

Seasonal Current Statistics and Tidal Constituents from Canso Strait and Eastern Nova Scotia

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2018

**Canadian Technical Report of
Fisheries and Aquatic Sciences 3280**



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**Science Branch
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Cat. Fs97-6/3280E-PDF ISBN 978-0-660-28263-3 ISSN 1488-5379

Correct Citation for this publication:

Drozdowski, A., E. Horne and F. Page. 2018. Seasonal Current Statistics and Tidal Constituents from Canso Strait and Eastern Nova Scotia. Can. Tech. Rep. Fish. Aquat. Sci. 3280: viii + 122p.

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ABSTRACT

Drozdowski, A., E. Horne and F. Page. 2018. Seasonal Current Statistics and Tidal Constituents from Canso Strait and Eastern Nova Scotia. Can. Tech. Rep. Fish. Aquat. Sci. 3280: viii + 122p

Current statistics and tidal constituents are presented graphically and in table form for the Canso Strait and Eastern Scotian Shelf area. Twenty six current meters were deployed and recovered with usable data for this analysis. The report describes the deployment, data processing, analysis and presentation methods used.

RÉSUMÉ

Drozdowski, A., E. Horne and F. Page. 2018. Les statistiques des courants saisonniers et les composantes de marée du détroit de Canso et de la zone de l'est du plateau néo-écossais. Can. Tech. Rep. Fish. Aquat. Sci. 3280: viii + 122p.

Les statistiques des courants et les composantes de marée du détroit de Canso et de la zone de l'est du plateau néo-écossais sont présentées sous forme de graphique et de tableau. Vingt-six courantomètres ont été déployés et récupérés afin d'obtenir des données utilisables aux fins de la présente analyse. Le rapport décrit le déploiement, le traitement des données, l'analyse et la présentation des méthodes utilisées.

INTRODUCTION

This report presents current meter data collected during 2015-17 in support of the World Class Tanker Safety Systems (WCTSS) project for Port Hawkesbury. The port sits on the Canso Strait (Eastern Nova Scotia) and is currently one of the busiest ports in Canada in terms of tonnage, hosting large international transport ships and oil tankers, which navigate to the area through Chedabucto Bay (Figure 1 and 2).

The aim of the data collection was to improve hydrographic knowledge of the area and aid the development and validation of a hydrodynamic model concurrently being developed for the area. During the data collection period, vertical profile current time series were collected through 26 deployments at 11 stations. As the deployments were generally longer than a month and up to 7 months, the results are summarized as general seasonal statistics and tidal constituents at standard vertical depths. Tidal constituents are also present graphically at bi-weekly time spacing and full vertical resolution. Profile time series of currents along the depth averaged principal axis are included in the Appendix. The report is aimed to serve as reference material for hydrographic queries of the region.

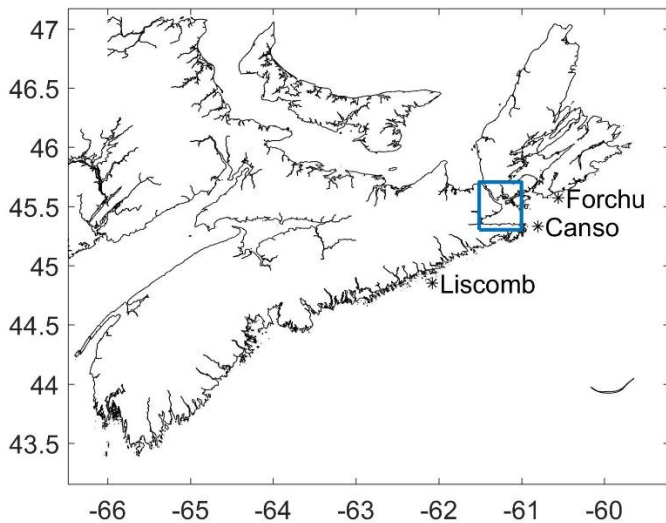


Figure 1 Map showing locations(*) of outer stations. Box shows placement of inset below.

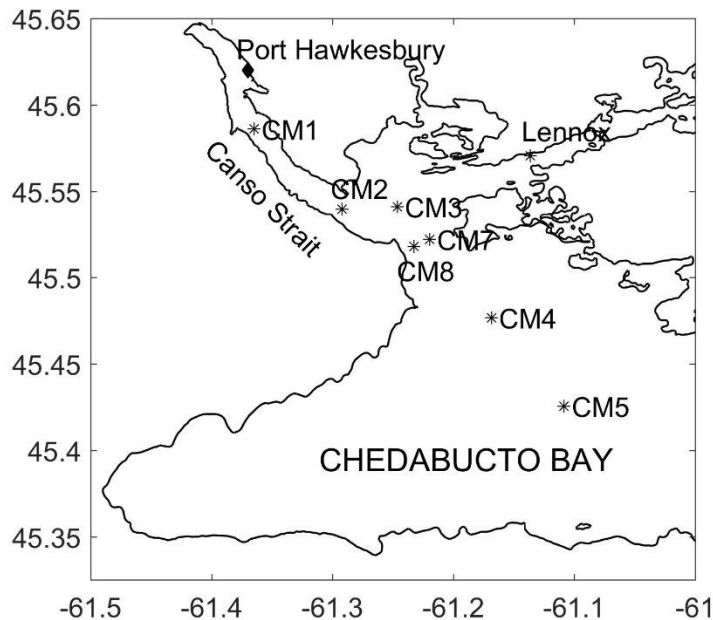


Figure 2 Map showing locations (*) of inner stations (see inset Fig. 1).

2: INSTRUMENT DEPLOYMENT DETAILS

Acoustic Doppler Current Profilers (ADCP's) were used for all 26 deployments described here. The majority of these were done with RDI Sentinel V 300 kHz instruments, and a few with the RDI Workhorse 300 kHz. All instruments were deployed in the upward looking configuration moored near the bottom. The majority of deployments measured currents only and these were deployed in streamlined buoyancy floats anchored 2.5 meters above bottom. A few of the deployments used instruments equipped with a wave package (wave data not included in this report). These were moored in tripods frames resting on the bottom. Figure 1 and 2 show the locations of the stations while Table 1 the occupation period at each station. Station occupation varied from 21 days (Forchu) to nearly 2 years (CM1). More detailed meta-data is presented in Table 2.

3: DATA PROCESSING

Approximately top 10% of ADCP data is contaminated due to surface side-lobe reflection interference (RD Instruments, 1996) and should be removed before analysis. In practice, this cut of can vary from deployment to deployment. The top cut off bin for each of the present deployments, was determined by inspecting bin correlation and error velocity, as well as data itself. Data quality within the vertical bins used for analysis was high with mean correlations above 100 where 100 is the expected correlation in quality data between adjacent vertical bins (see RD Instruments, 1996). Error velocity was typically in the 1-2 cm/s range. Vertical sampling

resolution was high, generally 1m. For further instrument deployment and sampling details refer to Table 2.

With the exception of the Lennox station deployment, only small number of short gaps occurred in the data. These were less than a few hours in duration and were filled with linear interpolation in time of the same bin. For reasons unknown, the Lennox time series had episodic gaps of up a few days (though generally a few hours). These were considered to severe for interpolation. The Lennox data was still used for general statistics but was excluded from tidal analysis which recommends atleast 28 days of gap free data. The sampling period of the instruments was 1 hour or under (generally 10 min.). All sub-hourly data time series were hourly-averaged before analysis.

4: DATA ANALYSIS

4.1 General Statistics

General statistics (abbreviations defined in Table 3) are presented seasonally and at standard levels in Tables 5-13. All compass directions are degrees true (clockwise from true north). Principal ellipse directions is taken as the northern hemisphere direction of the ellipse major axis (i.e. between -90 and 90 degrees).

The statistics were calculated as follows. For simplicity, seasons were defined as the 3 full calendar months after the commencement of the astronomical seasons (e.g. winter: Jan-Mar). Seasonal coverage was high. Stations CM1 through 8 had at least a year of data while Canso, Liscomb and Lennox a partial spring and complete summer and fall. Forchu was the only poorly sampled station with only 21 days (hence no tidal analysis performed).

Due to the high data volume of this project, some vertical averaging was required to condense the data to reasonable size for presentation while still retaining the information on vertical variation of the currents. The following standard levels were chosen in meters: 5-15, 15-25, 25-35, 35-45 and >45. Data inside each level and season (and over multiple deployments where available), were weighted equally in the analysis. In addition, the same general statistics are presented for the full water column (labeled ALL) and where coverage was adequate, annually. As the Lennox station was shallow (~12m), and had resolved currents to a depth of 2 m, only statistics for full water column are presented. Tidal analysis for principal tidal axis was done with the `t_tide` MATLAB package (Pawlowicz et al., 2006). The principal axis (total and tidal) as well mean velocity are also displayed graphically for available seasons and standard levels (Figure 3-12)

4.2 Tidal Constituents Tables

Resolved tidal current constituents are reported in elliptical form in Tables 14-57, for available seasons and standard levels. Ellipse orientations is defined as the angle between major ellipse axis and true north (in the northern hemisphere; i.e. between -90 and 90 degrees). All phases are in degrees GMT.

To perform the tidal analysis, time series were computed by averaging data in available standard levels for each season and station (as above). The tidal analysis was then performed with `t_tide` on segments longer than 28 day ensuring adequate resolution between semi-diurnal constituents (Foreman, 1977). The `t_tide` package returns the 95 % percent confidence interval (CI) based on a boot strap estimate. These were also included in the tables.

Constituents for stations with more than one available particular season (e.g. CM1), were averaged. To ensure correct vector averaging, the constituents were converted to complex east and north amplitude, averaged, and then converted back to elliptical form. Resolvability was determined by the signal-to-noise ratio

$$SNL = \frac{A_{maj}^2 + A_{min}^2}{A_{majCI}^2 + A_{minCI}^2}$$

Where A denotes major (maj) and minor (min) amplitudes and corresponding confidence intervals (CI). SNL values below 2 were deemed unresolvable and noted as NR in the tables. To exclude poorly resolved constituents which made sporadic appearance within a station, only constituents which were resolvable for more than one season and vertical level were reported. Initially, the tidal analysis was performed allowing all constituents. However, only the following constituents were found to be resolvable in at least one station: M2, S2, N2, M4, MN4, S2K5, K1 and O1 (See Table 4).

4.2 Bi-weekly Tidal Constituent Profile Time series

Tidal constituents are also presented graphically in Figures 13-21. Tidal analysis here was done for all available 28 day periods with 14 day overlaps. No vertical averaging was performed. The goal here is to show the full temporal and vertical variability of the constituents (most clearly seen in CM3, Figure 15 or Canso, Figure 20). Only the dominant constituent from each station is plotted, which, with exception of Canso and Liscomb, was M2.

ACKNOWLEDGMENTS

We would like to thank Shawn Roach and Gary Bugden for excellent field support, and Roger Pettipas and Ryan Stanley for their informative reviews of this document. Gratitude is extended to the captain and crew of the CCGS Perley and Sigma-T are for providing a great working platform and their help with instrument deployment. Funding was supplied by WCTSS.

Table 2 Deployment meta-data and error metrics. Root mean square error velocity (rmsEV) and mean correlations (corrbar), are reported over the given depth range.

Station	Deployment Date	Longitude	Latitude	Ins. Ser. #	Deployment Cruise #	Mooring#	waves	#vert. bins	Usable Depth Range (msl; m)	rmsEV (m/s)	corr bar
CM1	4-May-15	-61.3649	45.5861	23088	PER2015007	1922	no	37	7.7-43.7	0.016	110
CM1	15-Sep-15	-61.3649	45.5861	23088	BCD2015904	1926	no	32	5.9-36.9	0.014	111
CM1	3-Nov-15	-61.3649	45.5861	23088	PER2015034	1937	no	32	6-37	0.016	110
CM1	4-May-16	-61.3649	45.5861	23091	PER2016007	1983	no	32	7.1-38.1	0.015	110
CM1	6-Nov-16	-61.3657	45.5875	23088	PER2016033	2009	no	27	5.8-31.8	0.016	110
CM2	4-May-15	-61.2922	45.5397	23008	PER2015007	1920	no	35	5.6-39.6	0.018	110
CM2	1-May-16	-61.2939	45.5406	23092	PER2016007	1984	yes	34	10.8-43.8	0.04	111
CM2	13-Sep-16	-61.2939	45.5406	23113	BCD2016914	2010	yes	36	8.4-43.4	0.011	112
CM2	27-Mar-17	-61.2929	45.5399	23113	BCD2017901	2040	yes	38	6.5-43.5	0.012	111
CM3	4-May-15	-61.2464	45.5411	23091	PER2015007	1921	no	29	5.8-33.8	0.016	110
CM3	15-Sep-15	-61.2464	45.5411	23091	BCD2015904	1927	no	29	6.5-34.5	0.013	112
CM3	3-Nov-15	-61.2464	45.5411	23091	PER2015034	1936	no	29	6.7-34.7	0.015	110
CM4	4-May-15	-61.1686	45.4768	23092	PER2015007	1919	no	20	7.2-26.2	0.015	112
CM4	3-Nov-15	-61.1686	45.4768	14012	PER2015034	1934	yes	11	5.3-25.3	0.012	123
CM4	16-Mar-16	-61.1698	45.4761	23113	BCD2016901	2075	yes	20	6.9-25.9	0.016	112
CM5	4-May-15	-61.1084	45.4256	23089	PER2015007	1923	no	54	9.6-62.6	0.017	108
CM5	15-Sep-15	-61.1084	45.4256	23089	BCD2015904	1928	no	54	10-63	0.018	106
CM5	3-Nov-15	-61.1084	45.4256	23089	PER2015034	1935	no	56	9.1-64.1	0.021	106
CM7	4-May-16	-61.2198	45.5222	23088	PER2016007	1985	no	31	7-37	0.015	110
CM7	7-Nov-16	-61.2203	45.5227	23089	PER2016033	2011	no	32	6.3-37.3	0.016	110
CM8	4-May-16	-61.2325	45.518	23099	PER2016007	1986	no	16	4.7-19.7	0.02	109
CM8	7-Nov-16	-61.2325	45.5183	23091	PER2016033	2012	no	17	4.6-20.6	0.018	108
Canso	4-May-17	-60.8041	45.334	23089	PER2017008	2045	no	35	7.4-41.4	0.015	110
Liscomb	1-May-17	-62.0743	44.853	24640	PER2017008	2044	yes	40	10.3-49.3	0.018	111
Forchu	4-May-17	-60.5541	45.5728	23088	PER2017008	2046	no	37	5.4-41.4	0.025	109
Lennox	1-May-17	-61.1362	45.5705	1997	PER2016007	1995	no	18	2.4-10.9	0.011	125

Table 3 Abbreviations of general statistics (Tables 5-13) used in this report.

Short Hand Name	Definition	Units
U_bar	Mean eastward velocity	cm s ⁻¹
V_bar	Mean northward velocity	cm s ⁻¹
S_max	Maximum Speed	cm s ⁻¹
S_max_D	Direction of maximum speed	Deg. True
P_rot	Principal axis direction	Deg. True
P_maj	Major component of principal axis	cm s ⁻¹
P_min	Minor component of principal axis	cm s ⁻¹
PT_rot	Principal tidal axis direction	Deg. True
PT_maj	Major component of tidal principal axis	cm s ⁻¹
PT_min	Minor component of tidal principal axis	cm s ⁻¹

Table 4 Resolved tidal constituents.

Constituent	Period (h)	Long Name
M2	12.42	Principal lunar semidiurnal
S2	12.00	Principal solar semidiurnal
N2	12.66	Larger lunar elliptic semidiurnal
K1	23.93	Luni-solar diurnal
M4	6.21	Shallow water overtides of principal lunar
O1	25.82	Principal lunar diurnal
MN4	6.27	Shallow water quarter diurnal
2SK5	4.80	

Table 5 General Statistics CM1

CM1	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	0.9	0.6	-0.2	0.5	0.4	-0.1	0.3	1.1	0.2	0.4
15-25m	-0.6	-0.4	0.1	-0.3	-0.3	1.9	1.7	0.6	1.9	1.5
25-35m	-1.3	-0.3	0.7	-0.5	-0.3	3.1	1.3	0.4	2.1	1.6
35-45m	-1.1	-0.1	0.1	-0.6	-0.3	1.7	0.4	0.3	0.9	0.6
>45m										
ALL	-0.3	0	0.2	-0.1	0	1.5	1	0.7	1.4	1.1
	S_max					S_maxD:				
5-15m	29.8	22.4	35.1	24.8	35.1	137	129	136	120	136
15-25m	22.7	28.4	25.7	22.9	28.4	-29	-29	-34	-22	-29
25-35m	33.1	31.4	28.7	36.2	36.2	-40	-39	-40	-32	-32
35-45m	33.8	30	25.1	34.4	34.4	-37	-40	-45	-37	-37
>45m										
ALL	17.1	16.7	15.4	15.8	17.1	-22	-30	-37	-28	-22
	P rot					P maj				
5-15m	-40	-40	-39	-40	-40	5.1	5.1	6.1	5.3	5.5
15-25m	-33	-34	-36	-35	-35	5.3	5.8	5.2	6.1	5.6
25-35m	-36	-38	-40	-38	-38	7.9	6.6	6.7	8.2	7.4
35-45m	-41	-42	-44	-42	-43	7.9	6.9	6.9	8	7.3
>45m										
ALL	-34	-37	-40	-36	-37	3.7	4.1	3.6	3.9	3.9
	P min					PT rot				
5-15m	1.8	1.6	1.6	1.7	1.6	-40	-42	-41	-40	-40
15-25m	1.7	1.4	1.2	1.6	1.4	-39	-39	-41	-37	-39
25-35m	1.6	1.2	1.1	1.5	1.3	-37	-37	-40	-39	-38
35-45m	1.5	1.2	1.1	1.5	1.3	-39	-41	-45	-41	-42
>45m										
ALL	1.1	0.8	0.7	1	0.9	-39	-39	-42	-39	-40
	PT maj					PT min				
5-15m	1.8	2	2.7	2.3	2.1	0.2	0.3	0.3	0.4	0.2
15-25m	1.9	2	2.1	2.2	2	0.1	0.2	0.1	0.2	0.1
25-35m	2.4	2.9	2.7	2.5	2.3	0.1	0.2	0.2	0.2	0.1
35-45m	2.3	3.6	2.9	3.1	2.6	0.1	0.3	0.2	0.4	0.2
>45m										
ALL	2	2.3	2.1	2	2	0.1	0.1	0.1	0.2	0.1

Table 6 General Statistics CM2

CM2	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m		-0.1	-1.4	-0.1	-0.7		-0.7	-0.4	-1.3	-0.7
15-25m		-1.7	-0.8	-2.2	-1.3		0.3	-0.2	0.5	0.1
25-35m		-0.6	1.5	-0.4	0.4		-0.1	-0.8	-0.4	-0.4
35-45m		0.7	1.4	0.6	1		-0.4	-0.6	-0.2	-0.5
>45m										
ALL		-0.5	0.2	-0.6	-0.2		-0.2	-0.5	-0.3	-0.4
	S_max					S_maxD:				
5-15m		32.9	35.4	28.4	35.4		31	120	123	120
15-25m		27.2	25.9	33.6	33.6		-79	-67	-81	-81
25-35m		40.4	41.4	40.9	41.4		122	126	-74	126
35-45m		43.9	43.5	41	43.9		119	119	-61	119
>45m										
ALL		22.2	24.5	25.2	25.2		-72	119	-71	-71
	P_rot					P_maj				
5-15m		-68	-70	-72	-70		7.8	8	8.9	8.1
15-25m		-70	-69	-72	-70		7.1	7.3	7.6	7.3
25-35m		-67	-67	-69	-67		10.4	11.6	14.1	11.7
35-45m		-61	-61	-62	-61		9.5	10.7	12.9	10.7
>45m										
ALL		-67	-65	-67	-66		5.9	6.2	6.8	6.2
	P_min					PT_rot				
5-15m		2.5	2.6	2.5	2.6		-71	-70	-68	-70
15-25m		1.7	1.6	1.9	1.7		-72	-72	-76	-73
25-35m		1.6	1.5	1.8	1.6		-69	-69	-74	-72
35-45m		1.3	1.2	1.4	1.3		-61	-60	-60	-60
>45m										
ALL		0.9	0.9	1	0.9		-70	-68	-70	-69
	PT_maj					PT_min				
5-15m		4.4	4.3	4	4.2		0.5	0.5	0.4	0.3
15-25m		3.1	3.8	3.9	3.5		0.4	0.3	0.4	0.3
25-35m		2.9	4.7	4.2	3.5		0.4	0.3	0.2	0.2
35-45m		2.4	5.1	5	3.5		0.2	0.3	0.3	0.2
>45m										
ALL		2.9	3.9	3.7	3.4		0.2	0.2	0.2	0.2

Table 7 General Statistics CM3

CM3	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	-1	-2.2	-2.6	-1.7	-1.9	2.4	3	3.3	2.6	2.8
15-25m	-3.6	-3.3	-1.7	-3.8	-3.1	4.2	2.6	0.9	3.4	2.8
25-35m	-4.1	-0.6	3	-1.1	-0.7	3	0.9	-0.7	1.4	1.1
35-45m										
>45m										
ALL	-3	-2.1	-0.5	-2.2	-2	3.2	2.2	1.2	2.5	2.3
	S_max					S_maxD:				
5-15m	25.9	29.9	30.8	21.9	30.8	-75	-30	-29	-50	-29
15-25m	44.2	38.9	47.1	46.9	47.1	-46	-54	-43	-41	-43
25-35m	50.7	55.1	41	54.5	55.1	-54	-56	-56	-52	-56
35-45m										
>45m										
ALL	32.7	38.1	34.2	31.4	38.1	-51	-55	-46	-53	-55
	P_rot					P_maj				
5-15m	-44	-41	-38	-42	-41	6	6.6	7.2	5.7	6.4
15-25m	-44	-43	-50	-41	-44	8	7.6	7.1	7.3	7.6
25-35m	-57	-64	-66	-59	-62	10.8	11.2	12.6	12.5	12.2
35-45m										
>45m										
ALL	-50	-49	-51	-50	-50	7.2	6.8	6.5	7.3	7.1
	P_min					PT_rot				
5-15m	3.1	3.5	3.3	3.1	3.3	-39	-31	-26	-35	-32
15-25m	3.3	2.8	2.5	3	3	-42	-39	-49	-40	-41
25-35m	2.7	2.5	2.1	2.7	2.6	-56	-63	-64	-60	-61
35-45m										
>45m										
ALL	2.1	1.9	1.7	1.8	1.9	-45	-44	-49	-46	-46
	PT_maj					PT_min				
5-15m	4.4	4.6	4.5	4.3	4.4	0.3	1	0.9	0.5	0.6
15-25m	4.5	4.5	4.5	4.5	4.4	0.5	0.6	1.1	0.8	0.6
25-35m	4.8	5.8	7.5	5.5	5.8	0.6	0.9	0.7	0.6	0.6
35-45m										
>45m										
ALL	4.4	4.7	5.1	4.6	4.6	0.4	0.4	0.6	0.5	0.4

Table 8 General Statistics CM4

CM4	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	2.4	0.4	-0.5	1.7	1.1	1.9	2.5	1.4	1.3	1.9
15-25m	2.2	0.7	0.1	0.9	1.1	5	3.3	1	2.9	3.3
25-35m	1.2	1.2	2.3	0.4	1.2	6.5	1.7	0	2.7	3
35-45m										
>45m										
ALL	2.2	0.7	0.1	1.3	1.2	3.7	2.8	1	2.2	2.6
	S_max					S_maxD:				
5-15m	26.4	30	29.6	31.5	31.5	134	-59	-44	85	85
15-25m	28	36	26.7	26.8	36	149	-3	173	15	-3
25-35m	33.1	39.7	41.1	40.4	41.1	-26	158	156	-5	156
35-45m										
>45m										
ALL	27	26	23.3	23.3	27	137	114	88	70	137
	P_rot					P_maj				
5-15m	-57	-60	-54	-78	-62	6.7	6.9	7.8	7.6	7.2
15-25m	-7	-3	2	9	1	7	8.3	7.6	7.3	7.7
25-35m	-5	-7	-9	-6	-7	8.9	11.2	11.8	11.3	11
35-45m										
>45m										
ALL	-38	-19	-9	-73	-24	6.1	6.7	6.3	6.3	6.3
	P_min					PT_rot				
5-15m	4.5	5.3	5.1	5.8	5.3	-46	-43	-44	-47	-44
15-25m	5.7	6.3	5.2	6.3	6	-47	-38	-30	-42	-41
25-35m	5.7	5.3	5.6	6.1	5.7	-55	-40	-19	-47	-45
35-45m										
>45m										
ALL	4.8	5.6	5.2	6.1	5.6	-47	-39	-34	-45	-42
	PT_maj					PT_min				
5-15m	5.1	4.9	6	4.8	5	1.4	1.8	2.3	1	1.6
15-25m	4.9	5.3	5.3	5	5.1	1.3	1.5	2	2.4	1.5
25-35m	4.3	4.5	6.8	5.2	4.7	0.5	1.1	2.8	1.3	1.1
35-45m										
>45m										
ALL	4.9	5	5.3	5	5	1.2	1.9	2.6	2.2	1.5

Table 9 General Statistics CM5

CM5	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	3.1	-1.2	-5.7	1.5	-0.6	-2.4	-1	-0.2	-0.9	-1.1
15-25m	2.6	-1.1	-4.8	0.4	-0.7	-0.8	0.3	-0.4	0.6	-0.1
25-35m	2.1	-0.7	-2.1	-1.6	-0.5	1.4	0.9	0.2	2.1	1.2
35-45m	0.6	0.4	0.2	-1.8	-0.1	2.5	1	0.9	1.6	1.5
>45m	-1.2	0.2	0.6	-1.4	-0.4	2.7	0.7	0.6	1.2	1.3
ALL	0.7	-0.4	-1.8	-0.8	-0.6	1.1	0.5	0.3	0.9	0.7
	S_max					S_maxD:				
5-15m	34.6	33.8	57.5	42.1	57.5	102	140	-85	-37	-85
15-25m	30.5	27.5	56.2	35.7	56.2	101	-68	-68	-34	-68
25-35m	26.4	27.5	44.9	31.1	44.9	-60	81	-71	221	-71
35-45m	27.9	28.7	24.6	29.2	29.2	-82	-58	-61	-60	-60
>45m	29.9	25.8	23.9	31.7	31.7	-30	-32	-60	-46	-46
ALL	23.3	21	26.8	24.4	26.8	-67	152	-69	262	-69
	P_rot					P_maj				
5-15m	-81	-73	-81	-66	-77	8.3	9.7	11.6	9.5	10.4
15-25m	-87	-82	-83	-80	-84	7.6	7.5	9.2	8.3	8.6
25-35m	-88	-65	-72	-69	-76	7.7	6.5	7.6	7.2	7.4
35-45m	-65	-54	-61	-54	-59	7.7	6.5	6.6	7.4	7.1
>45m	-53	-46	-54	-50	-51	7.7	6.4	6.4	7.6	7.1
ALL	-67	-63	-70	-60	-67	5.9	5	5.4	5.8	5.6
	P_min					PT_rot				
5-15m	5.9	6.4	6.2	7.7	6.6	-81	-79	-79	-72	-76
15-25m	5	4.9	4.7	6.7	5.4	-79	-76	-84	-74	-79
25-35m	5.2	4.6	4.2	5.8	5.1	-75	-61	-76	-71	-72
35-45m	5.2	3.8	3	4.5	4.3	-68	-54	-68	-64	-65
>45m	4.1	3.1	2.6	3.4	3.4	-61	-51	-52	-58	-56
ALL	3.5	2.6	2.2	3.7	3.1	-67	-62	-68	-64	-66
	PT_maj					PT_min				
5-15m	3.3	4.5	6.3	4.7	4.6	0.5	1.1	2.1	0.9	1.1
15-25m	3.5	3.7	4.6	4.2	4.1	0.5	0.8	0.8	0.8	0.8
25-35m	3.7	3.5	4.1	3.5	3.4	0.4	1	1.4	0.9	0.9
35-45m	3.8	3.6	3.5	3.6	3.5	0.5	1	1	0.8	0.7
>45m	4.1	3.8	3.9	4	3.9	0.6	0.7	0.5	0.5	0.5
ALL	3.6	3.5	3.6	3.6	3.6	0.3	0.5	0.7	0.5	0.6

Table 10 General Statistics CM7

CM7	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	-0.8	-1.2	-2.5	-1.2	-1.5	-4.3	-0.2	1.7	-2.6	-1.3
15-25m	-2.4	-1.6	-1.3	-2.5	-2	0.8	1	0.1	1.4	0.8
25-35m	-4.1	-1.2	0.8	-2.7	-1.7	4.7	0.5	-3.1	2.2	1
35-45m	-4.5	-1.6	-0.2	-2.5	-2.2	5.2	0.7	-2.1	1.3	1.3
>45m										
ALL	-2.7	-1.3	-0.9	-2.2	-1.8	1	0.5	-0.7	0.5	0.3
	S_max					S_maxD:				
5-15m	36.8	36.4	50	39	50	173	-29	-33	165	-33
15-25m	41.2	44.1	40.5	38.1	44.1	-37	-31	-36	-26	-31
25-35m	50.1	53.7	50.7	48.4	53.7	-31	-34	150	-40	-34
35-45m	48.6	53.5	56.2	55.9	56.2	-36	-39	150	-39	150
>45m										
ALL	36.5	37.9	36.1	33.7	37.9	-29	-31	-33	-34	-31
	P_rot					P_maj				
5-15m	-19	-23	-26	-22	-23	11.9	11.6	13.5	12.8	12.7
15-25m	-26	-29	-30	-27	-28	13	12.6	12.8	12.7	12.8
25-35m	-31	-31	-30	-31	-31	15.2	15.3	16.1	16.1	16.1
35-45m	-33	-30	-30	-31	-31	15.6	15.5	16.2	16.6	16.2
>45m										
ALL	-28	-29	-30	-28	-29	12.3	12	11.9	12	12.1
	P_min					PT_rot				
5-15m	3.6	2.9	2.9	3.2	3.2	-19	-24	-27	-23	-24
15-25m	3	2.4	2.3	3.1	2.8	-26	-28	-30	-27	-28
25-35m	2.7	2	1.8	2.6	2.3	-32	-31	-31	-32	-31
35-45m	2.8	2.3	2.5	2.8	2.6	-34	-30	-29	-30	-31
>45m										
ALL	2	1.4	1.4	2	1.8	-27	-28	-29	-28	-28
	PT_maj					PT_min				
5-15m	9.9	10	11.4	10.5	10.4	0.5	0.8	0.5	0.8	0.7
15-25m	11.5	10.9	10.5	11	11	0.5	0.8	0.5	0.6	0.6
25-35m	12.2	11.9	10.5	11.2	11.4	0.5	0.6	0.4	0.6	0.4
35-45m	11.6	12.2	11.1	11.7	11.5	0.4	0.7	0.5	0.8	0.4
>45m										
ALL	11.2	10.9	10.5	10.8	10.8	0.4	0.5	0.3	0.4	0.3

Table 11 General Statistics CM8

CM8	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m	0.3	0.3	-0.6	-0.4	-0.1	-2.2	-1.7	0.7	-0.6	-0.9
15-25m	-1.3	-0.2	0.5	-1.3	-0.6	0.7	1	0.5	2	1
25-35m										
35-45m										
>45m										
ALL	-0.2	0.2	-0.2	-0.6	-0.2	-1.3	-1	0.5	0.1	-0.4
S_max						S_maxD:				
5-15m	39.1	33.2	45.9	37.9	45.9	-24	152	-22	-36	-22
15-25m	41.3	34.7	35.7	41.3	41.3	-32	-30	-18	-24	-24
25-35m										
35-45m										
>45m										
ALL	39.1	33.2	45.9	37.9	45.9	-27	152	-21	-31	-31
P_rot						P_maj				
5-15m	-25	-24	-22	-24	-24	11.8	11.7	12.6	12	12.1
15-25m	-27	-24	-23	-26	-25	11.9	12	12.9	12.1	12.2
25-35m										
35-45m										
>45m										
ALL	-26	-24	-22	-24	-24	11.4	11.1	11.7	11.4	11.4
P_min						PT_rot				
5-15m	2.3	2.1	2.1	2.2	2.2	-24	-24	-22	-23	-23
15-25m	2.2	2.1	2.2	2.4	2.3	-27	-24	-21	-25	-24
25-35m										
35-45m										
>45m										
ALL	1.8	1.6	1.7	1.7	1.7	-25	-24	-22	-24	-24
PT_maj						PT_min				
5-15m	9.9	10	10.2	9.9	9.9	0.5	0.7	0.6	0.6	0.5
15-25m	9.9	10.1	10.6	9.9	10	0.4	0.6	0.3	0.5	0.5
25-35m										
35-45m										
>45m										
ALL	9.9	10.1	10.3	9.9	10	0.4	0.5	0.4	0.5	0.4

Table 12 General Statistics Canso

Canso	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	U_bar					V_bar				
5-15m		-2.6	-1.5	1.9	-1.3		-8.1	-2.3	1.5	-3.5
15-25m		-0.9	-0.7	1.1	-0.5		-7.7	-5.5	1.9	-4.9
25-35m		1.7	0.9	1.5	1.3		-8.2	-9.5	-3.3	-8
35-45m		2.9	2	2.1	2.3		-5.2	-7.4	-9.5	-7.1
>45m										
ALL		0.2	0.1	1.6	0.4		-7.4	-6.3	-1.9	-5.9
	S_max					S_maxD:				
5-15m		72.6	72.3	69.9	72.6		202	233	22	202
15-25m		61.5	53.6	68.9	68.9		195	182	23	23
25-35m		55.4	75.1	47.2	75.1		177	159	170	159
35-45m		58.3	60.5	50.1	60.5		22	161	168	161
>45m										
ALL		55.7	52.3	54.1	55.7		176	183	21	176
	P_rot					P_maj				
5-15m		30	29	23	28		18.8	16.7	19	18.2
15-25m		23	13	25	18		18.4	16.6	17.4	17.6
25-35m		13	-4	8	4		19.3	17.7	17	18.1
35-45m		7	1	-4	2		19.3	17.4	19.8	18.5
>45m										
ALL		20	10	14	14		17.7	15.1	16.4	16.3
	P_min					PT_rot				
5-15m		11.9	9.4	9.6	10.4		47	55	69	52
15-25m		10.6	8.1	8.2	9.1		38	44	60	43
25-35m		9.3	7.6	6.5	8.3		24	27	32	27
35-45m		7	6.2	5.6	6.5		11	8	2	9
>45m										
ALL		8.1	6.1	5.6	6.8		31	32	34	32
	PT_maj					PT_min				
5-15m		10.8	6.1	4.6	7.3		4.5	1.5	1.9	2.6
15-25m		11.7	6.8	5.5	7.8		5.2	2.4	2.4	3.1
25-35m		12.3	7.5	5.3	8.5		4.5	3.2	2.9	3.3
35-45m		13	10.6	9.2	10.6		3.6	3.4	2.6	3.2
>45m										
ALL		11.6	7.2	6	8.1		4.4	2.6	2.7	3

Table 13 General Statistics Liscomb

Liscomb

Winter	Spring	Summer	Fall	Annual
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Winter	Spring	Summer	Fall	Annual
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	U_bar			
5-15m	-8.9	-10.4	5.4	-7.2
15-25m	-9.2	-12.2	2.5	-8.7
25-35m	-8.9	-10	-5	-8.8
35-45m	-6.8	-6	-4.4	-6
>45m	-3.5	-1.2	0.4	-1.7
ALL	-7.8	-8.6	-0.7	-7

	V_bar			
	-3.1	-3.3	0.2	-2.6
	-3.3	-4.9	0.3	-3.5
	-3.8	-5.4	-3.4	-4.6
	-4	-3.7	-3.8	-3.8
	-2.2	-1.4	-0.5	-1.5
	-3.4	-4.1	-1.7	-3.4

	S_max			
5-15m	55	67.8	77.6	77.6
15-25m	52.4	67.7	72.5	72.5
25-35m	46.1	62.9	52.9	62.9
35-45m	43.7	55.3	44	55.3
>45m	43.2	34.9	26.9	43.2
ALL	41.8	51.2	47.3	51.2

	S_maxD:			
	266	256	83	83
	263	245	74	74
	246	240	249	240
	240	248	239	248
	234	235	75	234
	263	254	73	254

	P_rot			
5-15m	79	76	78	77
15-25m	73	70	72	71
25-35m	70	69	67	69
35-45m	65	68	67	67
>45m	65	79	-88	74
ALL	71	71	71	71

	P_maj			
	12	14	19.3	15.7
	15	16	19.4	17.3
	14.6	14.5	17.5	15.2
	12.7	11.3	14.5	12.4
	9.2	7.1	7.2	7.9
	12.1	11.5	14.6	12.7

	P_min			
5-15m	5.9	6.9	8.1	6.8
15-25m	4.9	5.3	6.6	5.4
25-35m	4.5	4.8	5.2	4.8
35-45m	3.6	3.9	4.4	3.9
>45m	3.7	4	4	4.1
ALL	2.6	2.6	3.2	2.7

	PT_rot			
	82	81	87	81
	78	78	78	78
	69	69	70	69
	65	68	68	67
	67	78	-90	76
	72	73	73	72

	PT_maj			
5-15m	5.9	4.5	5	4.7
15-25m	6.9	6	5	5.9
25-35m	7.1	6.8	4.9	6.4
35-45m	7.2	6.8	5.4	6.6
>45m	5.1	3.9	3.6	4
ALL	6.6	5.8	4.6	5.7

	PT_min			
	1.9	1.6	2.9	1.8
	1.8	1.7	2	1.7
	1.6	1.3	1.9	1.3
	0.9	1	0.7	0.9
	0.7	0.9	0.8	1
	1.3	1.3	1.6	1.3

Table 14 General Statistics Lennox

Lenn ox	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall	Annual
	ALL	U_bar					V_bar			
		-0.3	-1.3	-0.2	-0.8		0.2	0.2	0.1	0.2
ALL	S_max					S_maxD:				
		17.2	18.9	18.1	18.9		270	-89	84	-89
ALL	P_rot					P_maj				
		89	88	88	88		6.6	7	6.6	6.8
ALL	P_min					PT_rot				
		0.5	0.5	0.6	0.5					

Table 15 General Statistics Forchu

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Winter	Spring	Summer	Fall	Annual
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Winter	Spring	Summer	Fall	Annual
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	U_bar			
5-15m	-15			
15-25m	-11.6			
25-35m	-7.6			
35-45m	-4.2			
>45m				
ALL	-10			

	V_bar			
	-4.2			
	-3.2			
	-2.1			
	-2.5			
	-3			

	S_max			
5-15m	63.2			
15-25m	59.6			
25-35m	53.7			
35-45m	41.6			
>45m				
ALL	53.7			

	S_maxD:			
	256			
	254			
	251			
	234			
	247			

	P_rot			
5-15m	77			
15-25m	75			
25-35m	72			
35-45m	69			
>45m				
ALL	73			

	P_maj			
	14.1			
	14.1			
	13.9			
	11.9			
	12.6			

	P_min			
5-15m	5.3			
15-25m	4.5			
25-35m	4			
35-45m	3.7			
>45m				
ALL	2.8			

	PT_rot			
	69			
	77			
	75			
	64			
	71			

	PT_maj			
5-15m	4.8			
15-25m	4.4			
25-35m	4.2			
35-45m	4.2			
>45m				
ALL	4.4			

