	940	922	911	911	911	898	898
300|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
400|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
600|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
800|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1000|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Centre layer, bin no: 4

Speed|	Duration (minutes)																
mm/s|	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50|	312	253	203	151	99	61	51	20	8	0	0	0	0	0	0	0	0
100|	787	746	725	706	692	657	596	531	477	371	322	267	247	247	247	210	197
150|	974	964	962	957	953	949	949	949	949	926	926	880	840	830	806	794	794
200|	998	998	998	998	998	998	998	998	998	998	998	989	989	989	989	989	989
300|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
400|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
600|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
800|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1000|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Bottom layer, bin no: 1

Speed|	Duration (minutes)																
mm/s|	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020
50|	328	263	195	147	109	83	62	32	26	18	10	10	0	0	0	0	0
100|	857	827	796	777	756	743	697	674	640	535	427	345	315	315	280	268	255
150|	982	976	976	970	970	970	970	970	970	962	945	907	868	857	857	845	819
200|	997	997	997	997	997	997	997	997	997	997	997	988	978	978	978	978	978
300|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
400|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
600|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
800|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1000|	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Tidal analysis for selected depths

SURFACE LAYER, Bin 8

Error flagged ensembles interpolated for velocity: 158, ensembles not int.: 64
Tidal analysis on data passed through 3 filters: A6, A6, and A7

Const	Freq c/hr	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R	
MM	.00151215	15	241	2	264	15	1	5	242	C	
MSF	.00282193	19	220	3	148	19	3	3	220	A	
Q1	.03721850	3	250	1	198	4	1	16	245	A	
O1	.03873065	8	333	2	131	8	1	164	151	C	
NO1	.04026859	1	199	2	205	3	0	59	203	C	
P1	.04155259	2	274	1	315	2	1	23	280	C	I
K1	.04178075	6	287	3	324	6	2	27	295	C	
N2	.07899925	8	7	2	89	8	1	1	7	C	
M2	.08051140	38	56	22	151	38	22	175	233	C	
L2	.08202355	9	120	1	15	9	1	179	300	A	
S2	.08333334	16	86	9	149	17	8	17	94	C	
K2	.08356149	4	86	2	149	5	2	17	94	C	I
MK3	.12229210	3	90	3	157	4	2	43	122	C	
M4	.16102280	10	125	10	340	14	4	134	323	A	
MS4	.16384470	8	135	5	352	9	2	155	323	A	

CENTRE LAYER, Bin 4

Error flagged ensembles interpolated for velocity: 0, ensembles not int.: 0
Tidal analysis on data passed through 3 filters: A6, A6, and A7

Const	Freq c/hr	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R	
MM	.00151215	11	281	1	84	12	0	177	101	C	
MSF	.00282193	20	218	2	230	20	0	7	219	C	
Q1	.03721850	3	163	2	193	4	1	35	173	C	
O1	.03873065	9	335	2	147	9	0	170	155	C	
NO1	.04026859	1	346	1	199	2	1	131	185	A	
P1	.04155259	2	318	1	322	3	0	27	318	C	I
K1	.04178075	7	332	4	336	8	0	31	333	C	
N2	.07899925	8	11	5	157	9	2	149	182	C	
M2	.08051140	43	43	22	173	46	16	160	216	C	
L2	.08202355	7	122	1	23	7	1	178	302	A	
S2	.08333334	12	87	8	178	12	8	178	266	C	
K2	.08356149	3	87	2	178	3	2	178	266	C	I
MK3	.12229210	1	350	3	161	3	0	110	162	C	
M4	.16102280	18	130	8	334	20	3	159	313	A	
MS4	.16384470	11	129	2	13	11	2	175	310	A	

BOTTOM LAYER, Bin 1

Error flagged ensembles interpolated for velocity: 1, ensembles not int.: 0
Tidal analysis on data passed through 3 filters: A6, A6, and A7

Const	Freq c/hr	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R	
MM	.00151215	10	292	1	88	10	1	172	112	C	
MSF	.00282193	20	225	4	288	20	3	5	226	C	
Q1	.03721850	3	189	2	174	4	0	27	186	A	
O1	.03873065	7	339	3	138	8	1	155	155	C	
NO1	.04026859	2	322	2	201	2	1	143	165	A	
P1	.04155259	3	336	1	341	3	0	21	337	C	I
K1	.04178075	9	351	4	355	10	0	25	351	C	
N2	.07899925	5	18	7	148	8	3	123	164	C	
M2	.08051140	37	35	29	179	45	14	144	202	C	
L2	.08202355	4	119	1	199	4	1	3	120	C	
S2	.08333334	10	90	8	194	10	7	156	252	C	
K2	.08356149	3	90	2	194	3	2	156	252	C	I
MK3	.12229210	2	278	4	160	4	2	105	154	A	
M4	.16102280	18	118	9	324	20	4	155	303	A	
MS4	.16384470	10	114	2	318	10	1	169	295	A	

