REPORT

Vlaamse overheid - Departement Mobiliteit en Openbare werken

Afdeling Maritieme Toegang

Evaluation of the external effects on the siltation in Deurganckdok

Report 2.1: Through tide Sediview measurement during spring tide: Entrance Deurgancdok - Autumn 2011

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0. SUMMARY

This report presents the factual data of a through tide measurements to determine the sediment influx in dock Deurganckdok during a complete tidal cycle with spring tide conditions. The flux is measured by an Acoustic Doppler Current Profiler (ADCP) where the backscatter intensity is calibrated to suspended sediment concentration (SSC). The SSC calibration was done in the Sediview software by using water samples which were taken during the measurement campaign.

The measurements took place on 28th of September after completing a Current Deflecting Wall (CDW) in August 2011 near the northern entrance of Deurganckdok. Due to lag in the GPS signal no reliable current and also flux data was available during this measurement. The measurement was repeated on 13th of October 2011 where the GPS was working properly. Both measurements will help us to evaluate the effect of a CDW on the sediment influx in the dock and to gain insight in the siltation mechanisms.

1. INTRODUCTION

This report is the factual data report of the through tide measurements at the entrance of Deurganckdok on the 28th of September and 13th of October 2011. The first chapter comprises an introduction. The second chapter describes the measurement campaign and the equipment. Chapter 3 describes the course of the actual measurements. The results and processed data are presented in Chapter 4, whereas chapter 5 gives a preliminary analysis of the data.

1.1 THE ASSIGNMENT

This report is part of a set of reports concerning the project 'Evaluation of the external effects on the siltation in Deurganckdok'. The terms of reference were prepared by 'Departement Mobiliteit en Openbare Werken van de Vlaamse Overheid, Afdeling Maritieme Toegang (16EF/2009/14). The study was awarded to International Marine and Dredging Consultants NV in association with Deltares and Gems International on 8 December 2009.

This study is a follow-up study on the study 'Opvolging aanslibbing Deurganckdok' that ran from January 2006 till March 2009.

Waterbouwkundig Laboratorium– Cel Hydrometrie Schelde provided data on discharge, tide, salinity and turbidity along the river Scheldt and provided survey vessels for the long term and through tide measurements. Afdeling Maritieme Toegang provided maintenance dredging data. Agentschap voor Maritieme Dienstverlening en Kust – Afdeling Kust provided depth sounding measurements.

1.2 AIM OF THE STUDY

The purpose of this study entails evaluating the external effects on the siltation in the Deurganckdok. External effects are those effects caused by recent or near-future human operations near Deurganckdok:

- The construction of the Current Deflecting Wall downstream of the entrance of the Deurganckdok.
- The deepening and widening of the navigational channel in the Lower Sea Scheldt between the entrance of the Deurganckdok and the access channels to the locks of Zandvliet-Berendrecht.
- The deepening of the entrance to the Deurganckdok by removing the sill at the entrance.

1.3 OVERVIEW OF THE STUDY

1.3.1 Reports

This study constitutes of 3 parts:

- Reporting and analysis of existing documents and measurement data
- Execution of specific measurement campaigns to map the siltation and its environmental factors.
- Support in numerical modelling efforts

Reports of the project 'Evaluation of the external effects on the siltation in the Deurganckdok' are summarized in Table 1-1.

This report is one of a set of reports that gains insight in sediment and water transport between Deurganckdok and the river Scheldt, which belongs to the second part of this project.

Table 1-1: Overview of the External Effects Deurganckdok Reports

Report	Description
I.	**Reporting**
I.1 Annual Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.1	Annual Sediment Balance: year 1: 1/4/2009-31/3/2010 (I/RA/11354/10.067/NZI)
1.2	Annual Sediment Balance: year 2: 1/4/2010-31/3/2011 (I/RA/11354/10.100/MBO/ANF)
1.3	Annual Sediment Balance: year 3: 1/4/2011-31/3/2012 (I/RA/11354/10.101/MBO/ANF)
I.2 Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
1.4	Boundary Conditions year 1: 01/04/2009 – 31/3/2010 (I/RA/11354/10.102/MBO/ANF)
1.5	Boundary Conditions year 2: 01/04/2010 – 31/3/2011 (I/RA/11354/10.103/MBO/ANF)
1.6	Boundary Conditions year 3: 01/04/2011 – 30/5/2012 (I/RA/11354/10.104/MBO/ANF)
I.3 Synthesis of CDW research	
1.7	Synthesis report of research on Current Deflecting Wall (I/RA/11354/10.063/MBO)
I.4 Analysis: evaluation of external effects on siltation in Deurganckdok	
1.8	Analysis of external effects on siltation processes and factors (I/RA/11354/10.105/MBO/ANF)
II.	**Measurement campaigns: Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP) & Calibrations**
II.1 Through tide measurements fixed transects	
2.1	Through tide Sediview measurement: Entrance DGD during spring tide Autumn 2011 (I/RA/11354/10.106/MBO/ANF)
2.2	Through tide Sediview measurement: Entrance DGD during neap tide Autumn 2011 (I/RA/11354/10.107/MBO/ANF)
2.3	Through tide Sediview measurement: Entrance DGD during spring tide Winter 2012 (I/RA/11354/10.108/MBO/ANF)
2.4	Through tide Sediview measurement: Entrance DGD during neap tide Winter 2012 (I/RA/11354/10.109/MBO/ANF)
II.2 Through tide measurements eddy currents	
2.5[2]	Through tide measurements: Eddy Currents DGD 02/03/2010 (I/RA/11283/10.051/MSA)
2.6	Through tide measurements: Eddy Currents DGD Autumn I/RA/11354/10.110/MBO/ANF)
2.7	Through tide measurements: Eddy Currents DGD Winter 2012 (I/RA/11354/10.111/MBO/ANF)
II.3 Salt Silt Distribution entrance Deurganckdok	
2.8[3]	Salt-Silt distribution Deurganckdok 1/4/2009-31/3/2010 (I/RA/11354/10.068/NZI)
2.9	Sal-Silt distribution Deurganckdok 1/6/2011-31/03/2012 (I/RA/11354/10.112/MBO/ANF)
II.4 Current Salt Silt Distribution CDW Deurganckdok	

2.10	Salt Silt & Current Distribution entrance Deurganckdok: frame measurements and throughtide measurements: Autumn 2011 (I/RA/11354/11.131/BQU)
2.11	Salt Silt & Current Distribution entrance Deurganckdok: frame measurements and throughtide measurements: Winter 2012 (I/RA/11354/10.114/MBO/ANF)
II.5 Quality Control instruments	
2.12	Calibration stationary & mobile equipment 16/03/2011 (I/RA/11354/10.113/MBO/ANF)
2.13	Calibration stationary equipment 2012 (I/RA/11354/12.011/JCA)

[2]: this report is part of the project Siltation Deurganckdok (11283)

[3]: this report contains report 2.35 of project Siltation Deurganckdok (I/RA/11283/09.085/MSA)

2. THE MEASUREMENT CAMPAIGN

2.1 OVERVIEW OF THE PARAMETERS

The first part of the study aims at determining a sediment balance of Deurganckdok and the net influx of sediment. The sediment balance comprises a number of sediment transport modes: deposition, influx from capital dredging works, internal replacement and removal of sediments due to maintenance dredging (Figure 2-1).

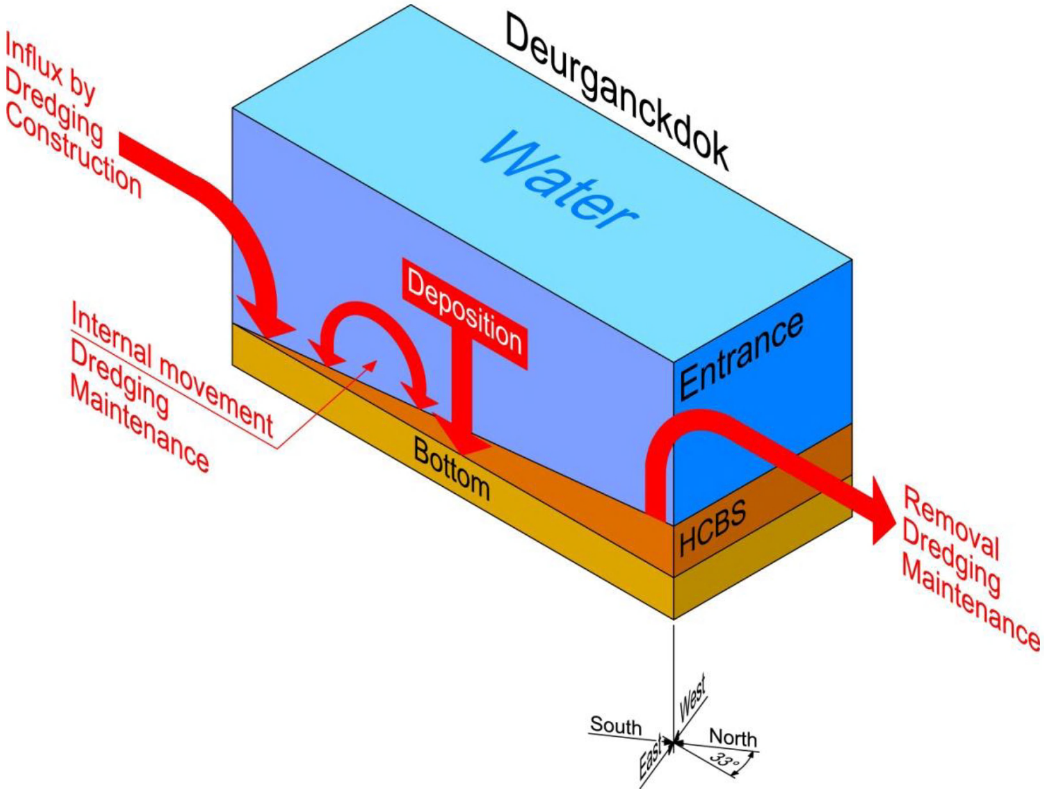


Figure 2-1: Elements of the sediment balance

A net deposition can be calculated from a comparison with a chosen initial condition t_0 (Figure 2-2). The mass of deposited sediment is determined from the integration of bed density profiles recorded at grid points covering the dock. Subtracting bed sediment mass at t_0 leads to the change in mass of sediments present in the dock (mass growth). Adding cumulated dry matter mass of dredged material removed since t_0 and subtracting any sediment influx due to capital dredging works leads to the total cumulated mass entered from the Scheldt river since t_0.

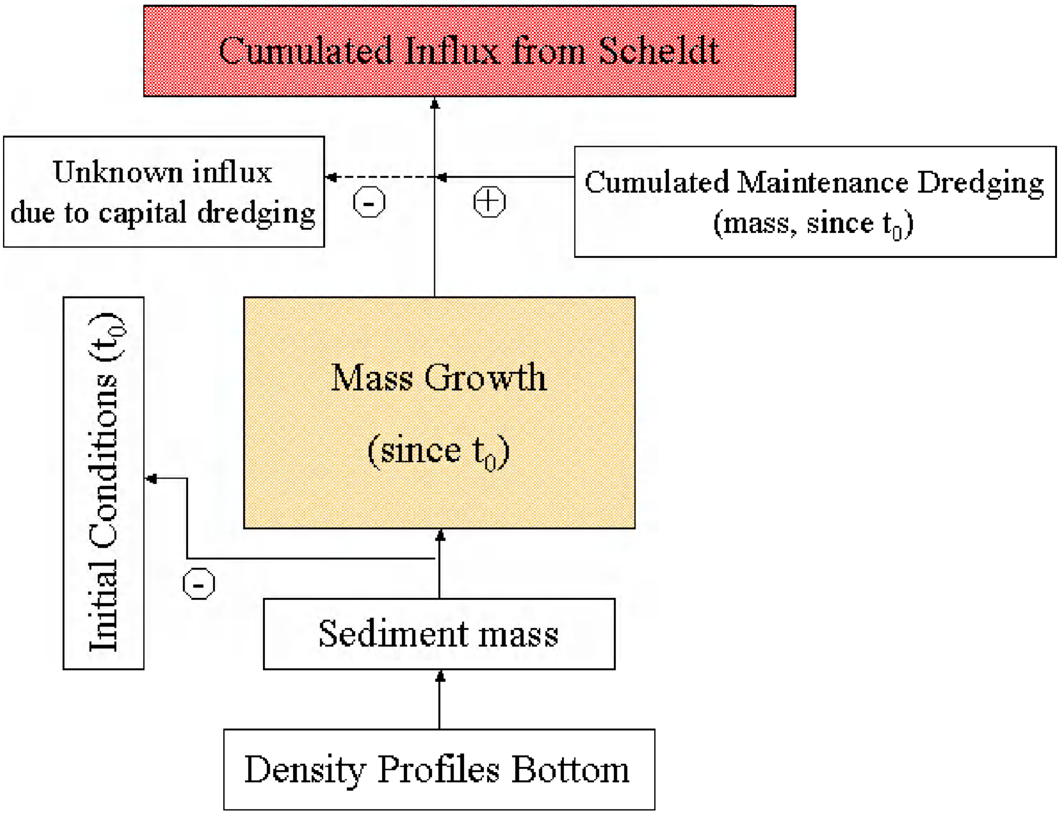


Figure 2-2: Determining a sediment balance

The main purpose of the second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok. The following mechanisms will be aimed at in this part of the study:

- Tidal prism, i.e. the extra volume in a water body due to high tide
- Vortex patterns due to passing tidal current
- Density currents due to salt gradient between the Scheldt river and the dock
- Density currents due to highly concentrated benthic suspensions

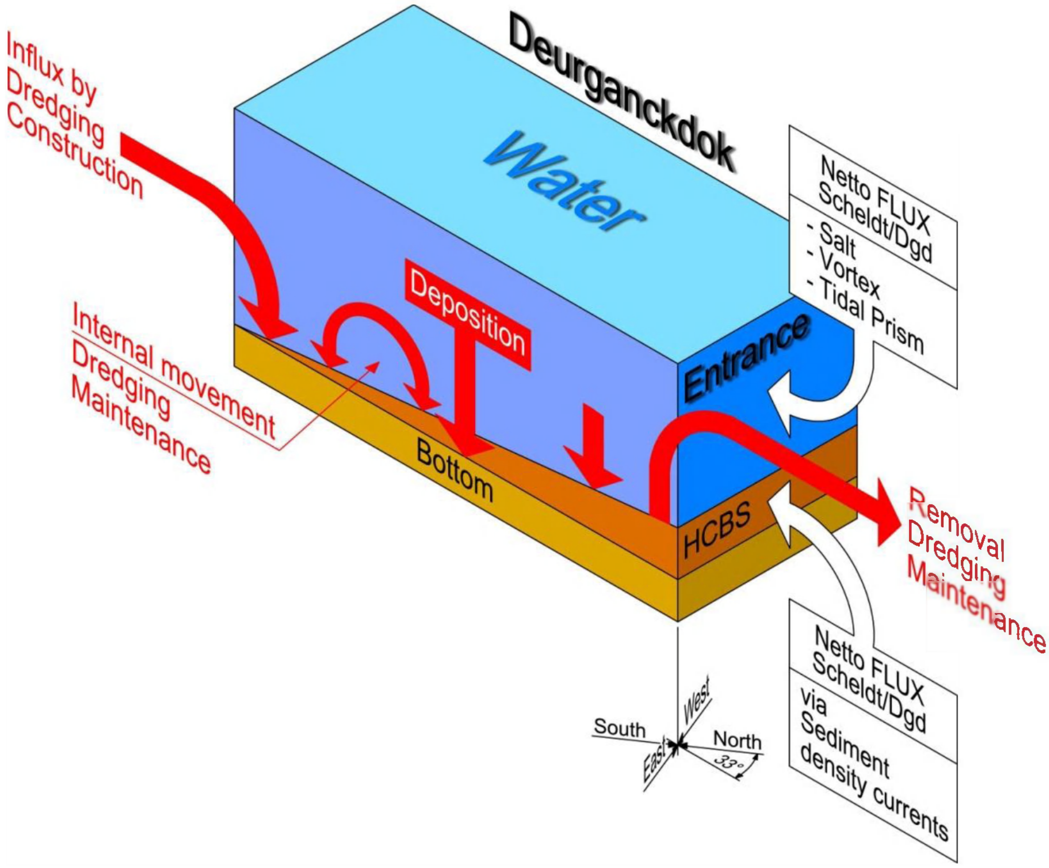


Figure 2-3: Transport mechanisms

These aspects of hydrodynamics and sediment transport have been landmark in determining the parameters to be measured during the project. Measurements will be focussed on three types of timescales: one tidal cycle, one neap-spring cycle and seasonal variation within one year.