	PT_min			
	1.4			
	1			
	1.4			
	1.1			
	1.1			

Table 16 Tidal Constituent M2 at CM1

CM1	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	2.3	2.2	3.2	2.7	0.3	0.4	0.4	0.5
15-25m	2.5	2.3	2.6	2.6	0.3	0.4	0.3	0.5
25-35m	2.8	3.1	2.3	2.4	0.3	0.6	0.4	0.6
35-45m	2.9	4	2.9	3.5	0.4	0.6	0.6	0.9
>45m								
ALL	2.5	2.7	2.4	2.5	0.2	0.2	0.2	0.3
	M2-Minor				95% CI			
5-15m	0.1	0.1	0	0	0.3	0.4	0.4	0.5
15-25m	0	0	0	0	0.3	0.3	0.3	0.5
25-35m	0	0.1	0.1	0.1	0.3	0.5	0.5	0.5
35-45m	0.1	0.2	0.2	0.5	0.4	0.6	0.6	0.9
>45m								
ALL	0	0.1	0	0.1	0.2	0.2	0.2	0.3
	M2-Inclination				95% CI			
5-15m	-41	-41	-41	-40	7	10	8	10
15-25m	-38	-39	-42	-38	7	9	7	11
25-35m	-37	-38	-40	-39	6	9	12	12
35-45m	-39	-40	-45	-42	7	10	12	14
>45m								
ALL	-39	-39	-42	-40	4	5	5	6
	M2-Phase				95% CI			
5-15m	272	276	284	283	7	10	7	11
15-25m	266	267	264	280	7	9	7	12
25-35m	265	259	229	255	6	10	12	13
35-45m	260	253	207	222	8	9	11	13
>45m								
ALL	267	263	250	269	4	5	6	6

Table 17 Tidal Constituent S2 at CM1

CM1	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	0.6	1.4	1.1	NR	0.3	0.4	0.4	0.4
15-25m	0.6	0.8	0.7	0.8	0.3	0.4	0.3	0.5
25-35m	0.8	1.3	NR	0.8	0.3	0.5	0.4	0.5
35-45m	0.9	NR	1.2	NR	0.4	0.6	0.6	0.8
>45m								
ALL	0.7	0.6	0.6	0.6	0.2	0.2	0.2	0.3
	S2-Minor				95% CI			
5-15m	0.1	-0.1	-0.3	NR	0.3	0.3	0.4	0.4
15-25m	0.1	0	-0.1	-0.1	0.2	0.3	0.3	0.5
25-35m	0.1	-0.1	NR	0	0.3	0.5	0.4	0.5
35-45m	0	NR	0.1	NR	0.4	0.6	0.5	0.7
>45m								
ALL	0.1	0	0	0	0.2	0.2	0.2	0.3
	S2-Inclination				95% CI			
5-15m	-24	-34	-38	NR	33	64	32	72
15-25m	-37	-43	-37	-30	23	32	35	46
25-35m	-42	-36	NR	-36	22	43	65	43
35-45m	-42	NR	-42	NR	22	50	49	73
>45m								
ALL	-37	-37	-37	-38	14	22	26	28
	S2-Phase				95% CI			
5-15m	317	337	286	NR	36	80	29	97
15-25m	315	277	285	311	27	33	35	50
25-35m	315	263	NR	283	25	48	70	46
35-45m	309	NR	249	NR	24	53	52	72
>45m								
ALL	315	291	295	293	17	25	25	31

Table 18 Tidal Constituent N2 at CM1

CM1													
					Winter	Spring	Summer	Fall					
					Winter	Spring	Summer	Fall					
					N2-Major				95% CI				
5-15m					NR	0.6	NR	NR	0.3	0.4	0.4	0.4	
15-25m					0.6	NR	0.8	NR	0.3	0.3	0.3	0.4	
25-35m					0.7	NR	1.1	1.3	0.3	0.5	0.4	0.5	
35-45m					0.7	NR	NR	NR	0.4	0.5	0.5	0.8	
>45m													
ALL					0.5	0.6	0.7	0.6	0.2	0.2	0.2	0.3	
					N2-Minor				95% CI				
5-15m					NR	0	NR	NR	0.2	0.4	0.5	0.4	
15-25m					0.1	NR	0	NR	0.2	0.3	0.3	0.4	
25-35m					0	NR	0	0.2	0.3	0.5	0.4	0.5	
35-45m					0	NR	NR	NR	0.3	0.6	0.5	0.8	
>45m													
ALL					0	0	0	0	0.1	0.2	0.2	0.3	
					N2-Inclination				95% CI				
5-15m					NR	-37	NR	NR	32	46	32	41	
15-25m					-37	NR	-38	NR	32	37	22	60	
25-35m					-39	NR	-37	-37	27	52	35	50	
35-45m					-34	NR	NR	NR	29	45	47	46	
>45m													
ALL					-36	-39	-39	-44	18	22	18	30	
					N2-Phase				95% CI				
5-15m					NR	263	NR	NR	33	45	31	43	
15-25m					251	NR	242	NR	42	40	23	69	
25-35m					219	NR	221	274	27	58	33	52	
35-45m					211	NR	NR	NR	31	42	54	48	
>45m													
ALL					245	239	237	249	22	22	19	28	

Table 19 Tidal Constituent M4 at CM1

CM1	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	0.4	0.5	0.4	0.4	0.1	0.2	0.2	0.2
15-25m	0.4	0.4	0.4	0.4	0.1	0.2	0.1	0.2
25-35m	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2
35-45m	0.5	0.7	0.6	0.7	0.2	0.3	0.2	0.3
>45m								
ALL	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1
	M4-Minor				95% CI			
5-15m	0	0	0.1	-0.1	0.1	0.2	0.2	0.2
15-25m	0	0	0	0	0.1	0.2	0.1	0.2
25-35m	0	0.1	0	0	0.2	0.2	0.2	0.2
35-45m	0	0	0	0	0.2	0.2	0.3	0.3
>45m								
ALL	0	0	0	0	0.1	0.1	0.1	0.1
	M4-Inclination				95% CI			
5-15m	-42	-51	-41	-24	23	38	37	43
15-25m	-45	-35	-45	-32	19	29	21	30
25-35m	-39	-45	-35	-41	21	32	20	33
35-45m	-34	-41	-45	-36	24	32	36	27
>45m								
ALL	-42	-43	-40	-36	14	15	14	20
	M4-Phase				95% CI			
5-15m	173	177	163	174	23	41	39	45
15-25m	174	167	161	182	18	29	21	33
25-35m	190	180	136	167	20	30	22	37
35-45m	188	167	139	159	23	36	38	27
>45m								
ALL	179	175	152	173	14	16	14	21

Table 20 Tidal Constituent M2 at CM2

CM2	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m		5.5	5.2	4.9		0.6	0.7	0.9
15-25m		3.9	4.7	4.8		0.6	0.6	1
25-35m		2.9	5.2	5		0.5	0.7	1
35-45m		2.1	5.2	5.1		0.8	0.8	1
>45m								
ALL		3.6	4.9	4.5		0.4	0.4	0.5
	M2-Minor				95% CI			
5-15m		-0.3	0.1	0		0.4	0.6	0.5
15-25m		0.3	0.1	0.2		0.4	0.4	0.6
25-35m		0.1	-0.2	-0.1		0.4	0.4	0.5
35-45m		-0.1	-0.1	-0.2		0.6	0.6	0.9
>45m								
ALL		0	-0.1	-0.1		0.3	0.3	0.4
	M2-Inclination				95% CI			
5-15m		-71	-70	-68		5	6	6
15-25m		-73	-71	-76		6	5	7
25-35m		-74	-71	-74		7	5	6
35-45m		-61	-60	-60		16	7	10
>45m								
ALL		-71	-68	-71		4	3	4
	M2-Phase				95% CI			
5-15m		269	252	247		6	7	9
15-25m		275	272	265		9	7	12
25-35m		275	291	291		12	8	12
35-45m		272	294	310		22	9	13
>45m								
ALL		272	278	279		7	4	6

Table 21 Tidal Constituent S2 at CM2

CM2	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m		1.1	1.3	1.9		0.5	0.7	0.7
15-25m		1	1.5	NR		0.5	0.6	0.9
25-35m		1	1.2	2.4		0.6	0.7	1
35-45m		1.1	2.2	2.2		0.7	0.8	1
>45m								
ALL		0.8	1.2	1.6		0.4	0.3	0.5
	S2-Minor				95% CI			
5-15m		0	0	0		0.4	0.6	0.6
15-25m		-0.1	0.1	NR		0.4	0.4	0.6
25-35m		0	0	-0.1		0.4	0.4	0.4
35-45m		-0.2	0	0		0.5	0.6	0.8
>45m								
ALL		0	0	0		0.3	0.3	0.4
	S2-Inclination				95% CI			
5-15m		-68	-60	-69		24	30	26
15-25m		-81	-66	NR		33	28	40
25-35m		-74	-71	-74		29	20	18
35-45m		-62	-55	-55		44	29	51
>45m								
ALL		-66	-64	-65		22	15	17
	S2-Phase				95% CI			
5-15m		306	261	275		32	35	34
15-25m		307	325	NR		42	36	59
25-35m		299	337	295		43	36	45
35-45m		276	346	296		66	38	105
>45m								
ALL		294	325	287		32	18	24

Table 22 Tidal Constituent N2 at CM2

CM2	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m		1.3	2.7	NR		0.5	0.6	0.7
15-25m		1.1	1	1.8		0.5	0.5	0.9
25-35m		0.9	0.7	1.7		0.5	0.6	0.9
35-45m		NR	1.3	NR		0.6	0.7	1
>45m								
ALL		0.9	0.8	1.3		0.4	0.4	0.5
5-15m		0	-0.6	NR		0.5	0.5	0.5
15-25m		0	0	-0.3		0.4	0.4	0.6
25-35m		0.1	-0.3	-0.1		0.4	0.5	0.5
35-45m		NR	0	NR		0.5	0.6	1
>45m								
ALL		0	0	-0.1		0.3	0.3	0.3
5-15m		-67	-67	NR		24	26	31
15-25m		-74	-71	-71		25	29	28
25-35m		-60	-67	-74		38	33	16
35-45m		NR	-58	NR		54	47	39
>45m								
ALL		-67	-70	-67		21	20	15
5-15m		235	253	NR		28	27	46
15-25m		249	278	263		32	51	41
25-35m		264	52	299		55	52	34
35-45m		NR	65	NR		89	68	47
>45m								
ALL		251	259	279		28	26	21

Table 23 Tidal Constituent M4 at CM2

CM2	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m		1	0.7	0.9		0.3	0.3	0.4
15-25m		0.6	0.6	0.8		0.2	0.2	0.4
25-35m		0.5	0.5	NR		0.2	0.2	0.3
35-45m		0.6	0.5	NR		0.3	0.3	0.5
>45m								
ALL		0.6	0.5	0.5		0.2	0.1	0.3
5-15m		0	-0.1	0		0.2	0.3	0.3
15-25m		0.1	0.2	0.1		0.2	0.2	0.2
25-35m		0	0	NR		0.2	0.2	0.2
35-45m		-0.1	0	NR		0.2	0.3	0.4
>45m								
ALL		0	0	0		0.1	0.1	0.2
5-15m		-76	-70	-79		17	23	17
15-25m		-57	-68	-78		21	18	18
25-35m		-61	-77	NR		24	29	67
35-45m		-68	-59	NR		21	61	60
>45m								
ALL		-66	-69	-83		12	14	23
5-15m		170	143	158		25	26	24
15-25m		161	162	158		24	21	26
25-35m		144	177	NR		29	46	102
35-45m		116	184	NR		32	66	120
>45m								
ALL		147	165	144		17	20	35

Table 24 Tidal Constituent MN4 at CM2

CM2	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	MN4-Major				95% CI			
5-15m		NR	0.7	NR		0.3	0.3	0.4
15-25m		NR	NR	NR		0.2	0.2	0.3
25-35m		0.4	NR	NR		0.2	0.2	0.3
35-45m		0.5	NR	NR		0.3	0.3	0.4
>45m								
ALL		0.4	NR	0.4		0.2	0.1	0.2
	MN4-Minor				95% CI			
5-15m		NR	-0.2	NR		0.2	0.2	0.3
15-25m		NR	NR	NR		0.2	0.2	0.2
25-35m		0	NR	NR		0.2	0.2	0.3
35-45m		0	NR	NR		0.2	0.2	0.4
>45m								
ALL		0	NR	0		0.1	0.1	0.1
	MN4-Inclination				95% CI			
5-15m		NR	86	NR		36	40	32
15-25m		NR	NR	NR		47	73	40
25-35m		-68	NR	NR		46	83	71
35-45m		-67	NR	NR		33	63	59
>45m								
ALL		-64	NR	-71		23	47	38
	MN4-Phase				95% CI			
5-15m		NR	288	NR		54	51	48
15-25m		NR	NR	NR		47	65	61
25-35m		92	NR	NR		60	72	87
35-45m		55	NR	NR		43	128	99
>45m								
ALL		74	NR	125		32	71	112

Table 25 Tidal Constituent M2 at CM3

CM3	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	5.7	6	5.4	5.3	0.5	0.7	0.4	0.6
15-25m	5.8	6	5.3	5.5	0.5	0.9	0.7	0.9
25-35m	5.9	7.1	8.9	7	0.5	0.7	0.8	1.1
35-45m								
>45m								
ALL	5.6	6.1	6.1	5.8	0.3	0.6	0.4	0.5
M2-Minor					95% CI			
5-15m	0.3	-0.8	-0.5	0.1	0.5	0.7	0.6	0.6
15-25m	0.1	-0.2	1.2	0.2	0.5	0.9	0.7	0.9
25-35m	0.5	1	0.6	0.5	0.5	0.8	0.6	0.9
35-45m								
>45m								
ALL	0.4	0.2	0.5	0.4	0.3	0.6	0.4	0.5
M2-Inclination					95% CI			
5-15m	-39	-32	-23	-35	6	7	6	6
15-25m	-43	-38	-50	-38	5	8	8	10
25-35m	-55	-62	-65	-61	6	6	4	7
35-45m								
>45m								
ALL	-46	-44	-48	-46	3	5	4	5
M2-Phase					95% CI			
5-15m	266	270	267	271	6	6	5	7
15-25m	281	276	269	277	5	8	8	10
25-35m	294	292	273	285	5	6	5	9
35-45m								
>45m								
ALL	281	278	269	278	3	6	3	5

Table 26 Tidal Constituent S2 at CM3

CM3	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	1.5	1.9	1.6	1.3	0.5	0.6	0.6	0.6
15-25m	1.5	1.5	2.4	NR	0.5	0.8	0.6	1
25-35m	1.4	1.3	1.7	2.8	0.6	0.7	0.7	0.9
35-45m								
>45m								
ALL	1.4	1.1	1.9	1.6	0.3	0.5	0.4	0.5
	S2-Minor				95% CI			
5-15m	0	-0.3	0	0.1	0.5	0.8	0.5	0.6
15-25m	0	-0.4	0.1	NR	0.5	0.7	0.6	0.9
25-35m	0.3	0.4	0.6	0.3	0.6	0.7	0.7	0.9
35-45m								
>45m								
ALL	0.1	0	0.2	0.1	0.3	0.6	0.4	0.6
	S2-Inclination				95% CI			
5-15m	-33	-17	-52	-18	22	44	21	29
15-25m	-40	-37	-47	NR	22	34	15	36
25-35m	-54	-73	-60	-57	23	45	27	30
35-45m								
>45m								
ALL	-41	-45	-53	-43	12	27	12	23
	S2-Phase				95% CI			
5-15m	313	298	316	300	21	37	20	26
15-25m	324	274	318	NR	19	47	16	43
25-35m	345	315	310	305	27	41	36	34
35-45m								
>45m								
ALL	326	291	314	308	12	24	15	22

Table 27 Tidal Constituent N2 at CM3

CM3	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m	1.2	NR	1.5	1.3	0.5	0.5	0.5	0.6
15-25m	1.2	NR	1	NR	0.6	0.8	0.6	0.9
25-35m	1.3	1.7	2.2	NR	0.5	0.7	0.8	1
35-45m								
>45m								
ALL	1.1	0.9	1.4	1.5	0.3	0.5	0.4	0.5
N2-Minor					95% CI			
5-15m	-0.2	NR	-0.1	0.1	0.6	0.7	0.6	0.5
15-25m	-0.2	NR	0.6	NR	0.5	0.7	0.4	0.7
25-35m	-0.1	0	-0.1	NR	0.5	0.8	0.6	0.8
35-45m								
>45m								
ALL	-0.1	0.1	0.3	0	0.3	0.5	0.4	0.5
N2-Inclination					95% CI			
5-15m	-27	NR	-22	-33	26	51	22	27
15-25m	-35	NR	-62	NR	29	48	65	42
25-35m	-58	-68	-62	NR	27	27	20	43
35-45m								
>45m								
ALL	-40	-49	-47	-42	15	27	15	30
N2-Phase					95% CI			
5-15m	255	NR	256	244	26	43	19	26
15-25m	273	NR	297	NR	26	49	71	47
25-35m	293	267	289	NR	26	27	23	53
35-45m								
>45m								
ALL	275	249	278	248	16	29	17	31

Table 28 Tidal Constituent M4 at CM3

CM3	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	0.7	0.5	1	0.7	0.3	0.3	0.3	0.4
15-25m	0.9	0.8	0.7	NR	0.3	0.3	0.3	0.4
25-35m	0.9	0.9	1	0.8	0.3	0.3	0.4	0.4
35-45m								
>45m								
ALL	0.8	0.7	0.8	0.7	0.2	0.2	0.1	0.3
	M4-Minor				95% CI			
5-15m	0	-0.1	-0.1	0	0.2	0.3	0.3	0.4
15-25m	-0.1	0.1	0.2	NR	0.3	0.4	0.3	0.4
25-35m	0.1	0.2	0.1	0.1	0.3	0.3	0.3	0.3
35-45m								
>45m								
ALL	0	0.1	0	0	0.2	0.2	0.1	0.2
	M4-Inclination				95% CI			
5-15m	-39	-29	-27	-40	22	32	14	45
15-25m	-30	-44	-34	NR	17	29	32	39
25-35m	-54	-64	-57	-55	16	21	16	23
35-45m								
>45m								
ALL	-41	-50	-41	-44	15	19	9	21
	M4-Phase				95% CI			
5-15m	186	179	188	186	24	36	13	46
15-25m	183	171	162	NR	15	34	27	38
25-35m	187	193	145	170	23	25	21	27
35-45m								
>45m								
ALL	184	180	165	180	12	19	9	21

Table 29 Tidal Constituent M2 at CM4

CM4	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	6.9	6.1	6.5	6.3	0.4	0.7	0.8	0.7
15-25m	6.4	6.7	6.4	6.4	0.4	0.9	1	0.5
25-35m	5.5	5.7	7	6.5	0.6	1	1.2	0.9
35-45m								
>45m								
ALL	6.5	6.4	6.4	6.4	0.3	0.6	0.5	0.5
	M2-Minor				95% CI			
5-15m	-1.6	-1.6	-1.2	-1.1	0.4	0.7	0.9	0.7
15-25m	-1.5	-1.7	-1.4	-1.4	0.4	0.9	1.4	0.5
25-35m	-0.2	-0.6	-2.2	-0.9	0.6	1	1.2	0.9
35-45m								
>45m								
ALL	-1.4	-1.6	-1.4	-1.2	0.3	0.6	0.8	0.4
	M2-Inclination				95% CI			
5-15m	-47	-40	-33	-46	4	7	8	5
15-25m	-48	-39	-27	-46	3	8	11	5
25-35m	-57	-43	-37	-48	6	10	11	7
35-45m								
>45m								
ALL	-48	-39	-31	-46	3	5	7	4
	M2-Phase				95% CI			
5-15m	258	257	256	260	4	7	7	6
15-25m	261	266	266	259	4	8	11	5
25-35m	265	267	282	271	7	11	11	9
35-45m								
>45m								
ALL	260	262	264	260	3	5	5	4

Table 30 Tidal Constituent S2 at CM4

CM4	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	1.6	2.3	1.8	NR	0.5	0.8	0.7	0.6
15-25m	2	1.7	NR	1.4	0.4	0.8	1.1	0.5
25-35m	1.7	NR	NR	2.2	0.8	1	1.1	0.8
35-45m								
>45m								
ALL	1.8	1.7	1.4	1.3	0.3	0.6	0.5	0.4
	S2-Minor				95% CI			
5-15m	-0.3	-0.3	-0.3	NR	0.4	0.7	0.8	0.6
15-25m	-0.6	-0.5	NR	-0.4	0.4	0.8	1	0.5
25-35m	-0.2	NR	NR	-0.5	0.7	0.9	1.1	0.8
35-45m								
>45m								
ALL	-0.4	-0.3	-0.3	-0.4	0.3	0.6	0.7	0.5
	S2-Inclination				95% CI			
5-15m	-56	-50	-39	NR	17	28	29	52
15-25m	-51	-51	NR	-40	12	33	73	24
25-35m	-52	NR	NR	-45	23	54	56	29
35-45m								
>45m								
ALL	-54	-50	-35	-42	11	21	30	26
	S2-Phase				95% CI			
5-15m	305	289	304	NR	16	25	29	53
15-25m	312	297	NR	291	15	35	78	22
25-35m	311	NR	NR	300	24	48	64	27
35-45m								
>45m								
ALL	309	298	306	290	10	21	27	26

Table 31 Tidal Constituent N2 at CM4

CM4	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m	0.8	NR	1.7	NR	0.4	0.7	0.7	0.6
15-25m	1.1	NR	NR	1	0.3	0.7	1.1	0.4
25-35m	1.3	NR	NR	NR	0.6	0.9	1	1
35-45m								
>45m								
ALL	1	1.1	1.4	1	0.3	0.5	0.6	0.5
	N2-Minor				95% CI			
5-15m	-0.3	NR	-0.6	NR	0.4	0.7	0.7	0.7
15-25m	-0.3	NR	NR	-0.2	0.4	0.8	1	0.5
25-35m	-0.3	NR	NR	NR	0.6	0.9	1	0.7
35-45m								
>45m								
ALL	-0.3	-0.3	-0.5	-0.2	0.3	0.5	0.5	0.4
	N2-Inclination				95% CI			
5-15m	-37	NR	-44	NR	39	41	32	37
15-25m	-44	NR	NR	-42	24	47	57	30
25-35m	-46	NR	NR	NR	31	48	69	50
35-45m								
>45m								
ALL	-41	-40	-64	-48	19	34	26	26
	N2-Phase				95% CI			
5-15m	243	NR	255	NR	42	43	27	33
15-25m	255	NR	NR	216	23	45	58	33
25-35m	269	NR	NR	NR	30	51	76	49
35-45m								
>45m								
ALL	252	240	256	226	18	29	32	24

Table 32 Tidal Constituent M4 at CM4

CM4	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	1	0.9	1.1	0.9	0.3	0.3	0.3	0.3
15-25m	1	1.1	1.2	0.9	0.3	0.2	0.2	0.2
25-35m	1	1.1	1	1.1	0.3	0.3	0.3	0.3
35-45m								
>45m								
ALL	1	1	1.1	0.9	0.3	0.2	0.2	0.2
	M4-Minor				95% CI			
5-15m	-0.1	-0.1	-0.1	-0.1	0.3	0.3	0.2	0.3
15-25m	0	-0.1	-0.2	0	0.3	0.2	0.2	0.2
25-35m	0	0	0.2	0	0.4	0.3	0.3	0.4
35-45m								
>45m								
ALL	0	-0.1	-0.1	0	0.3	0.2	0.2	0.2
	M4-Inclination				95% CI			
5-15m	-50	-38	-29	-53	15	17	13	17
15-25m	-50	-32	-40	-47	18	12	11	15
25-35m	-48	-46	-34	-44	21	19	23	18
35-45m								
>45m								
ALL	-49	-35	-36	-49	15	12	9	12
	M4-Phase				95% CI			
5-15m	162	165	167	148	17	16	17	16
15-25m	174	170	169	159	19	13	11	17
25-35m	169	183	160	154	23	19	22	16
35-45m								
>45m								
ALL	168	169	168	154	18	11	10	13

Table 33 Tidal Constituent MN4 at CM4

CM4	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	MN4-Major				95% CI			
5-15m	0.5	0.4	0.6	NR	0.2	0.2	0.3	0.2
15-25m	NR	0.5	0.6	NR	0.3	0.2	0.2	0.2
25-35m	NR	NR	0.6	NR	0.3	0.3	0.3	0.3
35-45m								
>45m								
ALL	NR	0.4	0.6	NR	0.3	0.2	0.2	0.2
	MN4-Minor				95% CI			
5-15m	-0.1	0.1	-0.1	NR	0.2	0.3	0.2	0.2
15-25m	NR	-0.1	-0.1	NR	0.3	0.2	0.2	0.2
25-35m	NR	NR	-0.2	NR	0.3	0.3	0.3	0.3
35-45m								
>45m								
ALL	NR	0	-0.1	NR	0.3	0.2	0.2	0.2
	MN4-Inclination				95% CI			
5-15m	-56	-26	-12	NR	30	42	20	41
15-25m	NR	-45	-59	NR	38	35	19	34
25-35m	NR	NR	-48	NR	48	57	48	74
35-45m								
>45m								
ALL	NR	-42	-39	NR	30	29	21	30
	MN4-Phase				95% CI			
5-15m	130	115	119	NR	34	38	30	48
15-25m	NR	129	129	NR	38	37	21	38
25-35m	NR	NR	135	NR	56	55	47	80
35-45m								
>45m								
ALL	NR	123	125	NR	32	30	19	36

Table 34 Tidal Constituent M2 at CM5

CM5	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	4.3	5.7	6.3	5.1	0.4	0.9	0.7	1
15-25m	4.6	4.8	5	5.1	0.3	0.7	0.8	0.8
25-35m	4.7	4.3	3.6	4.2	0.3	0.7	0.5	0.8
35-45m	4.7	4.4	4.2	4.4	0.4	0.8	0.5	0.6
>45m	5.2	4.7	4.7	5	0.6	0.9	0.6	0.6
ALL	4.6	4.5	4.3	4.5	0.2	0.3	0.3	0.3
	M2-Minor				95% CI			
5-15m	0.5	-0.7	-1.7	-0.5	0.5	1.2	0.7	1
15-25m	0.6	0.3	-0.2	-0.7	0.5	0.7	0.8	0.8
25-35m	0.6	0.7	1.2	0.2	0.3	0.7	0.7	1.1
35-45m	0.3	0.6	0.9	0.4	0.4	0.8	0.7	1.1
>45m	-0.2	0.2	0.3	0.3	0.6	0.9	0.7	0.6
ALL	0.3	0.4	0.5	0.2	0.3	0.5	0.4	0.4
	M2-Inclination				95% CI			
5-15m	-81	-79	-68	-70	7	12	8	10
15-25m	-78	-78	-83	-71	6	8	12	10
25-35m	-75	-65	-78	-75	5	9	15	16
35-45m	-70	-59	-68	-67	4	13	10	14
>45m	-63	-52	-55	-59	7	13	9	7
ALL	-67	-63	-67	-66	4	6	5	5
	M2-Phase				95% CI			
5-15m	272	270	258	263	5	9	7	11
15-25m	268	268	275	269	4	8	9	9
25-35m	265	254	265	273	4	9	11	12
35-45m	260	245	251	256	5	10	8	9
>45m	252	237	237	246	6	11	9	7
ALL	257	250	253	257	3	4	4	4

Table 35 Tidal Constituent S2 at CM5

CM5	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	NR	NR	NR	NR	0.5	0.9	0.6	0.9
15-25m	1.2	1.4	NR	NR	0.3	0.7	0.6	0.8
25-35m	1.4	1.5	NR	NR	0.3	0.6	0.5	0.8
35-45m	1.6	NR	NR	NR	0.4	0.8	0.5	0.7
>45m	1.6	NR	NR	NR	0.6	0.8	0.6	0.6
ALL	1.3	1.1	0.7	0.9	0.2	0.3	0.3	0.3
	S2-Minor				95% CI			
5-15m	NR	NR	NR	NR	0.5	1.1	0.7	0.9
15-25m	0.2	-0.3	NR	NR	0.5	0.7	0.7	0.7
25-35m	-0.1	-0.3	NR	NR	0.4	0.7	0.7	0.8
35-45m	-0.4	NR	NR	NR	0.4	0.8	0.6	0.9
>45m	-0.3	NR	NR	NR	0.7	0.8	0.7	0.6
ALL	-0.1	0	-0.1	0.2	0.3	0.4	0.3	0.4
	S2-Inclination				95% CI			
5-15m	NR	NR	NR	NR	39	51	105	54
15-25m	-84	-69	NR	NR	24	29	133	51
25-35m	-73	-49	NR	NR	17	33	69	85
35-45m	-58	NR	NR	NR	16	38	46	84
>45m	-52	NR	NR	NR	26	66	68	38
ALL	-63	-69	-73	-54	14	21	30	26
	S2-Phase				95% CI			
5-15m	NR	NR	NR	NR	40	41	87	57
15-25m	312	297	NR	NR	17	28	162	53
25-35m	314	273	NR	NR	12	30	49	73
35-45m	317	NR	NR	NR	17	42	40	57
>45m	305	NR	NR	NR	25	60	61	37
ALL	307	284	316	284	11	19	29	24

Table 36 Tidal Constituent N2 at CM5

CM5	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m	NR	NR	1.9	1.6	0.4	0.9	0.7	0.9
15-25m	NR	NR	NR	NR	0.3	0.6	0.7	0.7
25-35m	0.9	NR	NR	NR	0.3	0.6	0.6	0.8
35-45m	1.2	NR	NR	NR	0.4	0.7	0.4	0.8
>45m	1.2	NR	NR	1.8	0.5	0.8	0.6	0.6
ALL	0.9	0.9	0.9	1.1	0.2	0.4	0.3	0.3
5-15m	N2-Minor				95% CI			
	NR	NR	-0.9	-0.5	0.4	1	0.8	0.8
15-25m	NR	NR	NR	NR	0.4	0.7	0.9	0.8
25-35m	0.1	NR	NR	NR	0.3	0.6	0.7	1
35-45m	-0.1	NR	NR	NR	0.5	0.7	0.5	0.7
>45m	0	NR	NR	0.1	0.6	0.8	0.6	0.6
ALL	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.4
5-15m	N2-Inclination				95% CI			
	NR	NR	-70	-90	53	59	36	60
15-25m	NR	NR	NR	NR	42	40	55	52
25-35m	-80	NR	NR	NR	25	53	43	73
35-45m	-64	NR	NR	NR	24	58	100	43
>45m	-52	NR	NR	-48	30	51	103	44
ALL	-64	-62	-71	-72	18	26	23	30
5-15m	N2-Phase				95% CI			
	NR	NR	259	208	64	45	36	66
15-25m	NR	NR	NR	NR	29	39	50	47
25-35m	260	NR	NR	NR	20	53	48	71
35-45m	246	NR	NR	NR	21	49	80	61
>45m	229	NR	NR	171	27	59	81	43
ALL	242	227	239	197	14	24	23	25

Table 37 Tidal Constituent M4 at CM5

CM5	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	0.7	0.6	0.7	0.5	0.2	0.3	0.3	0.4
15-25m	0.7	0.6	0.7	0.6	0.2	0.3	0.2	0.4
25-35m	0.7	0.7	0.9	0.6	0.2	0.2	0.2	0.4
35-45m	0.7	0.7	0.8	0.7	0.2	0.3	0.2	0.3
>45m	0.8	0.7	0.7	0.6	0.2	0.2	0.2	0.3
ALL	0.7	0.7	0.7	0.6	0.1	0.2	0.1	0.3
	M4-Minor				95% CI			
5-15m	0.1	0.4	0.1	0.1	0.2	0.3	0.2	0.2
15-25m	0	0.3	0.2	0	0.2	0.3	0.2	0.4
25-35m	0.1	0	-0.1	-0.1	0.2	0.2	0.2	0.3
35-45m	0.1	0	-0.1	-0.2	0.2	0.2	0.2	0.3
>45m	0	-0.2	-0.2	-0.2	0.2	0.3	0.2	0.3
ALL	0	0	0	-0.1	0.1	0.1	0.1	0.2
	M4-Inclination				95% CI			
5-15m	-79	-63	89	-80	17	51	22	26
15-25m	-81	-57	-53	-87	15	46	22	30
25-35m	-70	-62	-57	-77	18	18	14	28
35-45m	-61	-72	-70	-62	18	18	13	31
>45m	-65	-68	-55	-41	15	25	15	33
ALL	-68	-65	-60	-67	11	11	8	19
	M4-Phase				95% CI			
5-15m	181	155	18	195	23	51	27	37
15-25m	173	162	150	185	16	45	20	34
25-35m	172	171	152	181	17	22	13	43
35-45m	169	178	154	167	18	22	13	28
>45m	176	172	147	183	15	25	16	31
ALL	173	169	155	175	12	14	9	26

Table 38 Tidal Constituent MN4 at CM5

CM5	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	MN4-Major				95% CI			
5-15m	NR	NR	NR	NR	0.2	0.3	0.3	0.4
15-25m	NR	NR	0.6	NR	0.2	0.2	0.2	0.3
25-35m	0.4	NR	NR	NR	0.2	0.2	0.2	0.4
35-45m	NR	NR	NR	NR	0.2	0.2	0.2	0.3
>45m	NR	NR	0.4	0.7	0.2	0.2	0.1	0.2
ALL	0.3	0.3	0.4	NR	0.1	0.2	0.1	0.3
	MN4-Minor				95% CI			
5-15m	NR	NR	NR	NR	0.2	0.3	0.2	0.3
15-25m	NR	NR	-0.1	NR	0.2	0.3	0.2	0.3
25-35m	0	NR	NR	NR	0.2	0.2	0.2	0.3
35-45m	NR	NR	NR	NR	0.2	0.2	0.2	0.3
>45m	NR	NR	-0.1	-0.2	0.2	0.2	0.2	0.2
ALL	0	0	0	NR	0.1	0.1	0.1	0.2
	MN4-Inclination				95% CI			
5-15m	NR	NR	NR	NR	32	96	43	36
15-25m	NR	NR	-47	NR	40	86	27	63
25-35m	-82	NR	NR	NR	32	57	34	38
35-45m	NR	NR	NR	NR	40	53	36	94
>45m	NR	NR	-69	-47	49	60	28	60
ALL	-77	-64	-58	NR	23	28	14	29
	MN4-Phase				95% CI			
5-15m	NR	NR	NR	NR	34	104	49	56
15-25m	NR	NR	110	NR	40	71	26	70
25-35m	136	NR	NR	NR	31	70	28	56
35-45m	NR	NR	NR	NR	43	56	43	81
>45m	NR	NR	123	111	40	61	25	78
ALL	129	111	122	NR	28	42	21	36

Table 39 Tidal Constituent M2 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	12.6	12.6	14.5	13.4	0.7	0.7	0.8	1.1
15-25m	14.5	13.7	13.4	13.9	0.6	0.9	0.7	0.9
25-35m	15.3	14.9	13.3	14	0.8	1.1	0.7	1.2
35-45m	14.5	15.2	14.1	14.6	1	1.1	1.2	1.1
>45m								
ALL	14.1	13.8	13.4	13.6	0.5	0.6	0.4	0.8
M2-Minor					95% CI			
5-15m	0.3	0.4	-0.3	0.2	0.7	0.7	0.8	1.1
15-25m	0.3	0.5	0	0.3	0.6	0.9	0.7	0.9
25-35m	0.1	0	-0.2	0.1	0.8	1.1	0.7	1.2
35-45m	0	-0.1	0.3	0.3	1	1.1	1.2	1.1
>45m								
ALL	0.1	0.2	-0.2	0.1	0.5	0.6	0.4	0.8
M2-Inclination					95% CI			
5-15m	-19	-24	-27	-23	2	3	2	3
15-25m	-27	-29	-30	-28	2	3	3	3
25-35m	-33	-31	-30	-32	3	3	3	4
35-45m	-34	-30	-29	-30	3	4	4	4
>45m								
ALL	-27	-28	-29	-28	2	2	1	2
M2-Phase					95% CI			
5-15m	268	271	276	274	3	3	3	4
15-25m	267	265	267	271	2	4	3	3
25-35m	263	257	249	258	3	4	3	5
35-45m	258	248	234	243	4	4	5	4
>45m								
ALL	265	262	261	265	2	3	2	3

Table 40 Tidal Constituent S2 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	3.4	2.4	3.6	3.3	0.6	0.7	0.8	1.1
15-25m	4.1	3.4	3.2	3.6	0.6	1	0.7	0.9
25-35m	4.7	4.2	3.6	3.3	0.9	1	0.8	1.2
35-45m	4.4	4.5	3.6	4	1	1.2	1.1	1.2
>45m								
ALL	4.1	3.4	3.3	3.4	0.5	0.7	0.4	0.8
	S2-Minor				95% CI			
5-15m	0.1	0.3	-0.4	-0.3	0.5	0.6	0.6	0.9
15-25m	0.2	0.2	-0.1	-0.2	0.5	0.7	0.6	0.8
25-35m	0.4	0.1	0	0.4	0.7	1	0.6	1
35-45m	0.2	-0.2	0.2	0	0.9	1	1	1.1
>45m								
ALL	0.2	0.1	-0.1	0	0.4	0.5	0.3	0.6
	S2-Inclination				95% CI			
5-15m	-21	-23	-27	-28	8	16	11	15
15-25m	-23	-21	-26	-24	8	14	11	12
25-35m	-30	-28	-30	-29	8	14	9	16
35-45m	-35	-32	-34	-33	11	12	17	16
>45m								
ALL	-26	-25	-29	-28	6	9	6	9
	S2-Phase				95% CI			
5-15m	317	307	325	301	11	20	12	19
15-25m	316	303	310	289	9	17	13	15
25-35m	314	294	287	280	11	15	11	22
35-45m	309	284	270	271	13	15	20	17
>45m								
ALL	315	298	303	287	7	11	6	12

Table 41 Tidal Constituent N2 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m	2.3	2.7	2.8	3.1	0.6	0.6	0.7	1
15-25m	2.7	3	2.3	3.1	0.6	1	0.6	1
25-35m	2.7	2.9	2.8	3.4	0.8	1	0.7	1.2
35-45m	2.3	2.9	2.5	3.4	0.9	1	1.3	1.1
>45m								
ALL	2.6	2.9	2.5	3.1	0.5	0.6	0.4	0.7
N2-Minor					95% CI			
5-15m	0	0	-0.1	0	0.5	0.7	0.6	0.9
15-25m	-0.1	0.2	0.3	0.2	0.5	0.7	0.6	0.7
25-35m	0.3	-0.1	0.1	0.1	0.7	1	0.7	0.9
35-45m	-0.1	-0.4	-0.1	0	0.8	1	0.9	1
>45m								
ALL	0	0	0.1	0.1	0.4	0.5	0.3	0.5
N2-Inclination					95% CI			
5-15m	-18	-20	-30	-29	12	13	13	14
15-25m	-19	-21	-36	-29	11	15	15	15
25-35m	-28	-34	-34	-31	17	18	13	17
35-45m	-35	-40	-32	-27	21	19	21	15
>45m								
ALL	-23	-27	-33	-29	9	11	8	10
N2-Phase					95% CI			
5-15m	241	245	260	257	14	14	13	17
15-25m	239	245	251	248	14	20	18	16
25-35m	231	243	236	224	18	19	15	21
35-45m	231	237	211	217	21	22	24	19
>45m								
ALL	236	244	246	239	11	12	9	13

Table 42 Tidal Constituent M4 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	1.8	2.1	2.2	2.1	0.5	0.5	0.5	0.7
15-25m	2	1.9	1.7	1.9	0.5	0.6	0.4	0.7
25-35m	1.9	2.1	1.9	2.1	0.5	0.6	0.3	0.7
35-45m	1.6	2.2	2.1	2.6	0.4	0.5	0.5	0.8
>45m								
ALL	1.9	2	1.9	2	0.4	0.5	0.3	0.6
	M4-Minor				95% CI			
5-15m	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.6
15-25m	0.1	0	-0.2	0.1	0.3	0.4	0.3	0.5
25-35m	0	0.2	0.2	0.2	0.4	0.5	0.3	0.5
35-45m	0	0.2	0.1	0.1	0.4	0.5	0.4	0.7
>45m								
ALL	0	0.1	0	0.1	0.3	0.3	0.2	0.5
	M4-Inclination				95% CI			
5-15m	-15	-23	-22	-24	10	11	9	14
15-25m	-23	-23	-19	-26	9	11	11	15
25-35m	-22	-17	-27	-23	11	14	9	13
35-45m	-27	-23	-38	-30	14	13	12	15
>45m								
ALL	-21	-21	-25	-25	8	10	7	12
	M4-Phase				95% CI			
5-15m	183	187	179	190	20	13	12	21
15-25m	176	180	176	180	14	19	12	20
25-35m	170	164	164	164	15	17	10	20
35-45m	166	153	144	146	15	13	14	21
>45m								
ALL	175	174	170	174	14	14	8	17

Table 43 Tidal Constituent MN4 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	MN4-Major				95% CI			
5-15m	0.9	1.1	1	NR	0.5	0.5	0.4	0.7
15-25m	0.8	1.1	0.9	NR	0.5	0.6	0.4	0.6
25-35m	1	1.3	0.9	1.4	0.4	0.6	0.3	0.7
35-45m	1	1.4	0.8	1.7	0.4	0.5	0.4	0.8
>45m								
ALL	0.9	1.2	0.9	NR	0.4	0.4	0.3	0.6
	MN4-Minor				95% CI			
5-15m	-0.1	0	0.1	NR	0.2	0.4	0.4	0.5
15-25m	0	0	0	NR	0.3	0.4	0.3	0.5
25-35m	0	-0.1	0	0.1	0.4	0.5	0.3	0.5
35-45m	0	0	0.1	0.2	0.3	0.5	0.4	0.7
>45m								
ALL	0	0	0.1	NR	0.3	0.3	0.2	0.5
	MN4-Inclination				95% CI			
5-15m	-6	-15	-20	NR	17	20	23	37
15-25m	-23	-33	-27	NR	20	27	17	32
25-35m	-32	-28	-17	-29	24	27	23	23
35-45m	-34	-19	-19	-30	24	26	30	29
>45m								
ALL	-23	-29	-21	NR	16	17	12	25
	MN4-Phase				95% CI			
5-15m	128	137	138	NR	39	27	28	57
15-25m	122	123	137	NR	32	38	23	44
25-35m	121	113	121	112	26	28	22	31
35-45m	109	94	108	97	24	27	30	39
>45m								
ALL	121	119	131	NR	27	24	19	31

Table 44 Tidal Constituent K1 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	K1-Major				95% CI			
5-15m	NR	NR	NR	NR	0.4	0.9	0.6	0.8
15-25m	1.8	NR	NR	NR	0.6	0.9	0.6	0.8
25-35m	2.6	NR	1.1	NR	1	0.8	0.6	1
35-45m	2.7	NR	NR	NR	1	0.8	0.9	1.2
>45m								
ALL	1.7	0.9	0.8	NR	0.5	0.6	0.4	0.7
	K1-Minor				95% CI			
5-15m	NR	NR	NR	NR	0.5	0.5	0.5	0.6
15-25m	0	NR	NR	NR	0.5	0.7	0.4	0.7
25-35m	-0.1	NR	0	NR	0.7	0.8	0.5	1
35-45m	0	NR	NR	NR	0.7	0.7	0.7	1
>45m								
ALL	0	0	-0.1	NR	0.4	0.5	0.3	0.5
	K1-Inclination				95% CI			
5-15m	NR	NR	NR	NR	62	36	33	45
15-25m	-36	NR	NR	NR	18	54	29	57
25-35m	-32	NR	-30	NR	15	73	23	49
35-45m	-33	NR	NR	NR	15	75	36	50
>45m								
ALL	-34	-17	-17	NR	14	46	16	37
	K1-Phase				95% CI			
5-15m	NR	NR	NR	NR	58	50	39	66
15-25m	352	NR	NR	NR	20	103	48	77
25-35m	343	NR	320	NR	19	93	28	52
35-45m	336	NR	NR	NR	21	118	59	67
>45m								
ALL	348	326	345	NR	19	67	29	45

Table 45 Tidal Constituent 2SK5 at CM7

CM7	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	2SK5-Major				95% CI			
5-15m	0.6	NR	NR	NR	0.3	0.4	0.2	0.4
15-25m	0.7	NR	NR	NR	0.4	0.3	0.2	0.4
25-35m	0.7	NR	NR	NR	0.4	0.4	0.3	0.5
35-45m	NR	NR	NR	NR	0.4	0.4	0.3	0.5
>45m								
ALL	0.7	0.7	0.4	NR	0.3	0.3	0.2	0.3
	2SK5-Minor				95% CI			
5-15m	0	NR	NR	NR	0.3	0.3	0.2	0.4
15-25m	-0.2	NR	NR	NR	0.3	0.3	0.2	0.3
25-35m	-0.1	NR	NR	NR	0.3	0.3	0.2	0.3
35-45m	NR	NR	NR	NR	0.3	0.4	0.2	0.4
>45m								
ALL	-0.1	0	0	NR	0.2	0.3	0.2	0.3
	2SK5-Inclination				95% CI			
5-15m	-27	NR	NR	NR	21	45	39	80
15-25m	-22	NR	NR	NR	28	45	41	51
25-35m	-20	NR	NR	NR	24	32	29	38
35-45m	NR	NR	NR	NR	27	44	22	48
>45m								
ALL	-24	-30	-34	NR	18	25	24	40
	2SK5-Phase				95% CI			
5-15m	290	NR	NR	NR	31	55	36	90
15-25m	301	NR	NR	NR	36	50	37	66
25-35m	284	NR	NR	NR	31	35	31	53
35-45m	NR	NR	NR	NR	32	44	31	93
>45m								
ALL	289	303	56	NR	27	36	27	54

Table 46 Tidal Constituent M2 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m	12.5	12.5	13	12.5	0.6	0.7	0.8	0.9
15-25m	12.7	12.7	13.4	12.3	0.6	1.1	0.8	0.9
25-35m								
35-45m								
>45m								
ALL	12.6	12.7	13.1	12.5	0.5	0.6	0.6	0.7
M2-Minor					95% CI			
5-15m	-0.4	-0.4	-0.4	-0.3	0.5	0.6	0.6	0.7
15-25m	0.2	-0.2	-0.2	-0.1	0.5	0.6	0.6	0.7
25-35m								
35-45m								
>45m								
ALL	-0.2	-0.3	-0.3	-0.2	0.4	0.5	0.5	0.6
M2-Inclination					95% CI			
5-15m	-24	-23	-21	-22	2	3	3	3
15-25m	-27	-24	-21	-25	2	3	3	3
25-35m								
35-45m								
>45m								
ALL	-25	-24	-21	-23	2	2	2	3
M2-Phase					95% CI			
5-15m	264	268	273	271	2	3	4	4
15-25m	265	263	264	271	3	5	5	5
25-35m								
35-45m								
>45m								
ALL	264	266	270	271	2	3	2	3

Table 47 Tidal Constituent M2 at CM8.