Tidal variation with depth

Harmonic constants for constituent M2

Bin	Depth m	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R
01	17	37	35	29	179	45	14	144	202	C
02	15	41	38	27	178	47	15	150	207	C
03	13	43	40	24	176	47	16	155	212	C
04	11	43	43	22	173	46	16	160	216	C
05	9	43	46	20	169	44	16	164	220	C
06	7	41	49	19	162	42	17	168	224	C
07	5	39	53	19	153	39	19	173	229	C
08	3	38	56	22	151	38	22	175	233	C

Harmonic constants for constituent S2

Bin	Depth m	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R
01	17	10	90	8	194	10	7	156	252	C
02	15	10	91	8	191	11	8	162	257	C
03	13	11	89	8	186	11	8	170	262	C
04	11	12	87	8	178	12	8	178	266	C
05	9	13	85	8	170	13	8	5	88	C
06	7	14	85	8	160	14	8	12	92	C
07	5	15	87	8	151	15	7	18	95	C
08	3	16	86	9	149	17	8	17	94	C

Harmonic constants for constituent N2

Bin	Depth m	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R
01	17	5	18	7	148	8	3	123	164	C
02	15	6	13	7	152	9	3	133	171	C
03	13	7	12	6	154	9	3	141	177	C
04	11	8	11	5	157	9	2	149	182	C
05	9	8	8	3	164	9	1	158	185	C
06	7	9	6	2	171	9	0	169	185	C
07	5	9	5	1	142	9	0	177	185	C
08	3	8	7	2	89	8	1	1	7	C

Harmonic constants for constituent O1

Bin	Depth m	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R
01	17	7	339	3	138	8	1	155	155	C
02	15	8	338	3	141	8	1	161	156	C
03	13	9	336	2	141	9	1	166	155	C
04	11	9	335	2	147	9	0	170	155	C
05	9	9	334	1	137	9	0	172	154	C
06	7	9	337	1	128	9	1	172	157	C
07	5	9	335	2	126	9	1	168	154	C
08	3	8	333	2	131	8	1	164	151	C

Harmonic constants for constituent K1

Bin	Depth m	E-ampl mm/sec	E-gpl deg	N-ampl mm/sec	N-gpl deg	Major mm/sec	Minor mm/sec	Incl deg	Grphl deg	R
01	17	9	351	4	355	10	0	25	351	C
02	15	8	348	4	348	9	0	28	348	A
03	13	8	342	5	345	9	0	31	342	C
04	11	7	332	4	336	8	0	31	333	C
05	9	7	319	5	329	8	1	34	322	C
06	7	7	304	5	323	8	1	33	310	C
07	5	6	287	4	315	8	2	33	296	C
08	3	6	287	3	324	6	2	27	295	C