Following data are being collected to understand these mechanisms:

- Monitoring the freshwater input (discharge) from the tributaries into the river Scheldt.
- Monitoring salinity and sediment concentration in the Lower Sea Scheldt at permanent measurement locations at Oosterweel, up- and downstream of the Deurganckdok.
- Long term measurement of salinity and suspended sediment distribution in Deurganckdok.
- Monitoring near-bed processes (current velocity, turbidity, and bed elevation variations) in the central trench in the dock, near the entrance as well as near the current deflecting wall location.
- Dynamic measurements of flow pattern, salinity and sediment transport at the entrance of Deurganckdok.
- Through tide measurements of vertical sediment concentration profiles -including near bed high concentrated benthic suspensions.
- Monitoring dredging activities at the entrance channels towards the Kallo, Zandvliet and Berendrecht locks as well as dredging and dumping activities in the Lower Sea Scheldt and Deurganckdok in particular.

In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors.

2.2 DESCRIPTION OF THE MEASUREMENT CAMPAIGN

2.2.1 Purpose of the measurement campaign

The purpose of the measurements was to determine the cross-section distribution of the suspended sediment concentration, the sediment flux and flow velocity during a complete tidal cycle.

Measurements were undertaken on the DGD transect (Figure 2-4), being the cross section between the river Scheldt and the dock itself.

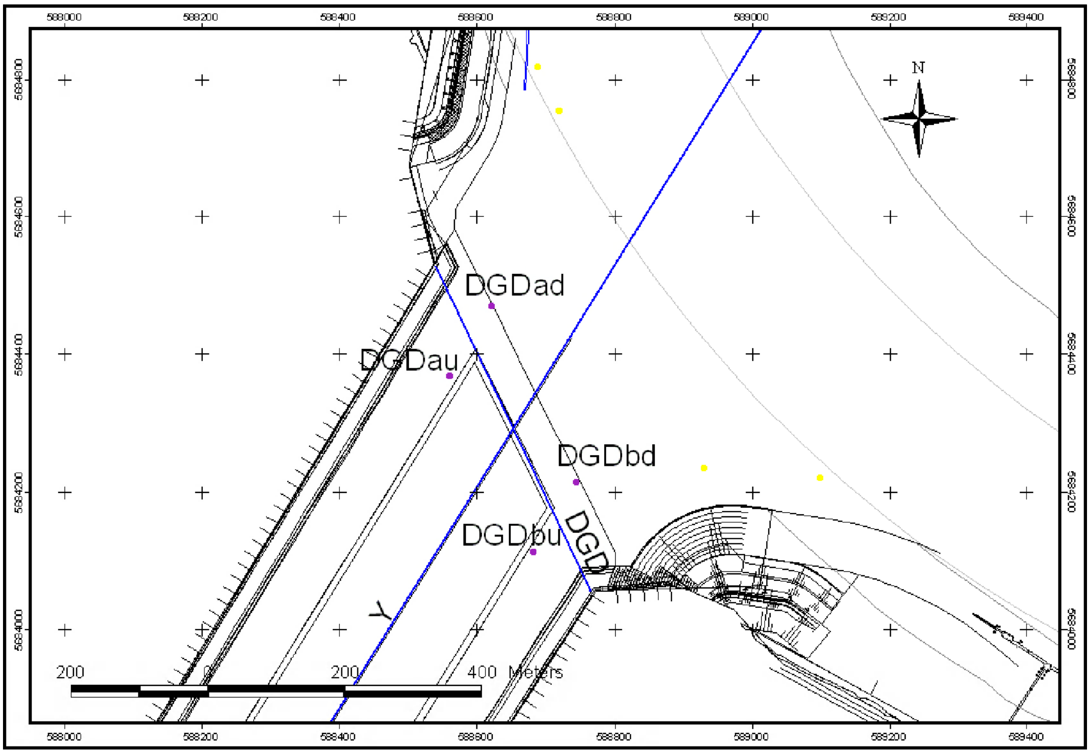


Figure 2-4: Map of sailed transect DGD perpendicular to DGD at Deurganckdok (DGD) on 28th of September and 13th of October 2011.

2.2.2 Measurement procedure

Flow velocity, Turbidity, Salinity and Temperature measurements were conducted on the 28th of September 2011 from 6h13 MET until 18h55 and 13th of October 2011 from 6h47 MET until 19h24 MET. This transect was sailed throughout 12.5 hours to cover a complete tidal cycle. The vessel with a mounted ADCP sailed a fixed transect from the right bank to the left bank and vice versa as a backup transect (Table 2-1). Profiles were gathered to calibrate the ADCP transects for temperature, salinity and suspended sediment concentration to be used in Sediview. The profiles were taken close to the locations of the Long Term frames, situated north and south of the DGD-entrance (see IMDC, 2012d).

During these calibrations, a fish with a CTD-OBS was lowered to the bottom. The downcast was interrupted at two depths, one in the upper half of the water column (around 4 meters from the water surface) and one at 4 meters above the bottom and the last one at the water bottom (about 10 meters above water surface). At the two first depths samples were taken for calibration, and are used as ‘ground truth’ for all suspended sediment concentration measurements (OBS and

Sediview). The other instruments logged continuously during the downcast. Conductivity, Temperature and Depth was logged by the CTD-probe, while turbidity was recorded by the OBS.

Table 2-1:Transect of the Flow Measurements on 28th of September and 13th of October 2011 (UTM31 ED50)

Measurement location	**Left Bank Easting**	**Left Bank Northing**	**Right Bank Easting**	Right Bank Northing	**Length [m]**	**Heading [degr.]**
Transect DGD	588 447	5 684 317	588 671	5 683 846	521	335

2.3 THE EQUIPMENT

2.3.1 ADCP

The current measurements were conducted using an Teledyne RD Instruments ADCP 600 kHz Workhorse with beam angle 20°. For positioning the GPS onboard the vessel Parel II was used. For the measurement of the heading a gyrocompass was installed.

This 600 KHz ADCP system was mounted on a steel pole at the port side of the vessel. The transducer set was looking vertically downwards to the bottom. Transceiver unit and computer system were connected to peripherals such as the differential GPS-receiver, ADCP and the gyrocompass.

During the measurements the ADCP acquisition software of Winriver was used. The main settings are given in Table 2-2.

Table 2-2: Main Configuration Settings of ADCP

Main configuration settings of ADCP 600 - 1200kHz Workhorse:
Cell depth: 0.5 m
Number of cells: 50
Number of Water pings per ensemble: 2
Number of Bottom Track pings per ensemble: 2
Time between ensembles: 0
Averaging: None
Speed of Sound: Fixed 1500 m/s
3-beam solution: enabled
Beam angle: 20°

2.3.2 CTD-OBS3A

A CTD Diver together with an OBS3A were used at two instances to measure the conductivity, turbitity and temperature profiles (together with the absolute pressure).

A D&A type OBS 3A was used to measure absolute pressure (m), temperature (°C) and turbidity (NTU) while the conductivity (µS/cm) was extracted from the CTD-diver.

On starboard side of Parel II, the OBS 3A device and CTD-Diver were mounted on a tow fish together with a water hose. The resulting record is filled-up with GPS-time, sample number, and planimetric position of the GPS-receiver. Sampling frequency is 1 reading per second.

The technical details on the OBS 3A and CTD-diver are given in the winter calibration Report of the HCBS 1 measurement campaign. (IMDC, 2006a)

2.3.3 Pump Sampler

A water sampler was attached nearby the turbidity sensor taking water samples. Samples were collected in 1 liter sampling bottles. The pumping speed of the water sampler was tested at the start of the measurement campaign on board. Dye was used to time the duration between the intake of the dye and exit at the sampling end of the sampler on board. The duration between intake and exit at the end was 17 seconds.

3. DESCRIPTION OF THE MEASUREMENTS

3.1 MEASUREMENT PERIODS

At Deurganckdok ADCP tracks were sailed about every 14 minutes for 12.5 hours, in total 51 cross-sections on the 28th of September and 63 on the 13th of October 2011. Due to lag in the GPS signal no reliable current and also flux data was available during the measurement on the 28th of September . The measurement was repeated on 13th of October 2011 where the GPS was working properly.

Calibration profiles were taken at 2 locations (left bank, right bank). Almost during every cycle, 1 calibration profile was taken serving as the second calibration of the previous transect and as the first calibration point of the current transect, resulting in a total of 46 profiles on the 28th of September and 49 on the 13th of October 2011.

Annex A gives the start and end points of the tracks, the sailed length and the course.

3.2 HYDRO-METEOROLOGICAL CONDITIONS DURING THE MEASUREMENT CAMPAIGN

3.2.1 Vertical tide during the measurements

The vertical tide was measured at the Liefkenshoek tidal gauge. Graphs of the tide at Liefkenshoek on the 28th of September and 13th of October 2011 can be found in Annex B. Table 3-1 gives the most important characteristics (high and low tide) of the tide at this gauge on the 28th of September and 13th of October 2011.

Table 3-1: High and low tide at Liefkenshoek on 28/09/2011 and 13/10/2011

Liefkenshoek Tidal Gauge		
28 September 2011		
	Time [MET]	***Water level [m TAW]***
HW (1)	03:20	5.66
LW (2)	10:12	-0.24
HW (3)	15:45	5.83
13 October 2011		
HW (1)	03:50	5.38
LW (2)	10:50	-0.10
HW (3)	16:10	5.34

In Table 3-2 the tidal characteristics of the tide on the 28th of September and 13th of October 2011 are compared to the average tide over the decade 1991-2000 (AMT, 2003).

Table 3-2: Comparison of the tidal characteristics of 28/09/2011 and 13/10/2011 with the average tide, the average neap tide and the average spring tide over the decade 1991-2000 for Liefkenshoek.

	Neap tide (1991 - 2000)	Avg Tide (1991 - 2000)	Spring Tide (1991 - 2000)	Tide 28/09/2011	Tide 13/10/2011
Water level [m TAW]					
HW (1)	4.63	5.19	5.63	5.66	5.38
LW (2)	0.39	0.05	-0.18	-0.25	-0.1
HW (3)	-	-	-	5.83	5.34
Tidal difference [m]					
Falling (1 to 2)	4.24	5.14	5.81	5.91	5.48
Rising (2 to 3)	4.24	5.14	5.81	6.08	5.44
Duration [hh:mm]					
Falling (1 to 2)	6:40	6:50	7:02	6:55	7:00
Rising (2 to 3)	5:59	5:34	5:16	5:30	5:20
Tide (1 to 3)	12:39	12:24	12:18	12:25	12:20
Tidal coefficient					
Falling (1 to 2)	0.82	1.00	1.13	1.15	1.07
Rising (2 to 3)	0.82	1.00	1.13	1.18	1.06

The tidal coefficients from 1.15 up to 1.18 and 1.06 up to 1.07 for the measured tide of the 28th of September 6th and 13 of October 2011 respectively, indicate that this tide has a tidal range equal as the spring tide for the decade of 1991-2000, and therefore can be classified as such.

3.2.2 Meteorological data

Meteorological data at Woensdrecht (NL) was obtained from the Weather Underground website (Wunderground, 2011).

The weather on the 28th of September 2011 was dry. The wind blew all day from the east at an average velocity of 6km/h. The air temperature varied between 16 and 25°C. There were sunny spells and no precipitation.

The weather on the 13th of October 2011 was dry. The wind blew all day from the north east at an average velocity of 10km/h. The air temperature varied between 10 and 15°C. There were no clouds and no precipitation.

3.3 NAVIGATION INFORMATION

An overview of the relevant navigation at the measurement location is given in Annex C.

3.4 REMARKS ON DATA

On board of the Parel II the pc was not working properly and was replaced by a spare one at 17h25. Therefore file 4072T2 was aborted early and there is no data between 17h05 and 17h33. At 19h15 the GPS signal was lost, therefore file 4083T2 was aborted early.

Shipwakes were removed from the data where possible. Transects 3031 and 3042 were excluded for processing because their short length due to editing.

4. PROCESSING OF DATASETS

4.1 CALIBRATION OF THE OBS TURBIDITY SENSOR

A crucial aspect of the accuracy and reliability of the data concerns the calibration of the OBS turbidity sensor. The calibration of the OBS sensor is necessary to convert turbidity into Suspended Sediment Concentration (SSC). An in situ calibration of the OBS3A was performed. At some depths water samples were taken by the pump sampler and were analysed by a laboratory for SSC. These SSC were used as 'ground truth' to calibrate the OBS turbidity sensor. The calibration curve can be found in report 2.34 (IMDC, 2009c).

4.2 METHODOLOGY OF PROCESSING OF THE ADCP DATA WITH SEDIVIEW

DRL Software's Sediview was used to process the ADCP data. Sediview is designed to derive estimates of suspended sediment concentration throughout the water column using acoustic backscatter data obtained by ADCP's manufactured by RD Instruments of San Diego, California.

4.2.1 Acoustic backscatter theory

The acoustic theory governing backscatter from particles suspended in the water column is complex, but the following simplified formula serves to introduce the main factors that are relevant:

$$E = SL + SV + Constant - 20\log(R) - 2\alpha_w R$$

Where:

E = echo intensity,
SL = transmitted power,
SV= backscatter intensity due to the particles suspended in the water column,
α_w = a coefficient describing the absorption of energy by the water,
R = the distance from the transducer to the measurement bin.

The term 20log(R) is a simple geometric function that accounts for the spherical spreading of the beam. The constant is required because each ADCP has specific performance characteristics.

In order to measure the suspended sediment concentration in the water column it is necessary to relate the backscattered sound intensity to the mass concentration in the water. For the purposes of measuring solids concentration on site, it can be shown that the relationship is as follows (derived from Thorne and Campbell, 1992 and Hay, 1991 in DRL (2003)):

$$Log_{10} M_r = \left[dB + 2r(\alpha_w + \alpha_s) - K_s \right] S^{-1}$$

Where:
$M(r)$ = mass concentration per unit volume at range, r
S = relative backscatter coefficient
K_s = site and instrument constant
dB = the measured relative backscatter intensity (corrected for beam spreading)
α_w = water attenuation coefficient
α_s = sediment attenuation coefficient, which is a function of the effective particle size

In this expression there are four unknowns: S, Ks, α_w and α_s. These parameters are to be determined within Sediview (Annex E).

4.2.2 Water sampling and transect sailing

To calibrate Sediview for suspended sediment concentration, two water samples are taken at the beginning and at the end of each transect (see 3.1). Both samples are taken within the range of reliable data of the ADCP. For the near-surface sample this means in bin 3 or 4, for the near-bed sample this means at about one or two meter above the sidelobe.

Water sampling is done together with CTD-OBS measurement in order to have two independent suspended sediment concentration measurements for each sample. OBS measurements were compared to the water samples and recalibrated as mentioned in §4.1. The water samples were used for Sediview calibration, while cross-calibrated OBS measurements were used as a back up check. The salinity and temperature was used to compute the acoustic water absorption (water attenuation coefficient). All water samples were analysed as is described in 4.2.3.1.

4.2.3 Calibration for suspended sediment concentration within Sediview

4.2.3.1 Calibration workset

The calibration workset consists of ADCP-files, sampling times, sampling depths, SSC obtained from water samples and SSC, temperature and salinity obtained from CTD-OBS readings.

The suspended sediment concentration of the water samples was determined. One-litre samples were filtered over a preweighed desiccated 0.45 micron filter, after which the filter is dried in an oven at 105°C, cooled and weighted (NEN 6484).

4.2.3.2 SSC calibration per ensemble pair

In the Sediview calibration process the following parameters must be defined: the site and instrument constant (Ks), the relative backscatter coefficient (S) and the effective particle size per ensemble-pair (near-surface sample and near-bed sample) in order to fit the Sediview-estimate with the suspended sediment concentration of the water samples. These parameter sets may not differ too much from the previous parameter sets, as the environmental conditions will not change that much over a small time interval. To obtain a smooth progress in time of Ks, S and effective particle size an iterative approach is used.

4.2.4 Sediview configuration

4.2.4.1 Discharge and suspended sediment concentration estimates

The ADCP measures most of the water column from just in front of the ADCP to 6% above the bottom when the beam angle is 20° and to 12% above the bottom when the beam angle is 30°. The shallow layer of water near the bottom is not used to compute discharge and suspended sediment concentration due to side-lobe interference. When the ADCP sends out an acoustic pulse, a small amount of energy is transmitted in side lobes rather than in the direction of the ADCP beam. Side lobe reflection from the bottom can interfere with the water echoes and can give erroneous data. The thickness of the side lobe layer for the ADCP used during this campaign is 12% of the distance from the transducers to the bottom.

Near the banks the water depth is too shallow for the ADCP to profile.

For each of those unmeasured regions, an estimate of the discharges and suspended sediment concentration is made. The measured and unmeasured regions in the cross section are shown in Figure 4-1 and Figure .