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m	3.2	3.2	3.3	3.5	0.6	0.7	0.9	0.9
15-25m	2.8	3	3.8	3.4	0.7	1.1	1	1
25-35m								
35-45m								
>45m								
ALL	3.1	3.1	3.4	3.4	0.5	0.7	0.7	0.8
S2-Minor					95% CI			
5-15m	-0.1	0	-0.1	-0.2	0.5	0.7	0.7	0.8
15-25m	-0.1	-0.1	-0.1	-0.1	0.5	0.7	0.7	0.7
25-35m								
35-45m								
>45m								
ALL	-0.1	0	-0.1	-0.2	0.4	0.5	0.5	0.6
S2-Inclination					95% CI			
5-15m	-27	-27	-27	-25	8	12	10	12
15-25m	-29	-28	-21	-25	11	14	11	14
25-35m								
35-45m								
>45m								
ALL	-27	-27	-25	-26	7	11	9	10
S2-Phase					95% CI			
5-15m	313	295	321	303	9	14	14	14
15-25m	309	281	305	296	12	20	16	18
25-35m								
35-45m								
>45m								
ALL	312	291	316	301	10	14	10	13

Table 48 Tidal Constituent N2 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m	2.8	3	2.3	3.4	0.5	0.7	0.8	0.8
15-25m	2.4	2.9	2.2	2.8	0.5	1.2	0.9	1
25-35m								
35-45m								
>45m								
ALL	2.7	3	2.3	3.2	0.5	0.6	0.6	0.7
	N2-Minor				95% CI			
5-15m	-0.2	-0.1	0.1	-0.1	0.5	0.6	0.6	0.7
15-25m	0.1	0.1	0.1	0	0.5	0.7	0.6	0.7
25-35m								
35-45m								
>45m								
ALL	-0.1	0	0.1	-0.1	0.4	0.5	0.5	0.6
	N2-Inclination				95% CI			
5-15m	-27	-27	-20	-25	11	11	15	12
15-25m	-27	-27	-24	-26	13	13	15	13
25-35m								
35-45m								
>45m								
ALL	-27	-27	-21	-26	9	9	14	11
	N2-Phase				95% CI			
5-15m	244	240	249	253	11	14	17	14
15-25m	247	240	252	254	14	20	22	21
25-35m								
35-45m								
>45m								
ALL	245	240	250	252	11	12	19	13

Table 49 Tidal Constituent M4 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m	1.7	1.4	1.3	1.4	0.4	0.5	0.3	0.7
15-25m	1.7	1.9	1.8	1.9	0.4	0.7	0.5	0.7
25-35m								
35-45m								
>45m								
ALL	1.7	1.5	1.5	1.6	0.5	0.5	0.3	0.6
	M4-Minor				95% CI			
5-15m	-0.2	-0.2	-0.2	0	0.3	0.5	0.3	0.6
15-25m	0	0	-0.1	0	0.3	0.6	0.3	0.5
25-35m								
35-45m								
>45m								
ALL	-0.1	-0.1	-0.1	0	0.4	0.4	0.2	0.5
	M4-Inclination				95% CI			
5-15m	-30	-38	-36	-25	11	19	13	22
15-25m	-41	-26	-19	-29	14	17	9	14
25-35m								
35-45m								
>45m								
ALL	-34	-33	-30	-29	11	15	10	17
	M4-Phase				95% CI			
5-15m	177	166	172	174	15	20	16	30
15-25m	174	155	156	173	13	24	14	21
25-35m								
35-45m								
>45m								
ALL	175	163	166	178	12	19	12	24

Table 50 Tidal Constituent MN4 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	MN4-Major				95% CI			
5-15m	NR	0.9	0.6	NR	0.4	0.5	0.3	0.7
15-25m	0.8	NR	1.1	1.5	0.4	0.6	0.5	0.7
25-35m								
35-45m								
>45m								
ALL	0.7	0.9	0.8	NR	0.4	0.5	0.3	0.7
	MN4-Minor				95% CI			
5-15m	NR	0	0	NR	0.3	0.4	0.3	0.5
15-25m	0.2	NR	-0.1	-0.2	0.3	0.5	0.3	0.4
25-35m								
35-45m								
>45m								
ALL	0	0	0	NR	0.3	0.4	0.3	0.4
	MN4-Inclination				95% CI			
5-15m	NR	-25	-35	NR	30	22	23	25
15-25m	-30	NR	-22	-16	25	50	13	23
25-35m								
35-45m								
>45m								
ALL	-31	-24	-29	NR	24	24	17	26
	MN4-Phase				95% CI			
5-15m	NR	93	119	NR	39	35	30	49
15-25m	122	NR	130	140	29	71	21	32
25-35m								
35-45m								
>45m								
ALL	124	97	125	NR	32	38	26	40

Table 51 Tidal Constituent K1 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	K1-Major				95% CI			
5-15m	NR	2	NR	NR	0.6	1	0.6	0.9
15-25m	NR	1.7	1.4	NR	0.7	0.8	0.7	1.1
25-35m								
35-45m								
>45m								
ALL	NR	1.8	1	NR	0.5	0.8	0.5	0.7
	K1-Minor				95% CI			
5-15m	NR	0.1	NR	NR	0.5	0.5	0.4	0.7
15-25m	NR	0.1	0	NR	0.6	0.6	0.4	0.8
25-35m								
35-45m								
>45m								
ALL	NR	0.1	-0.1	NR	0.5	0.4	0.3	0.5
	K1-Inclination				95% CI			
5-15m	NR	-10	NR	NR	77	29	27	41
15-25m	NR	-20	-19	NR	54	37	19	59
25-35m								
35-45m								
>45m								
ALL	NR	-14	-22	NR	82	26	17	34
	K1-Phase				95% CI			
5-15m	NR	303	NR	NR	143	73	40	50
15-25m	NR	331	353	NR	62	106	29	102
25-35m								
35-45m								
>45m								
ALL	NR	310	359	NR	104	63	29	46

Table 52 Tidal Constituent 2SK5 at CM8

CM8	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	2SK5-Major				95% CI			
5-15m	0.9	NR	0.5	NR	0.3	0.4	0.2	0.4
15-25m	0.9	0.8	NR	NR	0.3	0.4	0.2	0.4
25-35m								
35-45m								
>45m								
ALL	0.9	NR	0.4	NR	0.3	0.4	0.1	0.3
	2SK5-Minor				95% CI			
5-15m	0	NR	-0.1	NR	0.3	0.2	0.2	0.3
15-25m	0	0.2	NR	NR	0.3	0.3	0.2	0.4
25-35m								
35-45m								
>45m								
ALL	0	NR	0	NR	0.2	0.2	0.1	0.3
	2SK5-Inclination				95% CI			
5-15m	-31	NR	-30	NR	17	34	24	37
15-25m	-30	-36	NR	NR	18	34	57	48
25-35m								
35-45m								
>45m								
ALL	-31	NR	-34	NR	14	30	21	34
	2SK5-Phase				95% CI			
5-15m	279	NR	46	NR	21	57	25	46
15-25m	280	312	NR	NR	22	39	51	54
25-35m								
35-45m								
>45m								
ALL	279	NR	51	NR	17	43	23	44

Table 53 Tidal Constituent M2 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m		5.3	4.5	5.1		1.3	1	1.1
15-25m		4.1	4.5	4.9		0.9	0.7	0.7
25-35m		3.2	3.8	3.4		1.1	0.8	1.2
35-45m		3.2	3.5	NR		1.1	1	1.7
>45m								
ALL		3.8	3.7	3.8		0.8	0.4	0.6
	M2-Minor				95% CI			
5-15m		-1.7	-1.2	-1.7		1	1	1.1
15-25m		-0.6	-0.7	-1.5		0.7	0.7	0.7
25-35m		-0.2	0	0.1		0.8	1.2	1.1
35-45m		-0.4	-0.5	NR		1.3	1.4	1.7
>45m								
ALL						0.4	0.6	0.4
	M2-Inclination				95% CI			
5-15m		78	64	76		12	15	15
15-25m		82	79	77		11	10	9
25-35m		86	-84	86		15	18	21
35-45m		86	-62	NR		24	21	46
>45m								
ALL		82	85	80		7	8	6
	M2-Phase				95% CI			
5-15m		80	91	81		16	15	15
15-25m		88	86	84		13	11	10
25-35m		77	252	77		19	13	22
35-45m		49	219	NR		24	17	42
>45m								
ALL		77	78	77		12	6	8

Table 54 Tidal Constituent S2 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	S2-Major				95% CI			
5-15m		NR	NR	1.5		1.1	0.9	0.8
15-25m		1.9	NR	1.4		0.8	0.8	0.6
25-35m		1.6	1.8	2.7		0.8	1	1.1
35-45m		NR	1.7	NR		1	1.2	1.9
>45m								
ALL		1.5	1.1	1.9		0.8	0.4	0.4
	S2-Minor				95% CI			
5-15m		NR	NR	-1		1	0.9	0.9
15-25m		-0.7	NR	-1.1		0.7	0.7	0.7
25-35m		-0.7	-1.3	-1.3		0.9	1	1.2
35-45m		NR	-1.3	NR		1	1	1.4
>45m								
ALL		-0.7	-0.9	-1.1		0.4	0.4	0.6
	S2-Inclination				95% CI			
5-15m		NR	NR	18		65	76	73
15-25m		-74	NR	32		33	89	83
25-35m		-61	-46	-32		42	75	38
35-45m		NR	5	NR		105	83	32
>45m								
ALL		-74	-48	-12		29	81	30
	S2-Phase				95% CI			
5-15m		NR	NR	18		74	76	80
15-25m		-74	NR	32		36	94	78
25-35m		-61	-46	-32		51	75	36
35-45m		NR	5	NR		98	104	47
>45m								
ALL		-74	-48	-12		41	86	22

Table 55 Tidal Constituent N2 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	N2-Major				95% CI			
5-15m		NR	NR	1.8		0.9	0.9	0.9
15-25m		NR	NR	2		0.7	0.8	0.7
25-35m		NR	NR	NR		0.8	0.9	0.9
35-45m		NR	NR	NR		1	1.2	1.5
>45m								
ALL		1	NR	1.1		0.6	0.5	0.6
	N2-Minor				95% CI			
5-15m		NR	NR	-1		0.9	0.9	1
15-25m		NR	NR	-1.4		0.7	0.7	0.6
25-35m		NR	NR	NR		0.8	0.8	0.9
35-45m		NR	NR	NR		1	0.8	1.4
>45m								
ALL		-0.5	NR	-0.2		0.5	0.5	0.4
	N2-Inclination				95% CI			
5-15m		NR	NR	67		75	87	59
15-25m		NR	NR	83		64	47	53
25-35m		NR	NR	NR		91	71	89
35-45m		NR	NR	NR		106	39	66
>45m								
ALL		51	NR	75		57	34	22
	N2-Phase				95% CI			
5-15m		NR	NR	50		81	89	58
15-25m		NR	NR	56		69	45	57
25-35m		NR	NR	NR		95	80	98
35-45m		NR	NR	NR		116	74	82
>45m								
ALL		53	NR	44		63	34	34

Table 56 Tidal Constituent M4 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M4-Major				95% CI			
5-15m		NR	0.7	NR		0.2	0.3	0.5
15-25m		NR	0.5	0.8		0.2	0.2	0.4
25-35m		NR	NR	NR		0.3	0.3	0.4
35-45m		NR	0.5	NR		0.4	0.3	0.6
>45m								
ALL		0.4	0.6	0.6		0.2	0.1	0.3
	M4-Minor				95% CI			
5-15m		NR	-0.2	NR		0.3	0.3	0.4
15-25m		NR	0	0		0.2	0.3	0.3
25-35m		NR	NR	NR		0.4	0.3	0.4
35-45m		NR	0.4	NR		0.3	0.3	0.5
>45m								
ALL		0.1	0.1	0.1		0.2	0.1	0.2
	M4-Inclination				95% CI			
5-15m		NR	71	NR		54	32	55
15-25m		NR	76	74		65	27	21
25-35m		NR	NR	NR		54	35	35
35-45m		NR	84	NR		29	66	91
>45m								
ALL		59	76	64		34	13	19
	M4-Phase				95% CI			
5-15m		NR	19	NR		57	29	59
15-25m		NR	357	13		63	25	31
25-35m		NR	NR	NR		48	36	39
35-45m		NR	342	NR		49	66	126
>45m								
ALL		18	356	10		38	18	25

Table 57 Tidal Constituent K1 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	K1-Major				95% CI			
5-15m		13.4	7.2	NR		3.5	1.3	3.2
15-25m		15.1	8.2	NR		3.4	1.6	2.6
25-35m		16.4	9.7	NR		3.3	1.9	3.7
35-45m		17.2	13.3	9.6		3.2	2.2	4.7
>45m								
ALL		15	9	5.3		2.8	1.1	2.9
	K1-Minor				95% CI			
5-15m		-4.9	-1.6	NR		3.6	1.2	3.5
15-25m		-6.3	-1.5	NR		3.5	1.3	2.4
25-35m		-5.3	-1.6	NR		3.4	1.5	2.6
35-45m		-3.7	-2.4	-1.7		2.4	1.3	2.1
>45m								
ALL		-4.8	-1.5	-0.8		2.7	1.1	2
	K1-Inclination				95% CI			
5-15m		44	54	NR		20	10	69
15-25m		34	36	NR		16	11	35
25-35m		23	25	NR		14	10	29
35-45m		10	10	3		9	5	15
>45m								
ALL		27	28	24		12	6	21
	K1-Phase				95% CI			
5-15m		182	194	NR		20	11	70
15-25m		180	201	NR		17	11	39
25-35m		181	202	NR		14	10	41
35-45m		195	205	173		12	10	32
>45m								
ALL		183	201	168		12	8	34

Table 58 Tidal Constituent O1 at Canso

Canso	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	O1-Major				95% CI			
5-15m		9.8	4	NR		3.7	1.3	3.5
15-25m		10.1	5.6	NR		3.6	1.4	2.8
25-35m		11.1	6.2	NR		3.3	1.9	3.8
35-45m		11.6	9.9	9		3.7	2.2	5
>45m								
ALL		10.4	6.1	5.8		2.6	1.3	3
	O1-Minor				95% CI			
5-15m		-3.4	-0.4	NR		3.7	1.2	4.3
15-25m		-3	-0.6	NR		3.7	1.4	2.6
25-35m		-2.7	-0.2	NR		3.5	1.7	2.8
35-45m		-2.1	-2	-0.8		2.5	1.3	2.1
>45m								
ALL		-2.6	-0.8	-0.8		2.9	0.9	2.3
	O1-Inclination				95% CI			
5-15m		40	43	NR		27	19	53
15-25m		38	36	NR		25	16	40
25-35m		26	25	NR		21	16	26
35-45m		12	10	6		14	8	15
>45m								
ALL		29	26	33		19	10	23
	O1-Phase				95% CI			
5-15m		158	152	NR		27	19	53
15-25m		156	155	NR		24	15	40
25-35m		161	151	NR		20	20	36
35-45m		171	145	171		18	13	32
>45m								
ALL		161	151	164		17	13	31

Table 59 Tidal Constituent M2 at Liscomb

Liscomb	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	M2-Major				95% CI			
5-15m		2.9	2.8	3.9		0.6	1.1	1.9
15-25m		2.6	2.7	NR		0.7	0.6	1.6
25-35m		1.9	2	2.2		0.7	0.9	1.1
35-45m		1.5	1.8	NR		0.7	0.9	1.3
>45m		1.3	2.3	3.1		0.7	0.8	1.3
ALL		1.9	2.2	2.1		0.5	0.5	0.6
	M2-Minor				95% CI			
5-15m		0.1	0.5	-1.6		0.6	1	2
15-25m		0.1	0.1	NR		0.8	0.7	1.6
25-35m		0.6	-0.2	0.4		0.8	0.8	1.2
35-45m		0.5	0.3	NR		0.5	0.7	1
>45m		0.5	0.2	0.1		0.6	0.6	0.8
ALL		0.5	0.2	0.3		0.4	0.4	0.6
	M2-Inclination				95% CI			
5-15m		-47	-46	-53		13	25	40
15-25m		-44	-50	NR		17	14	32
25-35m		-43	-57	-14		27	25	40
35-45m		-74	-69	NR		28	26	33
>45m		84	-78	-77		37	16	16
ALL		-52	-57	-47		14	11	18
	M2-Phase				95% CI			
5-15m		271	254	235		13	25	40
15-25m		264	244	NR		17	13	32
25-35m		261	248	213		27	26	31
35-45m		291	276	NR		34	36	46
>45m		126	279	288		47	22	24
ALL		270	257	250		16	13	17

Table 60 Tidal Constituent K1 at Liscomb

Liscomb	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	K1-Major				95% CI			
5-15m		8.9	6.4	5.6		1.8	1.5	2.9
15-25m		9.3	7.3	5.8		1.6	1.1	2.1
25-35m		9.5	8.4	6		1.6	1.1	3.3
35-45m		9.7	8.4	5.4		1.4	1.2	2.2
>45m		7.1	4.7	NR		1.2	1.1	1.6
ALL		9.1	7.3	5.1		1.3	0.9	1.7
	K1-Minor				95% CI			
5-15m		-0.6	-0.5	0.2		1.3	1.3	2.5
15-25m		-0.6	-0.2	-0.5		1.1	0.8	1.7
25-35m		-0.3	-0.3	-0.4		1.4	0.9	2.3
35-45m		0.2	-0.1	-0.2		1.2	0.8	1.9
>45m		0.6	0.7	NR		1.4	0.6	0.8
ALL		-0.2	-0.1	-0.2		0.8	0.6	1.3
	K1-Inclination				95% CI			
5-15m		76	79	65		8	11	28
15-25m		78	75	66		7	7	18
25-35m		73	69	72		9	6	22
35-45m		65	67	69		7	6	23
>45m		66	73	NR		11	8	30
ALL		72	71	69		6	4	15
	K1-Phase				95% CI			
5-15m		247	274	244		11	13	33
15-25m		249	275	255		11	8	22
25-35m		250	283	252		10	7	32
35-45m		248	272	249		7	8	25
>45m		237	248	NR		10	15	80
ALL		247	274	250		8	7	19

Table 61 Tidal Constituent O1 at Liscomb

Liscomb	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
	O1-Major				95% CI			
5-15m		5.4	5.3	NR		1.8	1.7	2.9
15-25m		5.6	5.7	5.1		1.7	1.2	2
25-35m		6.4	6.6	5.6		1.6	1.2	3.4
35-45m		6	6.4	6.9		1.3	1.3	2.3
>45m		3.9	3.3	3.9		1.3	1.2	2
ALL		5.6	5.6	5.3		1.2	1	1.8
	O1-Minor				95% CI			
5-15m		-0.1	-0.4	NR		1.4	1.3	2.5
15-25m		0.3	-0.5	-0.2		1.3	0.9	1.9
25-35m		0.2	-0.1	-0.1		1.6	0.9	2.2
35-45m		0.4	0.1	0.4		1.1	0.9	2
>45m		0.6	0.4	0.2		1.5	0.6	0.9
ALL		0.3	-0.1	0		1	0.6	1.4
	O1-Inclination				95% CI			
5-15m		81	75	NR		15	14	34
15-25m		69	75	79		13	8	22
25-35m		58	66	72		14	8	25
35-45m		60	68	69		12	8	17
>45m		69	77	81		23	11	13
ALL		65	70	73		11	7	14
	O1-Phase				95% CI			
5-15m		223	227	NR		19	18	46
15-25m		232	229	250		17	12	24
25-35m		236	242	251		15	10	36
35-45m		225	225	237		12	11	21
>45m		212	203	199		20	22	33
ALL		229	230	242		13	11	20

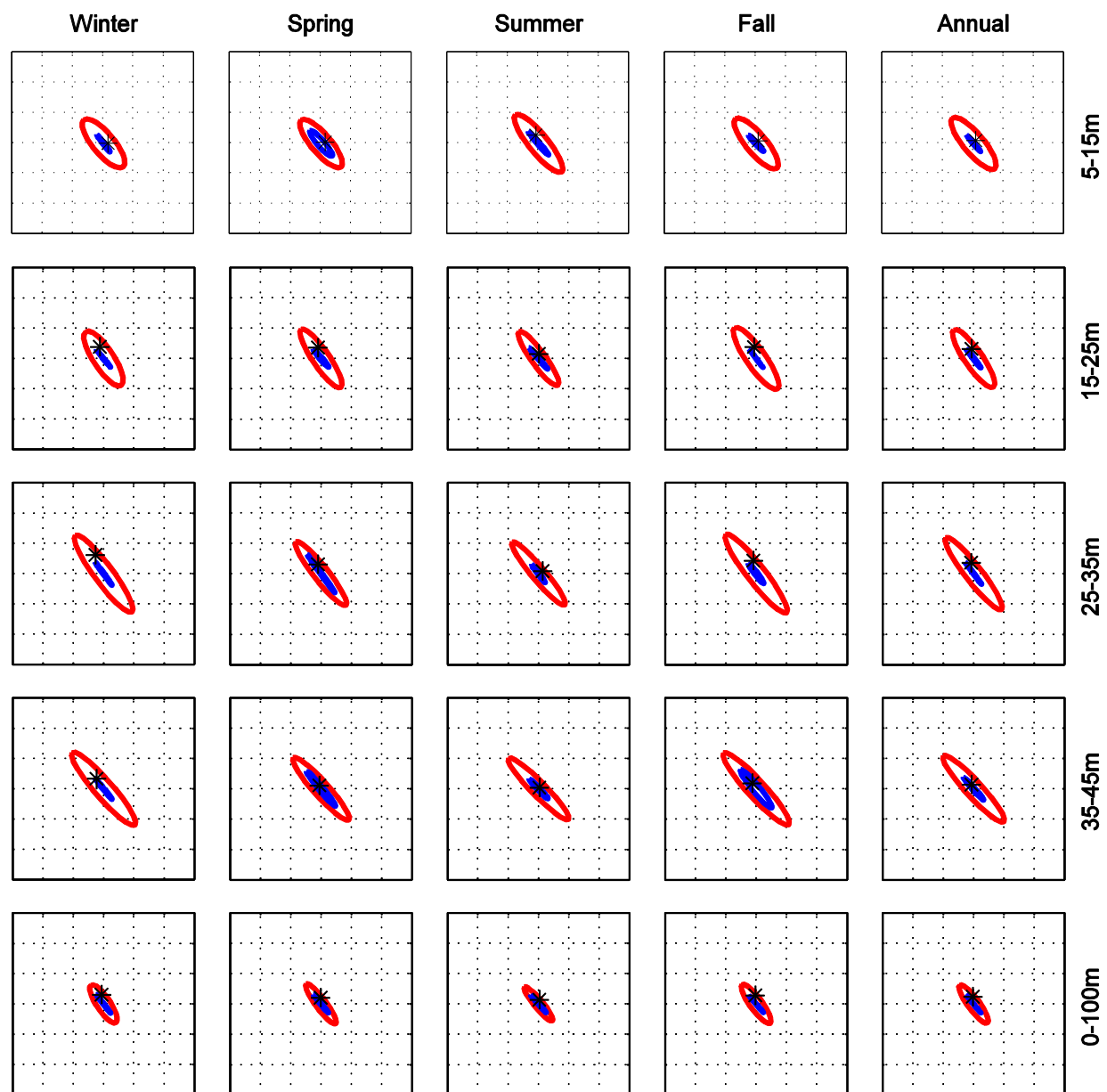


Figure 3 CM1 principal axes and mean velocity (*). Grid lines here in 5 cm/s units. Red=total, blue=tide only. (Same labelling follows upto Figure 12)