Tidal and non-tidal currents

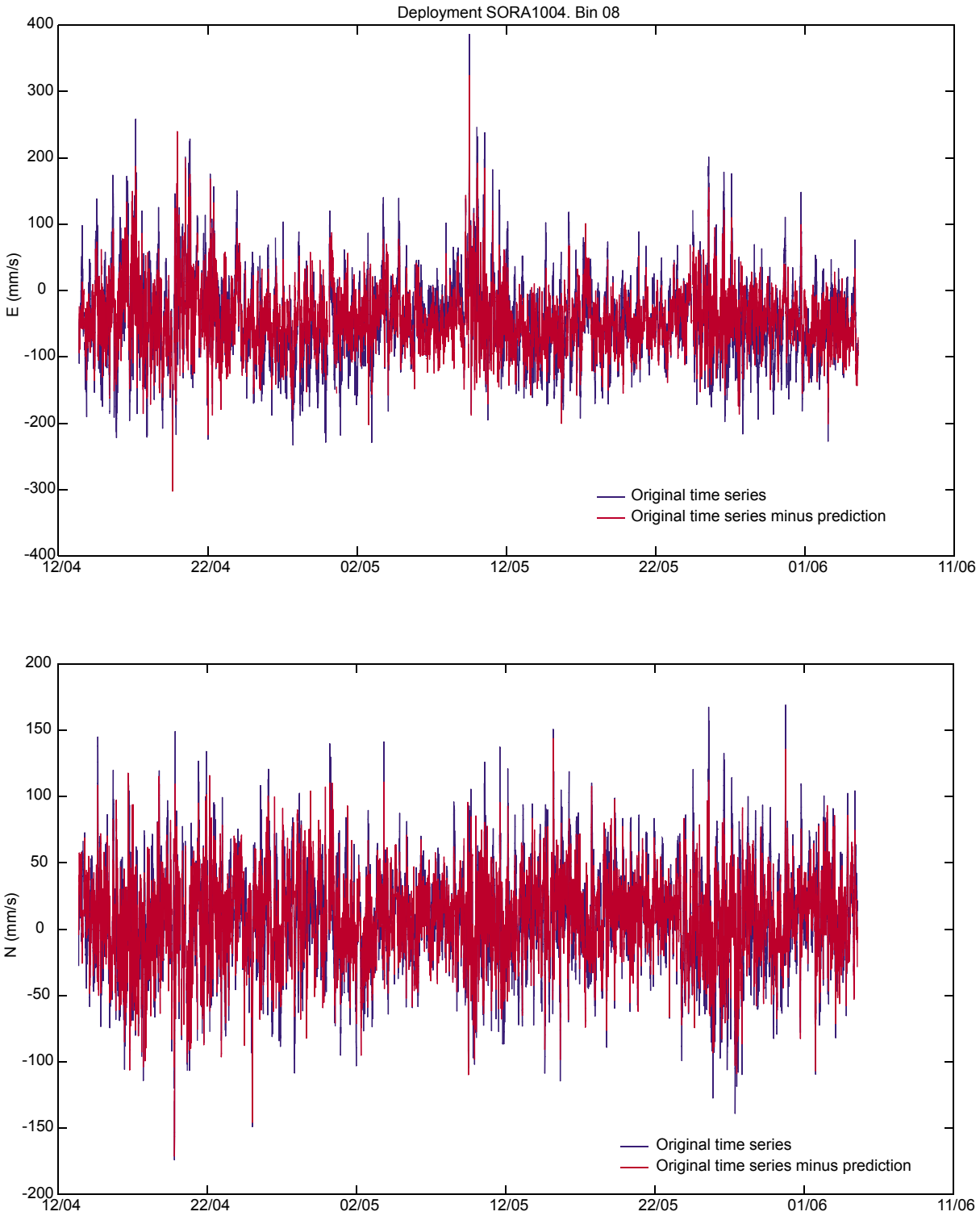
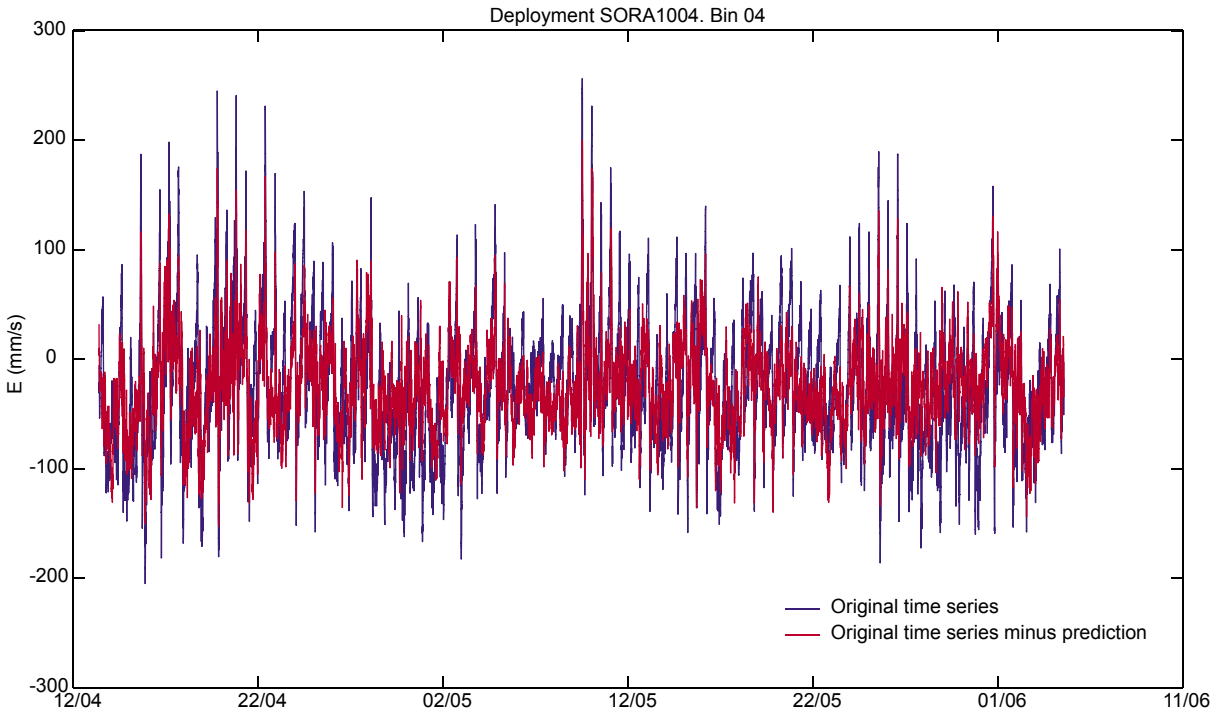