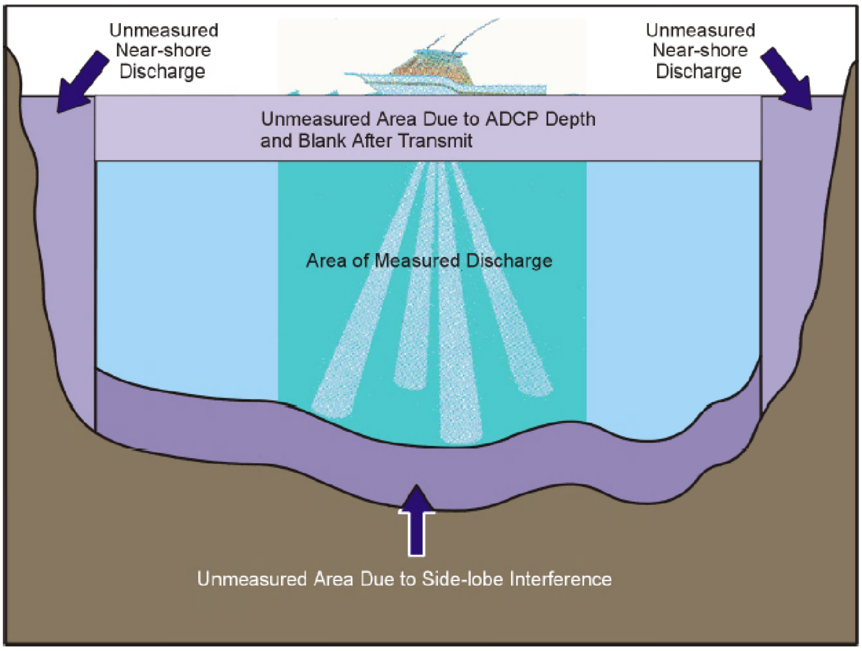


Figure 4-1: Unmeasured regions in the cross section (from RD Instruments, 2003)

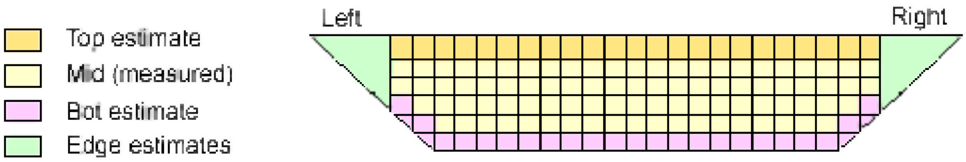


Figure 4-2: Measured and estimated discharges and sediment fluxes within Sediview (DRL, 2005)

4.2.4.1.1 Top/bottom estimates

The sediment concentration and discharge at the top of the water column is assumed to be the same as the concentration and discharge in the first measured bin.

The sediment concentration between the bottom and the lowest valid bin is assumed to be an increase of the lowest valid bin. As the concentration grows approximately linear from the lowest valid bin to the bottom, and as Sediview/Matlab uses a constant concentration factor for these deepest bins, we use a concentration factor of 125% (Figure 4-3). An overview of the used power concentration factor is given in6.Annex E.

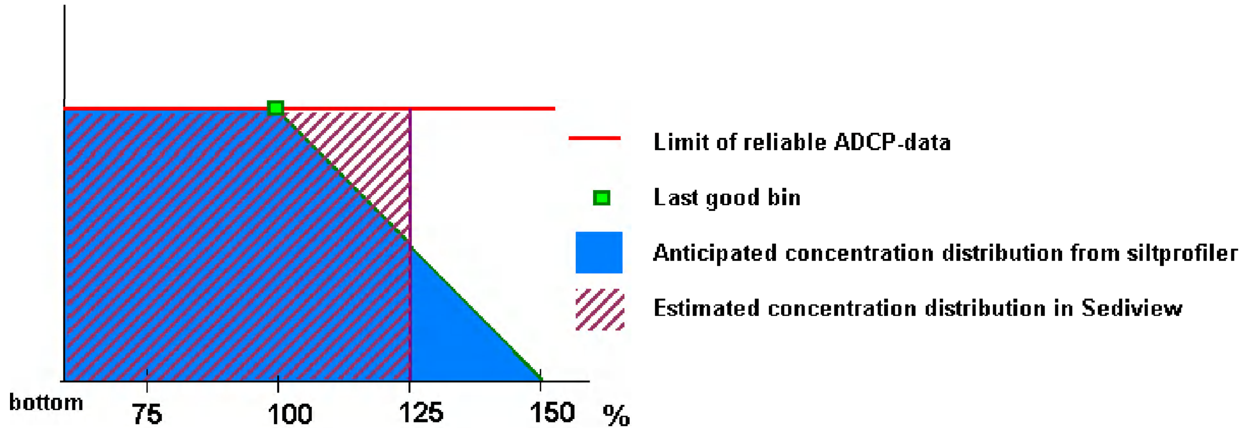


Figure 4-3: Principal of bottom estimate of the sediment concentration in Sediview

Table 4-1: Extrapolation methods for top and bottom variables

Variable	*Top*	*Bottom*
Discharge Method	Constant	Power
Concentration factor	100%	125%

The discharge for the bottom water layer is estimated by using the power method. Chen (1991) discusses the theory of power laws for flow resistance. Simpson and Oltmann (1990) discuss Chen's power law equivalent of Manning's formula for open channels (with b=1/6) (RD Instruments, 2003).

$$u / u* = 9.5(z / z_0)^b$$

Where:

z = Distance to the channel bed [m]
u = Velocity at distance z from bed [m/s]
u* = Shear velocity [m/s]
z_0 = Bottom roughness height [m]
b = Exponent (1/6)

4.2.4.1.2 Edge estimates

The shape of the edges of the cross section is assumed to be near triangular due to the banks of the river Scheldt. Five data ensembles are to be averaged to determine the left and right bank mean velocities used for calculation of edge estimates.

The distance from start- and endpoint to the bank is calculated from the theoretical start- and endpoint at the bank to the effective start- and endpoint. The theoretical points are taken at the banks.

Table 4-2: Reference points at the end of the mud flats on left and right bank

Coordinates (UTM31 WGS84)	*Easting Left bank*	*Northing Left bank*	*Easting Right bank*	*Northing Right bank*
Transect DGD	588 447	5 684 317	588 671	5 683 846

The formula for determining the near shore discharge is:

$$Q_{shore} = CV_m L d_m \text{ [m³/s]}$$

Where:

C = Coefficient (0.35 for triangular, 0.91 for rectangular shape)
V_m = Mean water velocity in the first or the last segment [m/s]
L = Distance from the shore to the first or the last segment specified by the user [m]
d_m = Depth of the first or the last segment [m]

The coefficient (C) has been set to 0.91 (triangular shape of the banks).

4.2.4.2 Contour plots of the transects

All contour plots show perpendicular and parallel projected values on the straightened sailed transects. The heading of the straightened sailed transect is defined by picking 2 points in the straight part of the line after having corrected the heading of the ADCP compass. The compass offset is derived from a comparison of the ADCP's bottom track with the external GPS data.

4.2.5 Output

General transect information containing start-stop coordinates of each sailed transects with stop time, track length and heading is given in 0.

In Annex F, four contourplots were generated for each transect showing the distribution of suspended sediment concentration & sediment flux as well as the flow velocity perpendicular and parallel to the transect. The following conventions were used:

- Distances on the X-axis were referenced to the starting point of the transect, the start of the sailed transect is always at distance equal to zero.
- Left bank is always shown left, right bank on the right side. For transect DGD, left bank was taken to be the western quay wall and the right bank to be the eastern quay wall considering the dock as being a tributuary to the Scheldt river.
- Perpendicular flow velocities and fluxes are positive for downstream flow (ebb, out of Deurganckdok), negative for upstream flow (flood, inbound).
- Parallel flow velocities are positive for flow going from the left bank to the right bank, and negative for flow going from the right bank to the left bank.
- Absolute Depth is given in meters above TAW.

Also a depth-averaged velocity plot was generated for the flow velocity perpendicular to the transect. (see Annex F).

Tables in Annex G give the values for discharges, sediment fluxes and the average measured SSC for the total cross-section.

- Mid = measured part of the cross-section
- Top = top part of the cross-section
- Bottom = bottom part underneath the sidelobe
- Edge (left, right) = edge estimates to left & right bank
- Total = Mid+Top+Bottom+ Edge values

The graph in Annex H gives the temporal variation of the total flux, total discharge and total measured SSC for the whole through tide measurement at Deurganckdok.

5. PRELIMINARY ANALYSIS OF THE DATA

5.1 SEPTEMBER 28TH AND OCTOBER 13TH 2011 SURVEY

As Deurganckdok is situated along the part of the river Scheldt under tidal influence, it is subject to complex current fields near its entrance. The measured current field shows a vortex pattern depending on the tidal phase. During ebbing tide the vortex at the entrance of the dock is a counter-clockwise one and during rising tide it is a clockwise one. This is shown in the contour plots by inflow (negative) on the western side (left) and outflow on the eastern side of the entrance during ebbing tide and vice versa for flooding tide. (Annex F).

During slack water we see a current field with opposing current directions in the upper part of the water column compared to the lower part of the water column. For high water, there is an inflow (negative) near the bottom and outflow (positive) near the surface. This particular pattern is the result of the expected salinity density currents occurring near the entrance of Deurganckdok. The same event is seen at low water when the dock contains waters of higher salinity than the river; here we see an outflow near the bottom and inflow near the surface.

From the backscatter interpretation into suspended sediment concentration, one can notice in general a higher concentration during rising tide compared to during ebb tide. The highest SS concentrations (incoming and outgoing) occur at LW and HW. Except for 28th of September where the SSC at HW are low (Figure 5-1) and compared with 13th October the concentrations are less than half.

Table 5-1 Average SSC's over the sailed transect on 28/09/2011 and 13/10/2011

Tide	Concentration [mg/l]								
	overall SSC			incoming SSC			outgoing SSC		
	min	average	max	min	average	max	min	average	max
28th September of 2011									
Eb	53	107	227	-	-	-	-	-	-
Flood	126	188	251	-	-	-	-	-	-
13th October of 2011									
Eb	44	137	329	48	197	467	40	92	218
Flood	148	232	323	148	242	416	139	220	293

It can also be noticed that during the complete measurement cycle the incoming water has a higher SS concentrations than the outgoing water (Table 5-1, Figure 5-1). In general are the SS concentrations higher during flood than during ebb. The incoming averaged SS concentrations on 13th October of 2011 range from 48 mg/l up to 467 mg/l during ebb and from 148 mg/l to 242 mg/l during flood, whereas the outgoing concentrations range from 40 to 218 mg/l during ebb and from 139 to 293 mg/l during flood. The averaged SS concentrations are higher during 13th October than during 28th September.

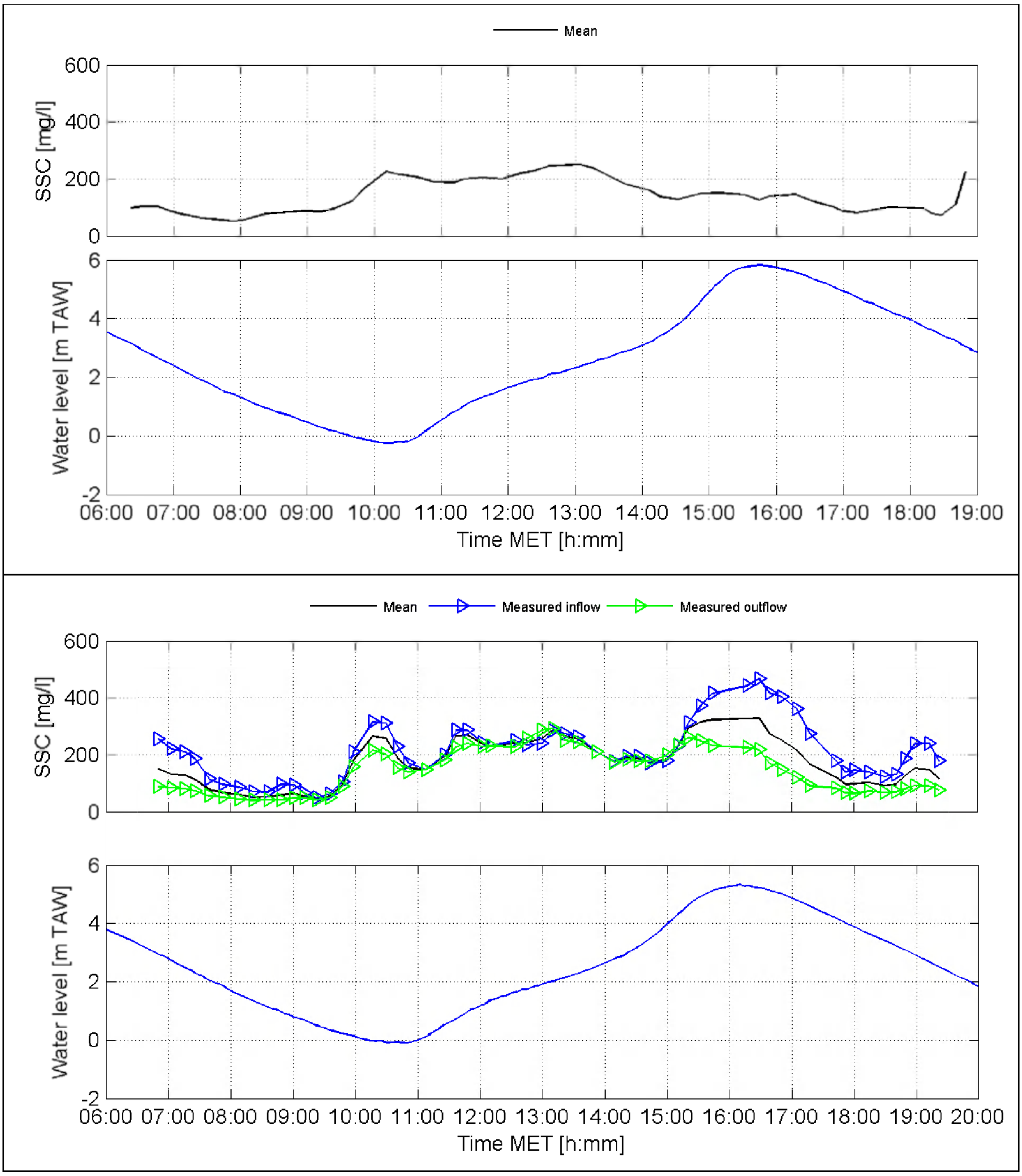


Figure 5-1: Incoming, outgoing and averaged SSC over a complete tidal cycle on 28/09/2011 (top) and 13/10/2011 (below)

Considering the sediment fluxes in Figure 5-2 show that residual incoming transport is dominating especially during flood and HW. During HW the incoming transport is twice as high than the outgoing transport. In the first 1.5 hours after high water there is a residual incoming sediment flux even though the resulting discharge is outgoing at that moment (see Figure 5-2). To visualize in- and outflow, the absolute values of the inflow have been used. If the measured total line is negative, it means that measured inflow is greater than measured outflow. Or a negative measured total value means a total inflow/influx, a positive measured total value means a total outflow/outflux.

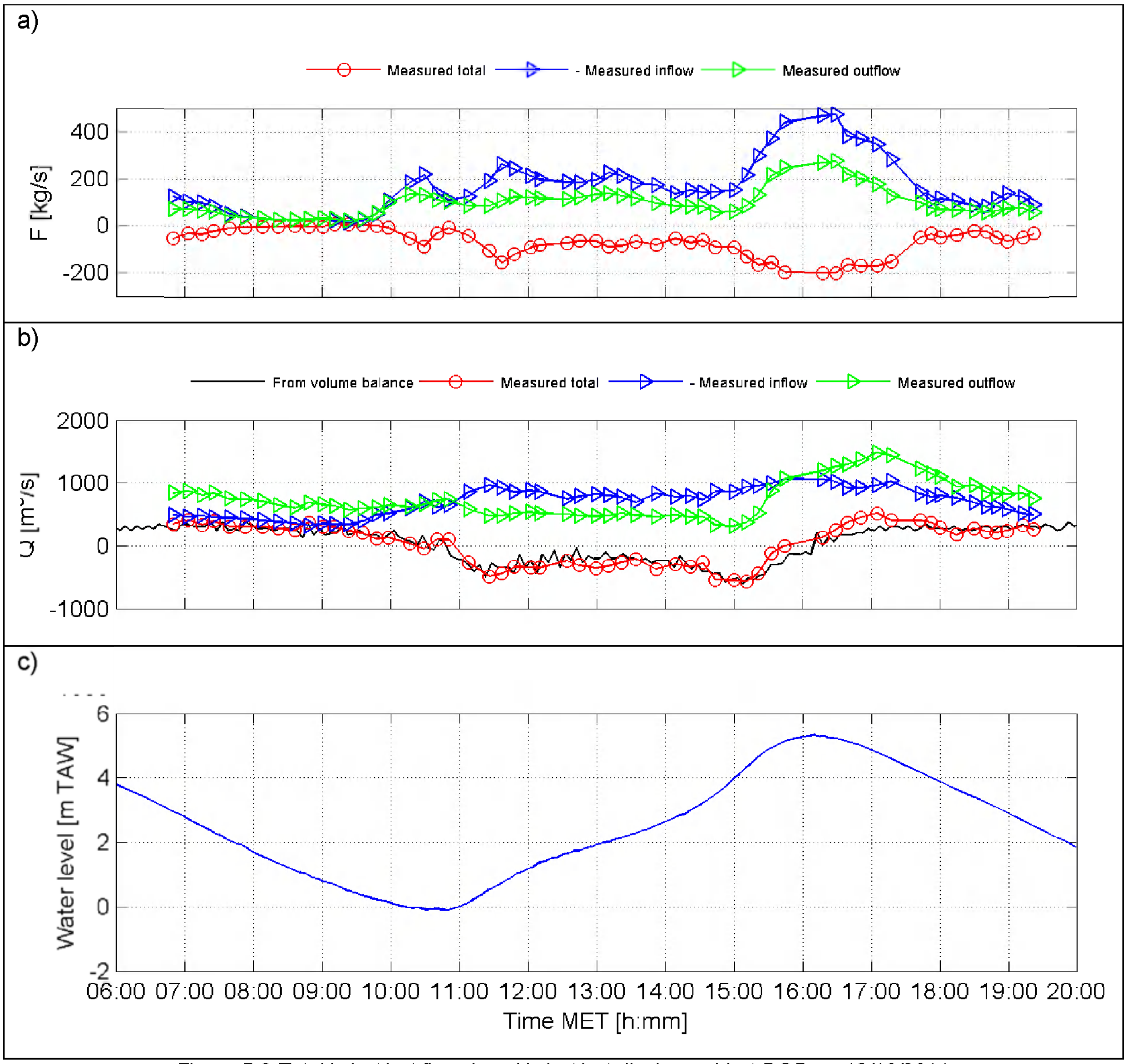


Figure 5-2 Total in/out/net flux a) and in/out/net discharge b) at DGD on 13/10/2011.