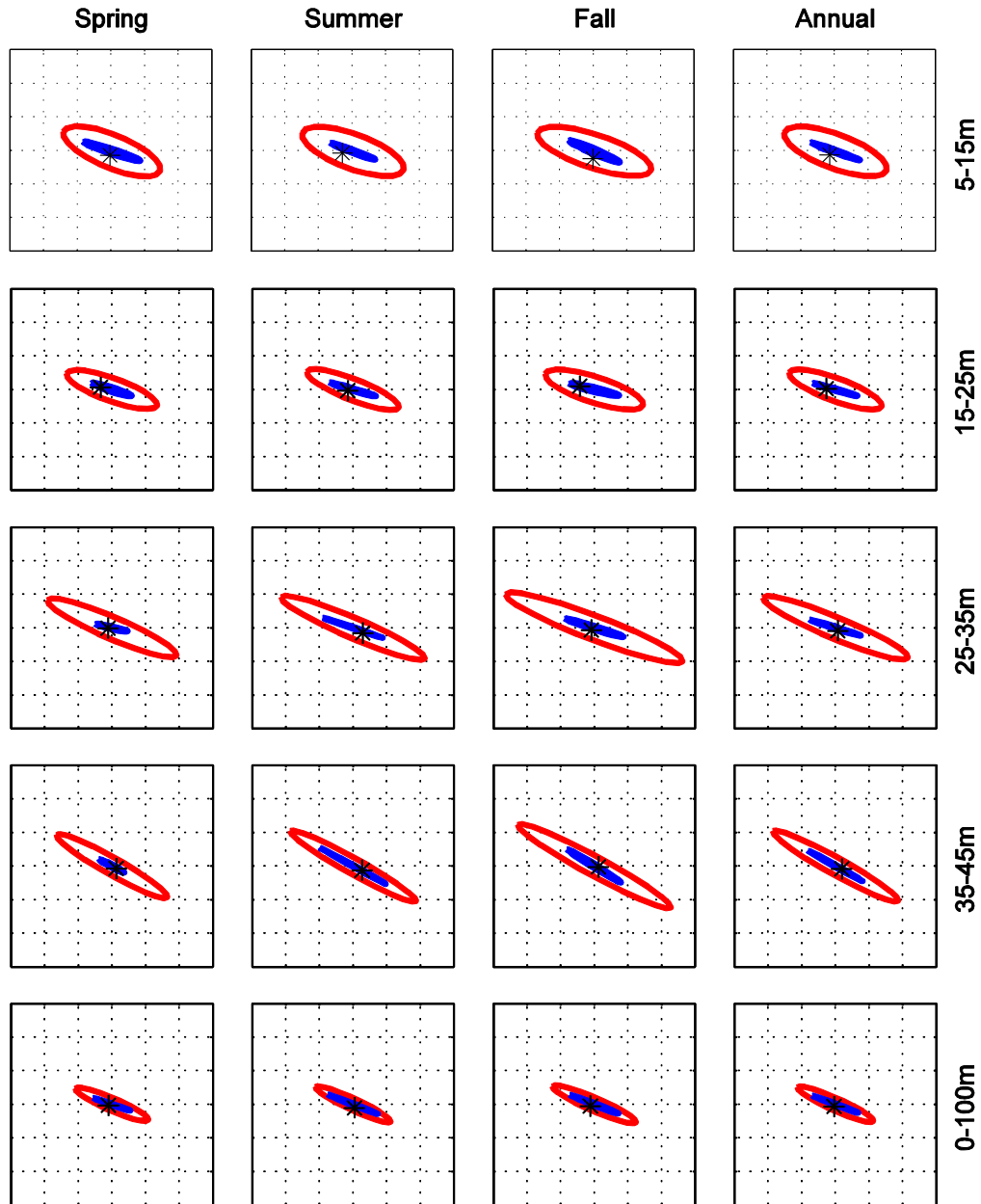


Figure 4 CM2

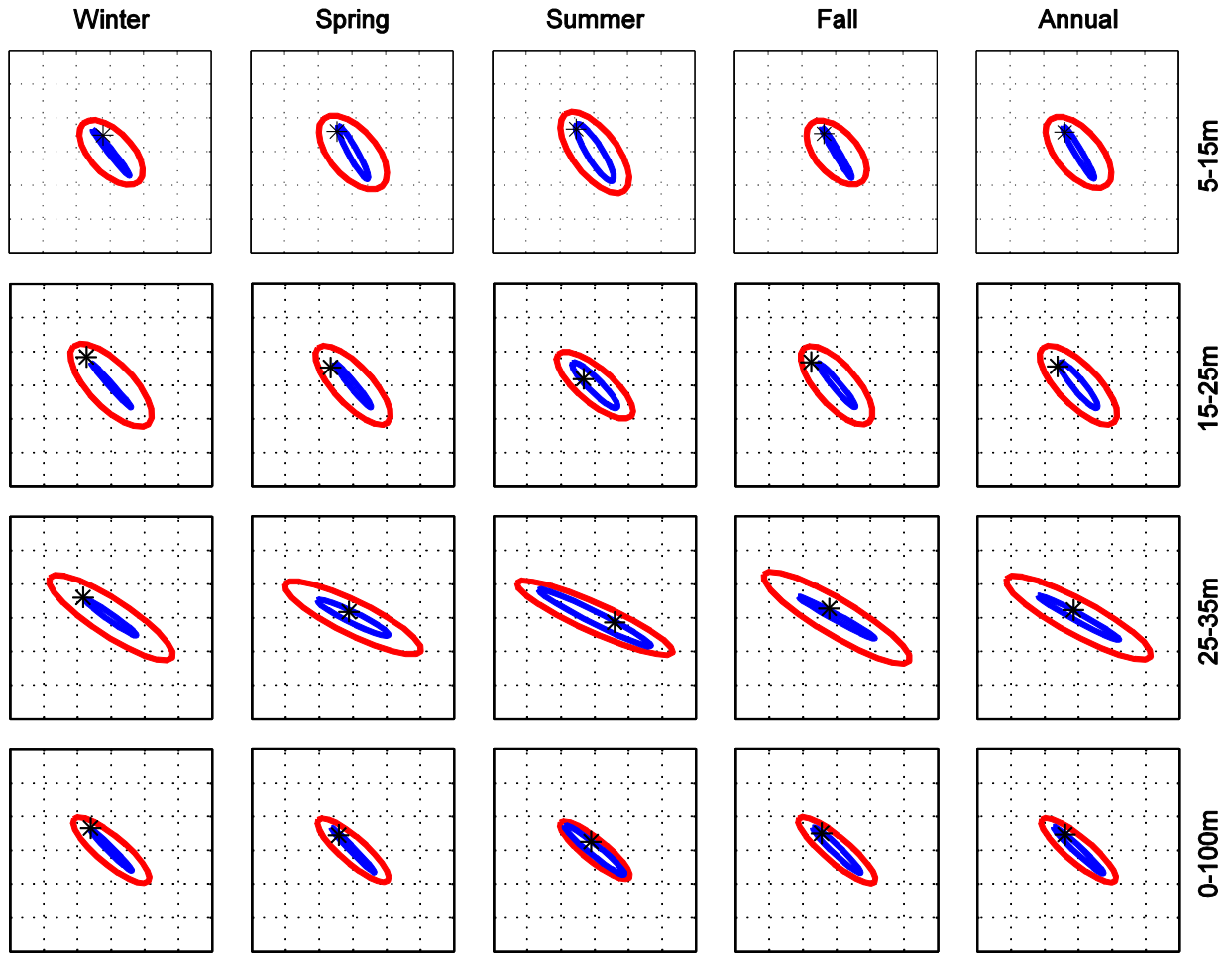


Figure 5 CM3

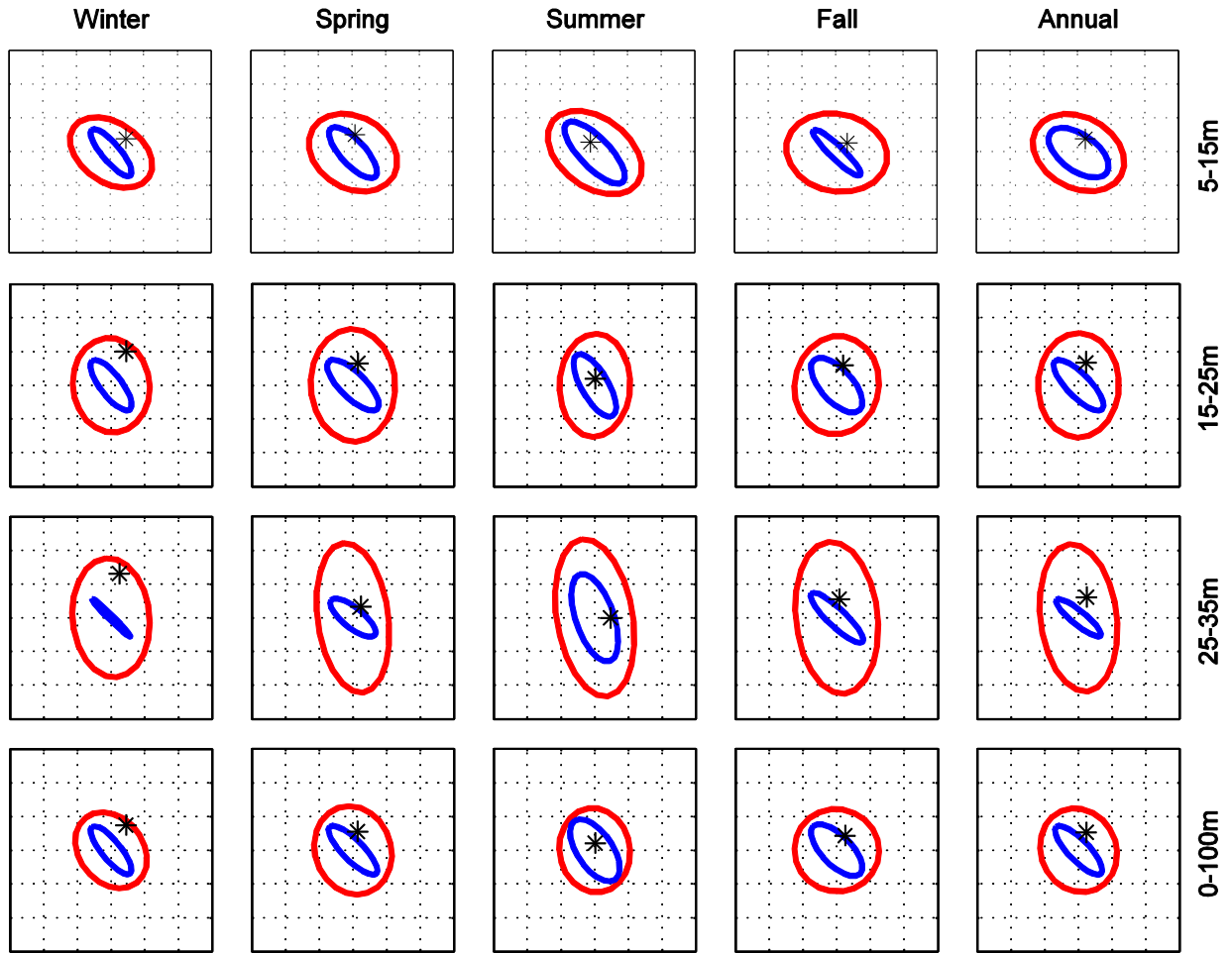


Figure 6 CM4

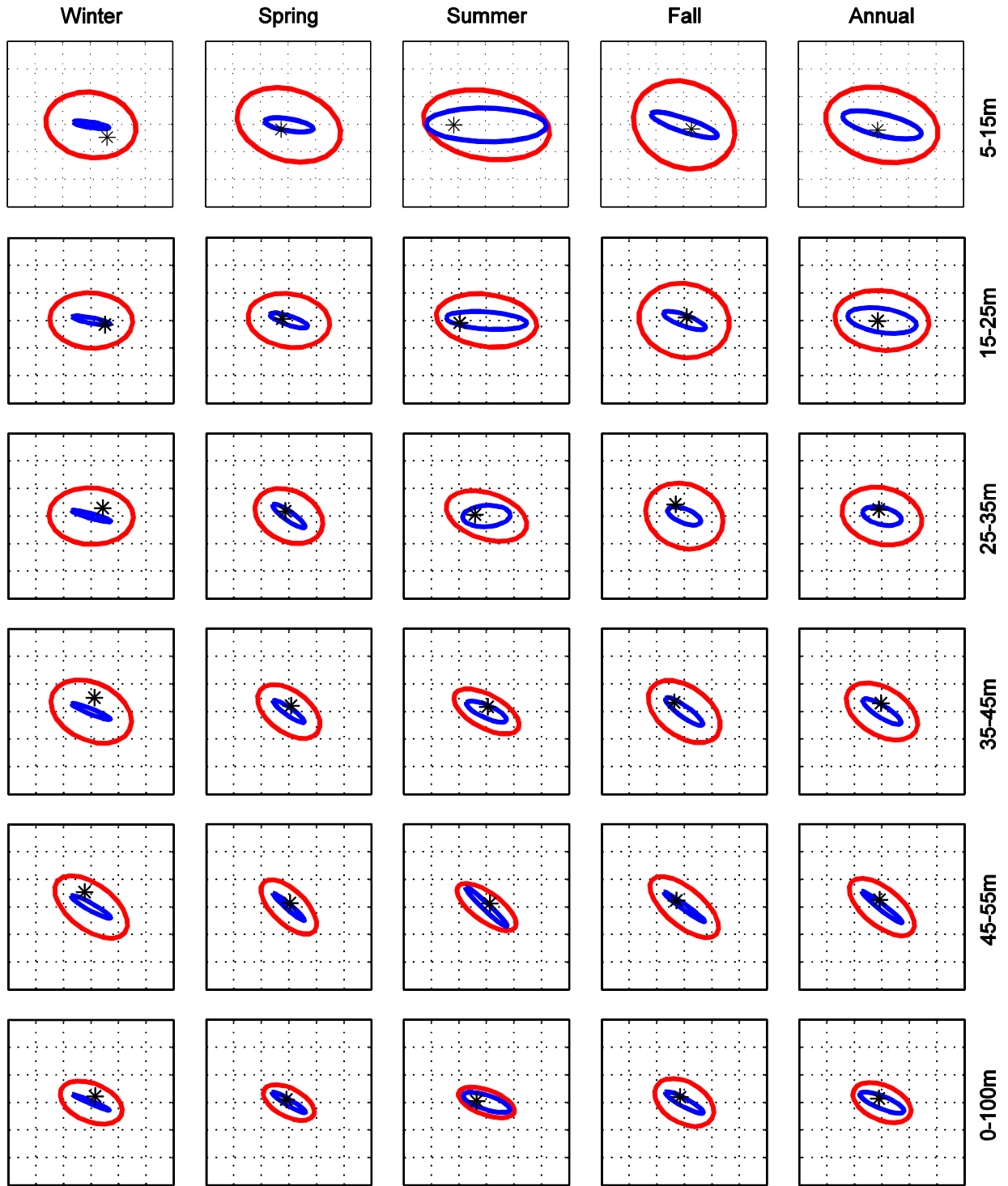


Figure 7 CM5

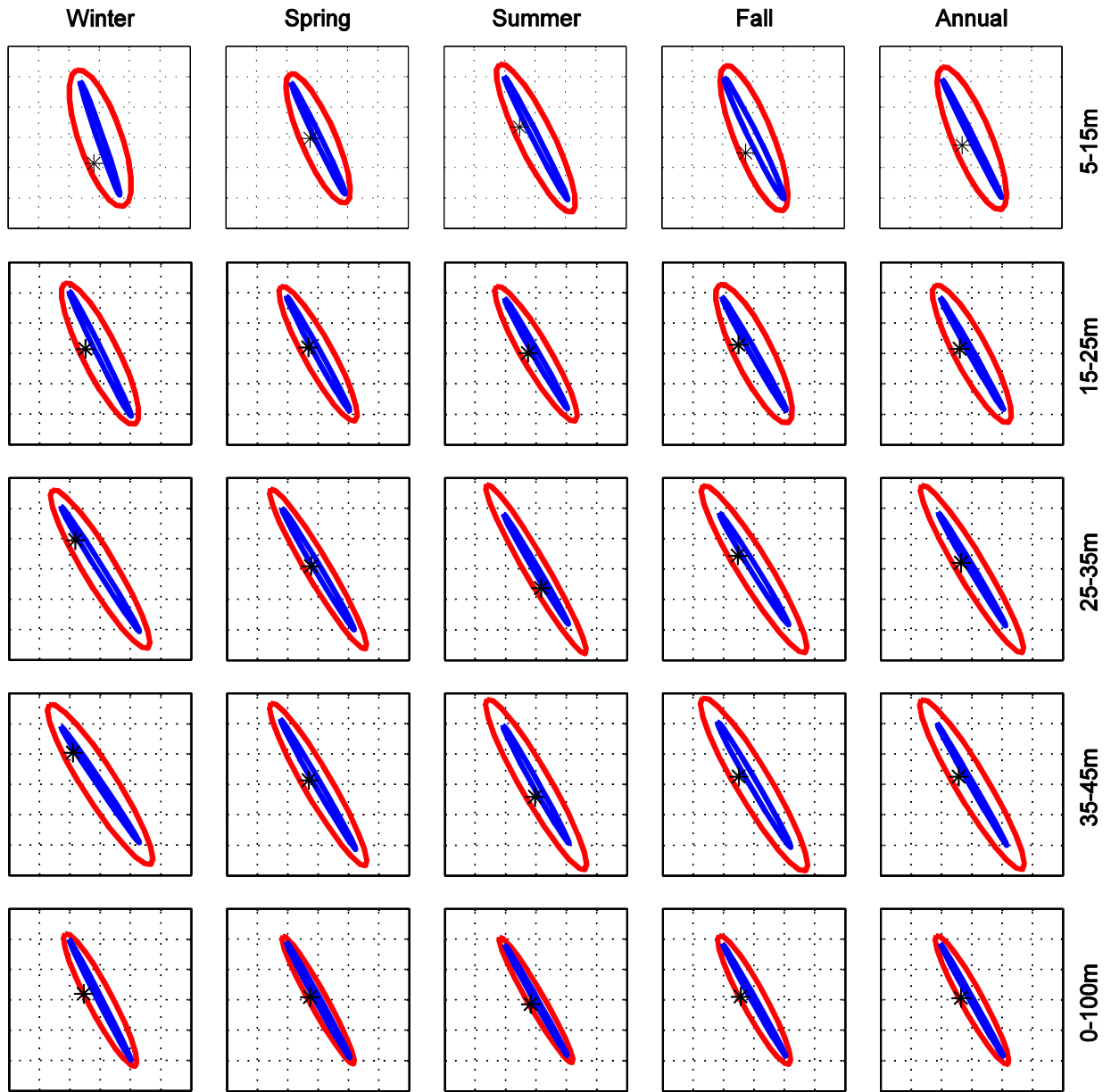


Figure 8 CM7

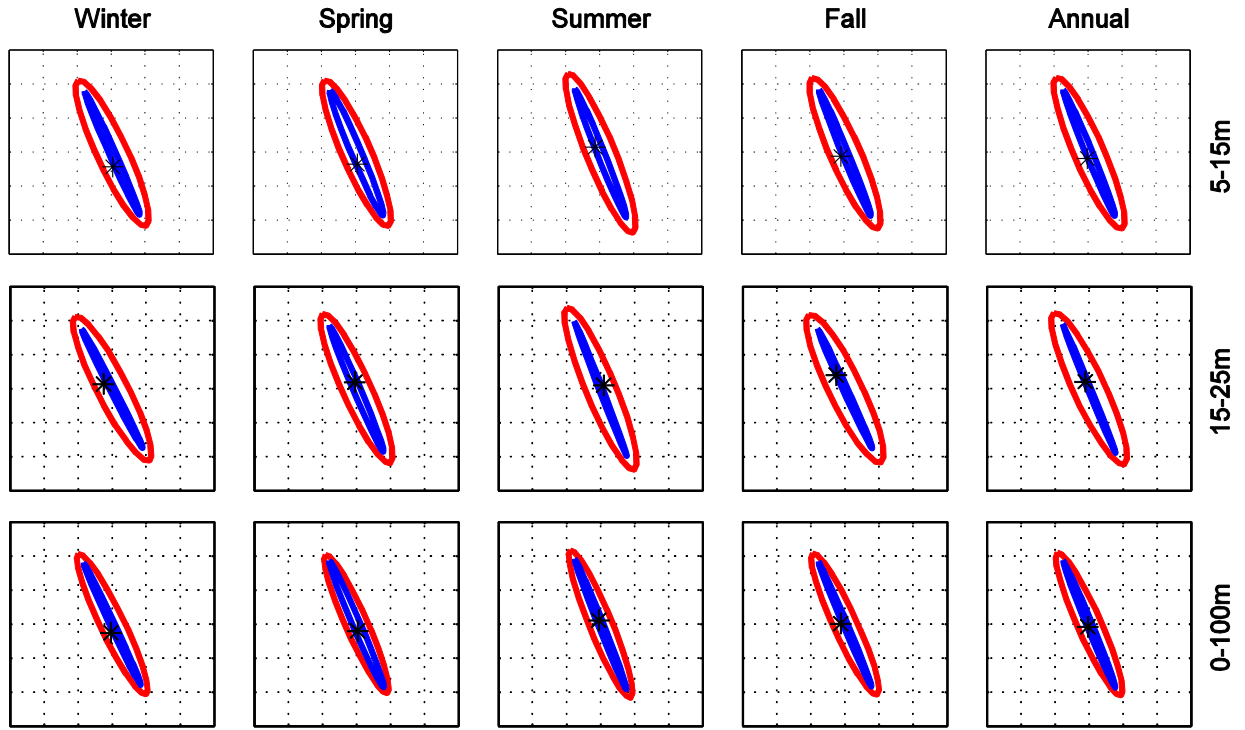


Figure 9 CM8

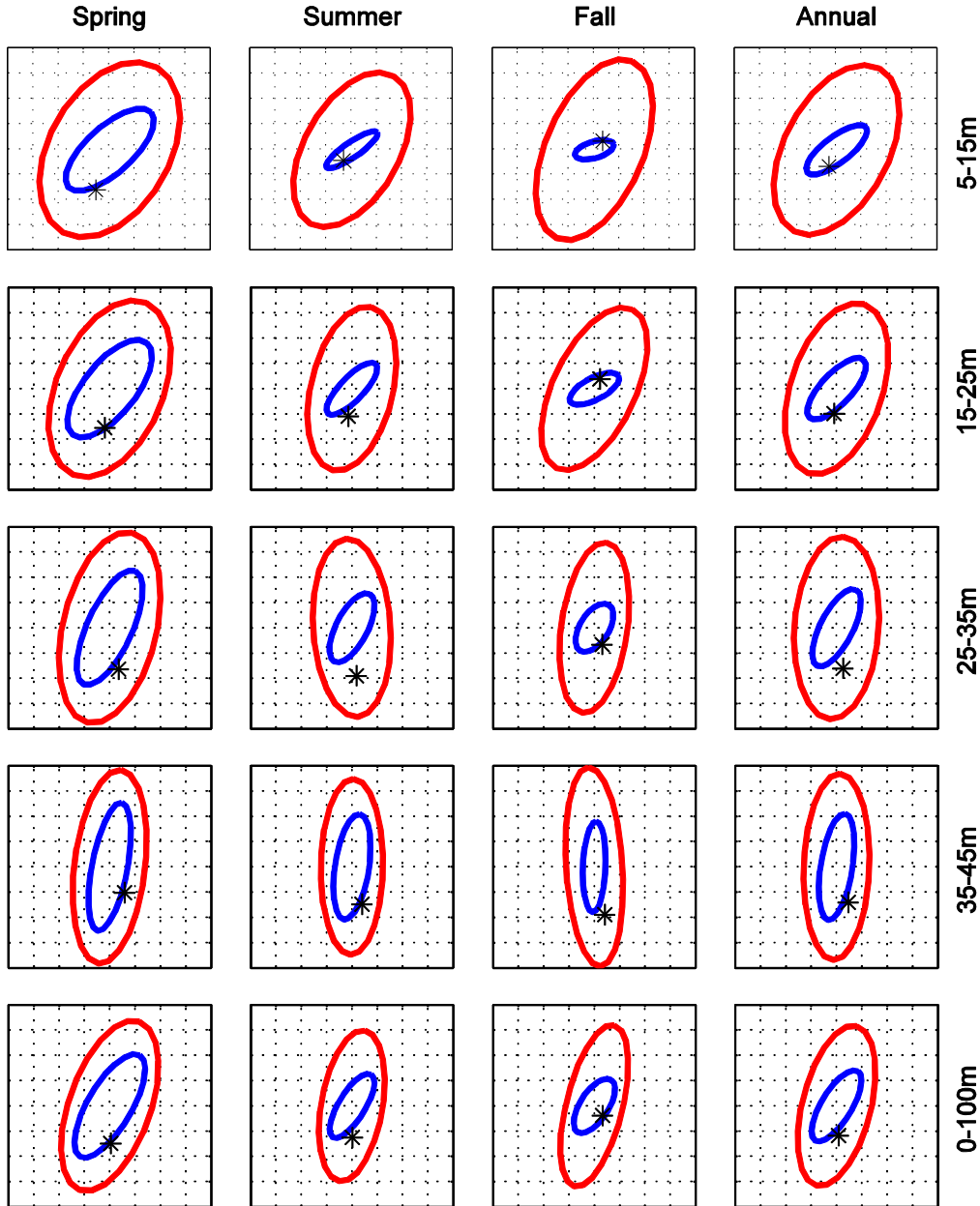


Figure 10 Canso

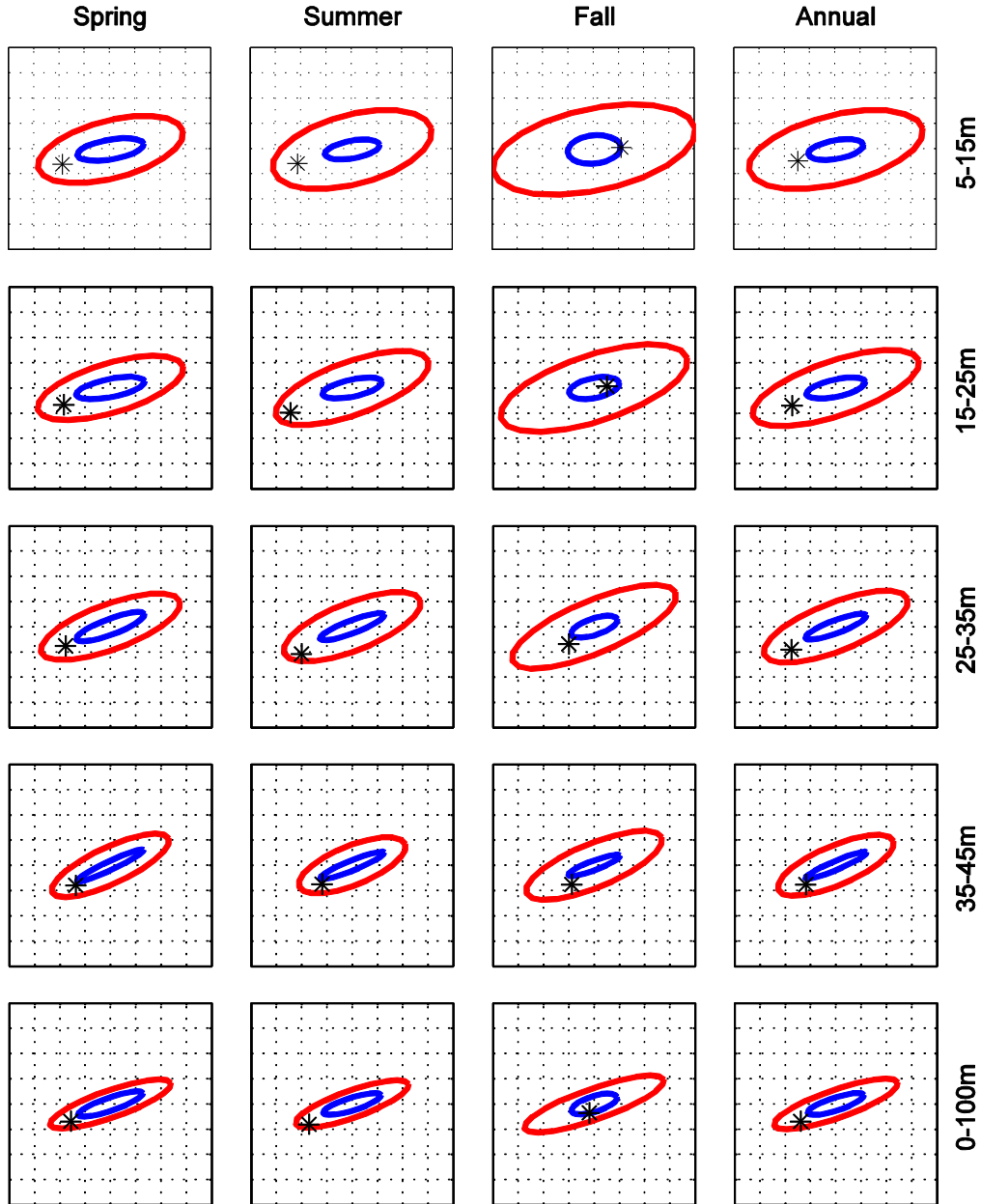


Figure 11 Liscomb

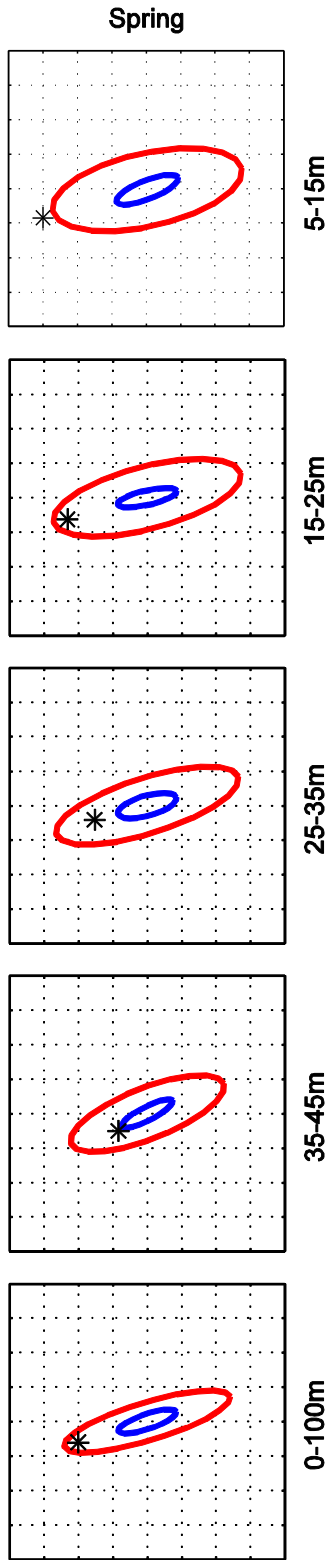


Figure 12 Forchu

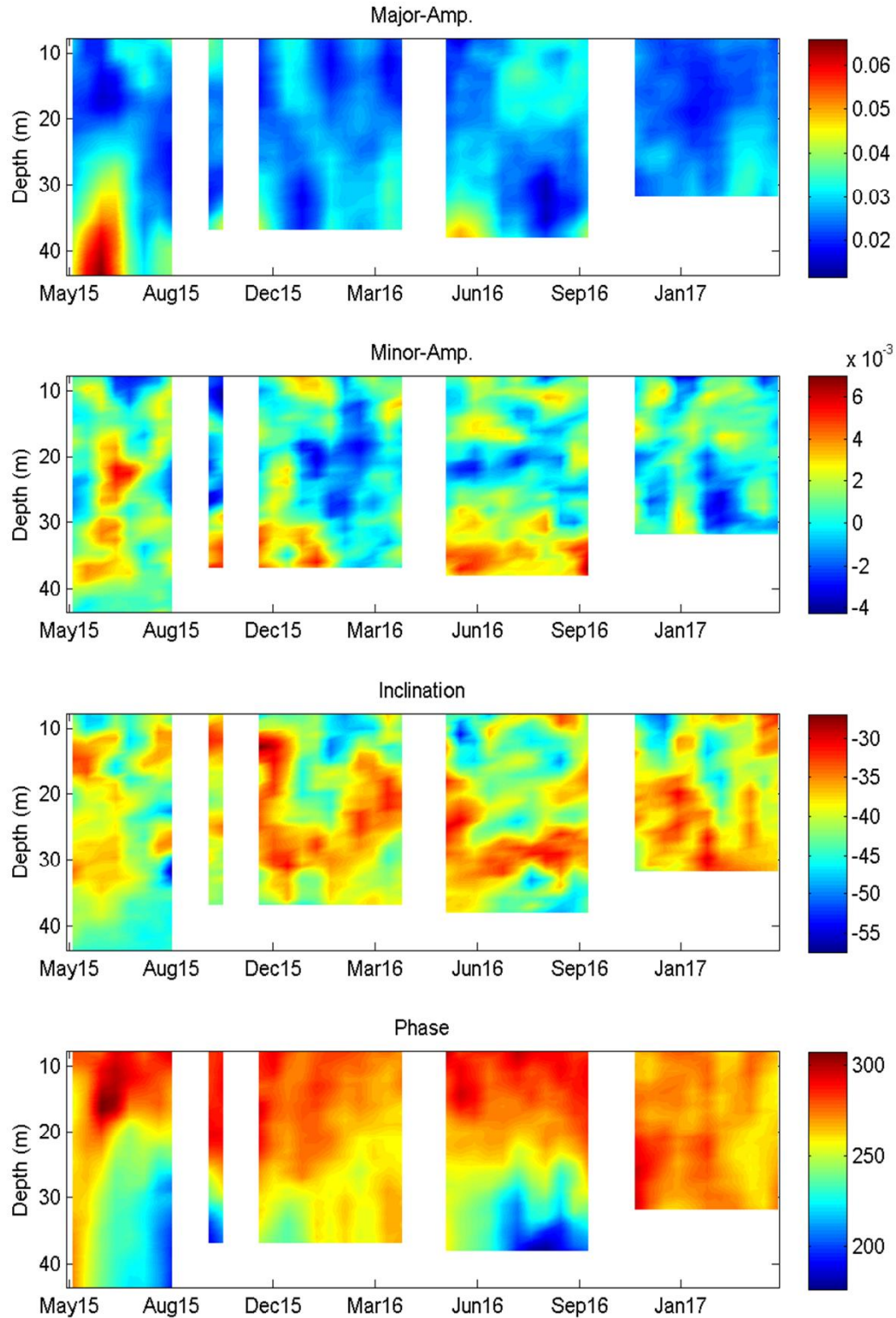


Figure 13 CM1 bi-weekly tidal analysis of full profile (M2). Major and minor amplitude are in meters, inclination and phase in degrees True and GMT respectively.

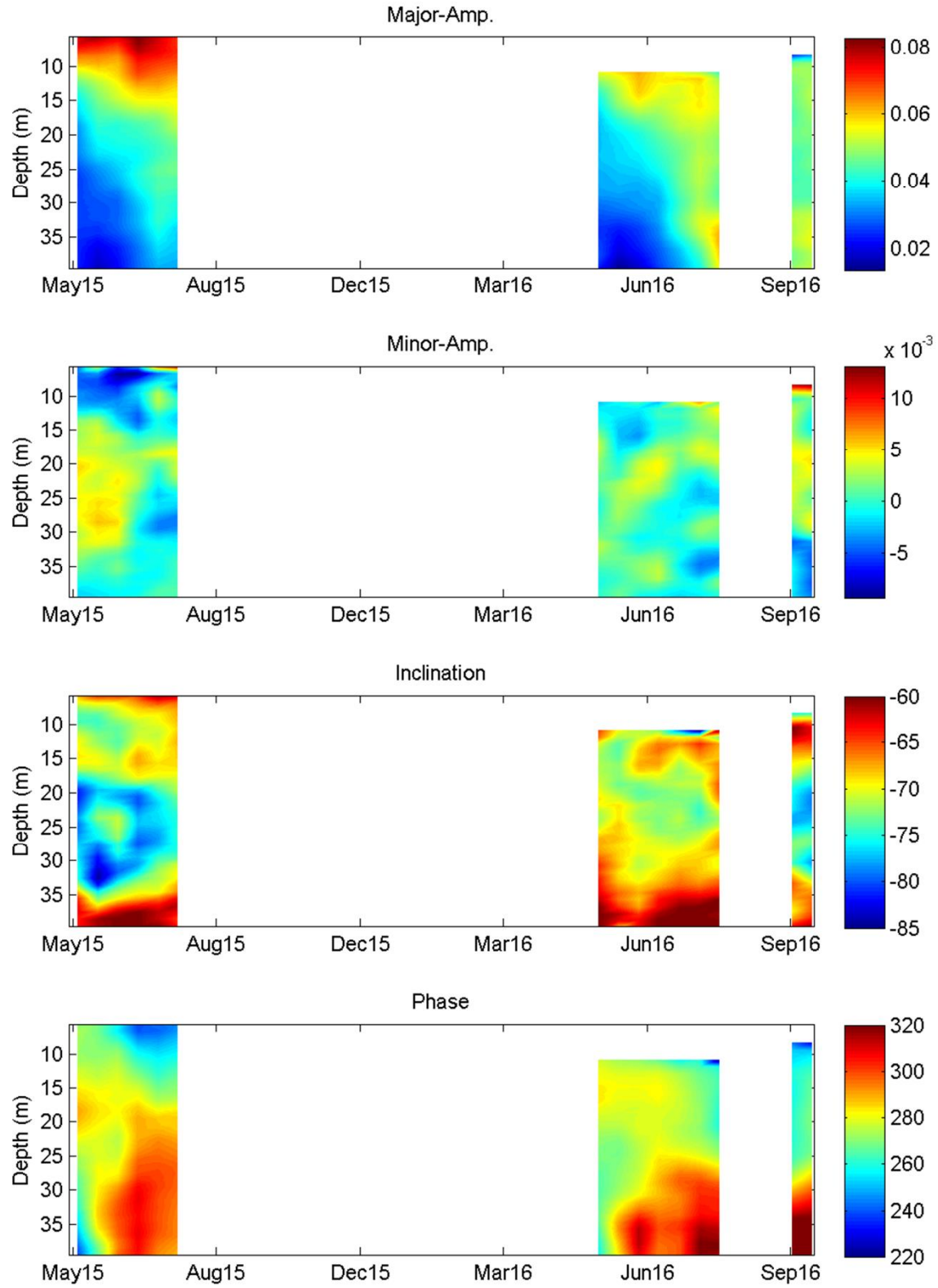


Figure 14 CM2 bi-weekly tidal analysis of full profile (M2).

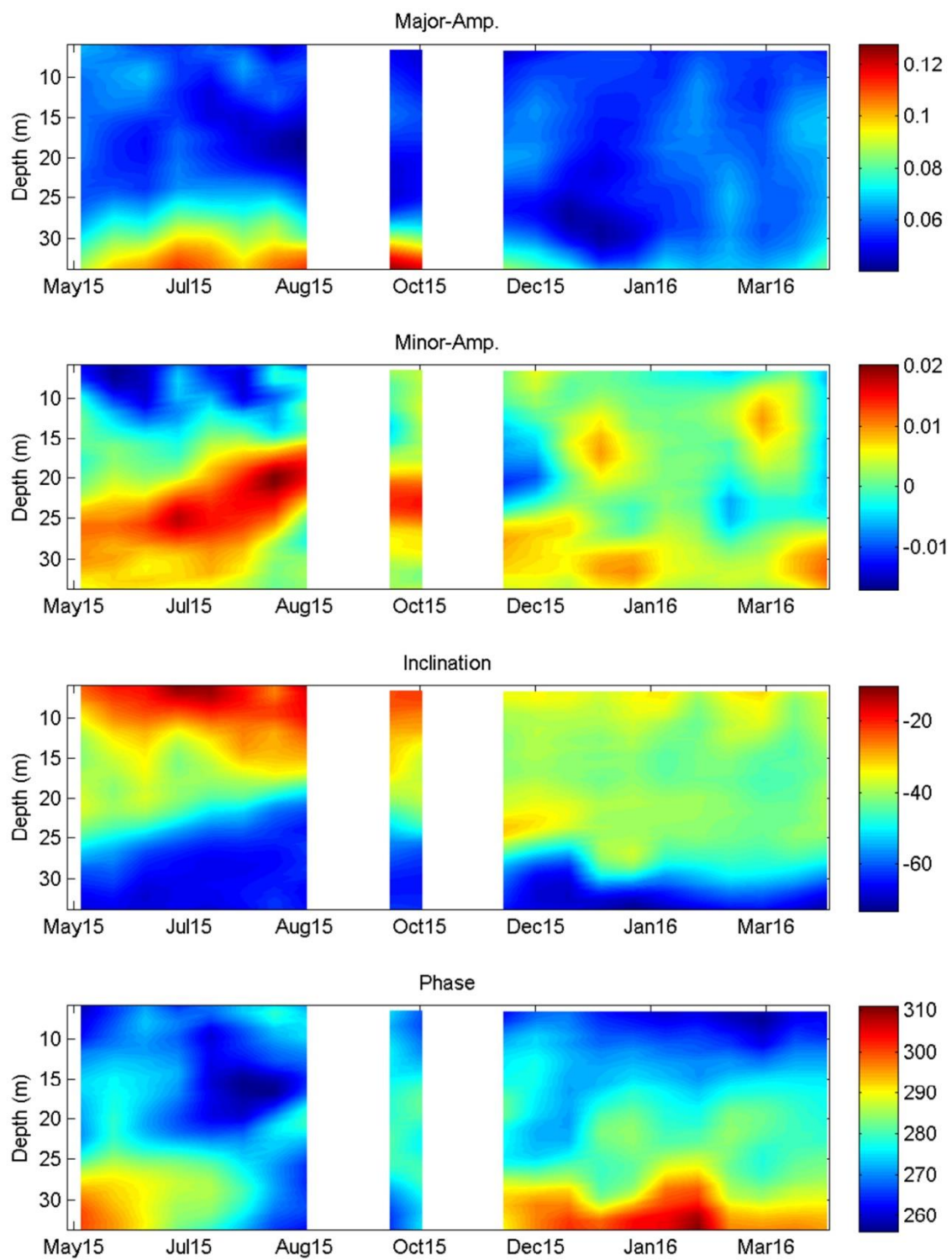


Figure 15 CM3 bi-weekly tidal analysis of full profile (M2).

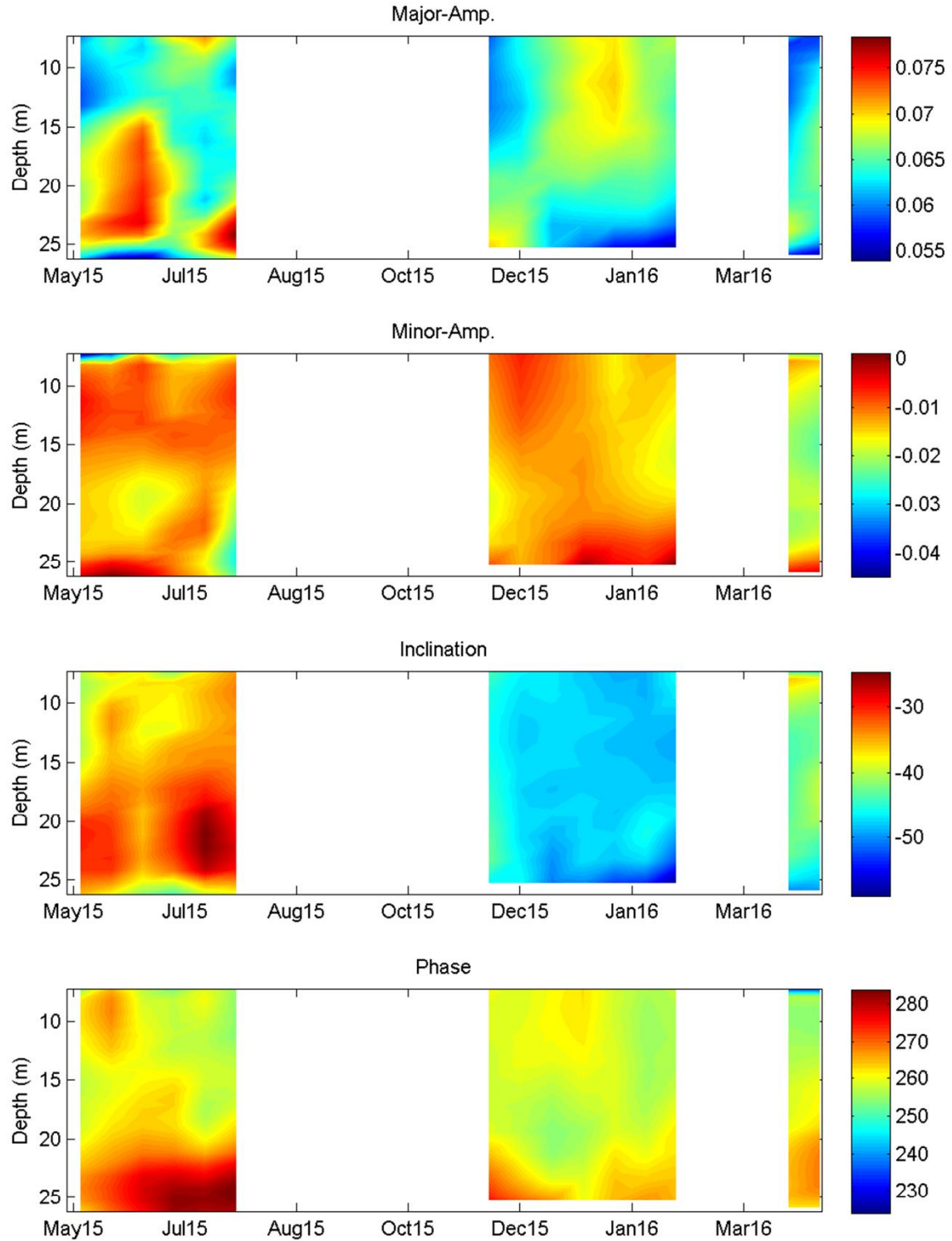


Figure 16 CM4 bi-weekly tidal analysis of full profile (M2).

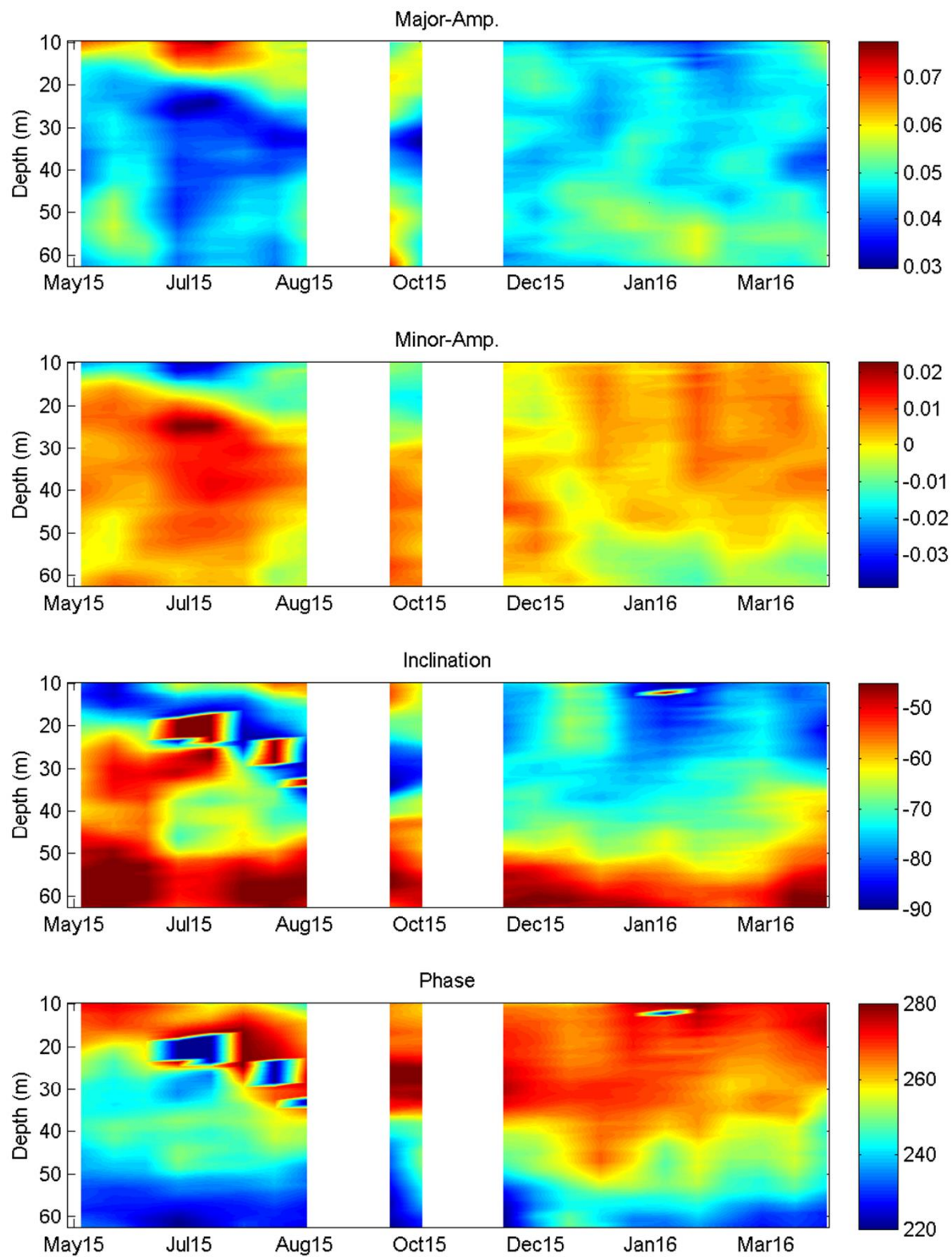


Figure 17 CM5 bi-weekly tidal analysis of full profile (M2).