Figure 9. Timeseries of original time series (blue) and non-tidal currents (red), i.e. original serie - tidal predicted serie, for the surface layer (bin 8 at 3 meters depth). The tidal predicted variance makes up 37% of the original variance. Upper panel: east/west velocity. Lower panel: north/south velocity.



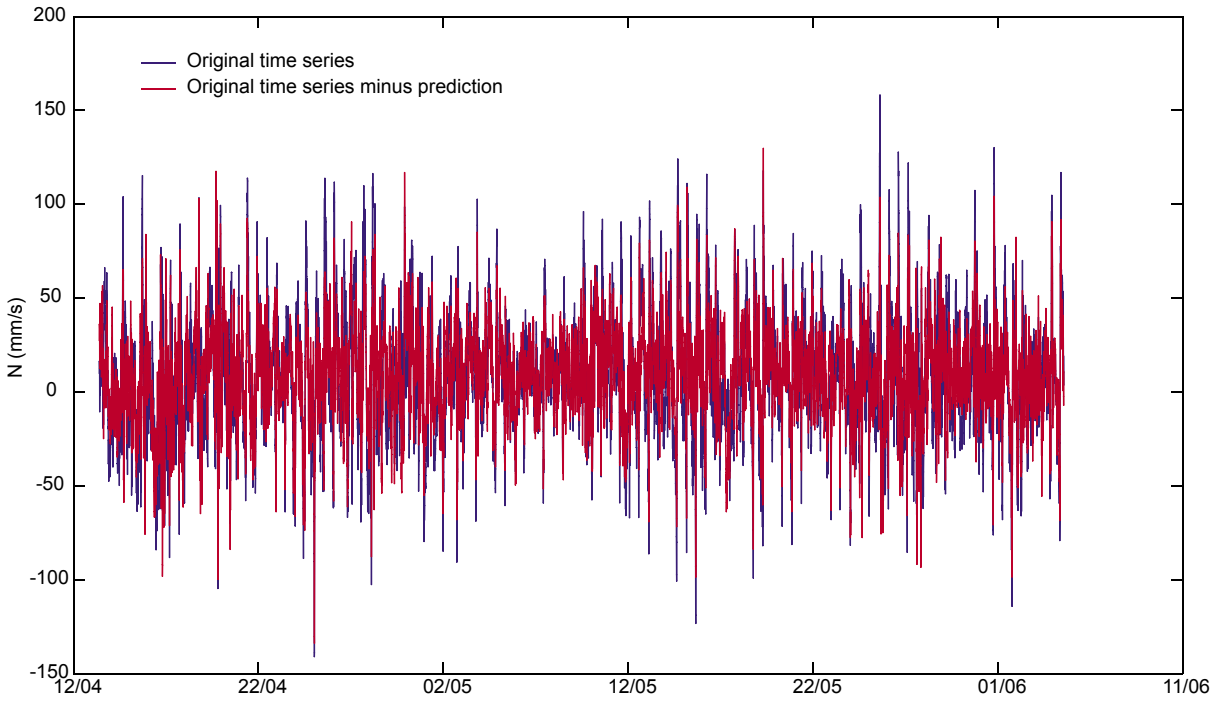


Figure 10. Timeseries of original time series (blue) and non-tidal currents (red), i.e. original serie - tidal predicted serie, for the centre layer (bin 4 at 11 meters depth). The tidal predicted variance makes up 49% of the original variance. Upper panel: east/west velocity. Lower panel: north/south velocity.