During HW the outflow is approximately twice as high (+/-1000 m³/s) as during LW (Figure 5-2). Incoming density currents near the bottom due to a higher salinity in the river than in the dock reach their maximum around slack tide on the Scheldt at approximately 1 hour after high water.

5.2 INTERCOMPARISON WITH EARLIER SURVEYS AT DGD

Since 2005, IMDC has organized several through tide measurement campaigns at the entrance of Deurganckdok. The course and results of the campaigns were described in IMDC rapports and are listed in Table 5-2. Table 5-2 gives also an overview of the tidal phase during the campaigns. Conditions near the entrance of Deurganckdok have been simulated in Delft3D and processed by IMDC (2006n) in order to compare simulation with observed data.

Since the first measurement campaign a several human impacts took place in or near Deurganckdok which influenced the siltation processes. The impacts are also given in Table 5-2.

Table 5-2: Hydrological conditions during through tide ADCP measurements at the entrance of DGD

Tidal Coefficient at tidal gauge: Liefkenshoek				
PROJECT (DESCRIPTION)	***Date***	***Tidal coefficient***	***Tidal phase***	***Fresh water discharge at Schelle [m³/s]***
HCBS 1 (IMDC, 2006m)	17/11/2005	1.10	Spring	91*
HCBS 2 (IMDC, 2006c)	22/03/2006	0.97	Average	94*
HCBS 2 (IMDC, 2007o)	27/09/2006	1.03	Average	33*
The dock is enlarged to 1.019 km² after completing the 3rd phase				
DGD 1 (IMDC, 2008a)	24/10/2007	1.02	Average	46*
DGD 2 (IMDC, 2008k)	11/03/2008	1.17	Spring	286*
DGD 3 (IMDC, 2008u)	19/06/2008	1.15	Spring	93*
DGD 3 (IMDC, 2008v)	26/06/2008	0.97	Average	69*
DGD3 (IMDC 2008x)	24/09/2008	0.81	Neap	75*
DGD 3 (IMDC, 2009a)	30/09/2008	1.08	Spring	82*
DGD 3 (IMDC, 2009e)	02/12/2008	0.98	Average	154*
DGD 3(IMDC,2009f)	10/12/2008	0.97	Average	222*
DGD 3(IMDC,2009i)	06/03/2009	0.82	Neap	99*
DGD 3(IMDC,2009n)	12/03/2009	1.24	Spring	129*
Since June 2010, the sill at the entrance is completely dredged and CDW construction is completed in August 2011.				
Eff DGD (IMDC, 2012a)	28/09/2011	1.06	Avg/Spring	40**
Eff DGD (IMDC, 2012b)	06/10/2011	0.83	Neap	55**
Eff DGD (IMDC, 2012a)	13/10/2011	1.17	Spring	60**

* Daily fresh water discharge based on AZ (1974) and ** 5-day averaged water discharge based on WL (2009).

5.2.1 Fresh water discharge

The fresh water discharges at Schelle were calculated from the tributaries, which were recorded during long term measurements campaigns by Flanders Hydraulics Research (FHR). The calculation procedure before this project is described in AZ (1974) and is based on the use of correction coefficients that take in account the surface of the hydrological basins. Since 2009 FHR is using a new calculation procedure where the discharges from the tributaries are averaged about 5 days. This procedure is described in FHR (2009) and the results about the measurement campaign are given in Annex B. The daily or 5-day averaged fresh water discharges at Schelle are listed in Table 5-2. The evolutions of the fresh water discharge at Schelle for all former campaigns are shown in Figure 5-3.

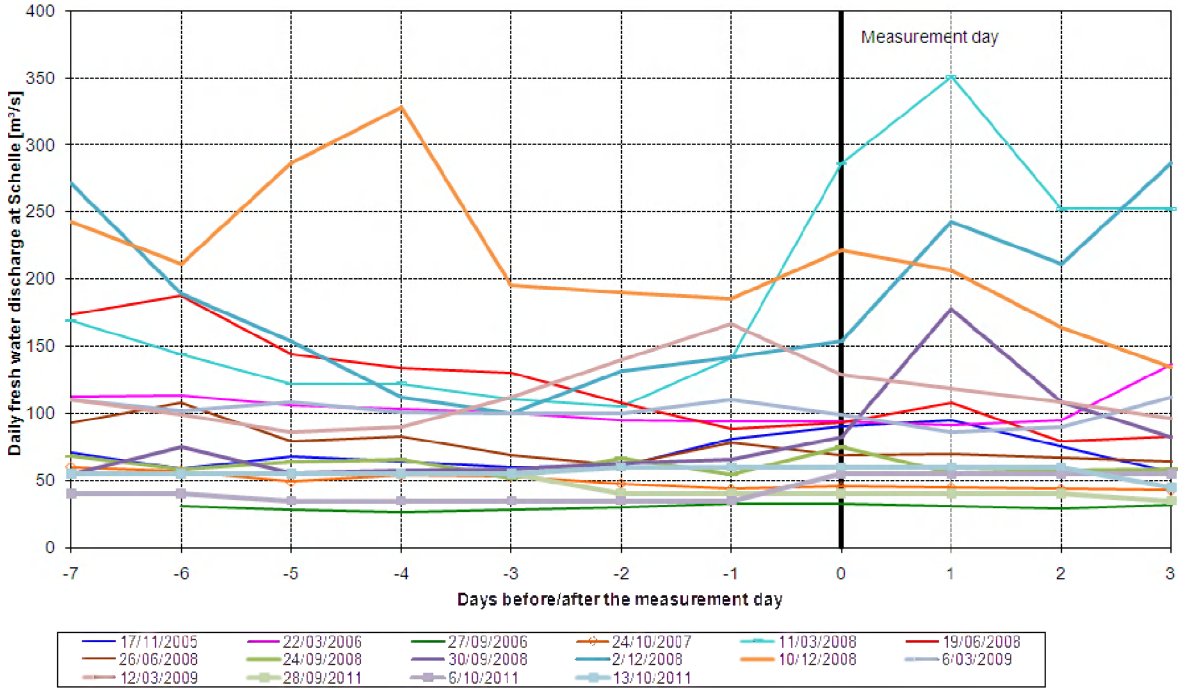


Figure 5-3: Daily fresh water discharge evolution at Schelle before and after a measurement day.

The results presented in Annex B are based on a long-term simulation over a period of 30 year (1971-2000) with the SIGMA-model for MKBA (IMDC, 2006r). The mean discharge is the annual average ten days' discharge, calculated with simulated long-term measurements. The high and low discharges are also annual ten days' discharges, and are calculated as mean discharge +2σ and mean discharge -2σ.

5.2.2 Sediment distributions and current patterns

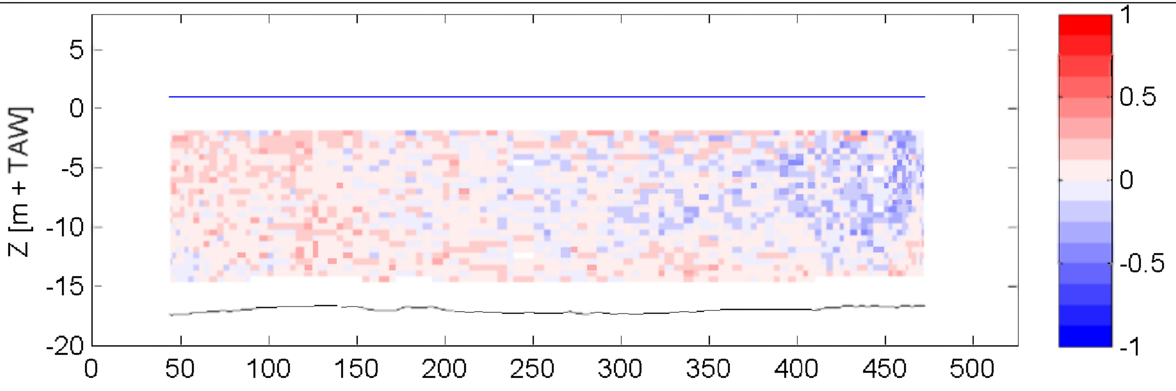
In Annex I the earlier different measurement campaigns have been visualized for about 3 hours after high water (HW) because it appeared that during the campaigns the horizontal ebb eddy currents were clearly visible at 3 hours after HW. Sediment distributions as well as current pattern in the cross section are similar for all campaigns. The western side of the dock is situated at the left of these figures, the eastern side at the right. The sediment distribution and current pattern of this neap tide measurement is less pronounced than the patterns during average and spring tide measurements.

The circulation pattern and sediment concentration have been compared about 1h after HW because it appeared that during the first campaigns the density currents were clearly visible at 1h after HW. Again the current pattern is almost identical between the different days with a salinity wedge intruding near the bottom of the dock and compensatory outflow of fresher water near the surface. Except for the measurements at 11/03/2008, 02/12/2008, 12/03/2009 the sediment distributions are very similar between the different campaigns.

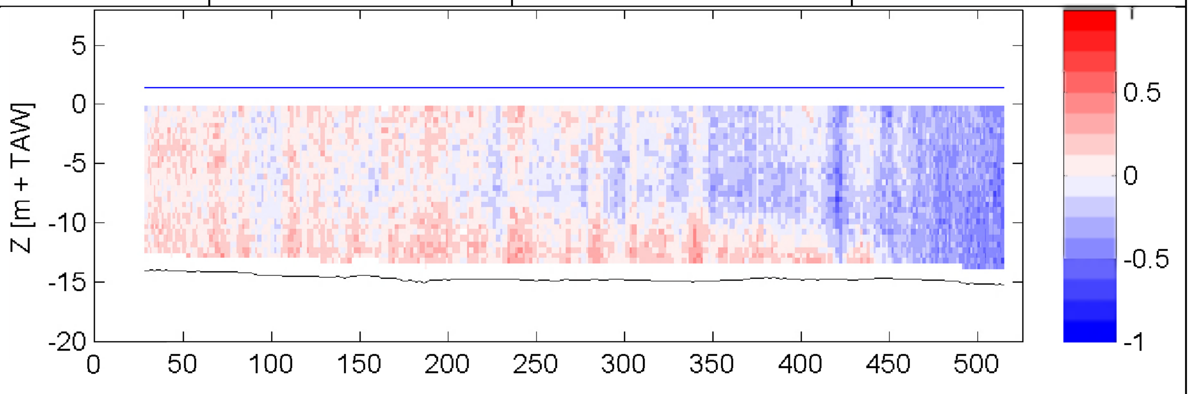
The current deflecting wall (CDW) construction at the Northside of Deurganckdok should influence the horizontal eddy during flood. The CDW deflects the upper part of the water column into the dock. A near bed sill deflects the high concentration bottom layers towards the river Scheldt. Two moments during flood are selected to make an intercomparison with earlier sailed measurement campaigns without CDW and with sill (Table 5-2).

The flood horizontal eddy starts about 3 hours before HW and is finishing about HW. At 3 hours before HW the current pattern is a combination between a horizontal eddy and density current. At 1 hour before HW the eddy current is dominating. The velocities of the CDW measurement are lower at the North- and the Southside of the dock which means that the eddy current is less strong than without CDW. The difference in SS concentration distribution is not very clear, except that the SS concentrations of the CDW measurements are higher, especially on 13/10/2011.

The 48 water samples which are sampled during the measurement campaigns are ranging between 7 and 750 mg/l with a median of 170 mg/l. The higher concentrations may be related to the presence of turbidity maximum on the river Scheldt during the last measurements or/and the absence of the sill.



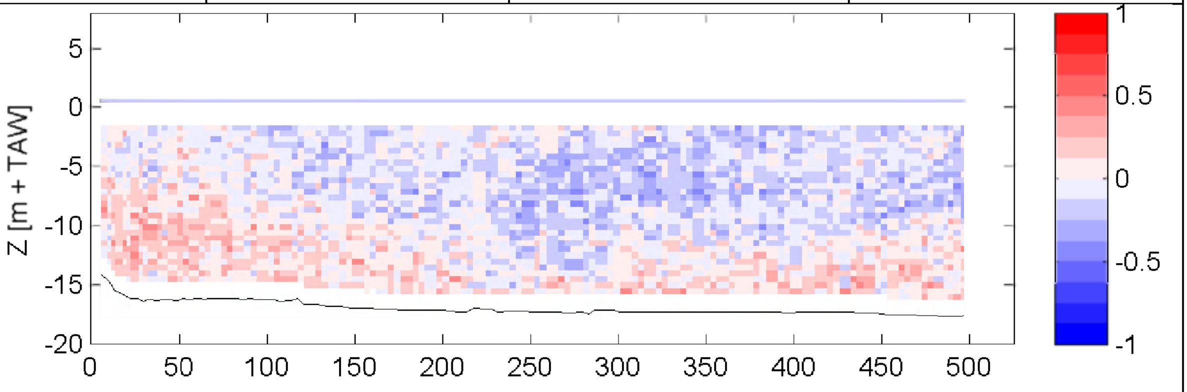
a)	30/09/2008	3 hrs before HW	Tidal coefficient: 1.08	Fresh water: 82 m^3/s



b)	12/03/2009	3 hrs before HW	Tidal coefficient: 1.24	Fresh water: 129m^3/s

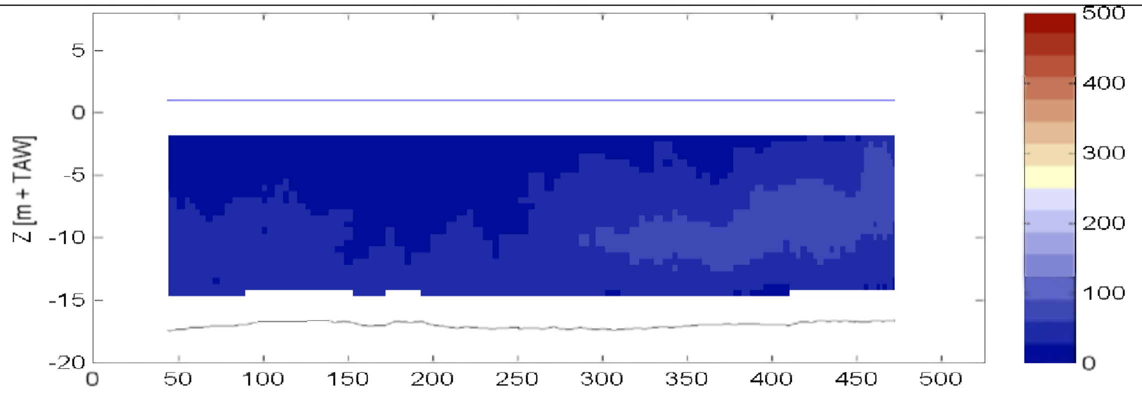
No velocity data available

c)	28/09/2011	3 hrs before HW	Tidal coefficient: 1.17	Fresh water: 40 m^3/s

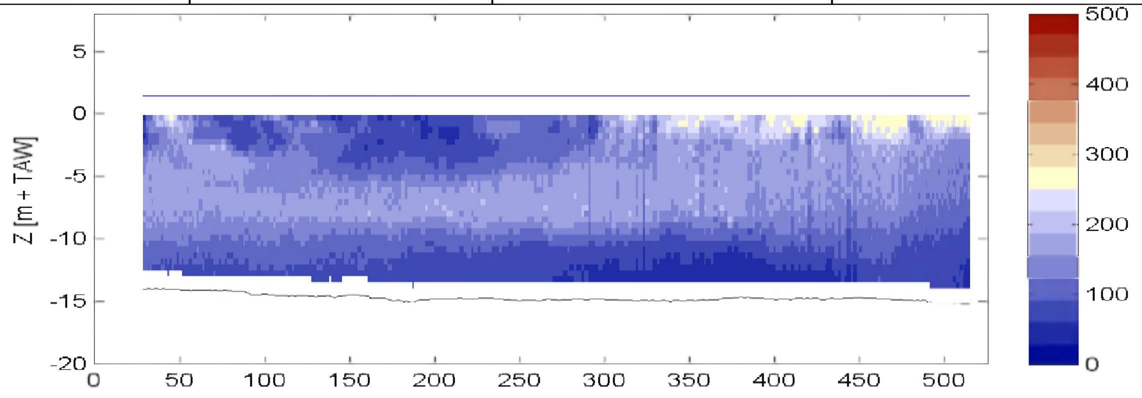


d)	13/10/2011	3 hrs before HW	Tidal coefficient: 1.06	Fresh water: 60 m^3/s

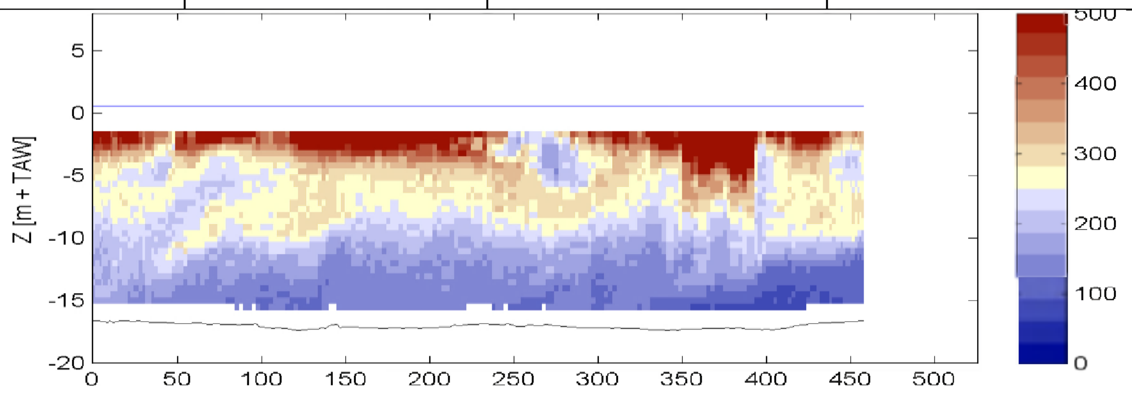
Figure 5-4: Perpendicular current velocity at 3hrs before high water during spring measurements