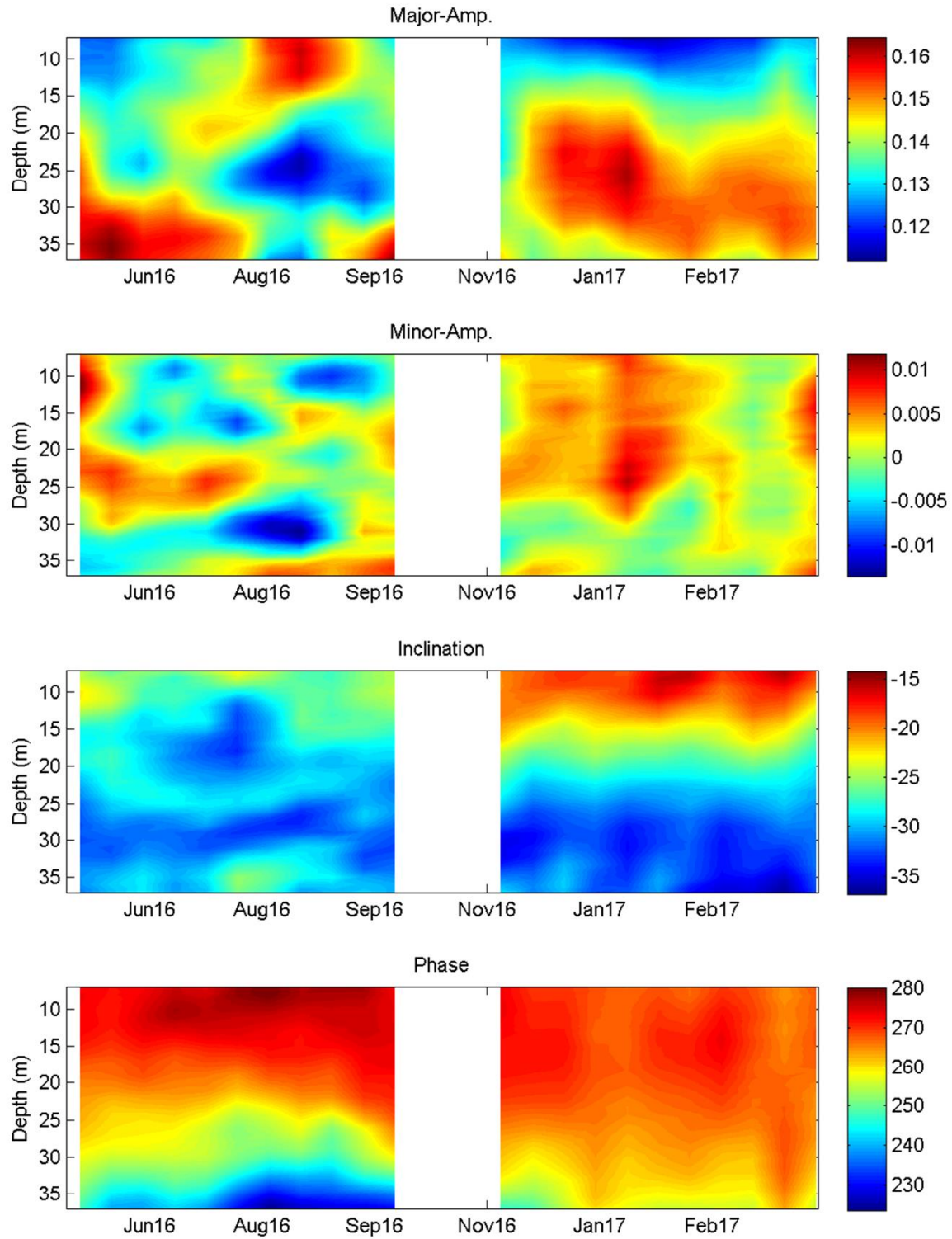


Figure 18 CM7 bi-weekly tidal analysis of full profile (M2).

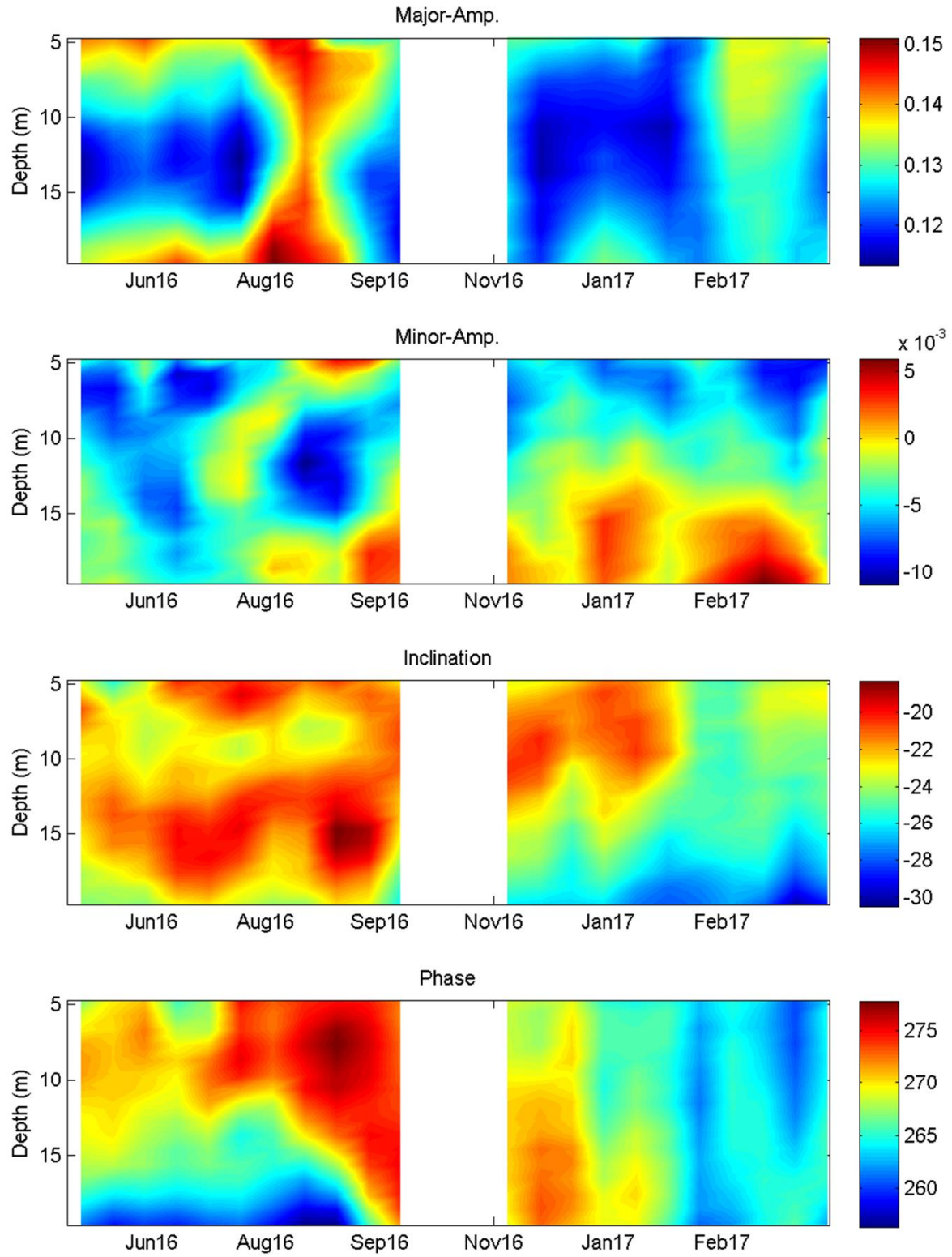


Figure 19 CM8 bi-weekly tidal analysis of full profile (M2).

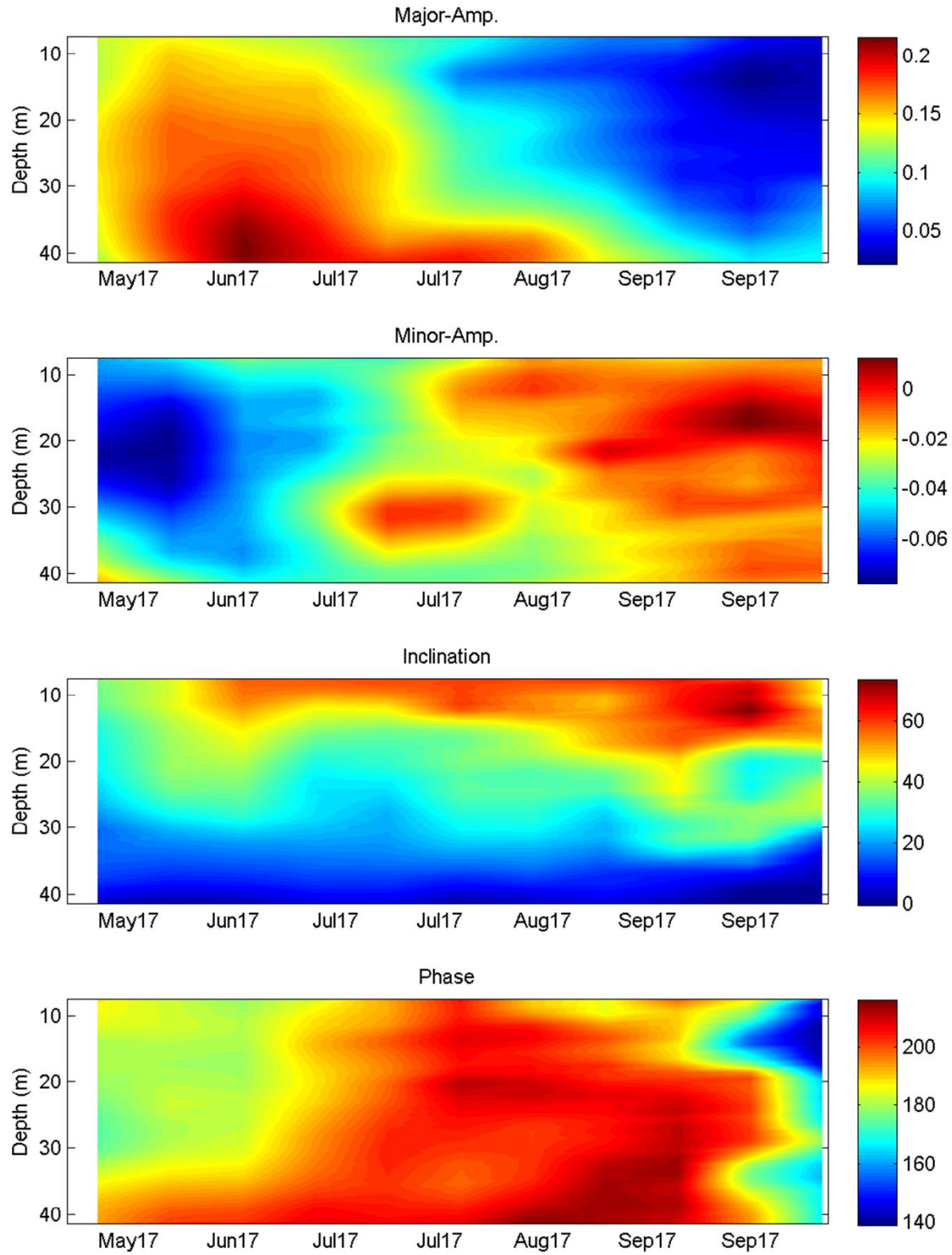


Figure 20 Canso bi-weekly tidal analysis of full profile (K1).

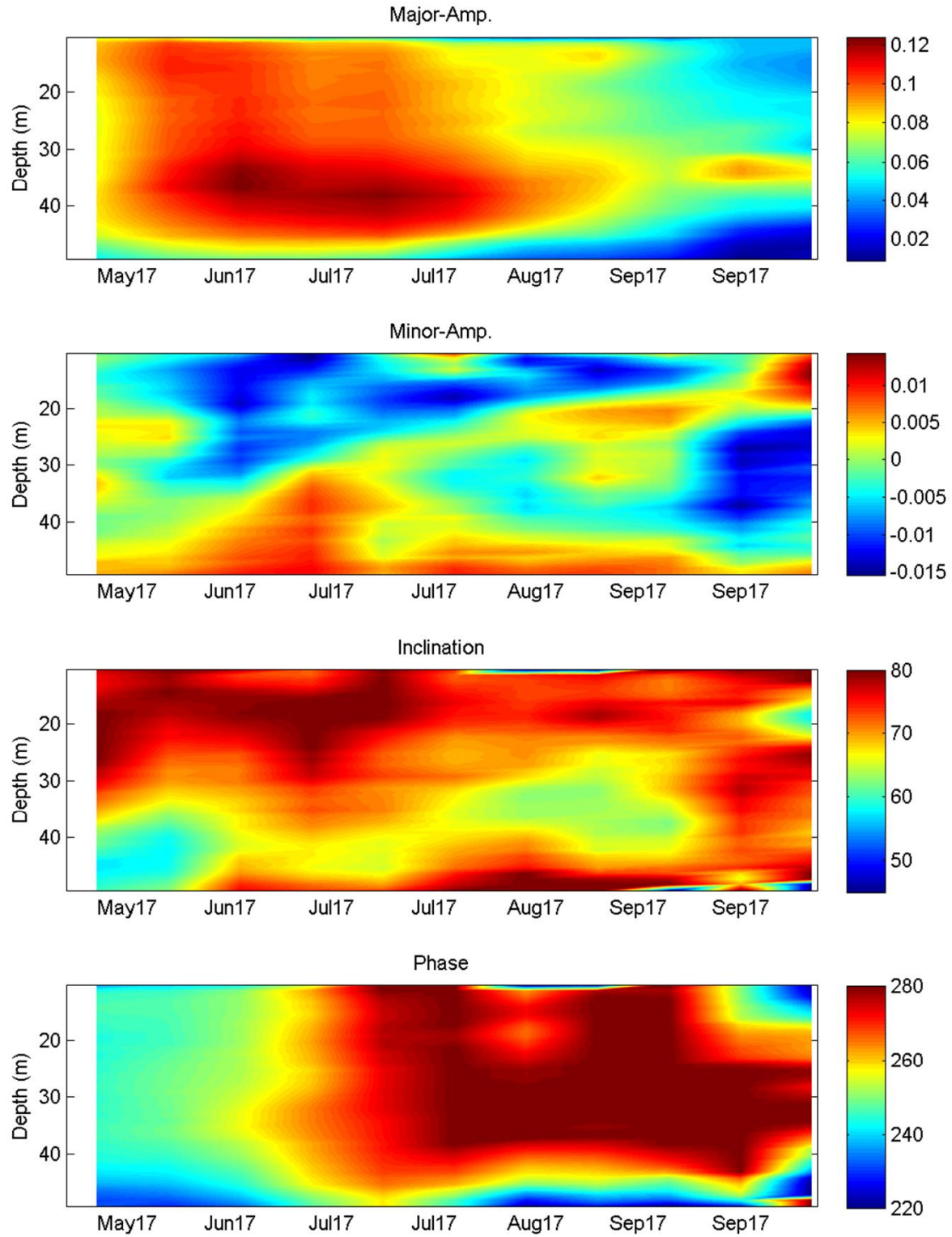


Figure 21 Liscomb bi-weekly tidal analysis of full profile (K1).