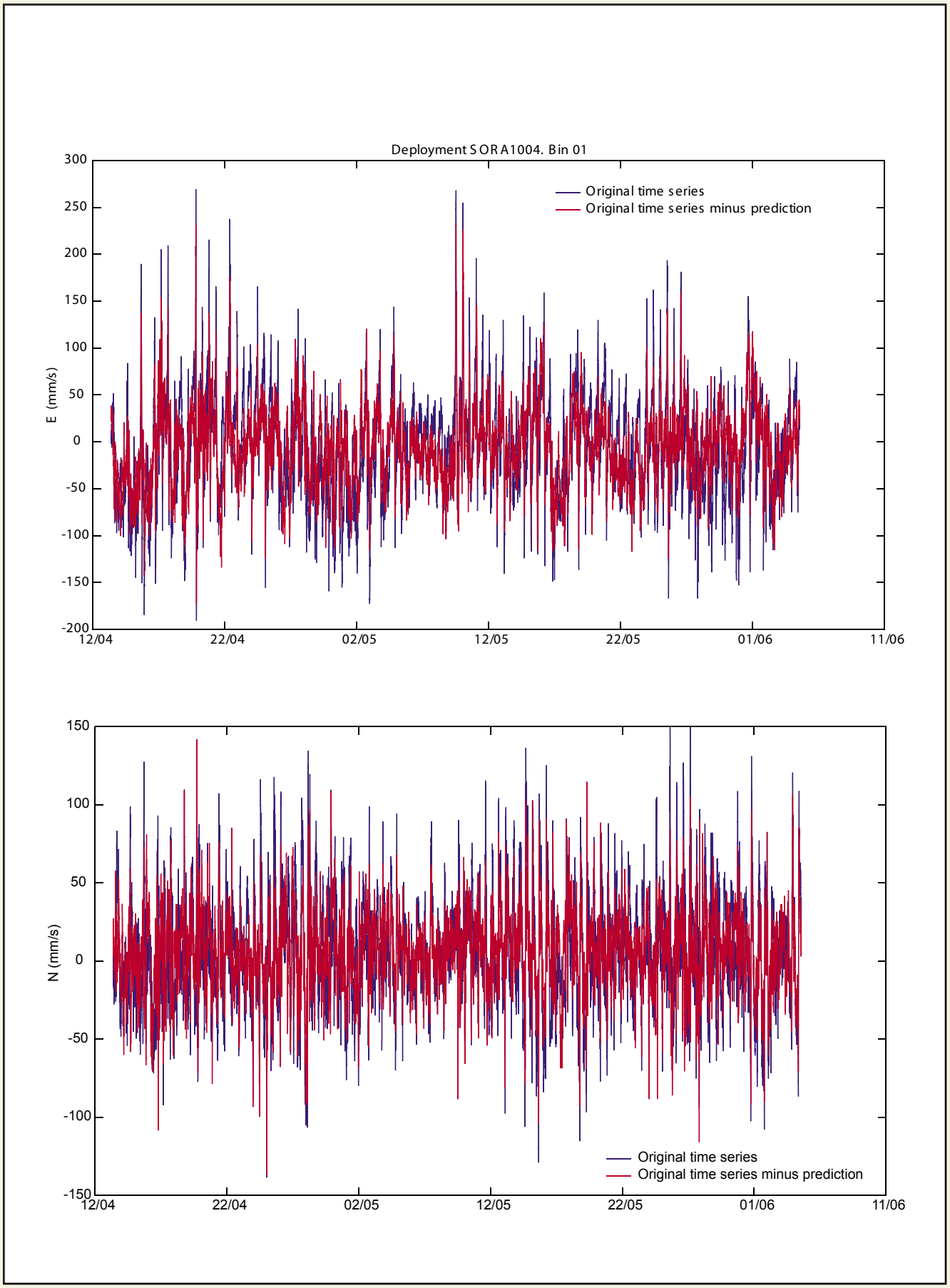


Figure 11. Timeseries of original time series (blue) and non-tidal currents (red), i.e. original serie - tidal predicted serie, for the bottom layer (bin 1 at 17 meters depth). The tidal predicted variance makes up 46% of the original variance. Upper panel: east/west velocity. Lower panel: north/south velocity.

HAVSTOVAN
FAROE MARINE RESEARCH INSTITUTE

P.O. Box 3051 · Nóatún 1
FO-110 Tórshavn
Faroe Islands

Tel +298 35 39 00
hav@hav.fo
www.hav.fo