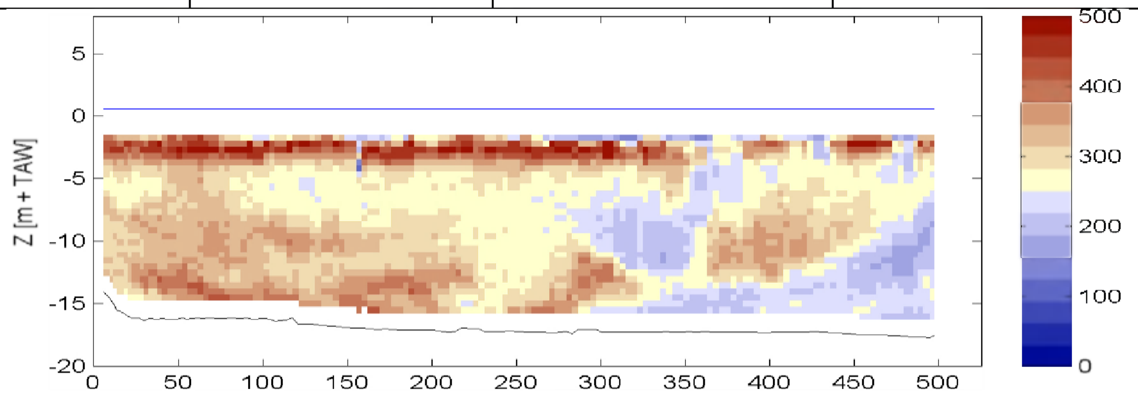
a)	30/09/2008	3 hrs before HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s



b)	12/03/2009	3 hrs before HW	Tidal coefficient: 1.24	Fresh water: 129m³/s

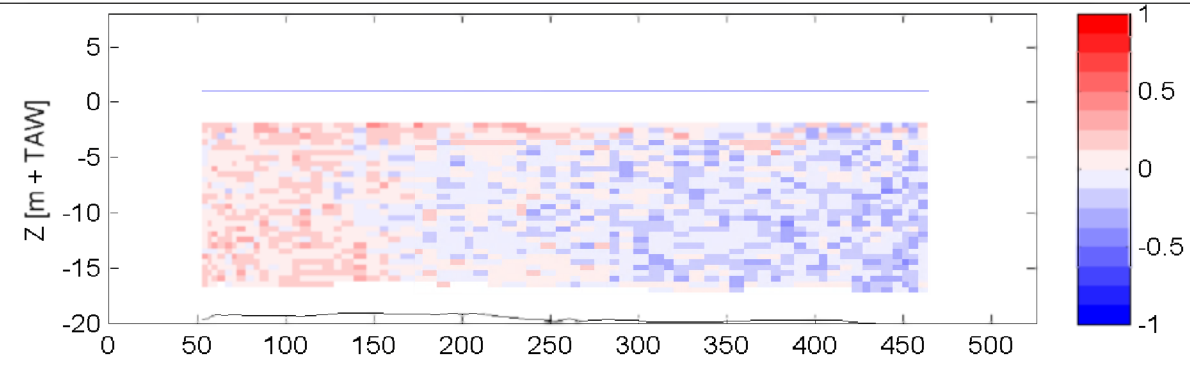


c)	28/09/2011	3 hrs before HW	Tidal coefficient: 1.17	Fresh water: 40 m³/s

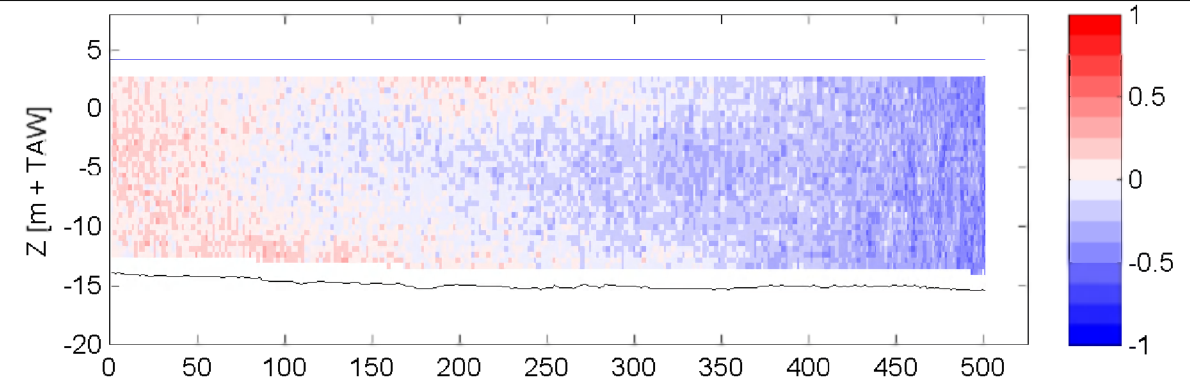


d)	13/10/2011	3 hrs before HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s

Figure 5-5: Suspended sediment concentration at 3hrs before high water



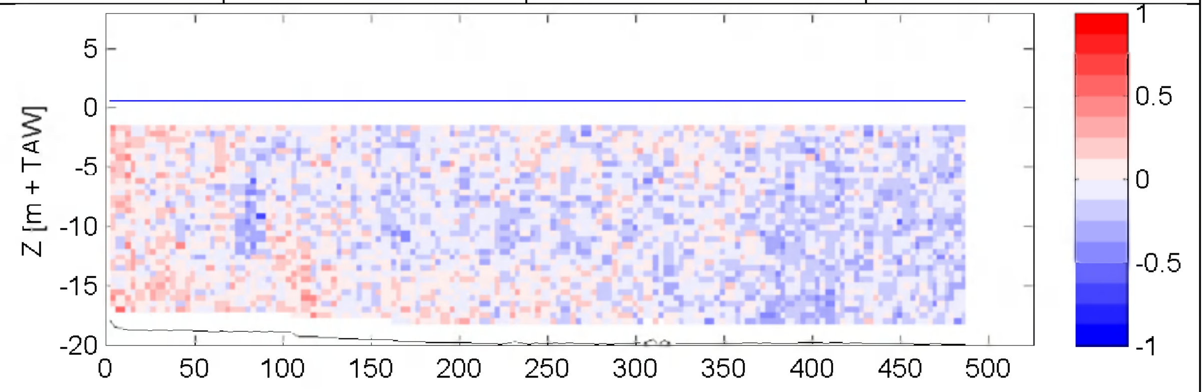
a)	30/09/2008	1 hr before HW	Tidal coefficient: 1.08	Fresh water: 82 m^3/s



b)	12/03/2009	1 hr before HW	Tidal coefficient: 1.24	Fresh water: 129m^3/s

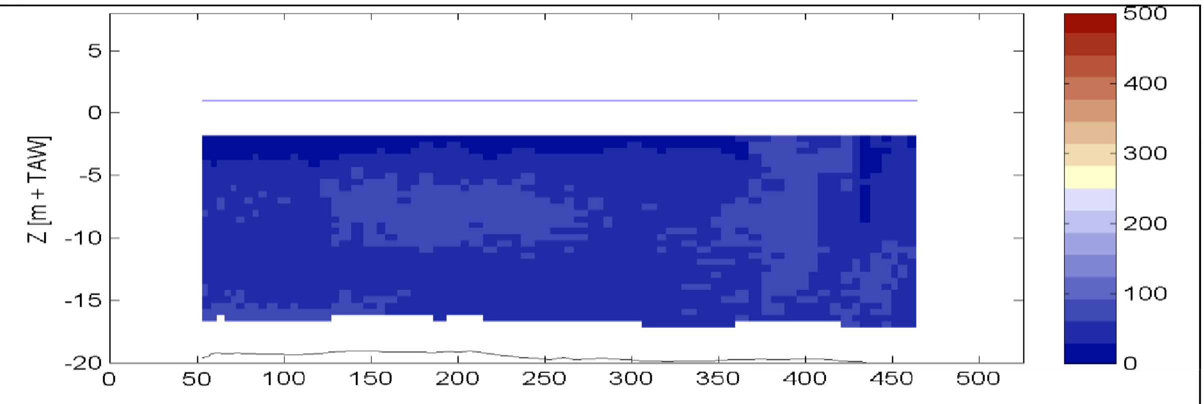
No velocity data available

c)	28/09/2011	1 hr before HW	Tidal coefficient: 1.17	Fresh water: 40 m^3/s

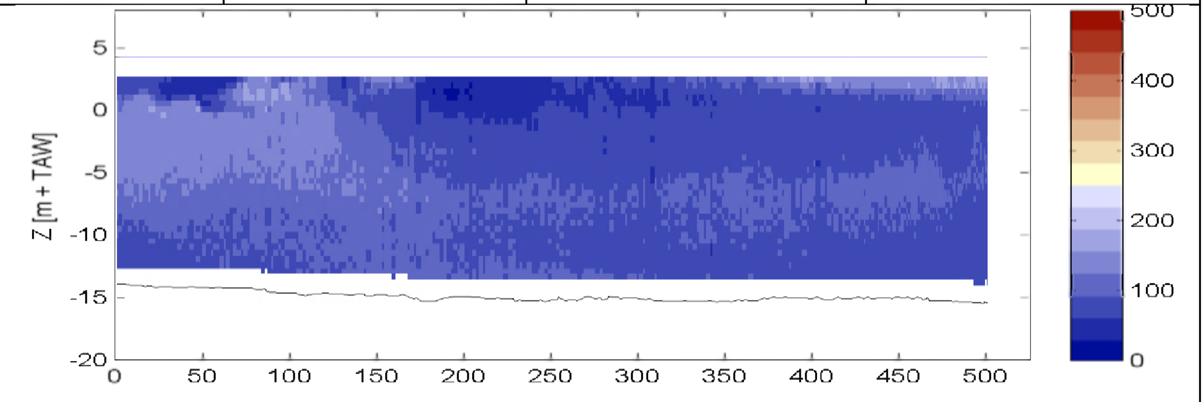


d)	13/10/2011	1 hr before HW	Tidal coefficient: 1.06	Fresh water: 60 m^3/s

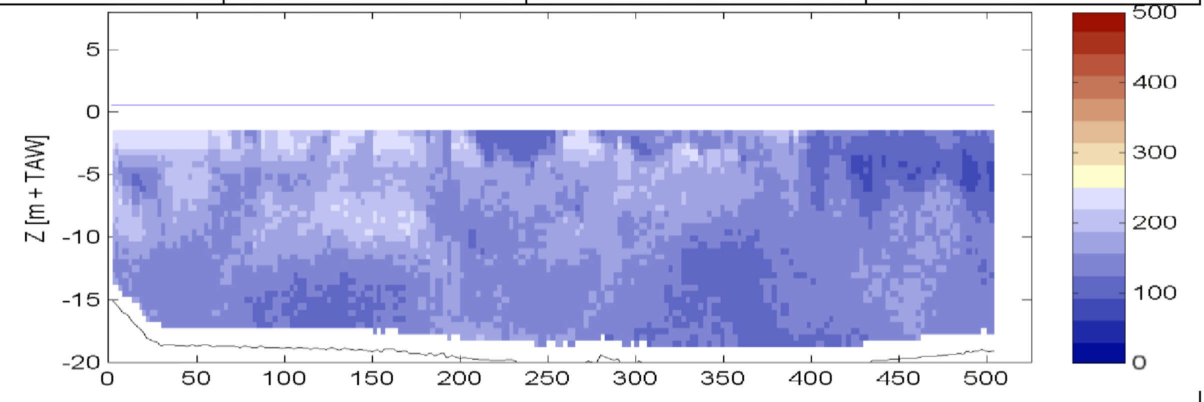
Figure 5-6: Perpendicular current velocity at 1hr before high water



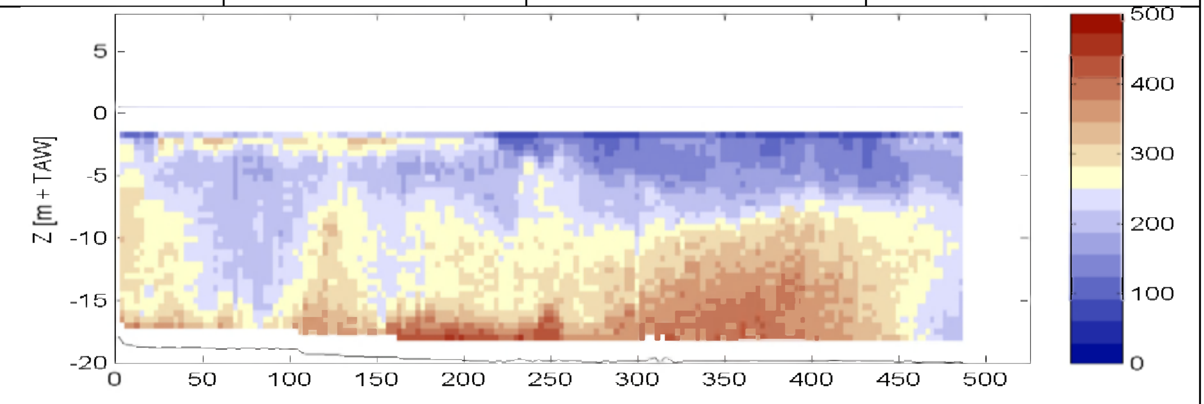
a)	30/09/2008	1 hr before HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s



b)	12/03/2009	1 hr before HW	Tidal coefficient: 1.24	Fresh water: 129m³/s



c)	28/09/2011	1 hr before HW	Tidal coefficient: 1.17	Fresh water: 40 m³/s



d)	13/10/2011	1 hr before HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s

Figure 5-7: Suspended sediment concentration at 1hr before high water

5.2.3 Water balance

The volume of water, crossing the dock's entrance during the complete measurement day was calculated by integrating respectively total incoming and total outgoing discharge. The absolute values of both volumes were added up to know the total water exchange through the transect on the 13th of October 2011. Flood and ebb total water exchange were calculated with the same technique.

Next to the measured total water exchange, the theoretical exchanged water volume due to tidal filling was calculated by integrating tidal difference over time multiplied by the surface area of Deurganckdok.

Table 5-3 Total water exchange compared to tidal filling water exchange at transect DGD during ebb, flood and the complete measurement day

	Q Exchanged [m^3]	***source***
Measured Total Ebb	38 866 881	ADCP measurement
Tidal Emptying	5 965 823	Volume balance
Measured Total Flood	27 159 625	ADCP measurement
Tidal Filling	5 500 472	Volume balance
Measured Total	66 026 506	ADCP measurement
Tidal Filling/Emptying Total	11 466 295	Volume balance

During flood on the 13th of October 2011, 27.2 million m³ water crossed the entrance and during ebb 38.9 million m³ (Figure 5-8). In total 66.0 million m³ water crossed the docks entrance, of which only 17.4% (11.5 million m³) can be contributed to tidal filling of Deurganckdok. The other 82.6% of water displacement at the entrance must be caused by density and eddy currents.