APPENDIX

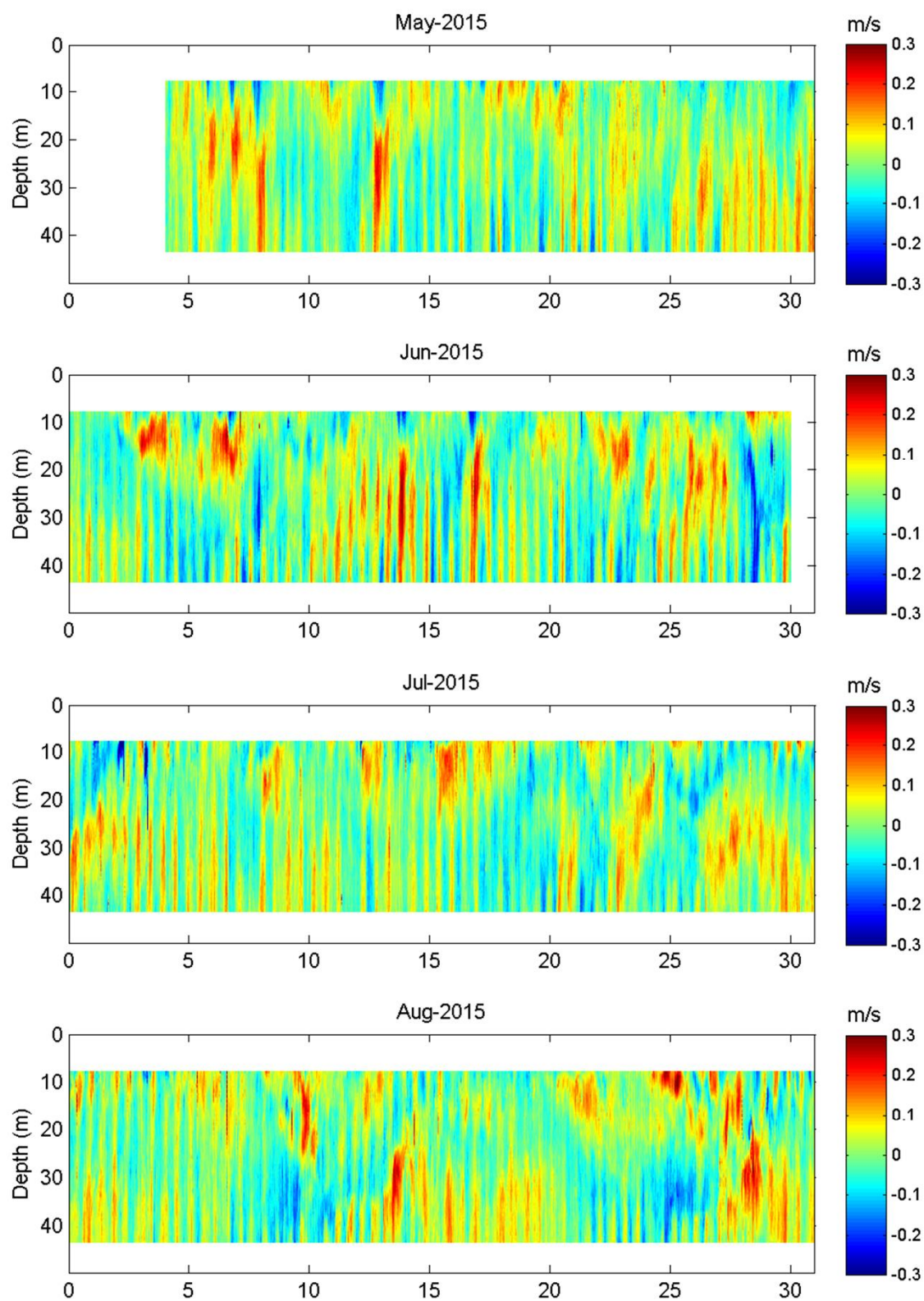


Figure 22 CM1 part 1a

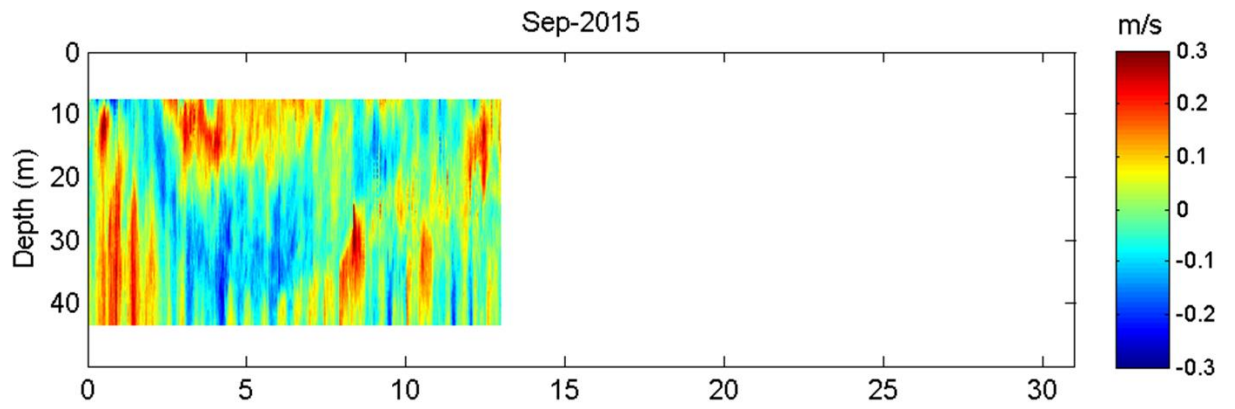


Figure 23 CM1 part 1b

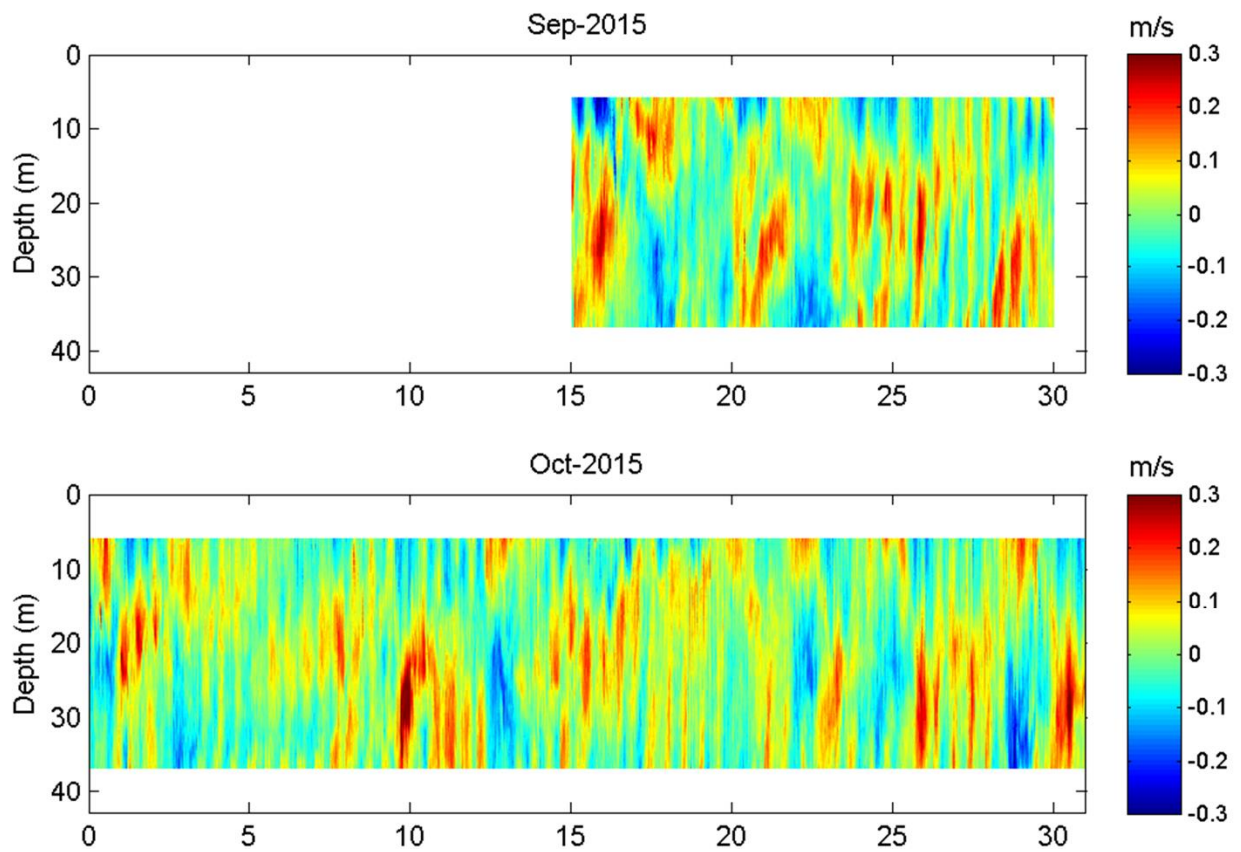


Figure 24 CM1 part 2

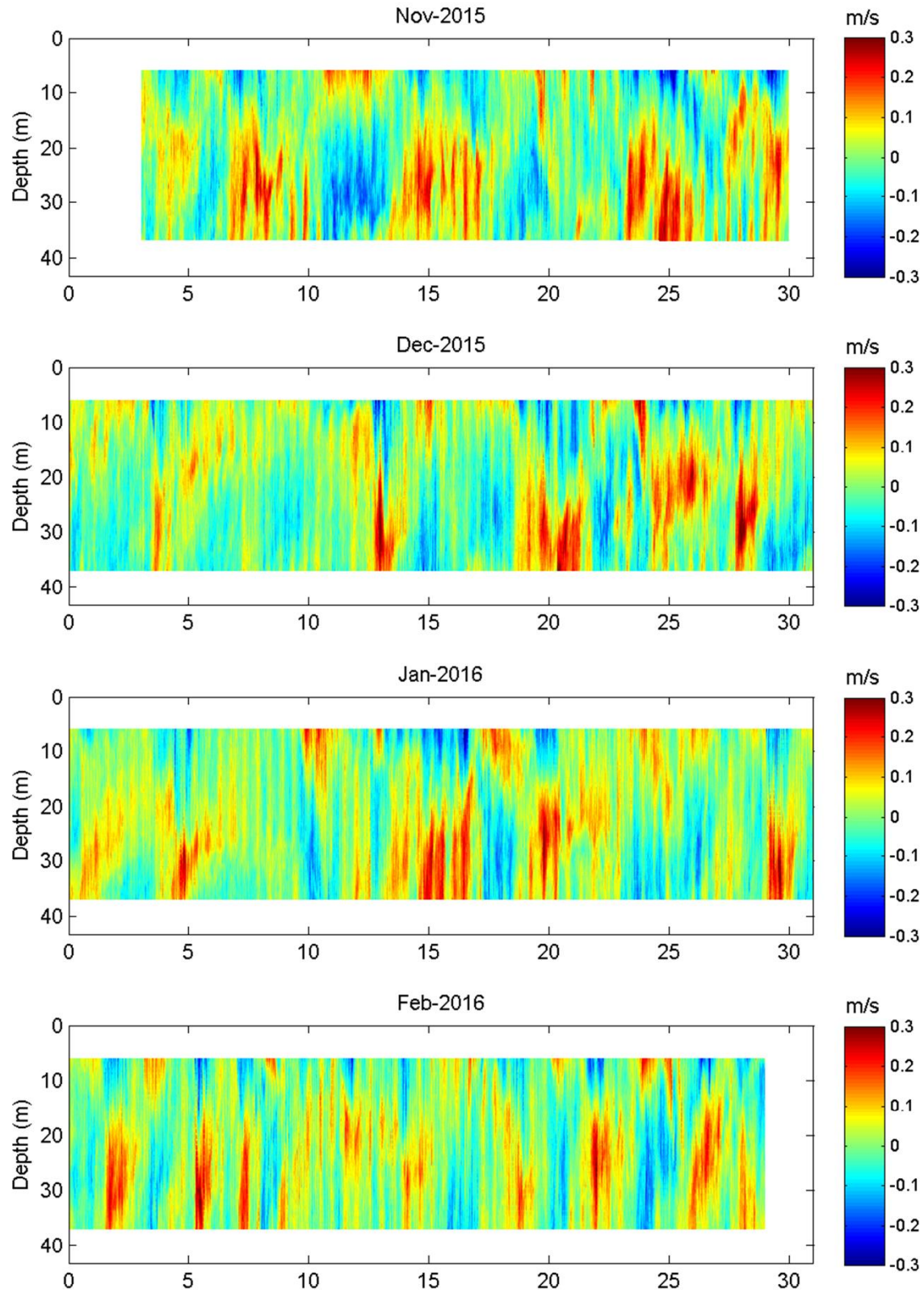


Figure 25 CM1 part 3a

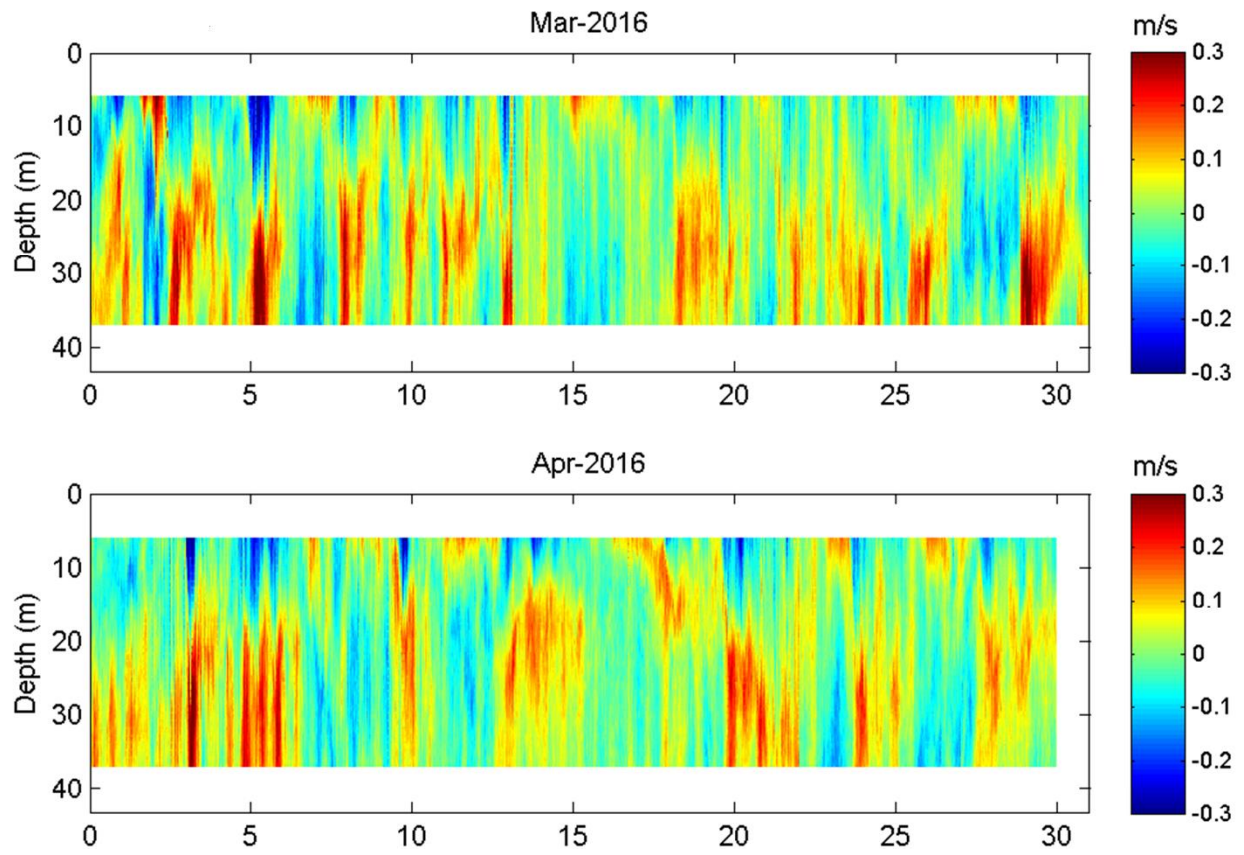


Figure 26 CM1 part 3b

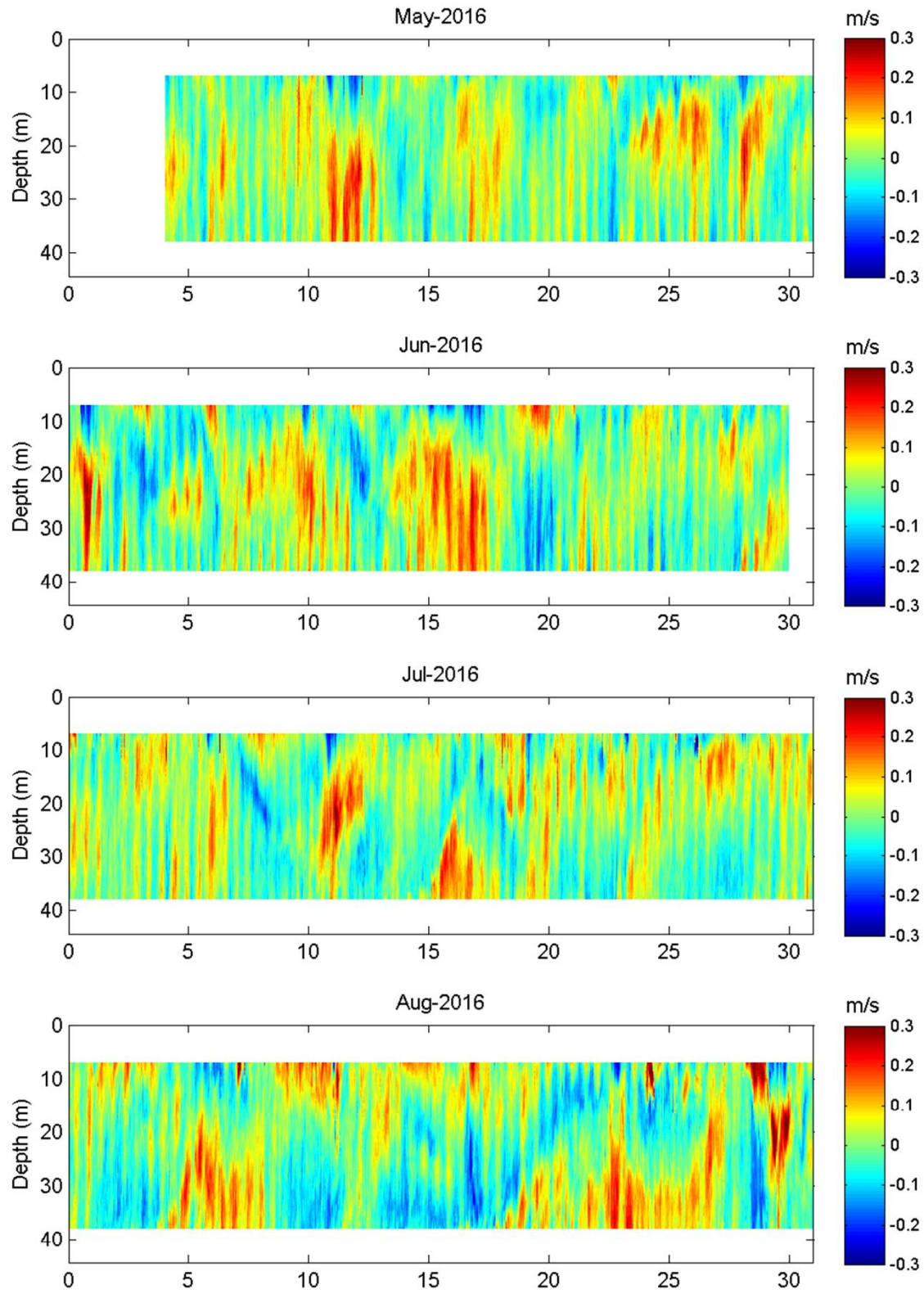


Figure 27 CM1 part 4a

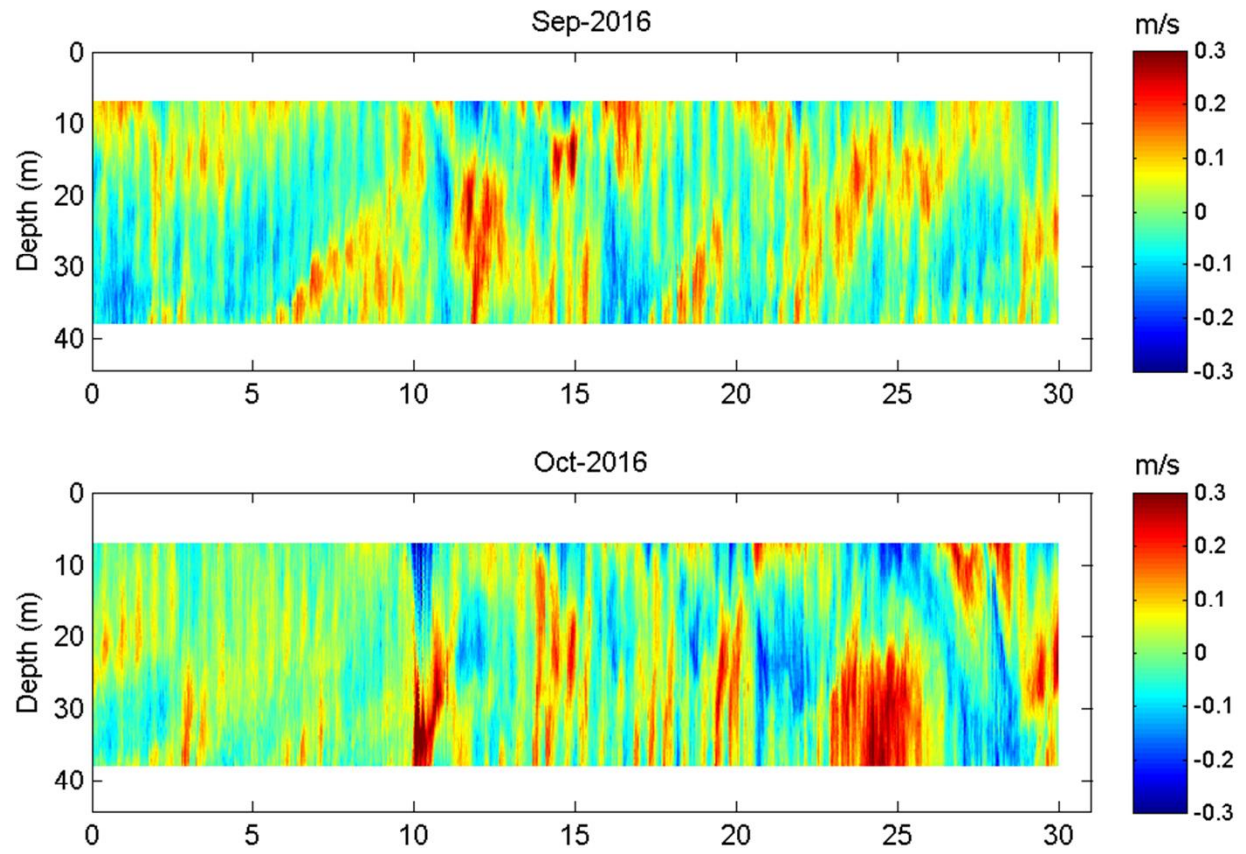


Figure 28 CM1 part 4b

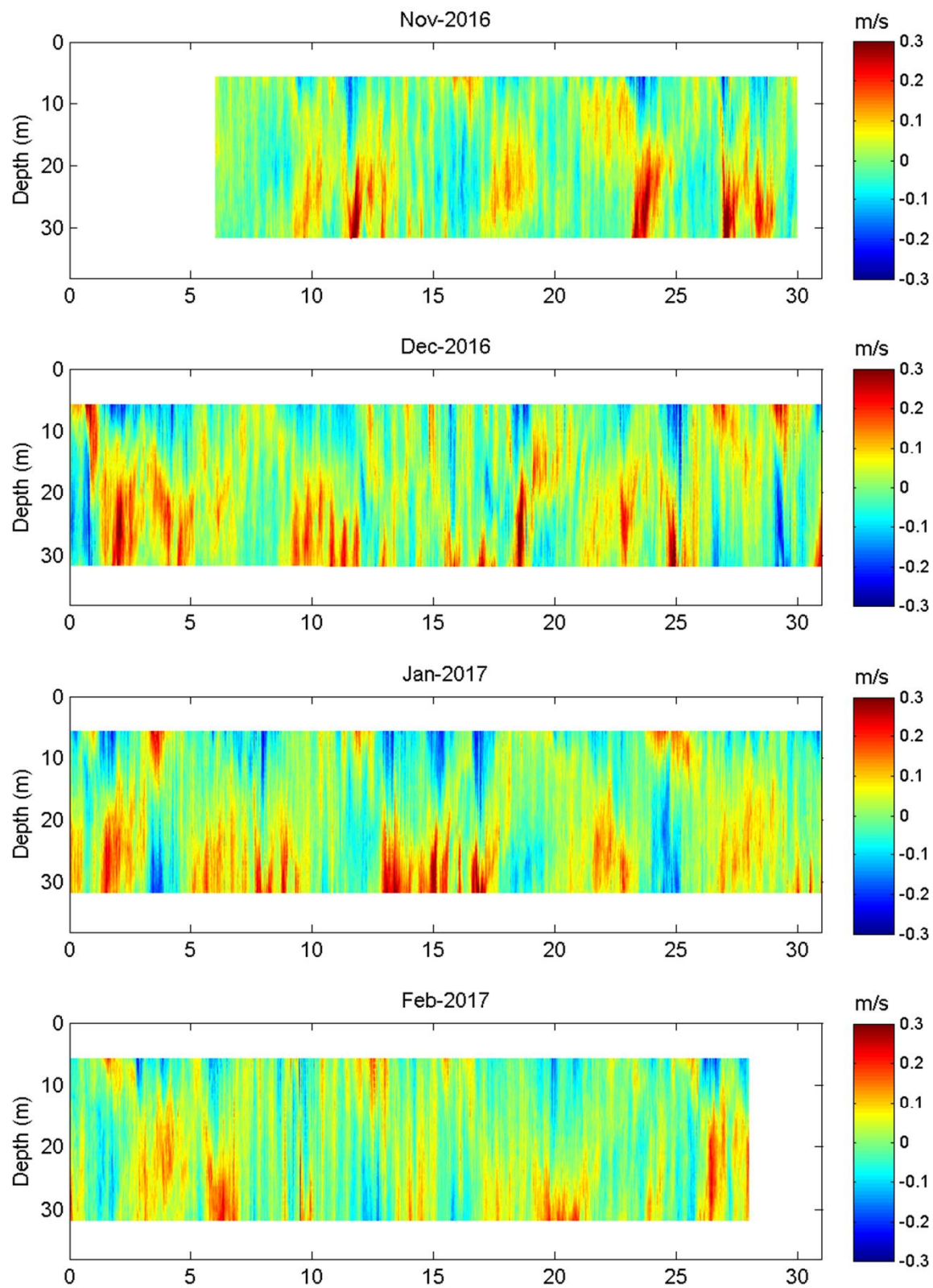


Figure 29 CM1 Part 5a

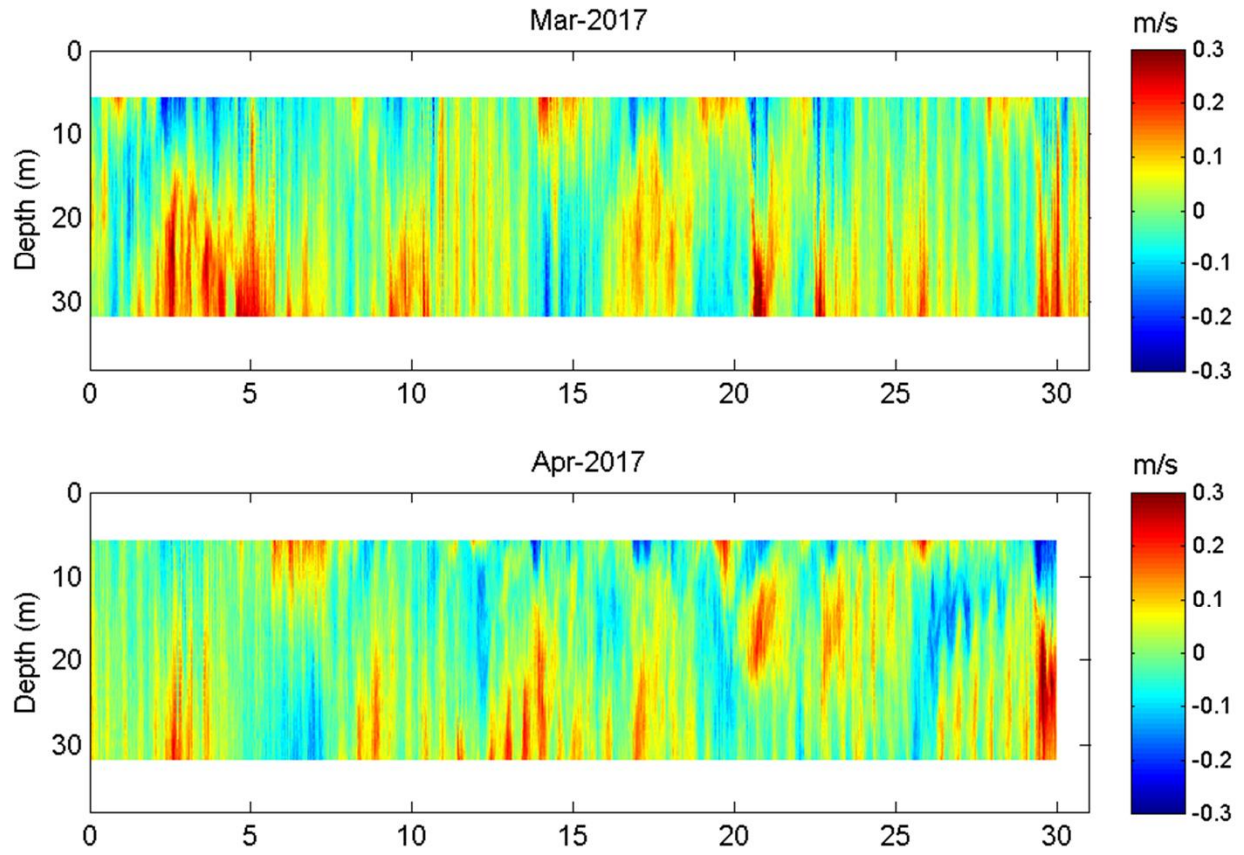


Figure 30 CM1 part 5b

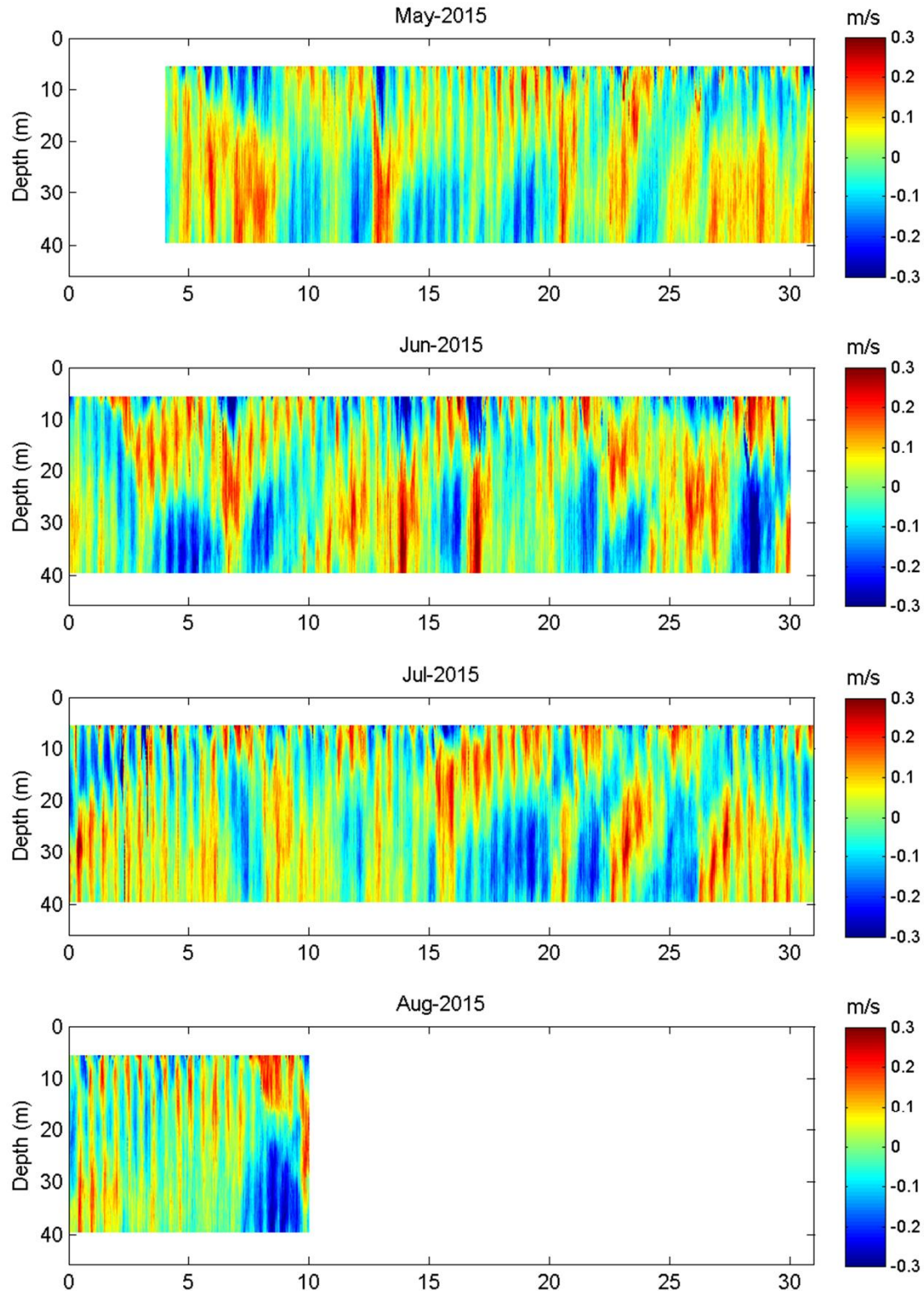


Figure 31 CM2 part 1

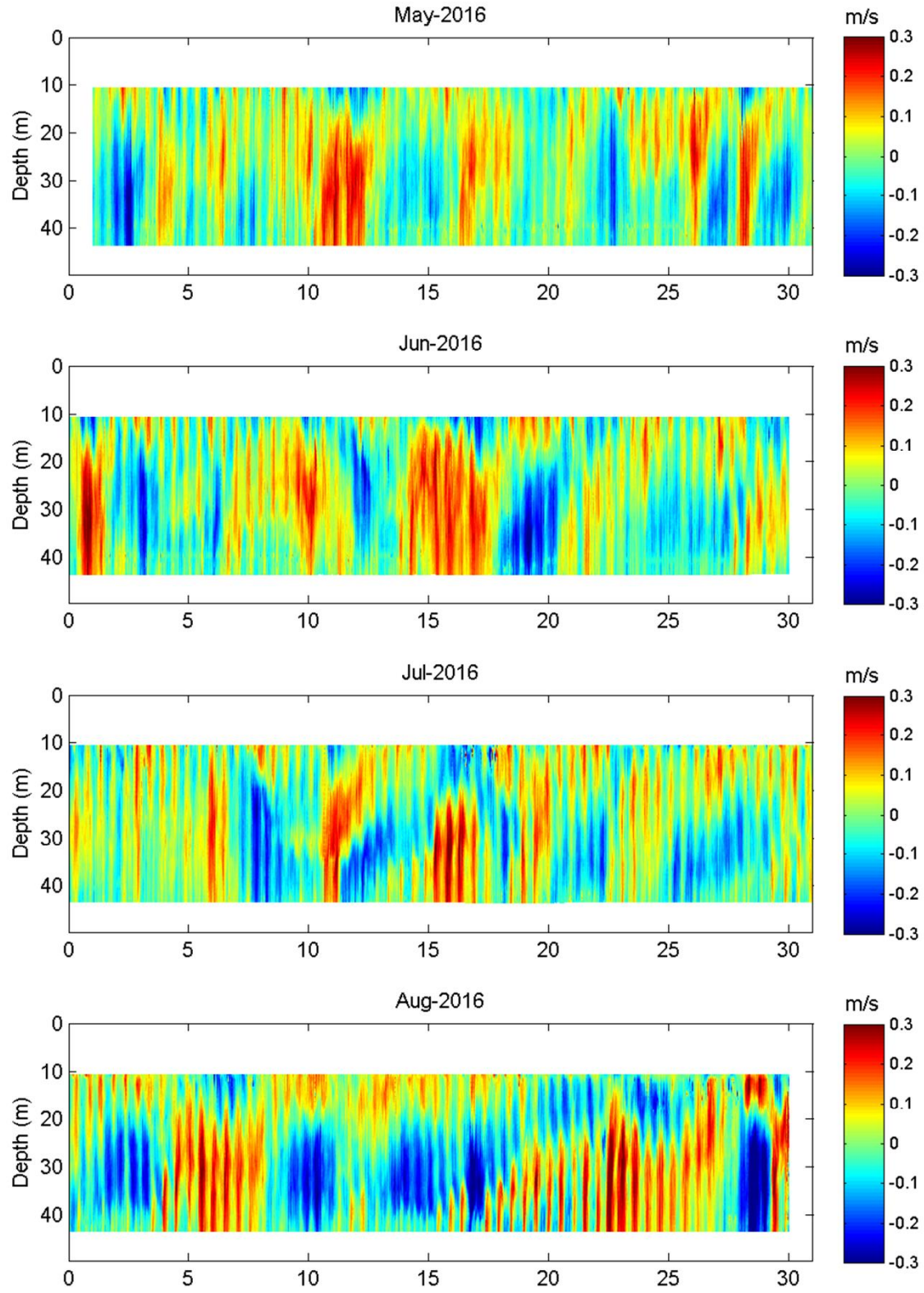


Figure 32 CM2 part 2

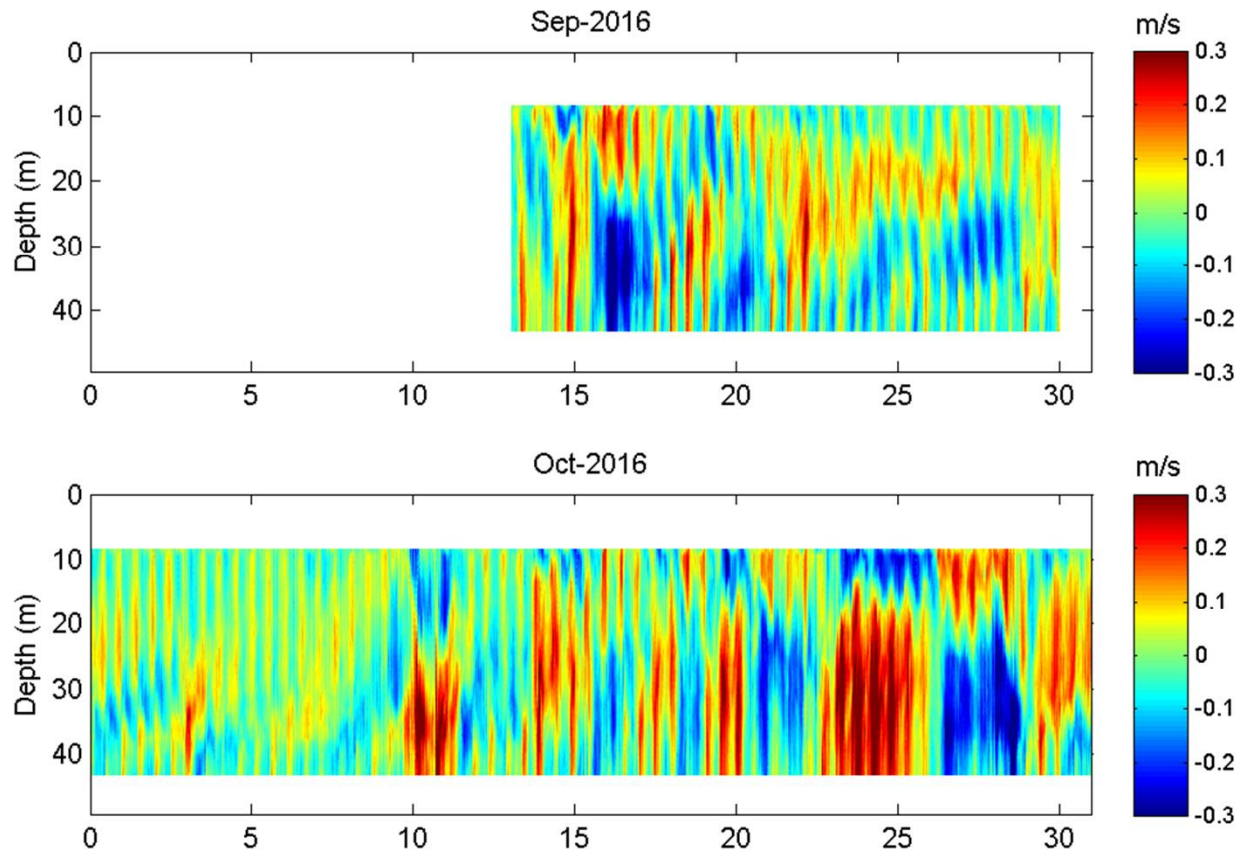


Figure 33 CM2 part 3

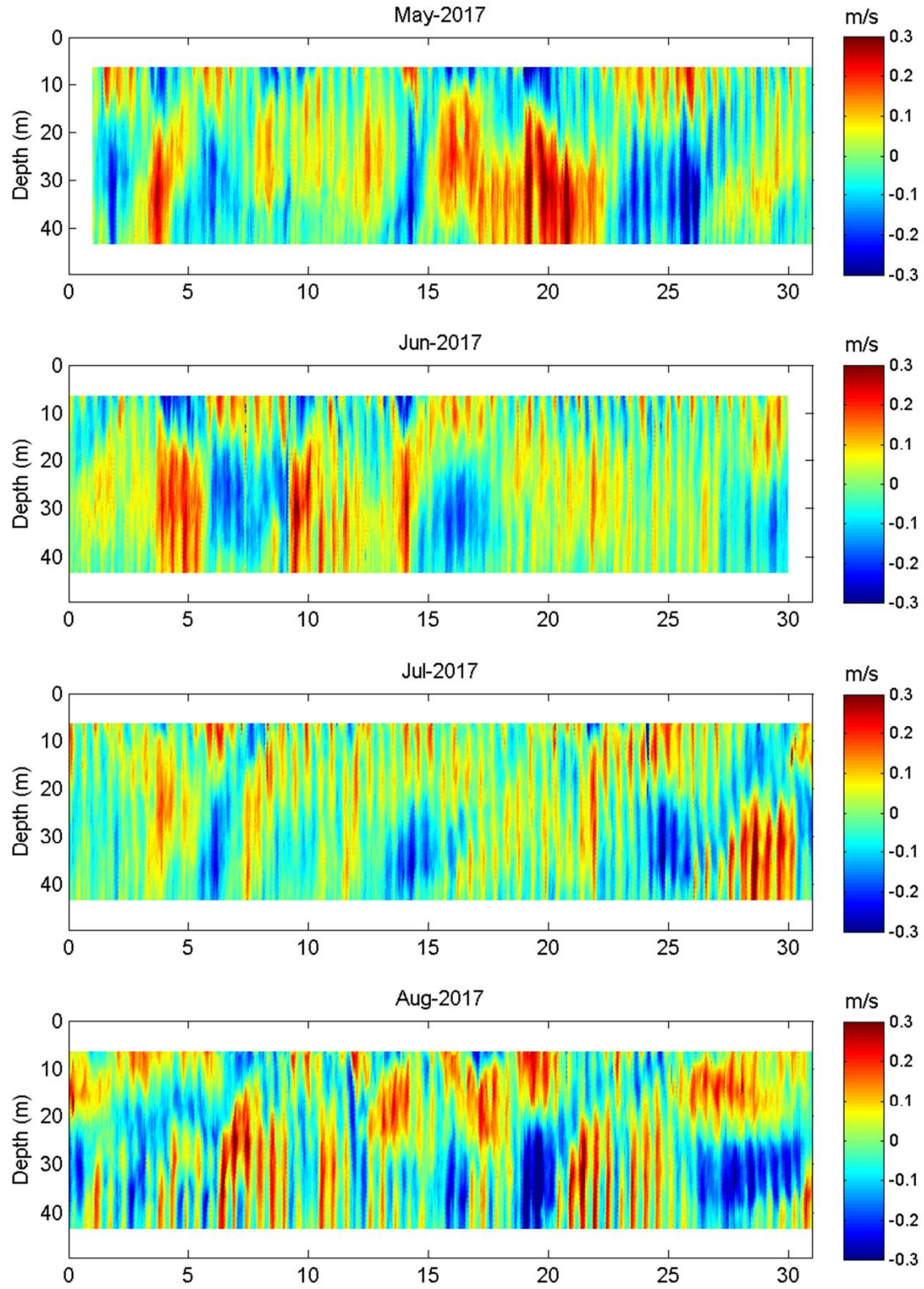


Figure 34 CM2 part 4a

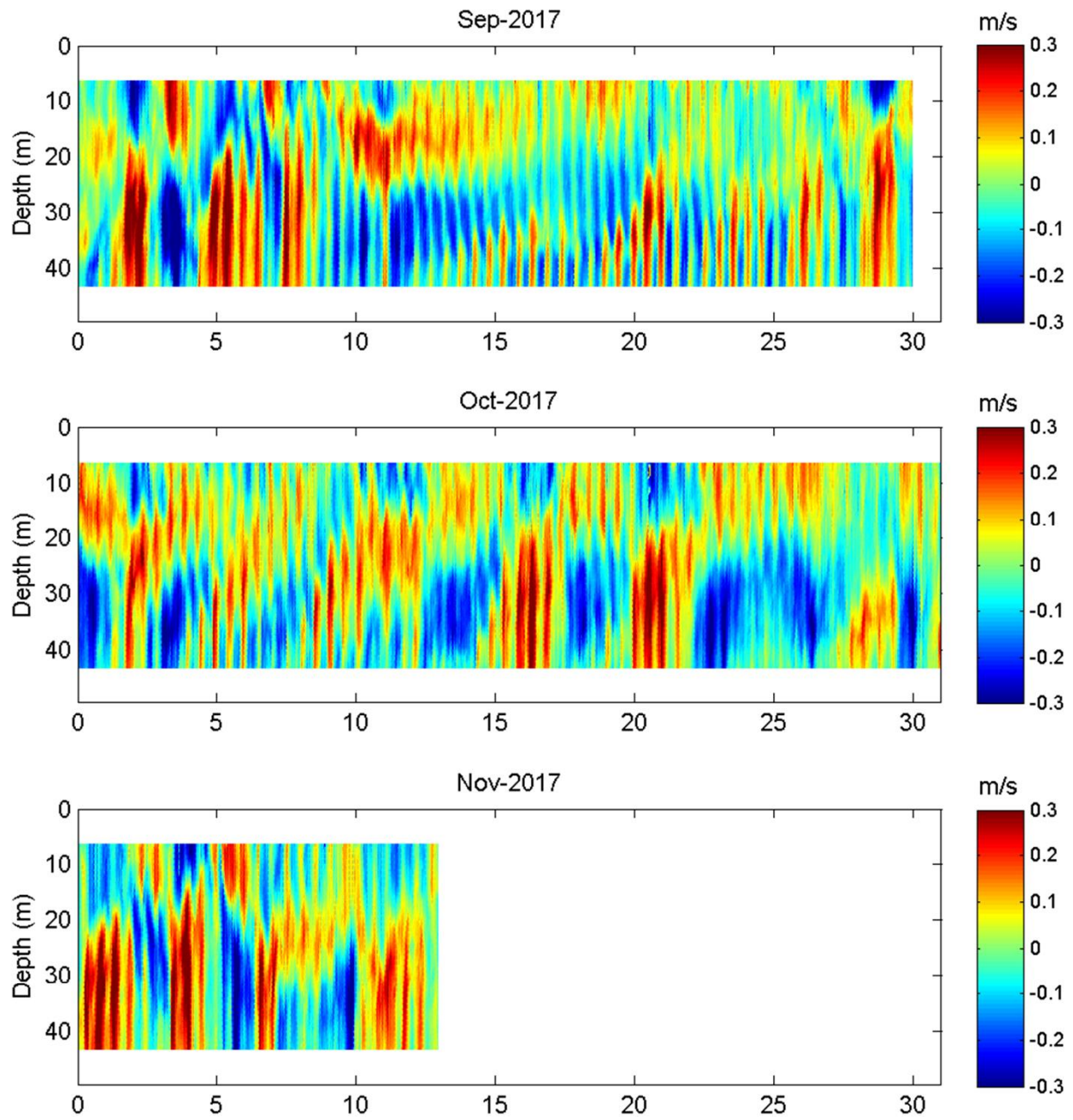


Figure 35 CM2 part 4b