A 3-D model was used to analyse the different exchange mechanisms between the river and the dock and to know the effect of CDW (WL Delft Hydraulics, 2004). By comparing the total amount of water leaving or entering the dock with the tidal volume, it was possible to identify that horizontal water exchange, due to density currents and eddy formation, is the dominant factor. The analysis led to the following conclusions:

- Without CDW, tidal filling is responsible for +/- 18% of the total water exchange, eddy currents for +/- 27% and density currents for +/-55%.
- With CDW the total water exchange will reduce with +/- 6% as a result of reduction in eddy currents of +/- 15% and in density currents of +/- 4%. The reduction will change the proportions of the total water exchange in: tidal filling +/- 19%, eddy currents +/- 25% and density currents +/- 56%.

In the total water exchange of the measurements it is not possible to calculate the proportions of the eddy and density currents to evaluate the effect of the CDW. The expected difference of 1% in tidal filling between with and without CDW is negligible in comparison to the total water exchange and have the same order of magnitude as the expected error on the measurement (see below). The measured proportions of tidal filling over the previous campaigns (without CDW) are varying between 10% and 20% which can be explained by the different hydro-meteorological conditions on the campaigns. The variation in hydro-meteorological conditions has made it difficult to make a preliminary evaluation of CDW. An extensive evaluation will be covered in the analysis report.

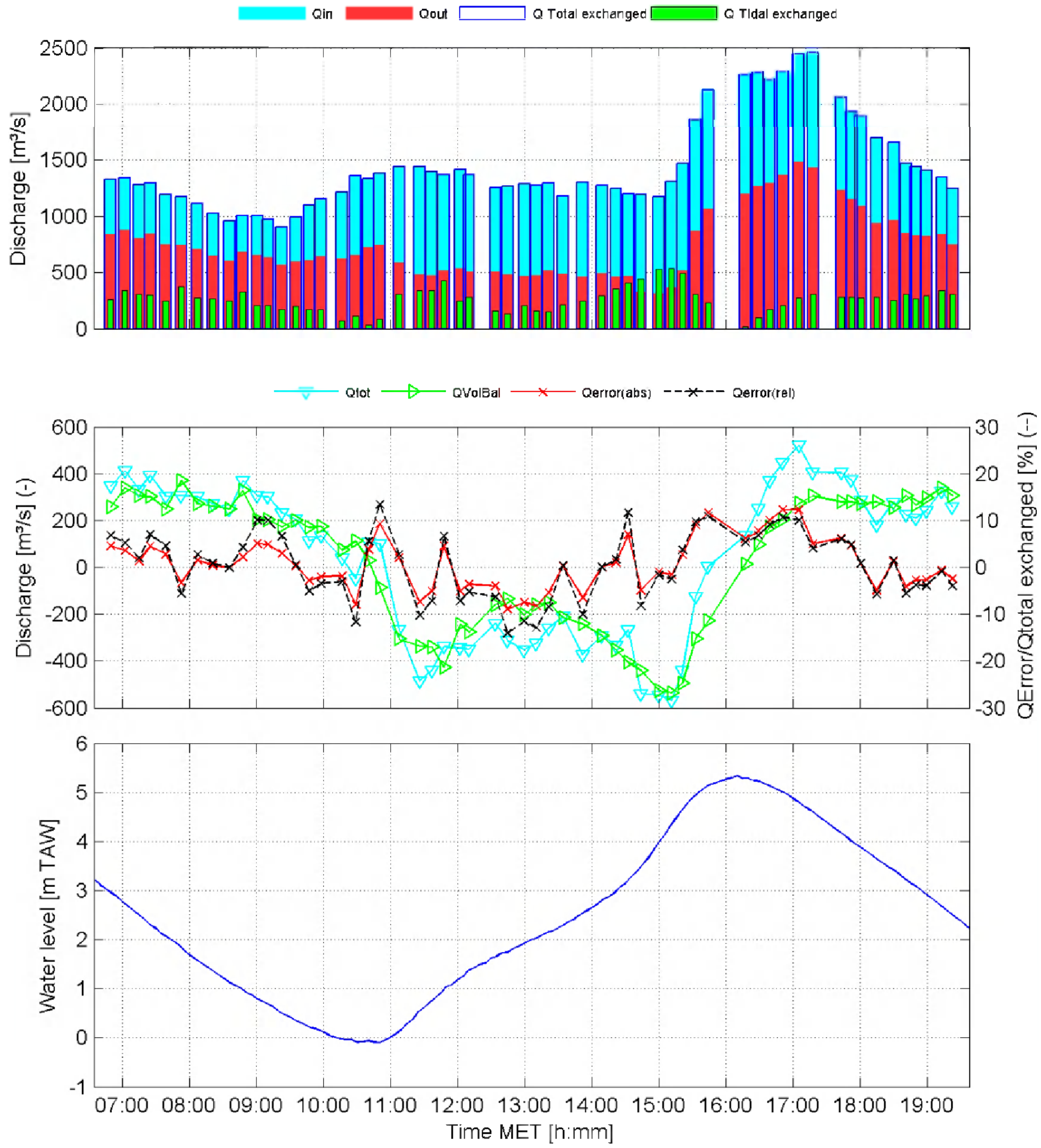


Figure 5-8: The water discharge at the entrance of Deurganckdok over a tidal curve on 13/10/2011. Top: Total incoming (Qin) and outgoing (Qout) discharge including the total water en tidal exchange; Central: Measured residual discharge (Qtot) versus theoretical residual discharge (QVolBal) and correction offset (Qerror) including relative error; Below: tidal curve.

The water balance almost matches; as the measured filling of the dock is 5.6 million m³ over a period where tidal filling (calculated by integrating tide) is almost 5.5 million m³ (Table 5-4). The filling of the dock is thus slightly underestimated by the measurements with 0.1 million m³. In comparison to the total water exchange during flood is the overestimation 0.7% (Table 5-5). During emptying the dock we determine an overestimation of 3.1%.

In comparison to the 11.5 million m³ of water exchanged by tidal filling/emptying, overestimation of 0.9 million m³ seems rather reasonable (Table 5-5), and compared to the total exchange of 66.0 m³, the overestimation error is negligible (only 1.4% of the total exchanged volume).

Table 5-4 Total residual, incoming and outgoing water volumes in Deurganckdok during the measurement campaign of 13/10/2011 compared to tidal filling/emptying volumes.

	Q Total Net [m^3]	Q Total In [m^3]	Q Total Out [m^3]
Measured Ebb*	7 062 157	-15 902 362	22 964 519
Tidal Emptying**	5 965 823	-	-
Measured Flood*	5 694 887	-16 427 256	10 732 369
Tidal Filling**	5 500 472	-	-
Measured Net*	1 367 270	-32 329 618	33 696 888
Tidal Emptying Net**	465 350	-	-

(*: data from ADCP measurement, **: data derived from integration of tide)

Table 5-5 The difference between measured data and integrated tidal data during the measurement campaign of 03/10/2011.

Overestimation	Q error [m^3]	Q error/water exchange* [%]
Overestimated outgoing volume	1 096 334	3.1
Overestimated ingoing volume	194 415	0.7
Overestimated total volume	901 920	1.4

(: data from ADCP measurement)*

One of the reasons of the under/overestimation in Figure 5-8 can be found in the shipwakes and in the estimations of the unmeasured regions (the bottom, top and edge estimations). An ADCP cannot measure a complete cross section. Near the banks, near the bottom and near the water surface, no measurements can be executed and the discharges in these unmeasured areas needs to be estimated (see 4.2.4.1).

The errors caused by estimations is minimized during these measurements to use a good vessel setup and appropriate ADCP. Compared to former campaigns, the effect of the top, bottom and edge estimates seems to be smaller. The uncertainty on the top estimated values is decreased since the transducer depth of the ADCP was reduced from 2.6 meter to 0.5 or 1 meter.

The uncertainty on the bottom estimated values for the measurements of 17/11/2005, 22/03/2006, 19/06/2008, 26/06/2008, 24/09/2008 and 30/09/2008 was twice as big because of the beam angle of the used ADCP. In these measurements, the beam angle of the ADCP was 30°, therefore, the area near the bottom that is not be measured is 12% (see 4.2.4.1). During the other measurements, including this measurement, the ADCP had a beam angle of 20°, which implements a much smaller unmeasured area of 6%.

Compared to the first measurement campaigns the effect of estimations caused by interpolating between 2 successive transects is now minimized because the latest measurements were executed at a higher frequency, 5 to 6 measurements per hour, than the first measurements (2 measurements per hour).

As a conclusion, it appears that the water balance fit quite well (Figure 5-8). The main cause for the unbalanced balance is the uncertainty/accuracy of the estimations and the fact that the total exchanged volume of water at the entrance of DGD is approximately five times bigger than the known resulting volume entering and leaving the dock, i.e. the tidal volume.

Table 5-6: Water volumes during ebb, flood and total measurement campaign, including theoretical expected volumes..

Measurement Day		***17/11/2005***	***22/03/2006***	***27/09/2006***	***24/10/2007***	***11/03/2008***	***19/06/2008***
DGD surface area [10³ m²]		750	750	750	1 019	1019	1 019
Tidal coefficient		1.1	0.97	1.03	1.02	1.17	1.15
Duration of measurement [hh:mm]		10:57	12:52	12:42	12:24	12:23	12:32
Daily fresh water discharge at Schelle [m³/s]		91	94	33	46	286	93
Ebb	exchanged volume [10³ m³]	34 137	33 831	33 339	23 298	30 605	29 863
	incoming volume [10³ m³]	18 436	14 716	14 974	8 579	10 263	10 501
	outgoing volume [10³ m³]	15 701	19 115	18 365	14 718	20 342	19 361
	residual outgoing volume [10³ m³]	-2 736	4 399	3 391	6 139	10 062	8 860
	residual tidal emptying = theoretical residual outgoing volume	2 485	3 758	4 227	5 479	5 957	5 456
	overestimated outgoing volume [10³ m³]	-5 221	641	-836	660	4 105	3 404
Flood	exchanged volume [10³ m³]	24 304	28 058	24 939	19 612	22 983	26 369
	incoming volume [10³ m³]	12 565	14 965	14 236	10 590	14 477	14 602
	outgoing volume [10³ m³]	11 740	13 093	10 703	9 022	8 506	11 766
	residual incoming volume [10³ m³]	825	1 872	3 533	1 568	5 966	2 836
	residual tidal filling = theoretical residual incoming volume	3 370	3 261	3 914	5 134	5 941	5 391
	overestimated incoming volume [10³ m³]	-2 545	-1 389	-381	-3 565	25	-2 555
Total	exchanged volume [10³ m³]	58 441	61 889	58 278	42 909	53 589	56 231
	incoming volume [10³ m³]	31 001	29 681	29 210	19 169	24 740	25 104
	outgoing volume [10³ m³]	27 440	32 208	29 067	23 740	28 848	31 127
	residual outgoing volume [10³ m³]	-3 561	2 527	-143	4 571	4 096	6 024
	residual tidal emptying = theoretical residual outgoing volume	-885	497	313	345	16	65
	overestimated outgoing volume [10³ m³]	-2 676	2 030	-456	4 225	4 080	5 958
	Proportion of tidal filling [%]	10	11	14	25	22	19

The durations are based on ADCP measurement. Tidal data of gauge Liefkenshoek was used.

Measurement Day		***26/06/2008***	***24/09/2008***	***29/09/2008***	***02/12/2008***	***10/12/2008***	***06/03/2009***
DGD surface area [10³ m²]		1 019	1 019	1 019	1 019	1 019	1 019
Tidal coefficient		0.97	0.81	1.08	0.98	0.97	0.82
Duration of measurement [hh:mm]		12:20	12:38	12:49	12:19	12:38	12:47
Daily fresh water discharge at Schelle [m³/s]		69	75	82	154	222	99
Ebb	exchanged volume [10³ m³]	25 668	25 792	32 790	36 716	33 823	26 728
	incoming volume [10³ m³]	8 246	9 556	10 949	14 954	14 466	9 940
	outgoing volume [10³ m³]	17 422	16 236	21 840	21 762	19 358	16 788
	residual outgoing volume [10³ m³]	9 176	6 680	10 891	6 808	4 892	6 847
	residual tidal emptying = theoretical residual outgoing volume	4 805	4 100	6 209	5 225	5 166	4 339
	overestimated outgoing volume [10³ m³]	4 371	2 580	4 682	1 582	-274	2 508
Flood	exchanged volume [10³ m³]	24 110	26 619	25 216	33 853	33 660	26 076
	incoming volume [10³ m³]	11 818	14 616	14 186	20 099	19 741	15 476
	outgoing volume [10³ m³]	12 292	12 004	11 029	13 754	13 919	10 599
	residual incoming volume [10³ m³]	474	2 612	3 157	6 345	5 822	4 877
	residual tidal filling = theoretical residual incoming volume	5 211	3 620	5 768	5 090	4 950	3 860
	overestimated incoming volume [10³ m³]	-4 737	-1 008	-2 611	1 255	871	1 016
Total	exchanged volume [10³ m³]	49 778	52 412	58 005	70 569	67 483	52 804
	incoming volume [10³ m³]	20 064	24 172	25 136	35 053	34 207	25 417
	outgoing volume [10³ m³]	29 714	28 240	32 870	35 516	33 277	27 387
	residual outgoing volume [10³ m³]	9 650	4 068	7 734	463	-930	1 971
	residual tidal emptying = theoretical residual outgoing volume	-406	480	441	135	216	479
	overestimated outgoing volume [10³ m³]	10 056	3 588	7 293	328	-1 146	1 492
	Proportion of tidal filling [%]	20	15	21	15	15	16

The durations are based on ADCP measurement. Tidal data of gauge Liefkenshoek was used.

Measurement Day		***12/03/2009***	***06/10/2011***	***13/10/2011***
DGD surface area [10³ m²]		1 019	1 019	1 019
Tidal coefficient		1.24	0.83	1.06
Duration of measurement [hh:mm]		12:10	12:33	12:37
Daily fresh water discharge at Schelle [m³/s]		129	55	60
Ebb	exchanged volume [10³ m³]	29 457	35 758	38 867
	incoming volume [10³ m³]	12 387	15 903	15 902
	outgoing volume [10³ m³]	17 070	19 855	22 965
	residual outgoing volume [10³ m³]	4 683	3 949	7 062
	residual tidal emptying = theoretical residual outgoing volume	4 742	4 151	5 966
	overestimated outgoing volume [10³ m³]	-59	-202	1 096
Flood	exchanged volume [10³ m³]	26 279	29 628	27 160
	incoming volume [10³ m³]	16 434	17 393	16 427
	outgoing volume [10³ m³]	9 844	12 235	10 732
	residual incoming volume [10³ m³]	6 590	5 158	5 695
	residual tidal filling = theoretical residual incoming volume	6 626	4 246	5 500
	overestimated incoming volume [10³ m³]	-36	912	194
Total	exchanged volume [10³ m³]	55 736	65 389	66 027
	incoming volume [10³ m³]	28 821	33 299	32 330
	outgoing volume [10³ m³]	26 914	32 090	33 697
	residual outgoing volume [10³ m³]	-1 907	-1 209	1 367
	residual tidal emptying = theoretical residual outgoing volume	-1 884	95	465
	overestimated outgoing volume [10³ m³]	-23	-1 114	902
	Proportion of tidal filling [%]	20	13	17

5.2.4 Sediment balance

The mass of the suspended sediment, crossing dock's entrance during flood or ebb on a measurement day, was calculated on a similar manner as the volume.

From Figure 5-9 it can be concluded that the residual sediment flux is less than a fifth of the total sediment exchange at the entrance of Deurganckdok and it can be seen that incoming and outgoing flux are always in the same order of magnitude. If these two conclusions are considered together one can see that the water balance has to fit before the sediment balance can be acceptable. An overestimation of outgoing discharge will always lead to an underestimation of the incoming sediment mass.