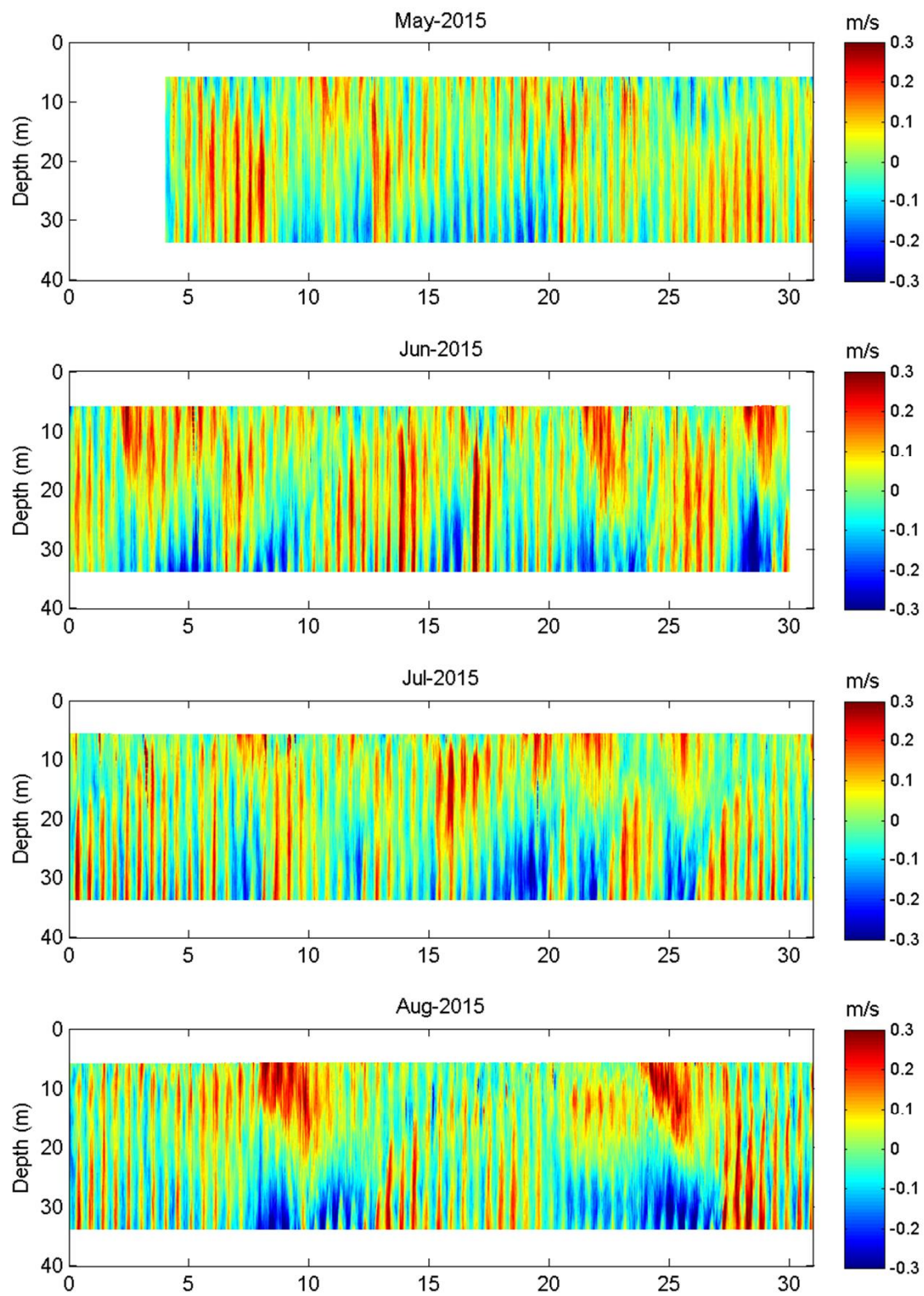


Figure 36 CM3 part 1a

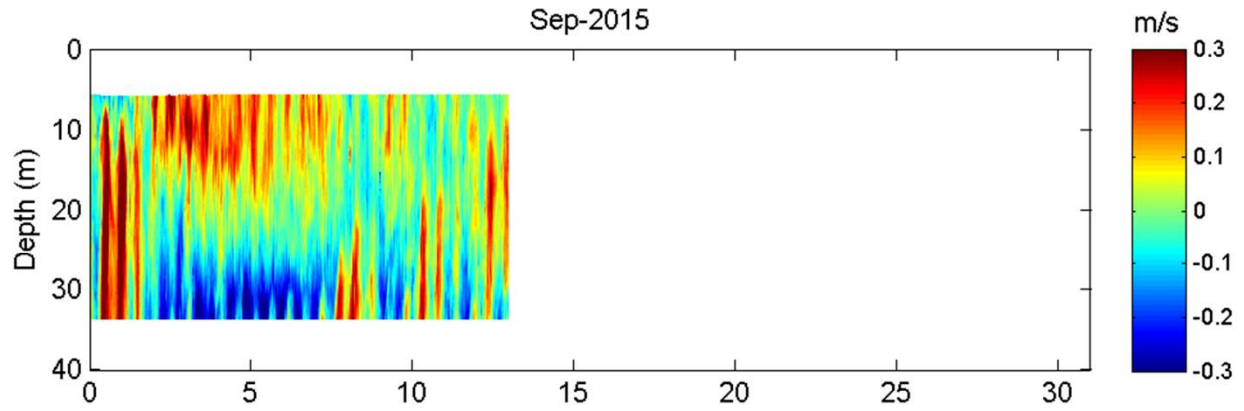


Figure 37 CM3 Part 1b

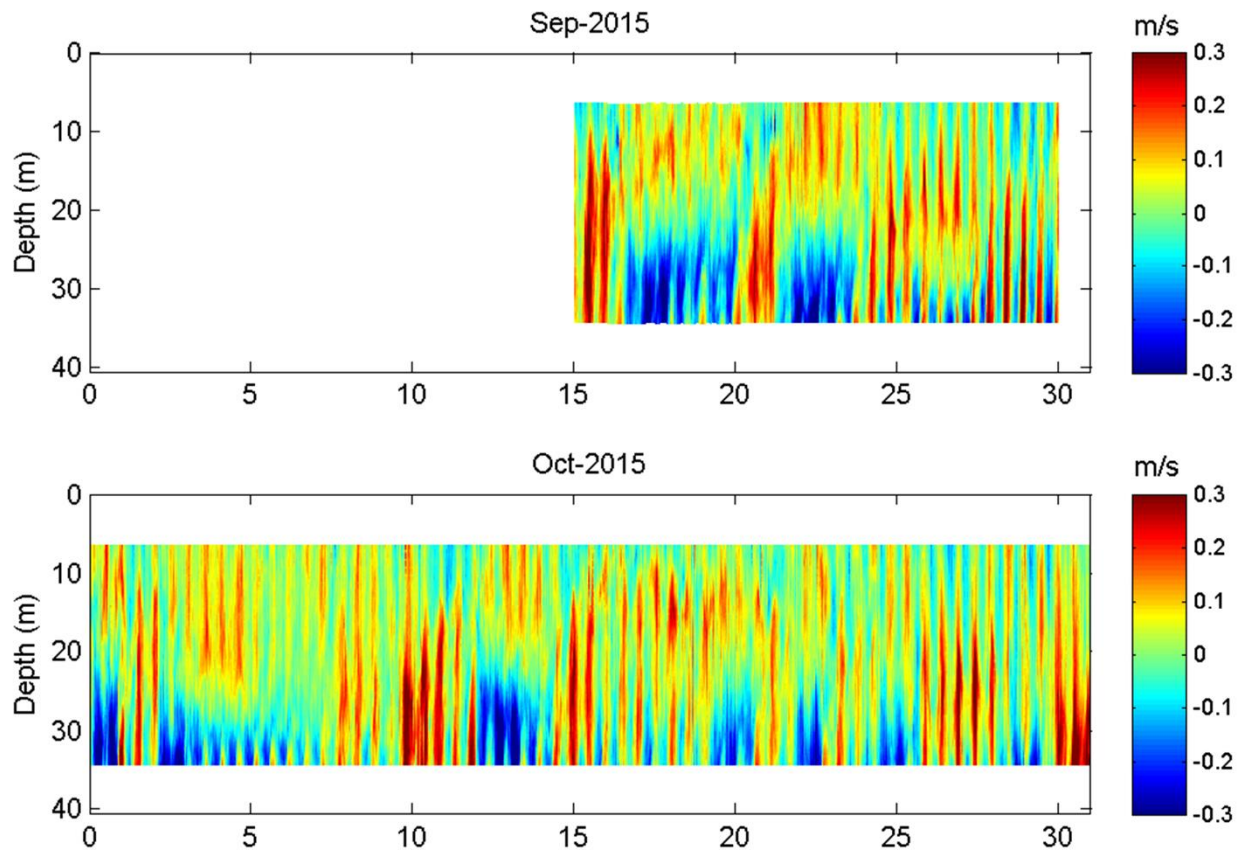


Figure 38 CM3 Part 2

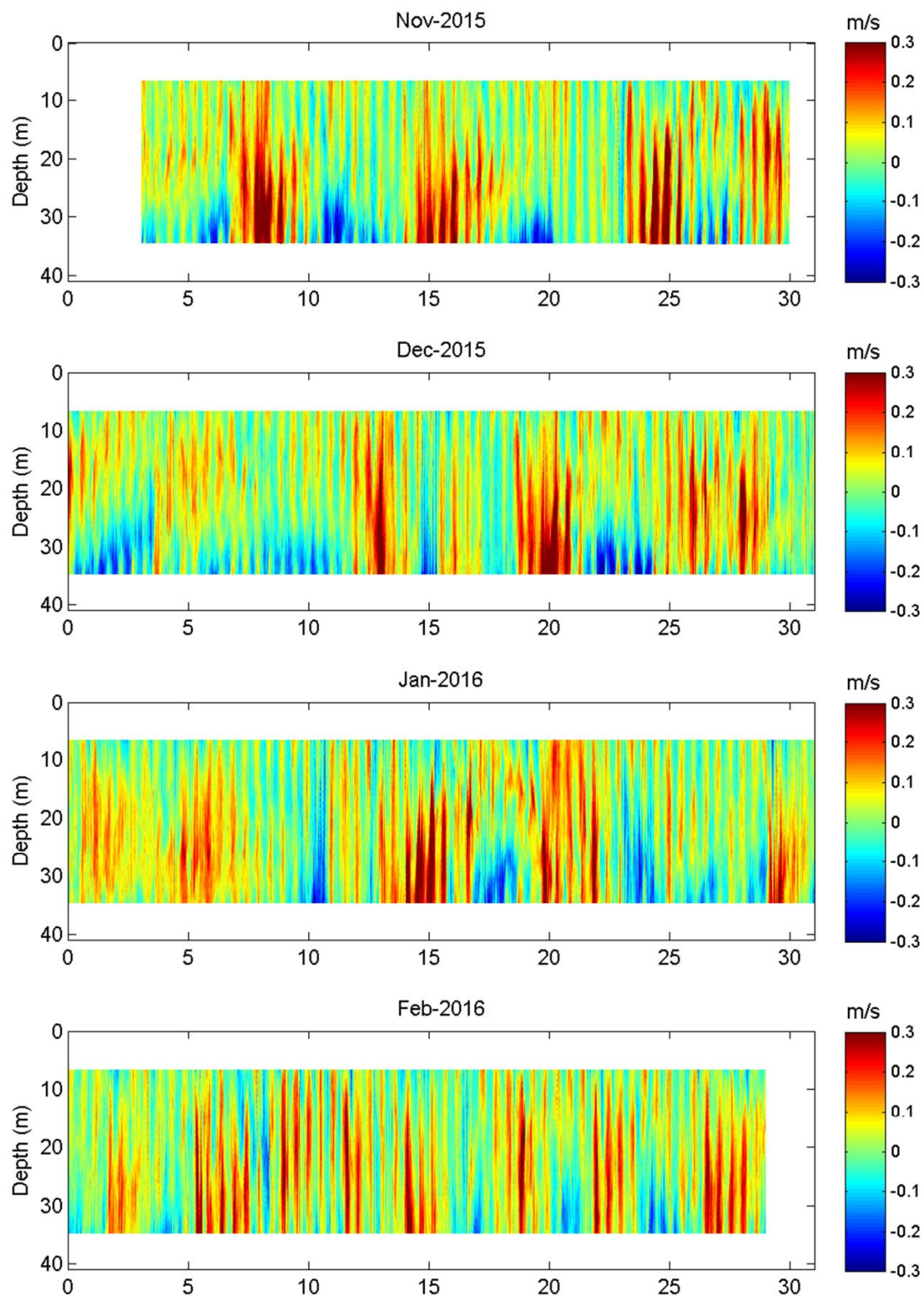


Figure 39 CM3 Part 3a

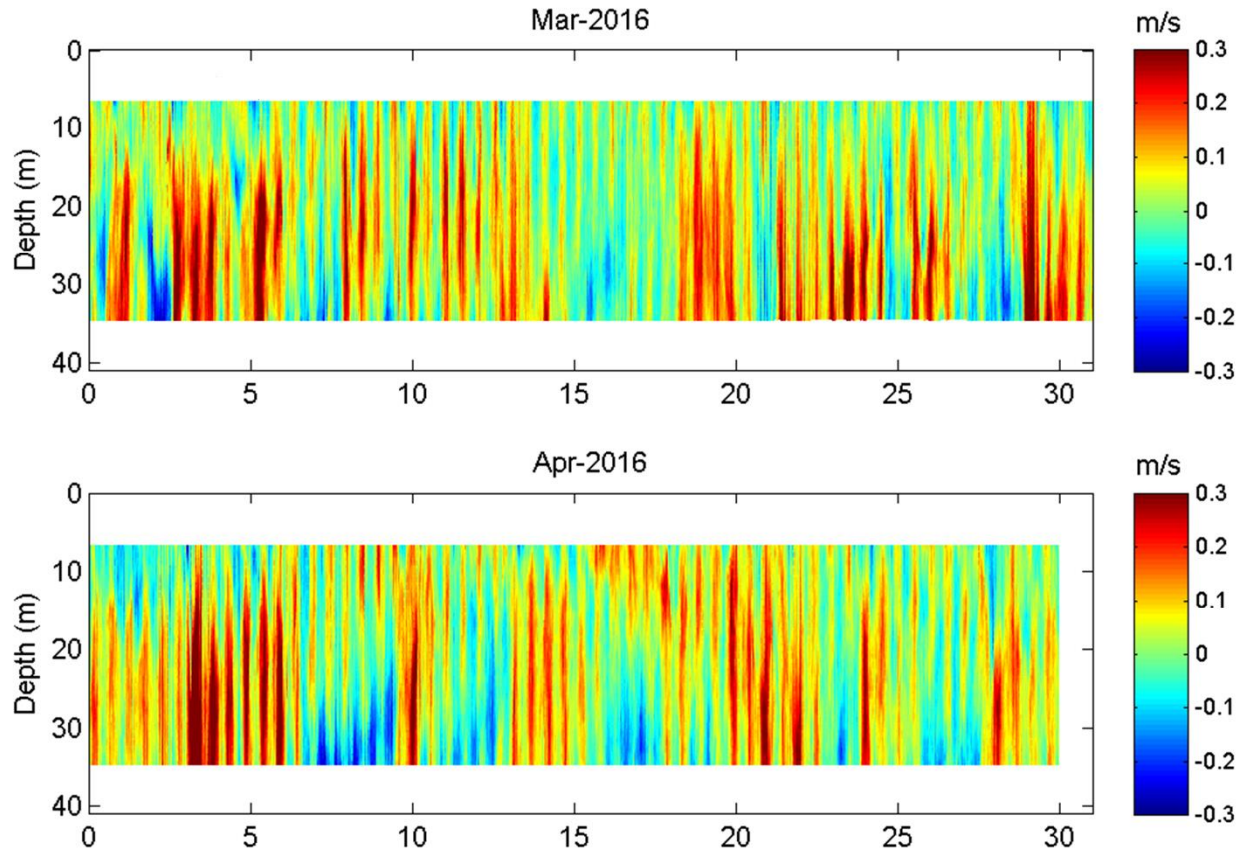


Figure 40 CM3 Part 3b

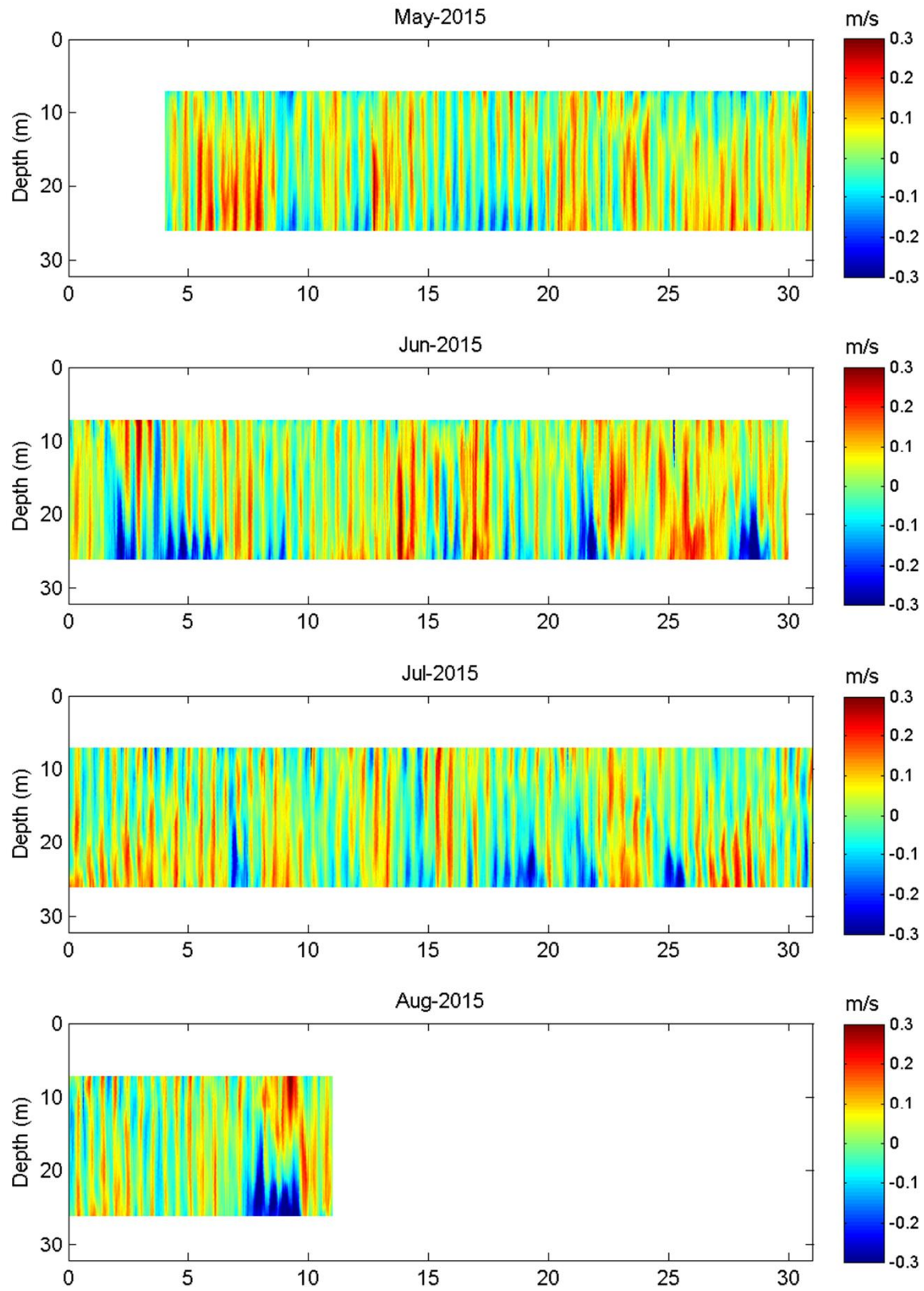


Figure 41 CM4 Part 1

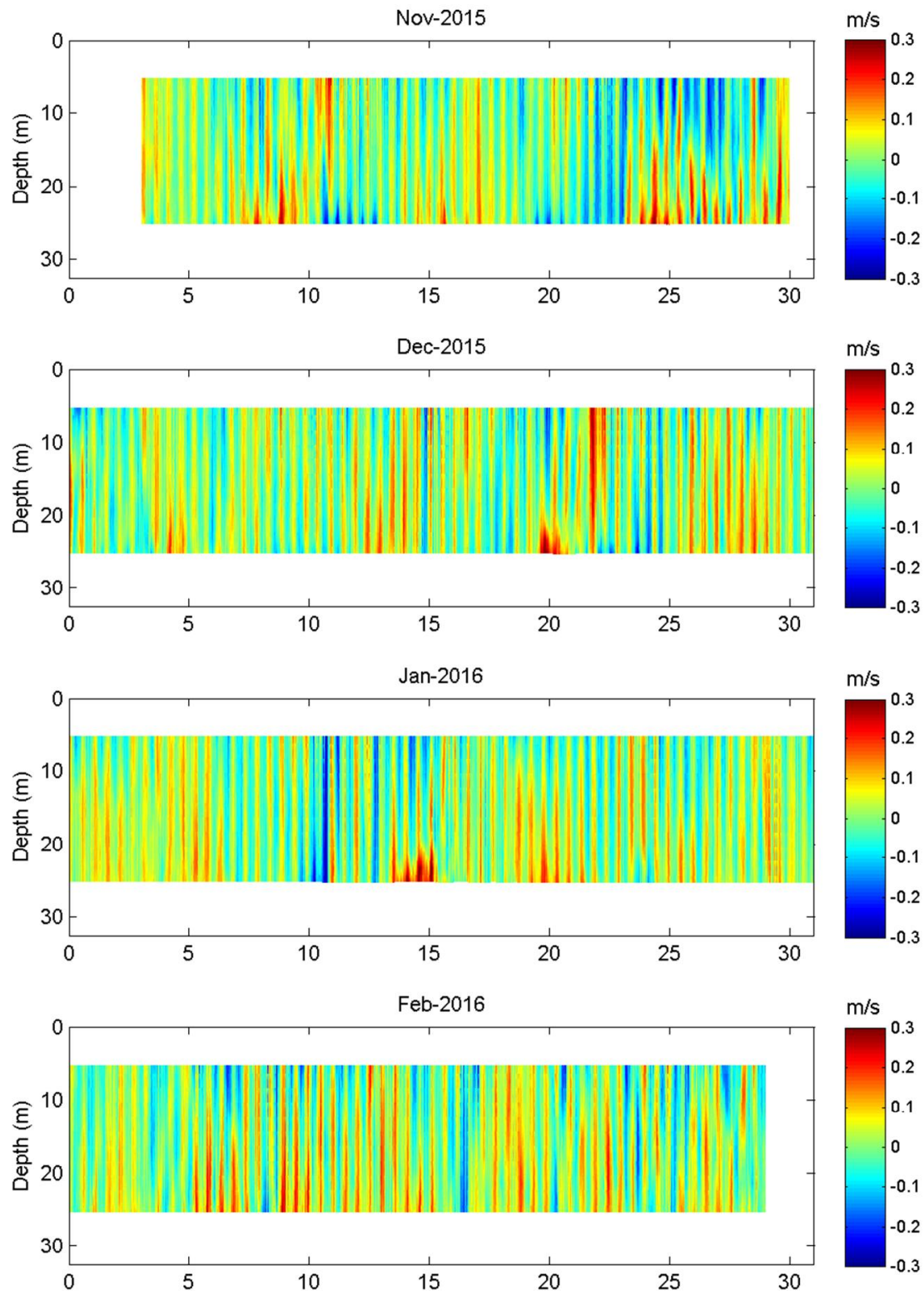


Figure 42 CM4 Part 2a

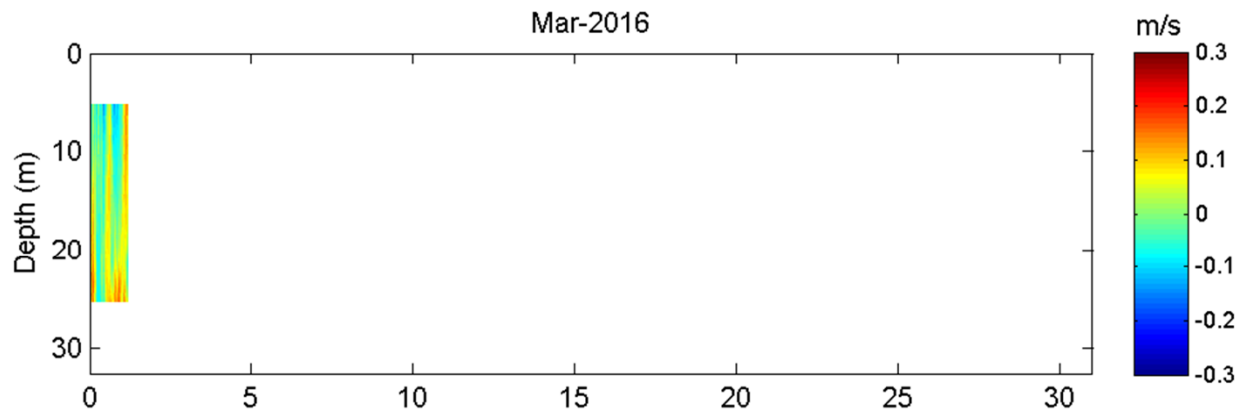


Figure 43 CM4 Part 2b

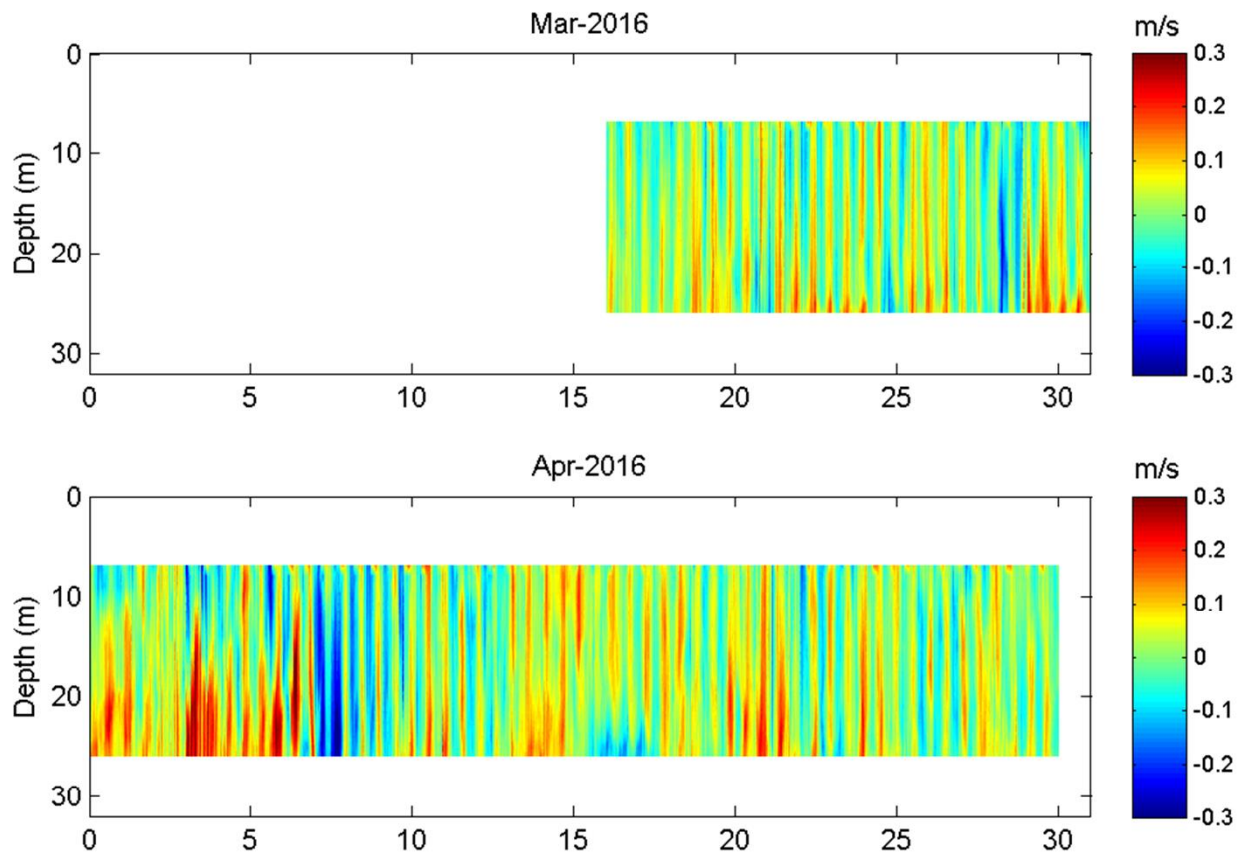


Figure 44 CM4 Part 3

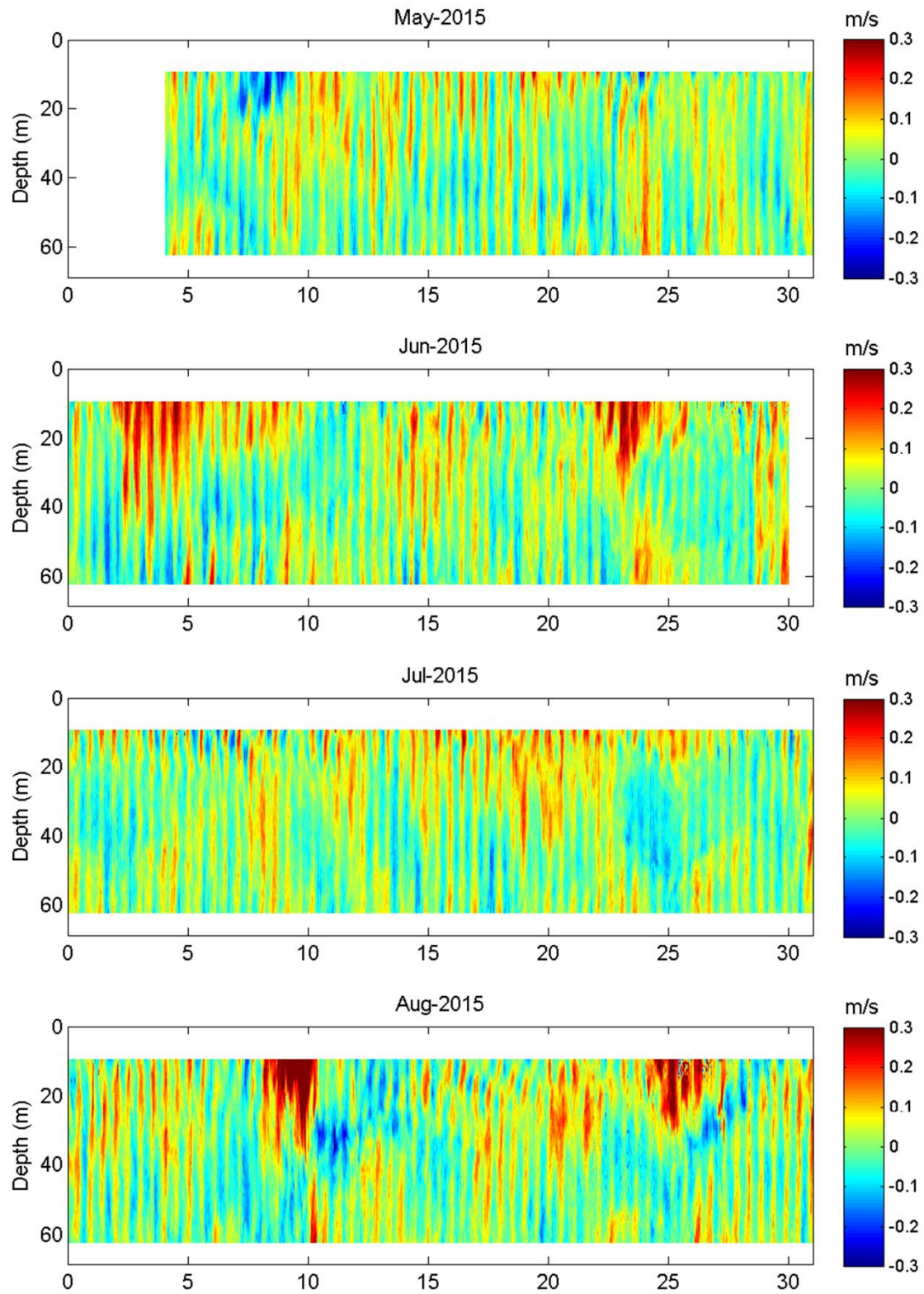


Figure 45 CM5 Part 1a

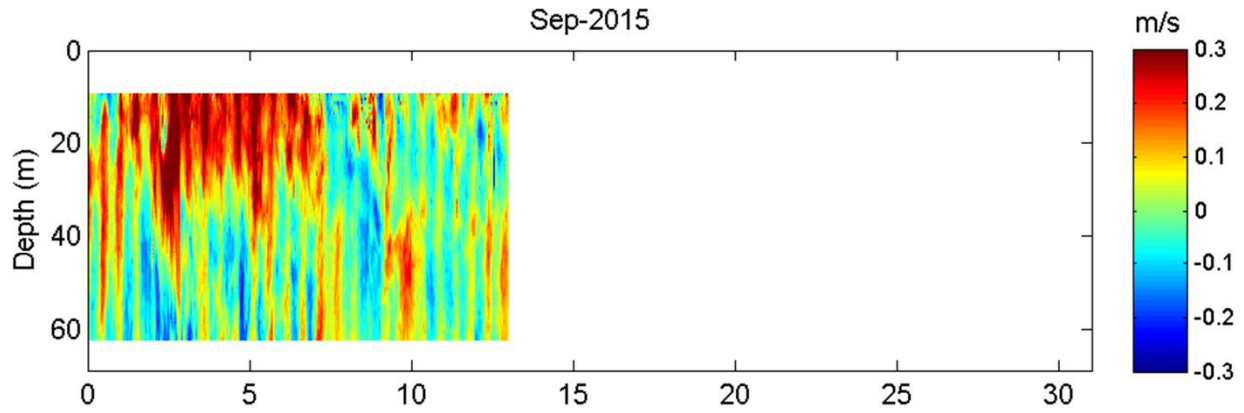


Figure 46 CM5 Part 1b

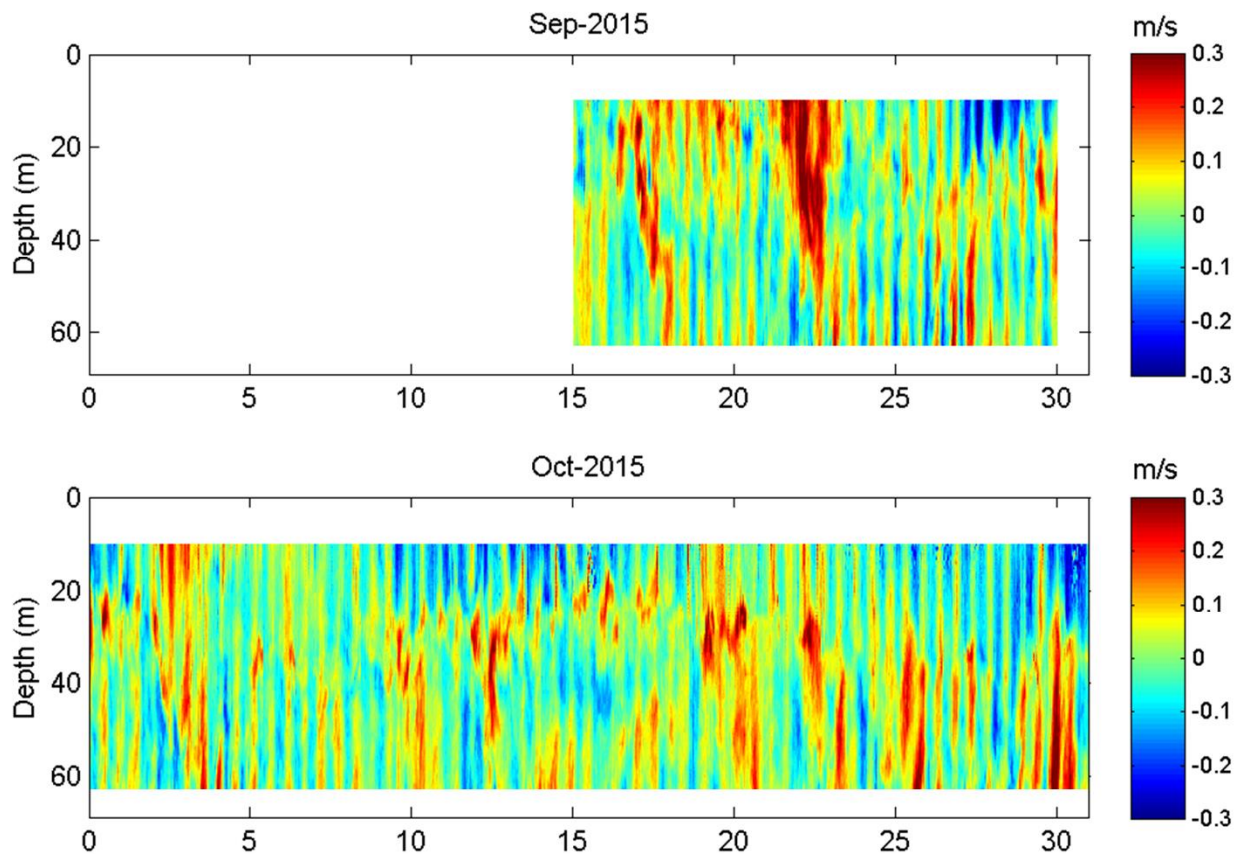


Figure 47 CM5 Part 2

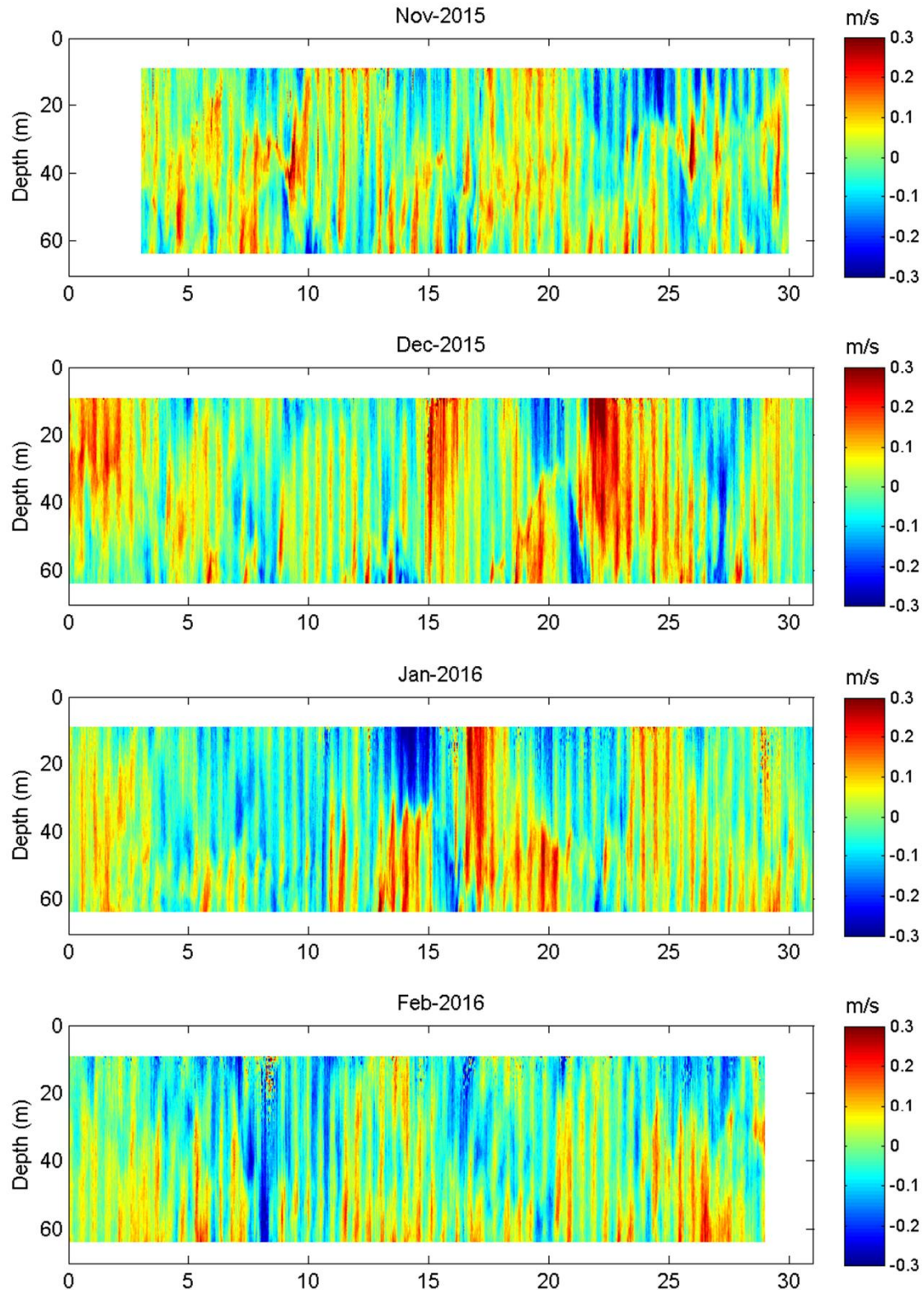


Figure 48 CM5 Part 3a

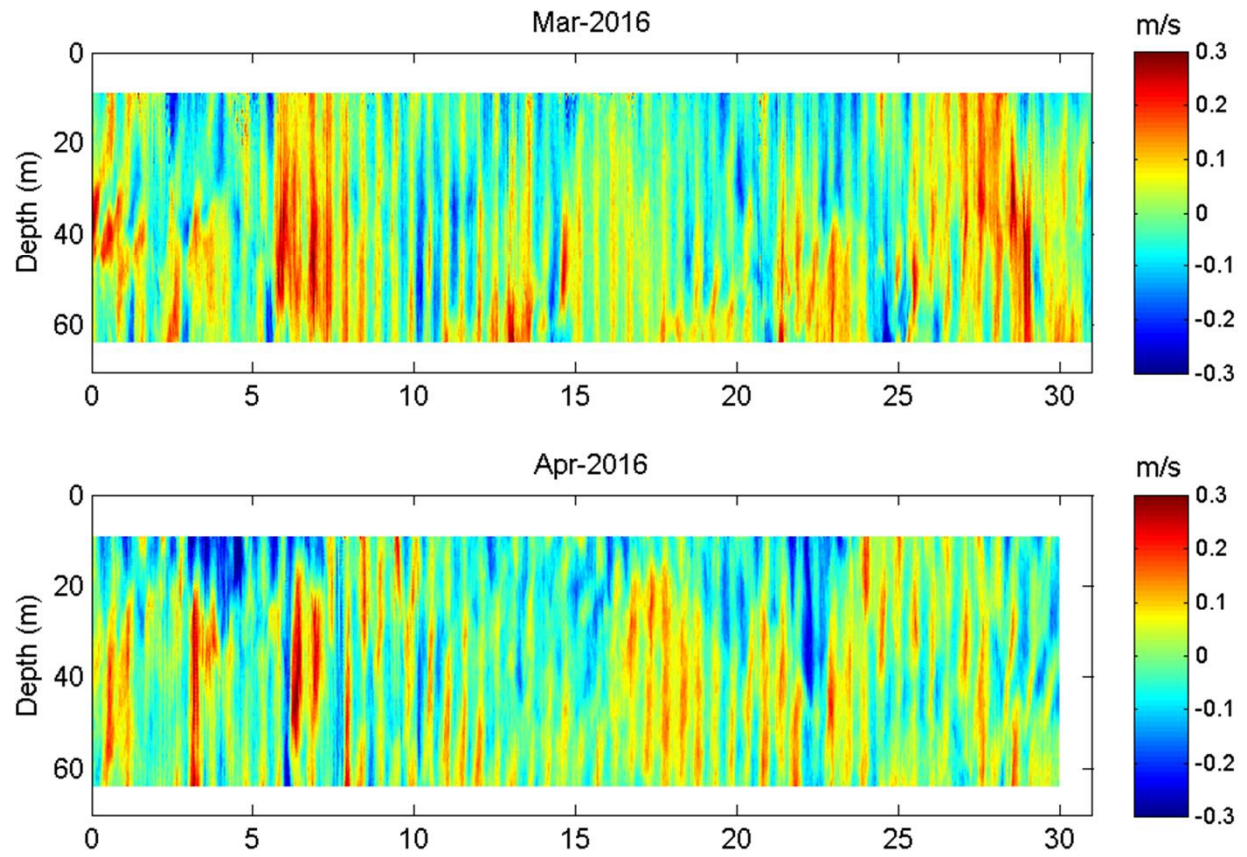


Figure 49 CM5 Part 3b

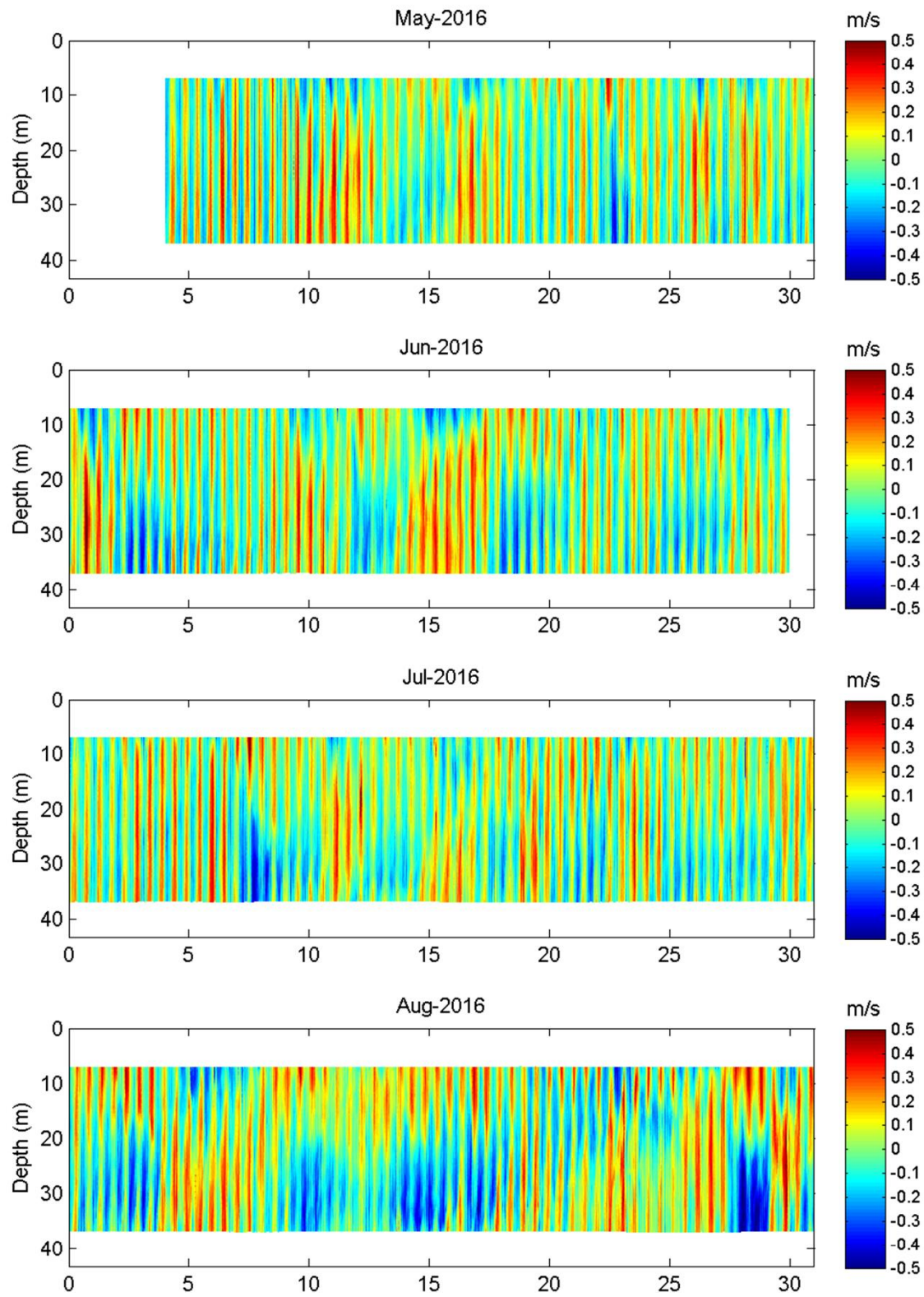


Figure 50 CM7 Part 1a

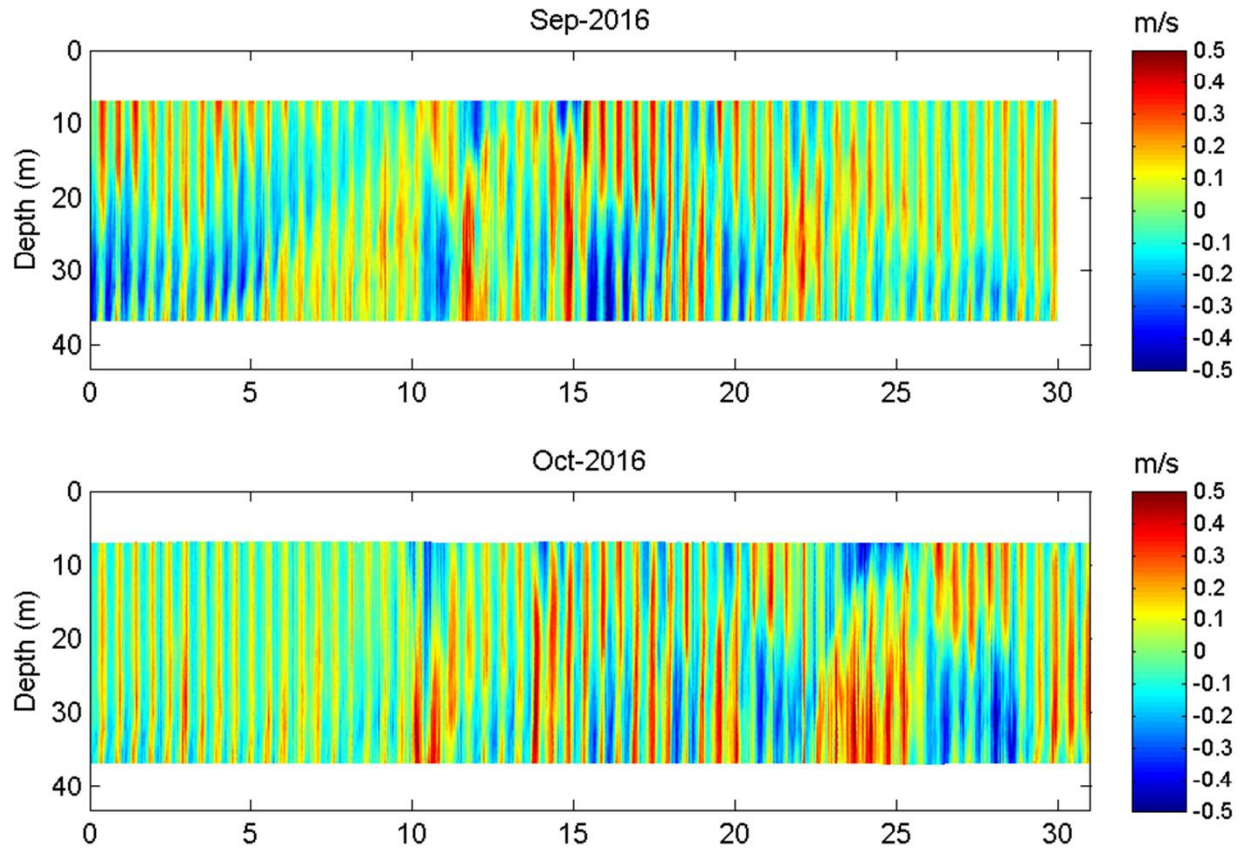


Figure 51 CM7 Part 1b

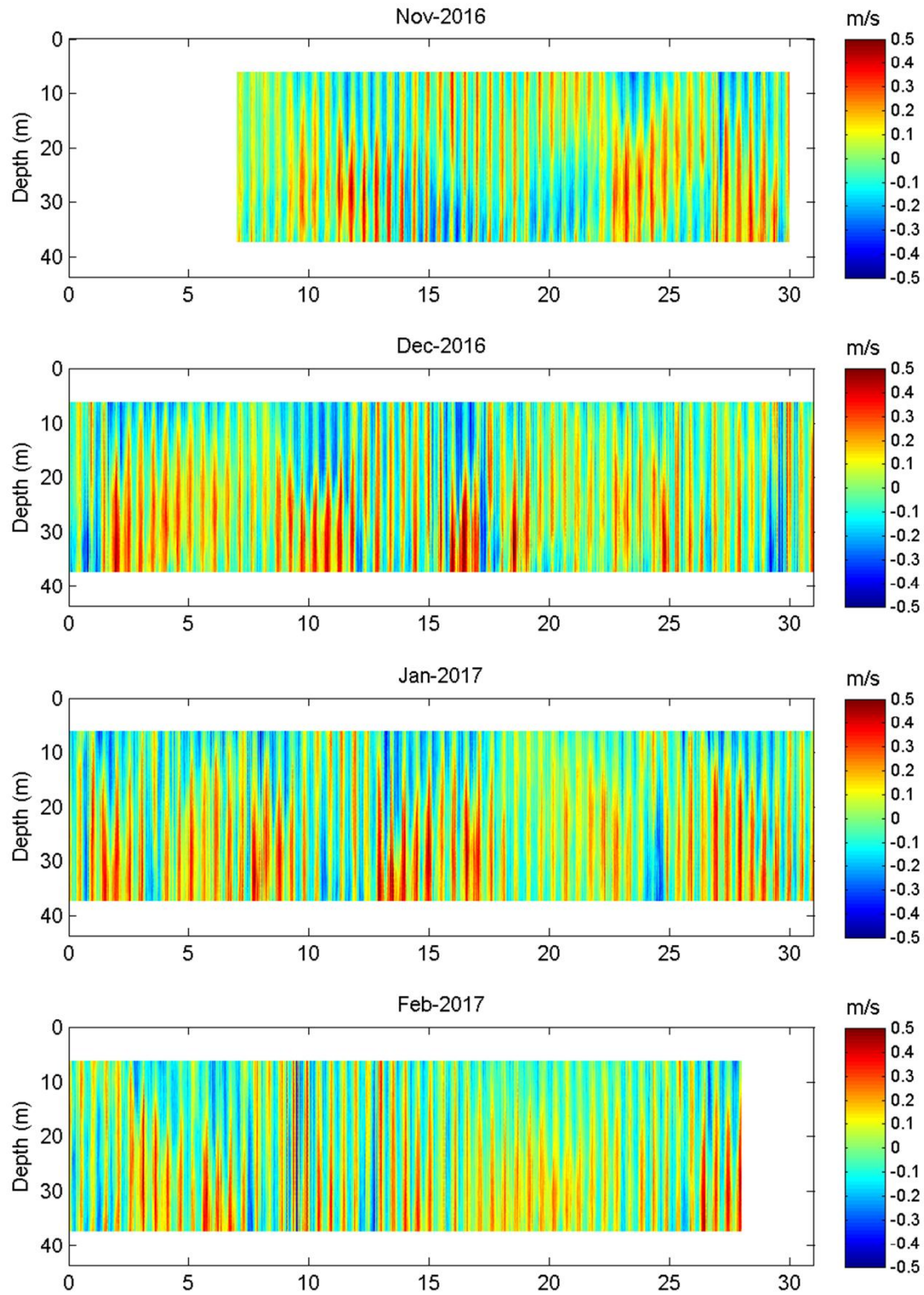


Figure 52 CM7 Part 2a

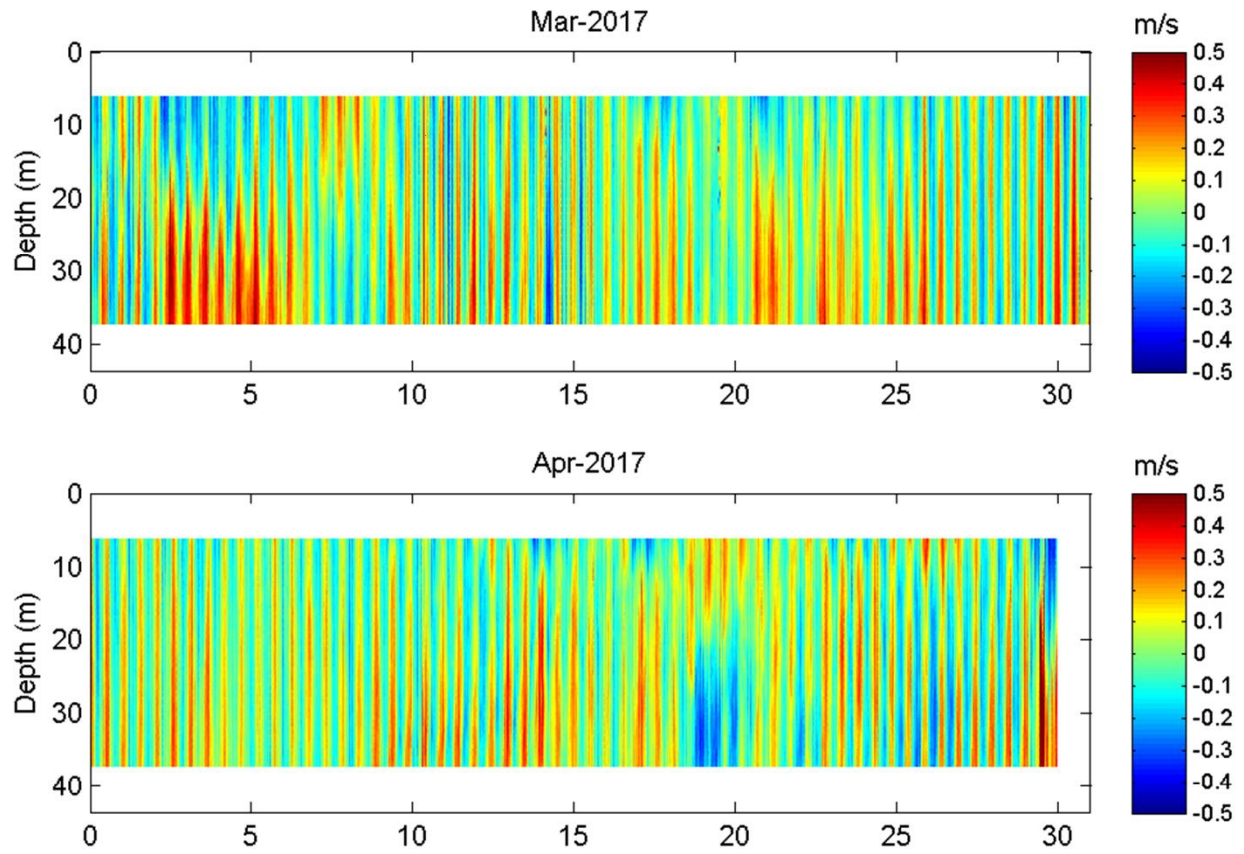


Figure 53 CM7 Part 2b

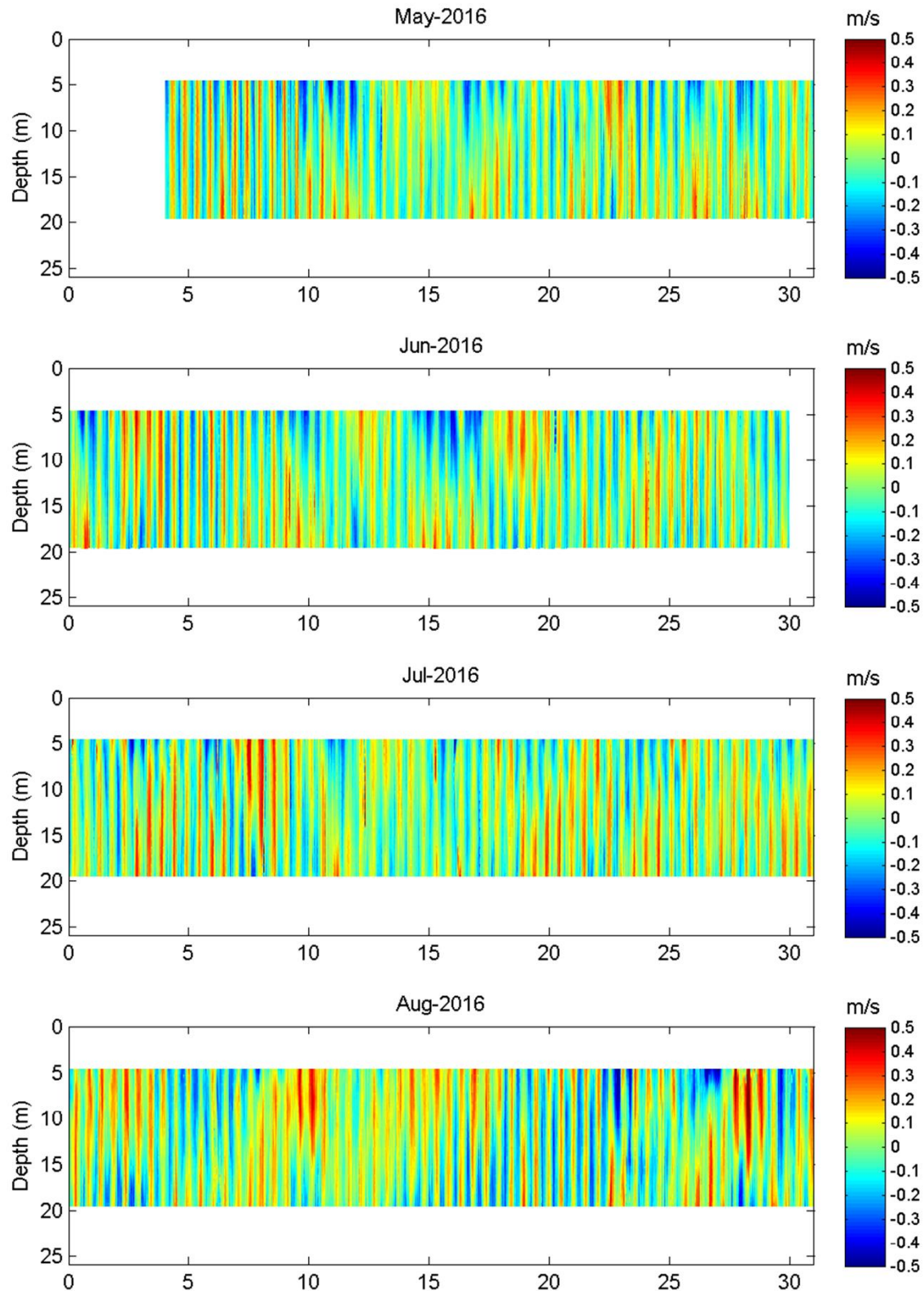


Figure 54 CM8 Part 1a

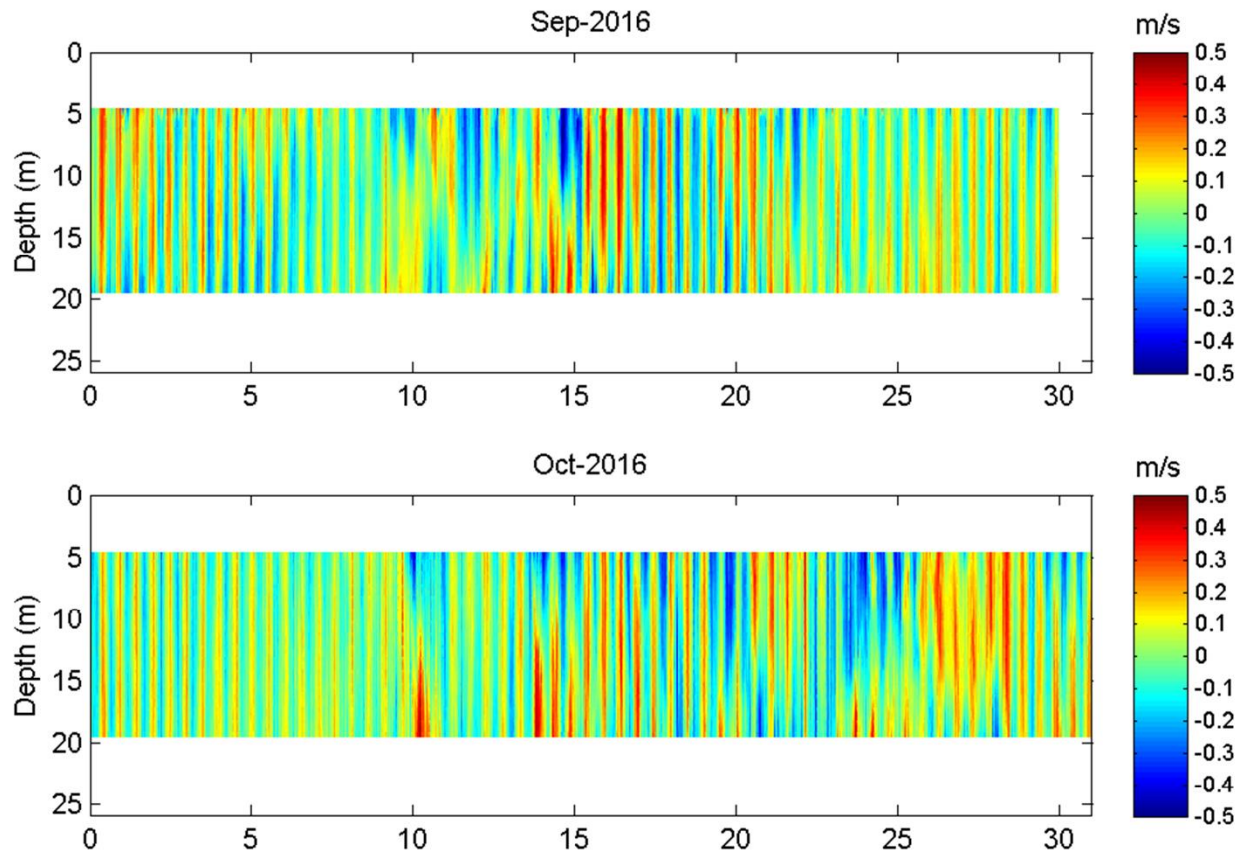


Figure 55 CM8 Part 1b

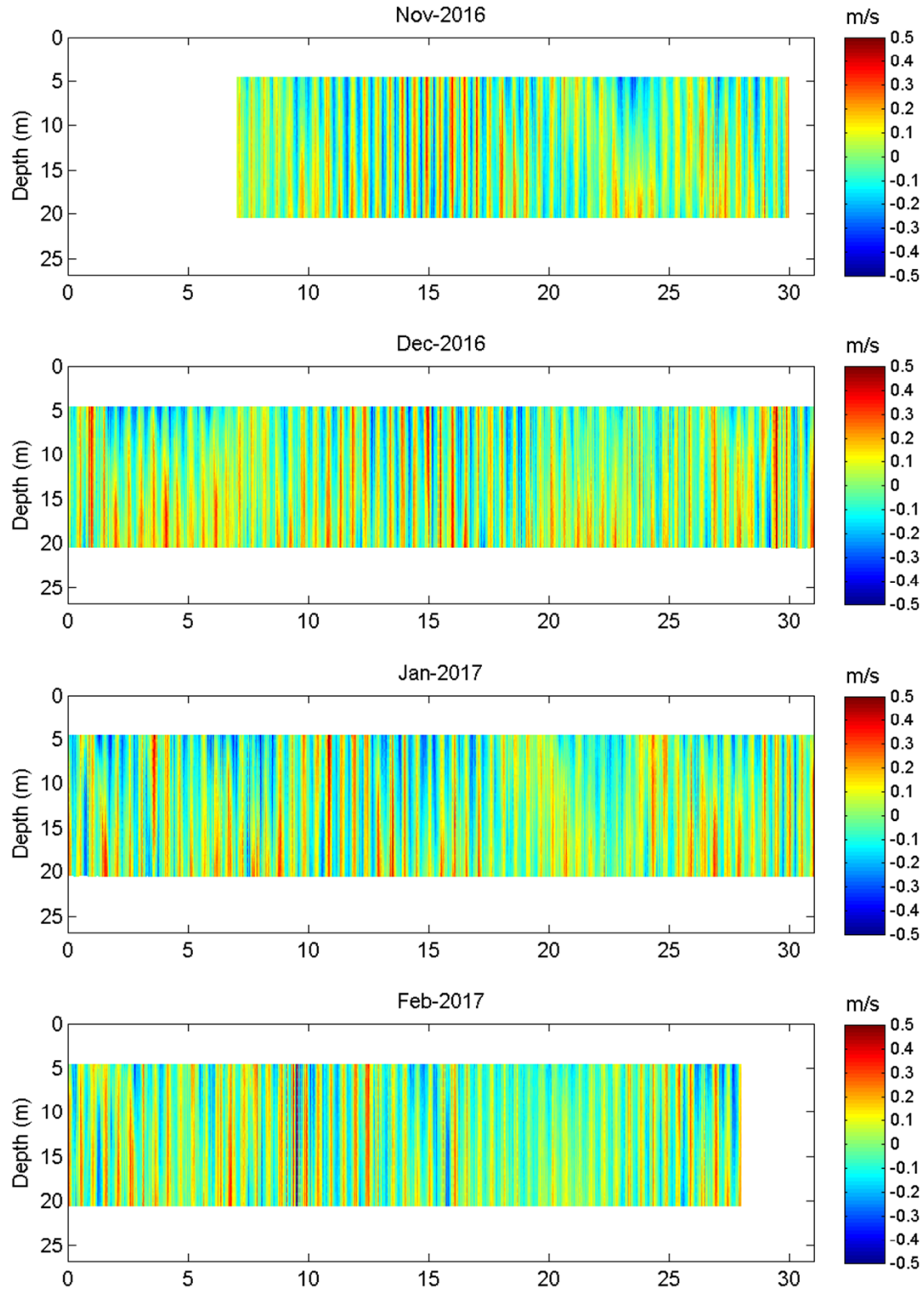


Figure 56 CM8 Part 2a

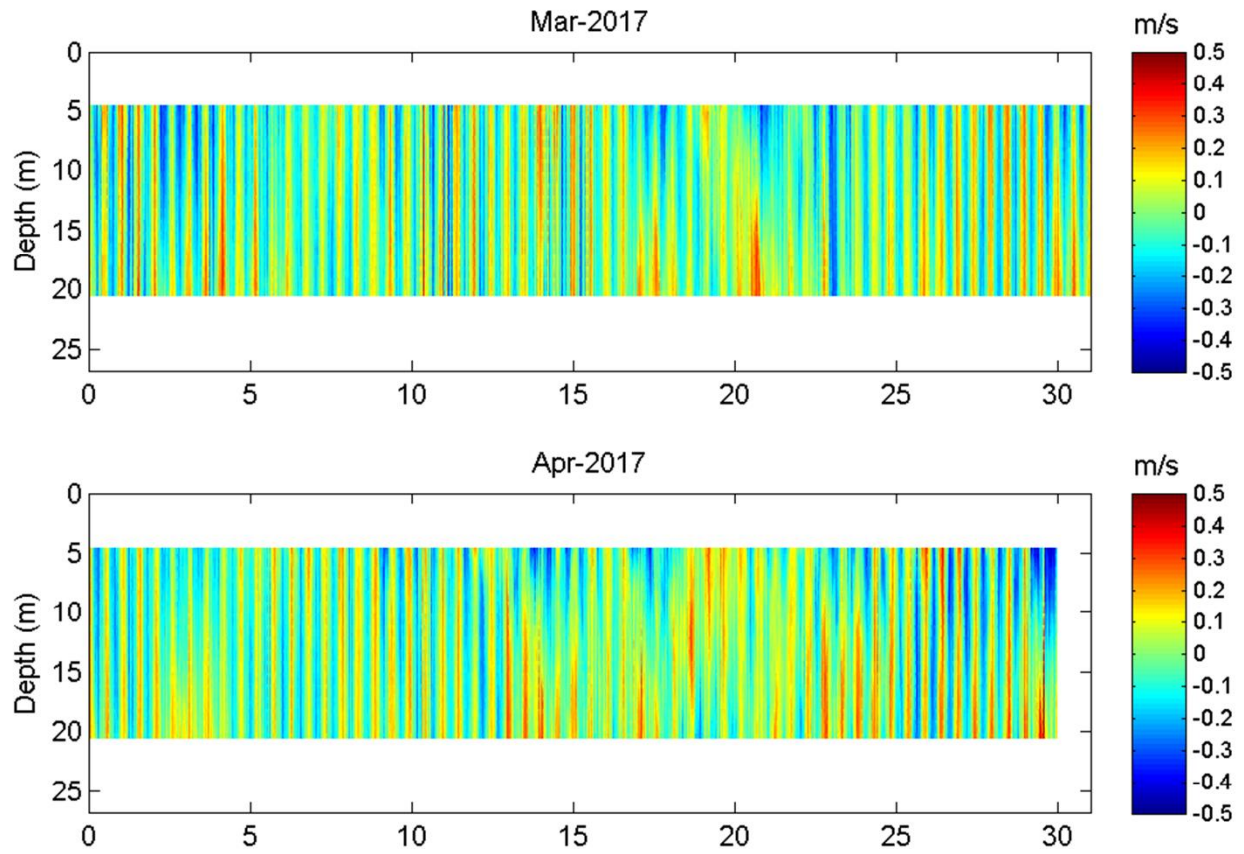


Figure 57 CM8 Part 2b

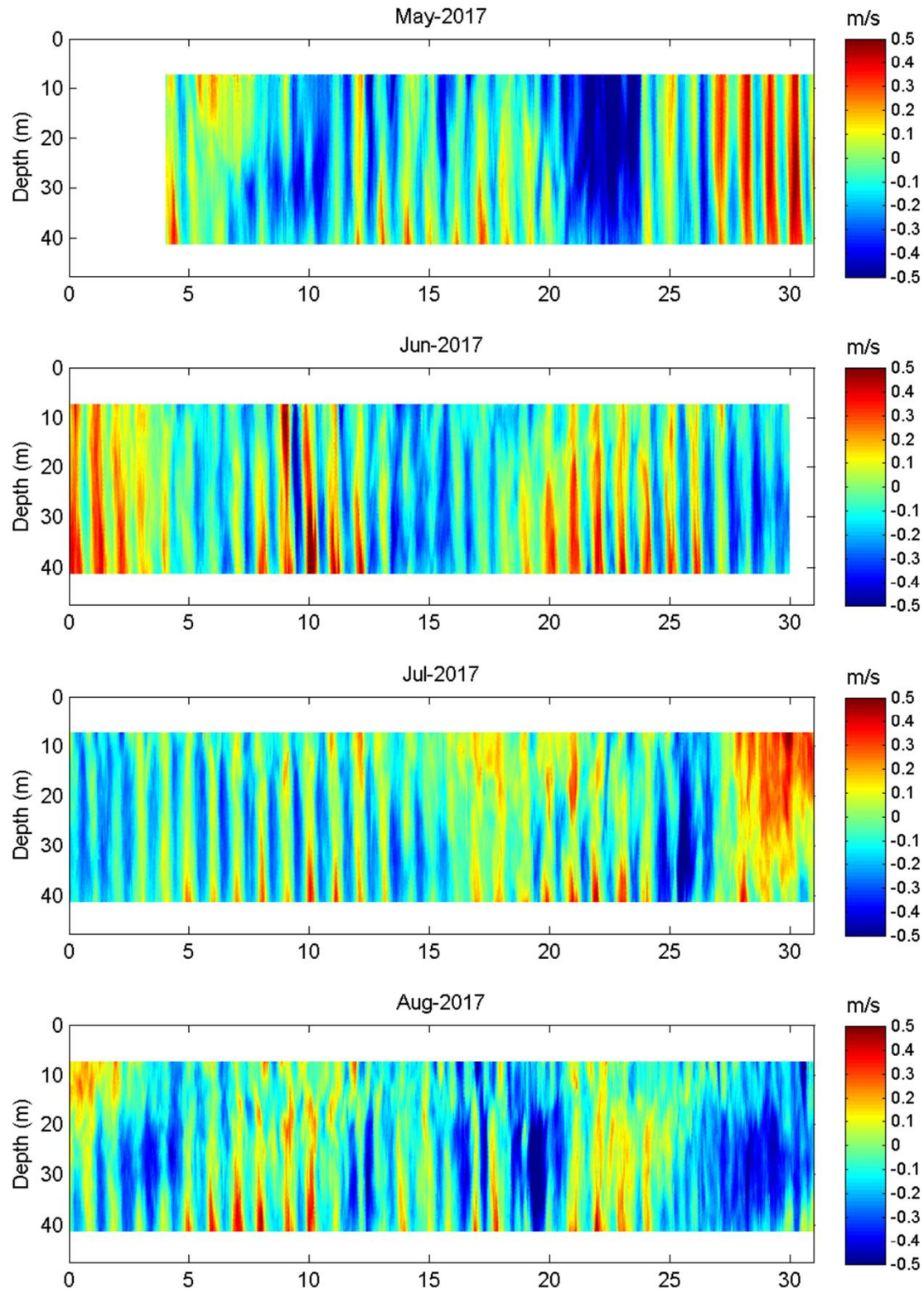


Figure 58 Canso Part 1a

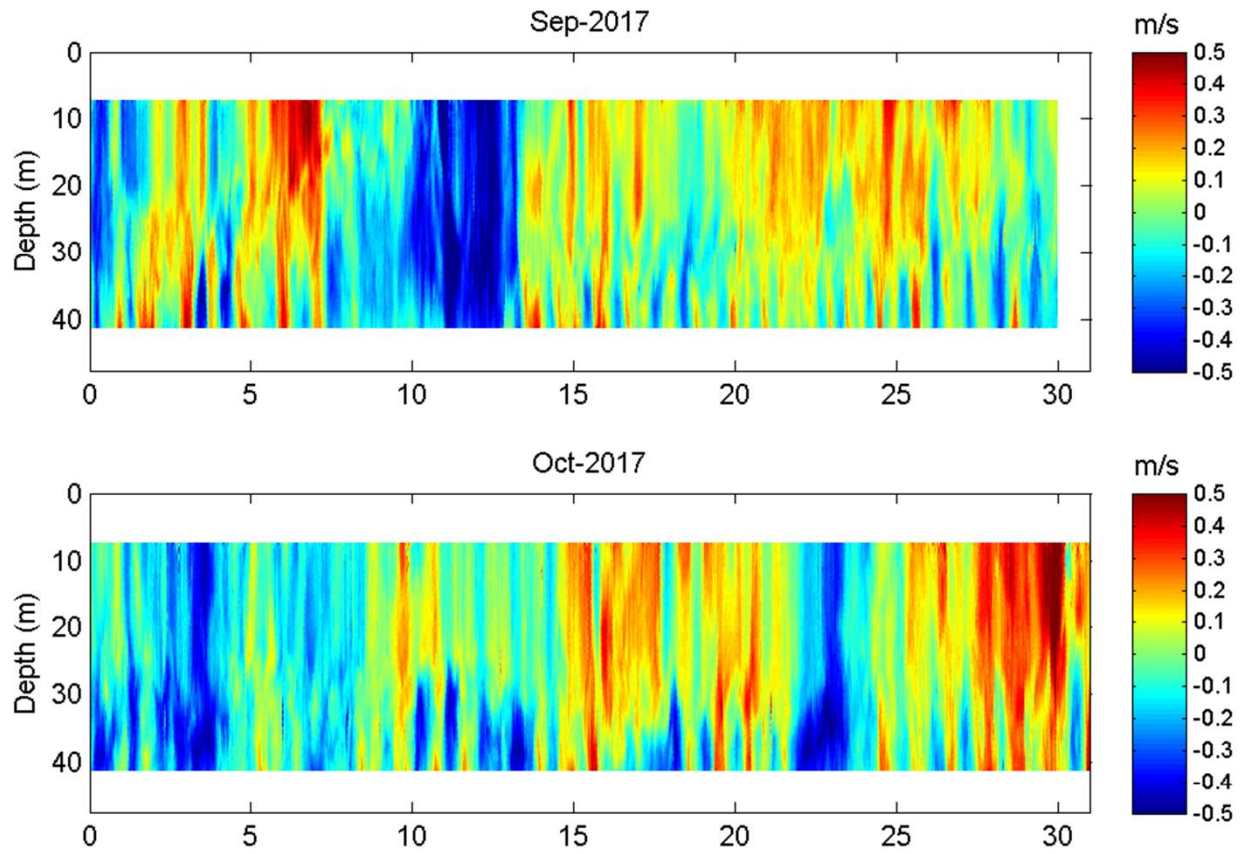


Figure 59 Canso Part 1b

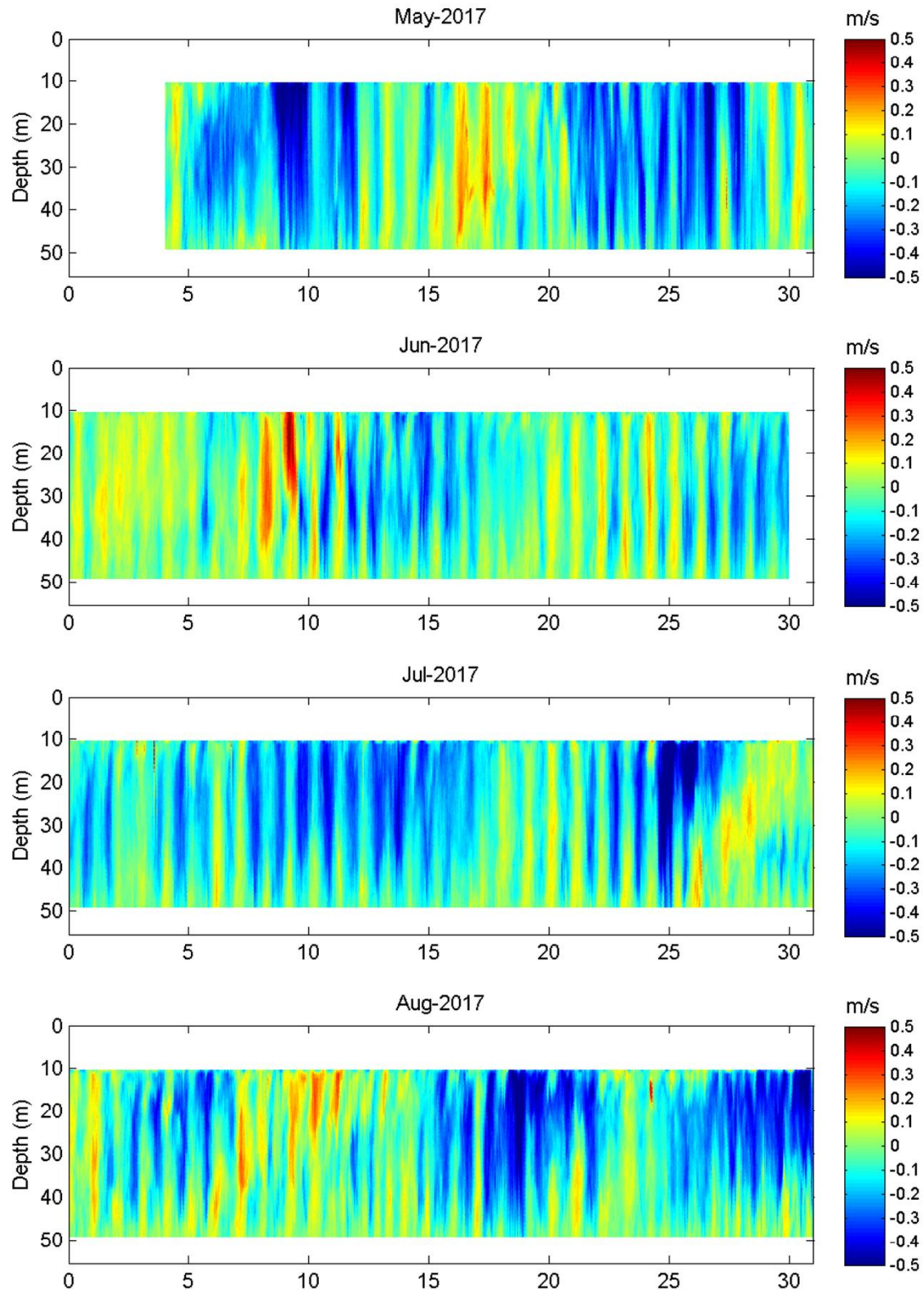


Figure 60 Liscomb Part 1a

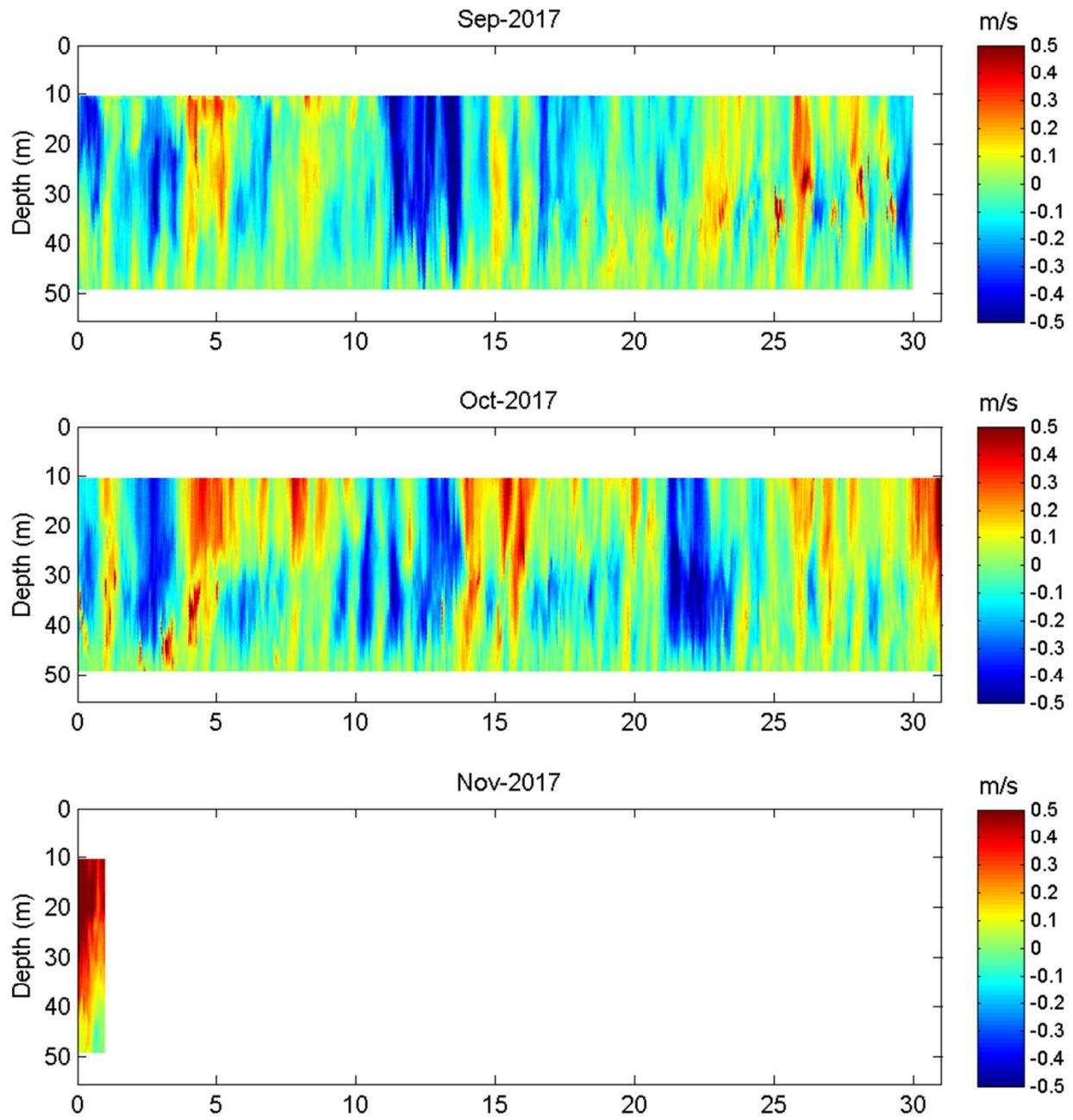


Figure 61 Liscomb Part 1b

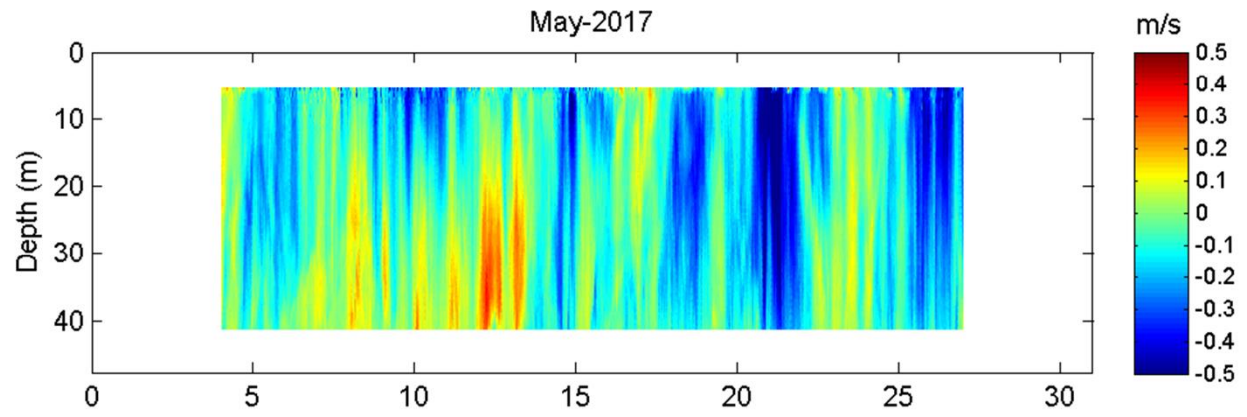


Figure 62 Forchu

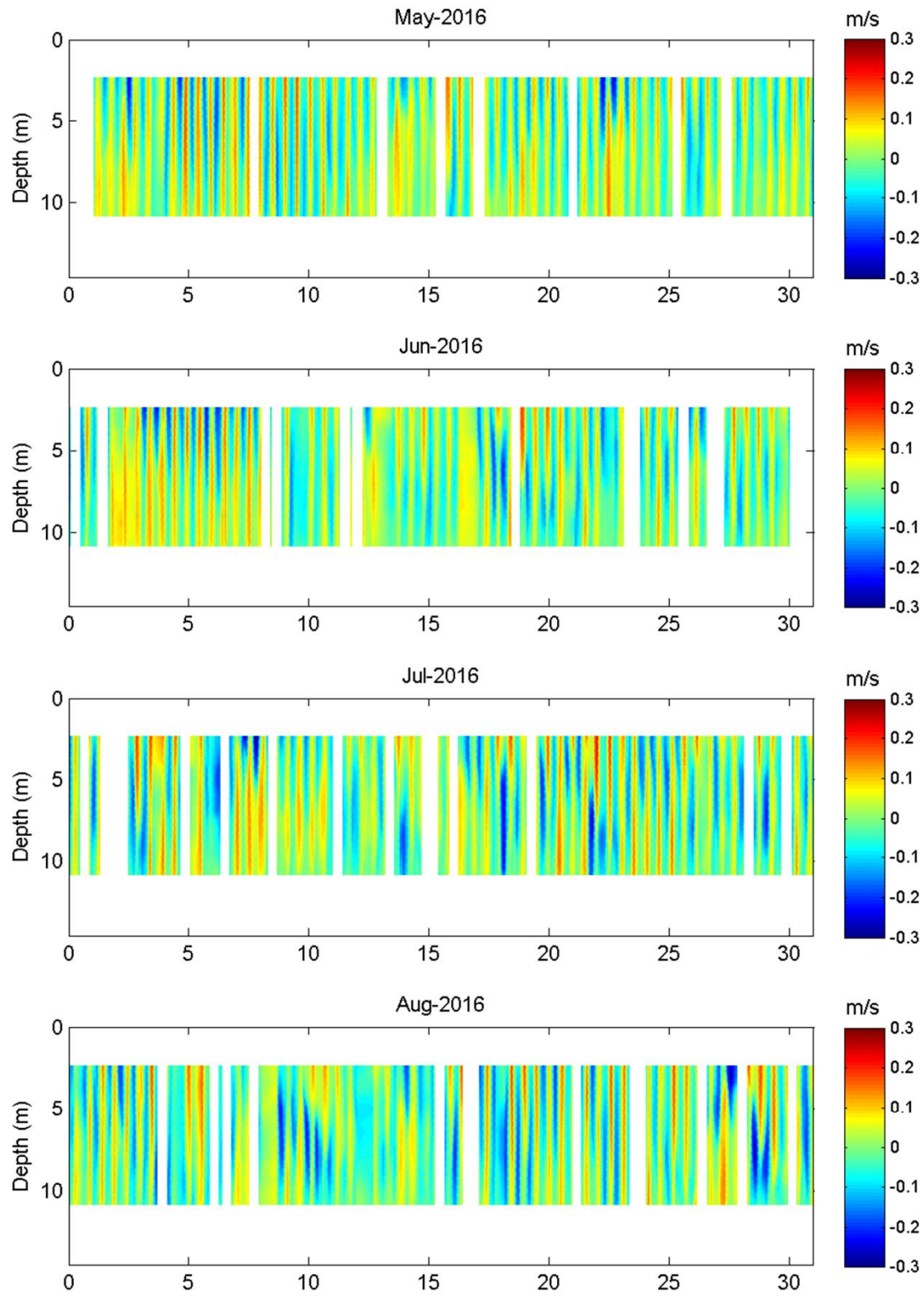


Figure 63 Lennox Part 1a

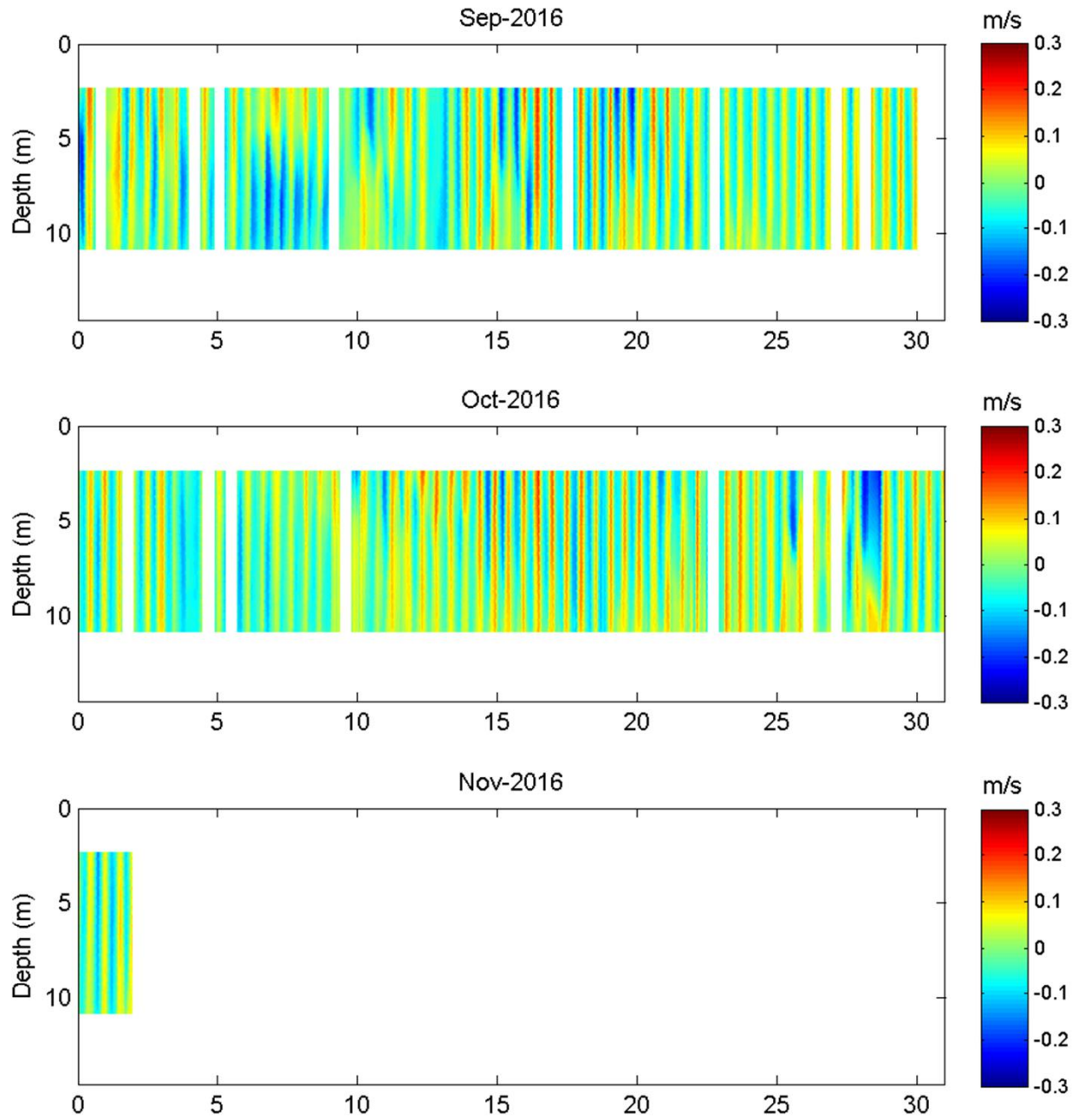


Figure 64 Lennox Part 1b