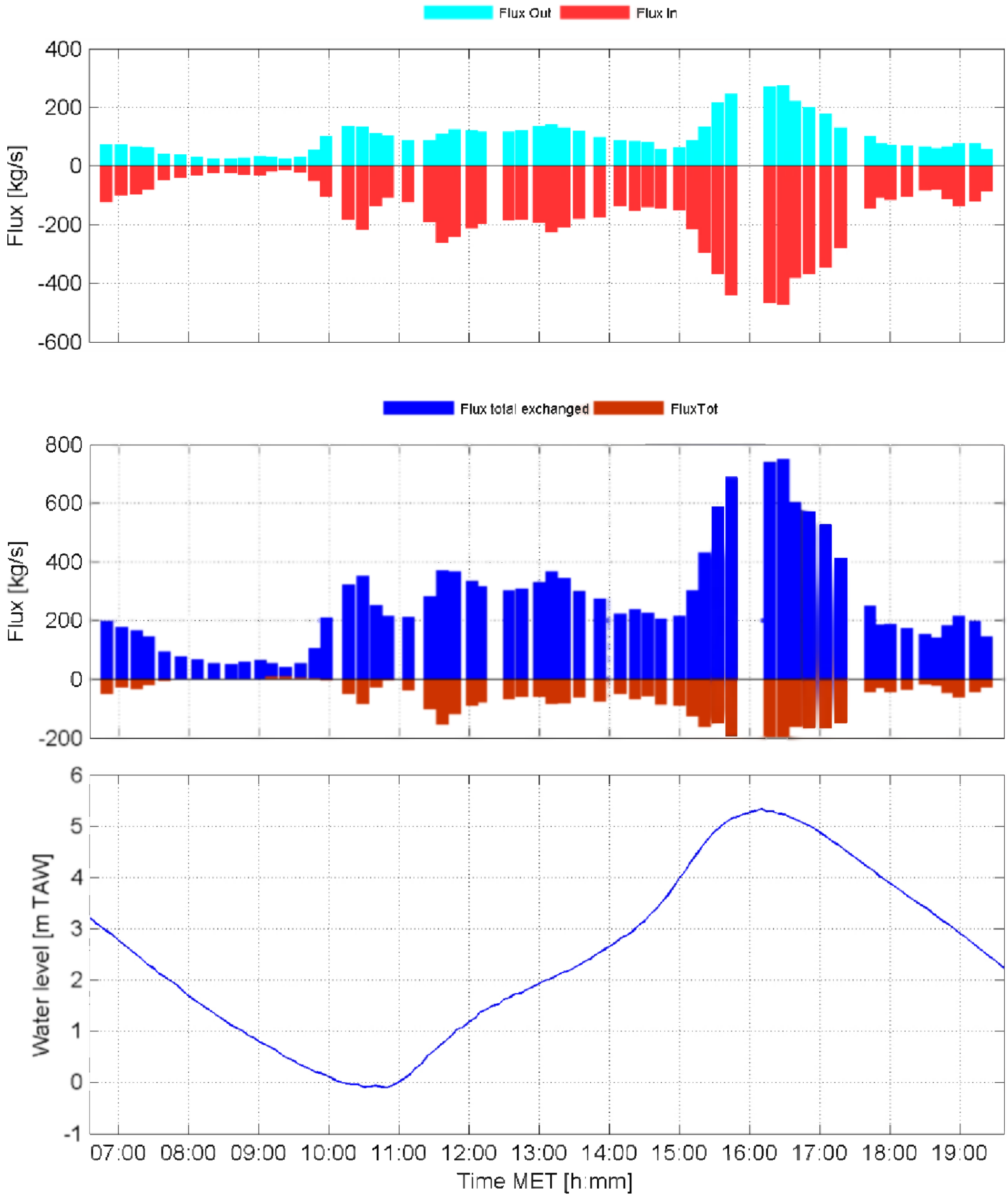


Figure 5-9: The sediment flux at the entrance of Deurganckdok on 13/10/2011 (negative values represent incoming sediment). Top: Total incoming (flux in) and outgoing sediment flux (flux out); Central: total sediment exchange versus total sediment flux; below: tidal curve

As the error in water discharge is known (difference between total residual discharge and discharge due to tidal filling of the dock), one can try to correct discharges in order to calculate a more realistic sediment deposition in DGD over a tidal cycle. For the correction of the total discharge the following methods were used; in the first case the total incoming measured discharge was retained and the total outgoing discharge was reduced with 0.9 million m^3, in the second case the total outgoing discharge was retained and the total incoming discharge was raised with 0.9 million m^3. Between this range the sediment mass will be situated. The settled sediment mass, calculated with corrected discharges, was estimated between 3200 and 3500 tonnes over the measurement cycle on 13/10/2011 (Table 5-7). During ebb approximately 6100 tonnes of sediment passed the entrance of which 1500 tonnes stayed into the dock; during flood approximately 6600 tonnes passed the entrance of which 1800 tonnes stayed into the dock.

Figure 5-10 shows the relation between the amount of suspended sediments passing in the river Scheldt and the amount of sedimentation in the dock. Sediment data is obtained from the long term measurements at buoy 97 and buoy 84 (IMDC 2005l, 2006l, 2006p, 2007b, 2008p, 2008aa, 2009m, 2011, 2012). Since summer 2008, buoy97 is removed and the concentrations are only averaged between top and bottom of buoy84.

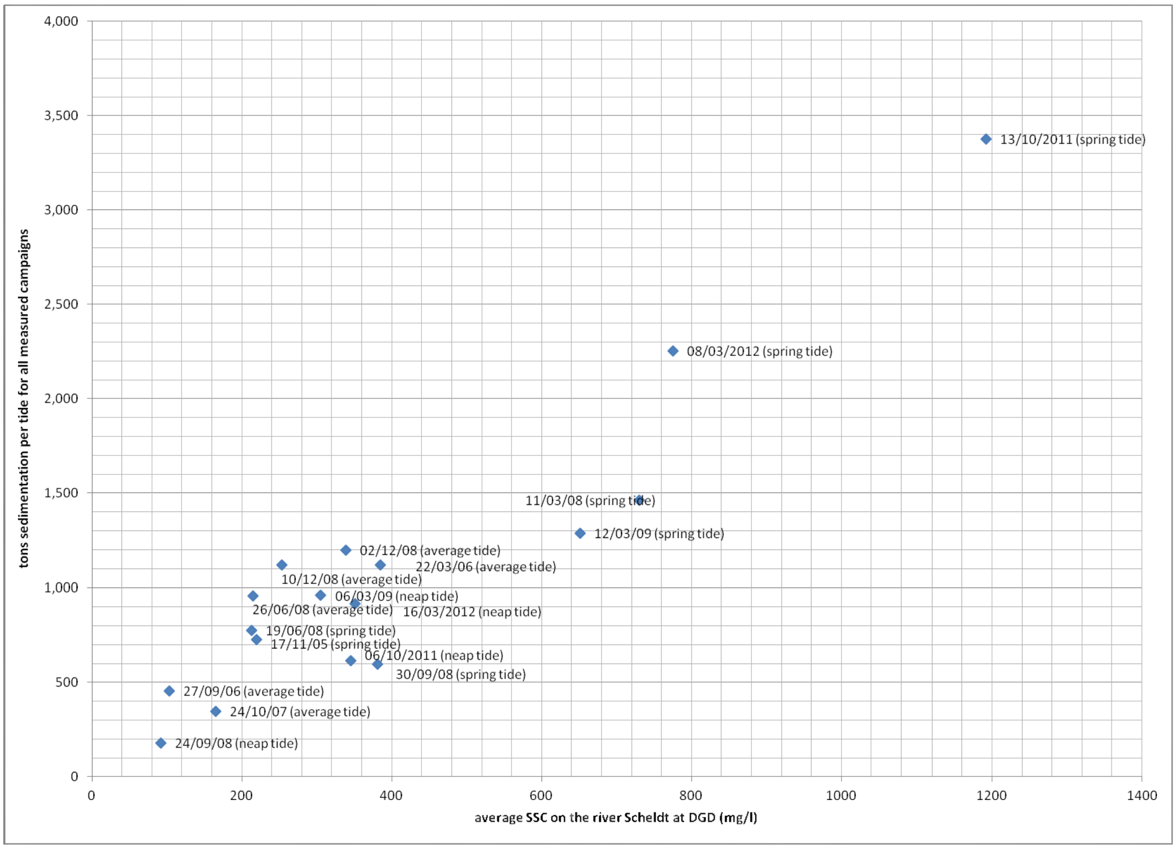


Figure 5-10 Overview of measured sediment deposition in Deurganckdock per tide by means of Sediview technique

In comparison to model results from the empirical model described in IMDC (2008s) and former measurement campaigns without CDW at transect DGD, this resulting deposition of 3300 tonnes during spring tide is very high. The model results from the empirical model described in IMDC (2008s) without CDW show net siltation rates from 400-800 tonnes per neap tide and 700-2000 tonnes spring tide, with a yearly average of 1000 tonnes per tide. Based on numerical model simulation is expected that the siltation rates with CDW will reduce between10% and 20%. The effect of the dredged sill at entrance will increase the siltation rate with 8% (IMDC,2011d).

The siltation rate during this measurement campaign is high due to high SS concentrations in the water column (based on water samples) and water exchange. The higher concentrations are related to important dredging activities in the dock during this period (September – October 2011). The dredging was done deeper than the previous years which caused more sediment in the water column (IMDC, 2012m). The human activities and natural conditions have made it difficult to evaluate the effect of CDW on the sediment flux. An extensive evaluation will be covered in the analysis report.

Table 5-7 Range of sediment deposition during ebb, flood and measurement campaign, calculated with forced fitting water balances for those days. The duration is based on ADCP measurements.

Measurement Day		***17/11/2005***		***22/03/2006***		***27/09/2006***		***24/10/2007***	
DGD surface area [10³ m²]		750		750		750		1 019	
Tidal coefficient		1.1		0.97		1.03		1.02	
Duration of measurement [hh:mm]		10:57		12:52		12:42		12:24	
Daily fresh water discharge at Schelle [m³/s]		91		94		33		46	
Ebb	exchanged mass [ton]	1 704	2 367	1 780	1 867	1 056	1 090	620	585
	incoming mass [ton]	1 087	1 489	1 160	1 218	635	656	336	317
	outgoing mass [ton]	617	879	620	650	421	434	284	268
	residual incoming mass [ton]	471	610	540	568	214	223	52	49
Flood	exchanged mass [ton]	1 805	1 498	2 092	2 329	684	664	1 015	714
	incoming mass [ton]	1 000	841	1 320	1 459	463	448	662	501
	outgoing mass [ton]	805	657	773	870	221	215	353	213
	residual incoming mass [ton]	194	184	547	589	242	233	308	288
Total	exchanged mass [ton]	3 509	3 866	3 873	4 196	1 740	1 754	1 635	1 299
	incoming mass [ton]	2 087	2 330	2 480	2 677	1 098	1 105	998	818
	outgoing mass [ton]	1 422	1 536	1 393	1 519	642	649	637	481
	residual incoming mass [ton]	665	794	1 087	1 158	456	456	360	336

Measurement Day		***11/03/2008***		***19/06/2008***		***26/06/2008***		***24/09/2008***	
DGD surface area [10³ m²]		1 019		1 019		1 019		1 019	
Tidal coefficient		1.17		1.15		0.97		0.81	
Duration of measurement [hh:mm]		12:23		12:32		12:20		12:38	
Daily fresh water discharge at Schelle [m³/s]		286		93		69		75	
Ebb	exchanged mass [ton]	2 589	3 642	1 088	1 376	1 041	1 471	702	674
	incoming mass [ton]	1 388	1 990	669	865	695	1 008	402	316
	outgoing mass [ton]	1 201	1 652	419	510	346	463	299	358
	residual incoming mass [ton]	187	338	250	355	349	545	17	45
Flood	exchanged mass [ton]	2 928	2 956	1 710	2 039	1 173	1 884	993	991
	incoming mass [ton]	2 058	2 087	1 088	1 263	815	1 227	590	550
	outgoing mass [ton]	870	869	622	777	358	657	403	441
	residual incoming mass [ton]	1 188	1 218	465	486	457	569	147	149
Total	exchanged mass [ton]	5 517	6 598	2 798	3 415	2 214	3 356	1 695	1 666
	incoming mass [ton]	3 446	4 077	1 757	2 128	1 510	2 235	993	867
	outgoing mass [ton]	2 071	2 521	1 041	1 287	704	1 121	703	799
	residual incoming mass [ton]	1 375	1 556	716	841	806	1 114	164	194

Measurement Day		***30/09/2008***		***02/12/2008***		***10/12/2008***		***6/03/2009***	
DGD surface area [10^3 m²]		1 019		1 019		1 019		1 019	
Tidal coefficient		1.08		0.98		0.97		0.82	
Duration of measurement [hh:mm]		12:49		12:19		12:38		12:47	
Daily fresh water discharge at Schelle [m³/s]		82		154		222		99	
Ebb	exchanged mass [ton]	915	1 205	3 119	2 929	1 927	2 003	1 373	1 205
	incoming mass [ton]	559	769	1 854	1 724	1 144	1 194	847	745
	outgoing mass [ton]	356	436	1 265	1 205	783	809	526	461
	residual incoming mass [ton]	202	332	589	519	361	385	321	284
Flood	exchanged mass [ton]	1 135	1 342	4 152	4 500	3 402	3 573	1 736	1 927
	incoming mass [ton]	727	843	2 398	2 574	2 073	2 163	1 195	1 296
	outgoing mass [ton]	408	499	1 754	1 926	1 330	1 410	541	631
	residual incoming mass [ton]	319	345	645	648	743	753	655	665
Total	exchanged mass [ton]	2 050	2 547	7 270	7 429	5 329	5 577	3 109	3 132
	incoming mass [ton]	1 286	1 612	4 252	4 298	3 217	3 357	2 042	2 040
	outgoing mass [ton]	765	935	3 018	3 131	2 113	2 219	1 067	1 092
	residual incoming mass [ton]	521	677	1 233	1 167	1 104	1 138	975	948

Measurement Day		***12/03/2009***		***06/10/2011***		***13/10/2011***	
DGD surface area [10³ m²]		1 019		1 019		1 019	
Tidal coefficient		1.24		0.83		1.06	
Duration of measurement [hh:mm]		11:09		12:33		12:37	
Daily fresh water discharge at Schelle [m³/s]		129		55		60	
Ebb	exchanged mass [ton]	2 727	2 669	1 489	1 509	6 334	5 853
	incoming mass [ton]	1 439	1 404	834	847	4 002	3 654
	outgoing mass [ton]	1 288	1 266	655	662	2 332	2 199
	residual incoming mass [ton]	150	138	179	185	1 670	1 455
Flood	exchanged mass [ton]	3 253	3 531	2 268	2 446	6 578	6 644
	incoming mass [ton]	2 189	2 346	1 366	1 426	4 220	4 206
	outgoing mass [ton]	1 064	1 185	902	1 020	2 358	2 438
	residual incoming mass [ton]	1 125	1 161	464	406	1 862	1 769
Total	exchanged mass [ton]	5 980	6 201	3 757	3 954	12 912	12 497
	incoming mass [ton]	3 628	3 750	2 200	2 273	8 222	7 860
	outgoing mass [ton]	2 352	2 451	1 557	1 682	4 690	4 637
	residual incoming mass [ton]	1 276	1 299	643	591	3 532	3 224

6. REFERENCES

AMT (2003). Intern rapport, Getij-informatie Scheldebekken 1991-2000.

AWZ (2000): Baggerwerken 2000, Westerschelde en Zeeschelde

Flanders Hydraulics Research (2009). MONEOS – jaarboek monitoring WL 2008: Overzicht monitoring hydrodynamiek en fysische parameters zoals door WL in 2008 in het Zeescheldebekken gemeten. Versie 4_0. WL rapporten, Projectnr 833_07.

IMDC (2002). Studie Densiteitsstroming in het kader van LTV Schelde, Stroom- en saliniteitsmeting t.h.v. Deurganckdok uitgevoerd op 12/06/202, I/RA/11216/02.042/CMA.

IMDC (2005a). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 1: Test survey 17/02/2005, I/RA/11265/05.008/MSA.

IMDC (2005b). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.1: Deurganckdok 17/02/2005, I/RA/11265/05.009/MSA.

IMDC (2005c). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.2: Zandvliet 17/02/2005, I/RA/11265/05.010/MSA.

IMDC (2005d). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.3: Liefkenshoek 17/02/2005, I/RA/11265/05.0011/MSA.

IMDC (2005e). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.4: Schelle 17/02/2005, I/RA/11265/05.0012/MSA.

IMDC (2005f). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.5: Deurganckdok 16/02/2005, I/RA/11265/05.013/MSA.

IMDC (2005g). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.6: Kallosluis 18/02/2005, I/RA/11265/05.014/MSA.

IMDC (2005h). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.7: Near bed continious monitoring: february 2005, I/RA/11265/05.015/MSA.

IMDC (2005i). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 3: Settling velocity INSSEV february 2005, I/RA/11265/05.016/MSA.

IMDC (2005j). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 4: Cohesive sediment properties february 2005, I/RA/11265/05.017/MSA

IMDC (2005k). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.1: Overview of ambient conditions in the river Scheldt January-June 2005, I/RA/11265/05.018/MSA.

IMDC (2005l). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.2: Overview of ambient conditions in the river Scheldt July-December 2005, I/RA/11265/05.019/MSA.

IMDC (2006a) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 6.1 Calibration Winter 15 March & 14 April 2006? I/RA/11291/06.092/MSA.

IMDC (2006b) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.1 21 March 2006 Scheldewacht – Deurganckdok, I/RA/11291/06.094/MSA.

IMDC (2006c) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.2 22 March 2006 Parel 2 – Deurganckdok (downstream), I/RA/11291/06.095/MSA.

IMDC (2006d) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.3 22 March 2006 Laure Marie – Liefkenshoek, I/RA/11291/06.096/MSA.

IMDC (2006e) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.4 23 March 2006 Parel 2 – Schelle, I/RA/11291/06.097/MSA.

IMDC (2006f) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.5 23 March 2006 Laure Marie – Deurganckdok (downstream), I/RA/11291/06.098/MSA.

IMDC (2006g) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.6 23 March 2006 Veremans – Waarde, I/RA/11291/06.099/MSA.

IMDC (2006h) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.1 Opmeting stroming en zout- en sedimentbeweging aan de ingang van het Deurganckdok (SiltProfiler), I/RA/11283/06.087/WGO.

IMDC (2006i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.3. Opmeting stroming en zout-en sedimentbeweging aan de ingang van het Deurganckdok (ADCP), I/RA/11283/06.110/BDC

IMDC (2006j). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 8.1: Vaste meetopstelling in zake bodemgedrag, I/RA/11291/06.100/MSA.

IMDC (2006k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.6 Zout en slibverdeling Deurganckdok 17/03/2006 – 23/05/2006, I/RA/11283/06.121/MSA.

IMDC (2006l) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.3 Overview of ambient conditions in the river Scheldt – January-June 2006 (I/RA/11291/06.089/MSA), in opdracht van AWZ.

IMDC (2006m): Studie van de stromingsvelden en sedimentuitwisseling aan de ingang van Deurganckdok. Current and Sediment flux measurements November 17th 2005 (I/RA/15030/06.021/BDC).

IMDC(2006n): Studie van de stromingsvelden en sedimentuitwisseling aan de ingang van Deurganckdok. Additional processing of ADCP and salinity data 17/11/2005 and 28/11/2005 (I/RA/15030/06.040/BDC).

IMDC (2006o). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 9: Valsnelheid slib – INSSEV, I/RA/11291/06.102/MSA, in opdracht van AWZ.

IMDC (2006p). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.7: Silt distribution and frame measurements 15/07/2006 – 31/10/2006. (I/RA/11291/06.122/MSA).

IMDC (2006q) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.3 Overview of ambient conditions in the river Scheldt – Januari-June 2006 (I/RA/11291/06.089/MSA), in opdracht van AWZ.

IMDC (2006r) Mer verruiming Westerschelde, Nota Bovenafvoer Scheldebekken, I/NO/11282/06.104/FPE.

IMDC (2006s). Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.07 Zout en slibverdeling Deurganckdok 15/07/2006 – 31/10/2006, I/RA/11283/06.122/MSA.

IMDC (2007a) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 6.2 Summer calibration and Final report, I/RA/11291/06.093/MSA.

IMDC (2007b). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.4 Overview of ambient conditions in the river Scheldt – July-December 2006 (I/RA/11291/06.089/MSA), in opdracht van AWZ.

IMDC (2007c). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.1 Through tide Measurement Sediview & Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA), in opdracht van AWZ.

IMDC (2007d). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.2 Through tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA), in opdracht van AWZ.

IMDC (2007e). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.3 Through tide Measurement Sediview & Siltprofiler 28/9 Stream - Raai K (I/RA/11291/06.106/MSA), in opdracht van AWZ.

IMDC (2007f). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.4 Through tide Measurement Sediview 28/9 Veremans - Waarde(I/RA/11291/06.107/MSA), in opdracht van AWZ.

IMDC (2007g). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.5 Through tide Measurement Sediview 28/9 Parel 2 - Schelle (I/RA/11291/06.108/MSA), in opdracht van AWZ.

IMDC (2007h). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.6 Through tide Measurement Salinity Distribution 26/9 Scheldewacht – Deurganckdok in opdracht van AWZ.

IMDC (2007i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.1 Sediment Balance: Three monthly report 1/4/2006 – 30/06/2006 (I/RA/11283/06.113/MSA)

IMDC (2007j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.2 Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA)

IMDC (2007k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.3 Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA)

IMDC (2007l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.4 Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA)

IMDC (2007m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.5 Annual Sediment Balance (I/RA/11283/06.117/MSA)

IMDC (2007n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.2 Through tide measurement SiltProfiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)

IMDC (2007o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.4 Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA)

IMDC (2007p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.7 Salt-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)

IMDC (2007q) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.8 Salt-Silt distribution & Frame Measurements Deurganckdok 15/01/2007 – 15/03/2007 (I/RA/11283/06.123/MSA)

IMDC (2007r) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.1 Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA)

IMDC (2007s) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.10: Sediment Balance: Three monthly report 1/4/2007 – 30/06/2007 (I/RA/11283/07.081/MSA)

IMDC (2007t) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.11: Sediment Balance: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.082/MSA)

IMDC (2007v) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.16: Salt-Silt distribution Deurganckdok summer (21/6/2007 – 30/07/2007) (I/RA/11283/07.092/MSA)

IMDC (2007w) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.10: Boundary conditions: Three monthly report 1/04/2007 – 30/06/2007 (I/RA/11283/07.097/MSA)

IMDC (2007u) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.11: Boundary conditions: Two monthly report 1/07/2007 – 30/09/2007 (I/RA/11283/07.098/MSA)

IMDC (2008a) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.5: Through tide measurement Sediview average tide 24/10/2007 (I/RA/11283/06.120/MSA)

IMDC (2008b) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.1: Analysis of siltation Processes and Factors (I/RA/11283/06.129/MSA)

IMDC (2008c) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.12: Sediment Balance: Four monthly report 1/9/2007 – 31/12/2007 (I/RA/11283/07.083/MSA)

IMDC (2008d) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.13: Sediment Balance: Four monthly report 1/01/2007 – 31/03/2007 (I/RA/11283/07.084/MSA)

IMDC (2008e) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.14: Annual Sediment Balance. (I/RA/11283/07.085/MSA)

IMDC (2008f) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.09: Calibration stationary equipment autumn (I/RA/11283/07.095/MSA)

IMDC (2008g) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.10: Through tide measurement SiltProfiler 23 October 2007 (I/RA/11283/07.086/MSA)

IMDC (2008h) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.11: Through tide measurement Salinity Profiling winter 12 March 2008 (I/RA/11283/07.087/MSA)

IMDC (2008i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.12: Through tide measurement Sediview winter 11 March 2008 – Transect I (I/RA/11283/07.088/MSA)

IMDC (2008j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.13: Through tide measurement Sediview winter 11 March 2008 – Transect K (I/RA/11283/07.089/MSA)

IMDC (2008k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.14: Through tide measurement Sediview winter 11 March 2008 – Transect DGD (I/RA/11283/07.090/MSA)

IMDC (2008l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.15: Through tide measurement SiltProfiler winter 12 March 2008 (I/RA/11283/07.091/MSA)

IMDC (2008m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.17: Salt-Silt distribution & Frame Measurements Deurganckdok autumn (17/9/2007-10/12/2007) (I/RA/11283/07.093/MSA)

IMDC (2008n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.18: Salt-Silt distribution & Frame Measurements Deurganckdok winter (18/02/2007-31/03/2008) (I/RA/11283/07.094/MSA)

IMDC (2008o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.19: Calibration stationary & mobile equipment winter (I/RA/11283/07.096/MSA)

IMDC (2008p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.12: Boundary conditions: Three monthly report 1/9/2007 – 31/12/2007 (I/RA/11283/07.099/MSA)

IMDC (2008q) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.13: Boundary conditions: Three monthly report 1/1/2008 – 31/3/2007 (I/RA/11283/07.100/MSA)

IMDC (2008r) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.14: Boundary conditions: Annual report (I/RA/11283/07.101/MSA)

IMDC (2008s) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.10: Analysis of siltation Processes and Factors (I/RA/11283/07.102/MSA)

IMDC (2008t) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.20: Sediment Balance: Three monthly report 1/4/2008 – 30/06/2008 (I/RA/11283/08.076/MSA)

IMDC (2008u) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.20: Through tide measurement Sediview during average tide Spring 2008 – 19 June 2008 (I/RA/11283/08.081/MSA)

IMDC (2008v) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.21: Through tide measurement Sediview during average tide Spring 2008 – 26 June 2008 (I/RA/11283/08.082/MSA)

IMDC (2008w) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.21: Sediment Balance: Three monthly report 1/7/2008 – 30/09/2008 (I/RA/11283/08.077/MSA)

IMDC (2008x) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.22: Through tide measurement Sediview during neap tide Summer 2008 – 24 September 2008 (I/RA/11283/08.083/MSA)

IMDC (2008y) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.28: Through tide measurement ADCP eddy Summer 2008 – 1 October 2008 (I/RA/11283/08.089/MSA)

IMDC (2008z) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.32: Salt-Silt distribution Deurganckdok: six monthly report 1/4/2008 – 30/9/2008 (I/RA/11283/08.093/MSA)

IMDC (2008aa) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.20: Boundary conditions: Six monthly report 1/4/2008 – 30/09/2008 (I/RA/11283/08.096/MSA)

IMDC (2009a) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.23: Through tide measurement Sediview during spring tide Summer 2008 – 30 September 2008 (I/RA/11283/08.084/MSA)

IMDC (2009b) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.29: Through tide measurement SiltProfiler summer 2008 – 29 September 2008 (I/RA/11283/07.090/MSA)

IMDC (2009c) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.34: Calibration stationary & mobile equipment autumn 2008 (I/RA/11283/08.095/MSA)

IMDC (2009d) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.22: Sediment Balance: Three monthly report 1/10/2008 – 31/12/2008 (I/RA/11283/08.078/MSA)

IMDC (2009e) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.24: Through tide measurement Sediview during neap tide Autumn 2008 (I/RA/11283/08.085/MSA)

IMDC (2009f) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.25: Through tide measurement Sediview during spring tide Autumn 2008 (I/RA/11283/08.086/MSA)

IMDC (2009g) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.23: Sediment Balance: Three monthly report 1/01/2009 – 31/03/2009 (I/RA/11283/08.079/MSA)

IMDC (2009h) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.24: Annual Sediment Balance (I/RA/11283/08.080/MSA)

IMDC (2009i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.26: Through tide measurement Sediview during neap tide Winter 2009 (I/RA/11283/08.087/MSA)

IMDC (2009j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.30: Through tide measurement SiltProfiler winter 2009 (I/RA/11283/08.091/MSA)

IMDC (2009k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.31: Through tide measurement Salinity Profiling winter 2009 (I/RA/11283/08.092/MSA)

IMDC (2009l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.33: Salt-Silt distribution Deurganckdok: six monthly report 1/10/2008 – 31/3/2009 (I/RA/11283/08.094/MSA)

IMDC (2009m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.21: Boundary conditions: Six monthly report 1/10/2008 – 31/03/2009 (I/RA/11283/08.097/MSA)

IMDC (2009n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.27: Through tide measurement Sediview during spring tide Winter 2009 (I/RA/11283/08.088/MSA)

IMDC (2009o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.20: Analysis of siltation Processes and Factors (I/RA/11283/08.098/MSA)

IMDC (2009p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.35: Salt-Silt distribution Deurganckdok: nine monthly report 1/04/2009 – 31/12/2009 (I/RA/11283/09.085/MSA)

IMDC (2010a) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.5 Through Tide measurement: eddy currents DGD 02/03/2010 (I/RA/11283/10.051/MSA)

IMDC (2010b) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.8 Sal-Silt distribution Deurganckdok 01/04/2009 – 31/03/2010 (I/RA/11354/10.068/NZI)

IMDC (2011a) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 1.1 Annual Sediment Balance year 1: 1/04/2009 – 31/03/2010 (I/RA/11354/10.067/NZI)

IMDC (2011b) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 1.2 Annual Sediment Balance year 2: 1/04/2009 – 31/03/2010 (I/RA/11354/10.100/MBO/ANF)

IMDC (2011c) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 1.4 Boundary Conditions year 1: 01/04/2009 – 31/03/2010 (I/RA/11354/10.102/MBO/ANF)

IMDC (2011d) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 1.7 Synthesis report of research on Current Deflecting Wall (I/RA/11354/10.063/MBO)

IMDC (2012a) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.1 Through Tide Sediview measurement: entrance DGD during spring tide in Autumn 2011 (I/RA/11354/10.106/MBO/ANF)

IMDC (2012b) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.1 Through Tide Sediview measurement: entrance DGD during neap tide in Autumn 2011 (I/RA/11354/10.107/MBO/ANF)

IMDC (2012c) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.5 Through Tide measurement: eddy currents DGD Autumn 2011 (I/RA/11354/10.110/MBO/ANF)

IMDC (2012d) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.10 Salt-Silt & Current Distribution entrance Deurganckdok: Frame measurements and through tide measurements: Autumn 2011 (I/RA/11354/11.131/BQU)

IMDC (2012e) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 2.12 Calibration stationary & mobile equipment 16/03/2011 (I/RA/11354/11.113/MBO/ANF)

IMDC (2012f) Evaluatie externe effecten aanslibbing Deurganckdok. Deelrapport 1.5 Boundary conditions year 2: 01/04/2010 – 31/03/2011 (I/RA/11354/11.103/MBO/ANF)

TV SAM (2006a) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 01/2005-06/2005. 42SR S032PIB 2A.

TV SAM (2006b) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 07/2005-12/2005. 42SR S033PIB 2A.

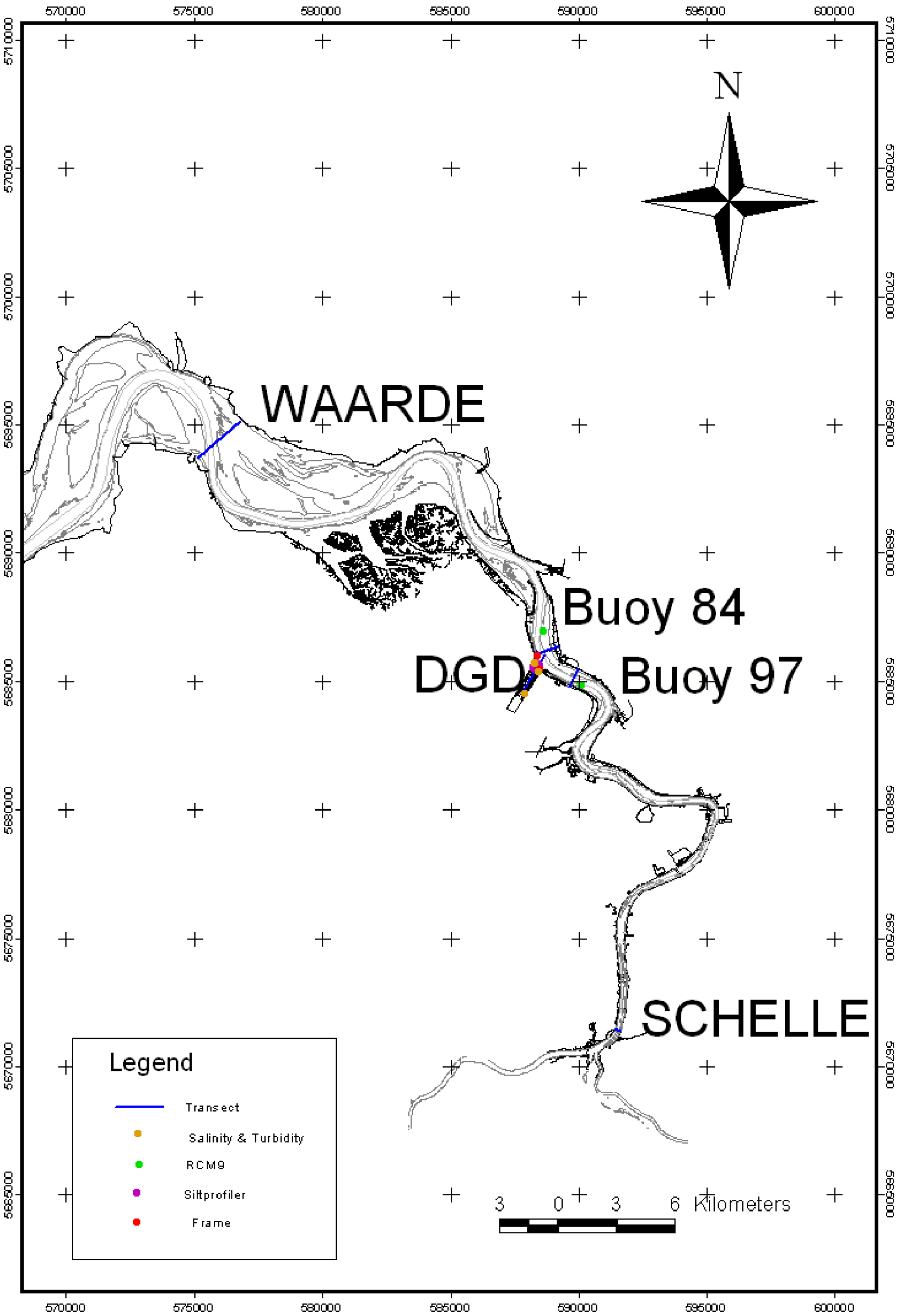
TV SAM (2006c) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 01/2006-06/2006. 42SR S032PIB 2A.

Unesco (1983). Algorithms for computation of fundamental properties of seawater, UNESCO Technical Papers in Marine Science, 44. UNESCO, France.

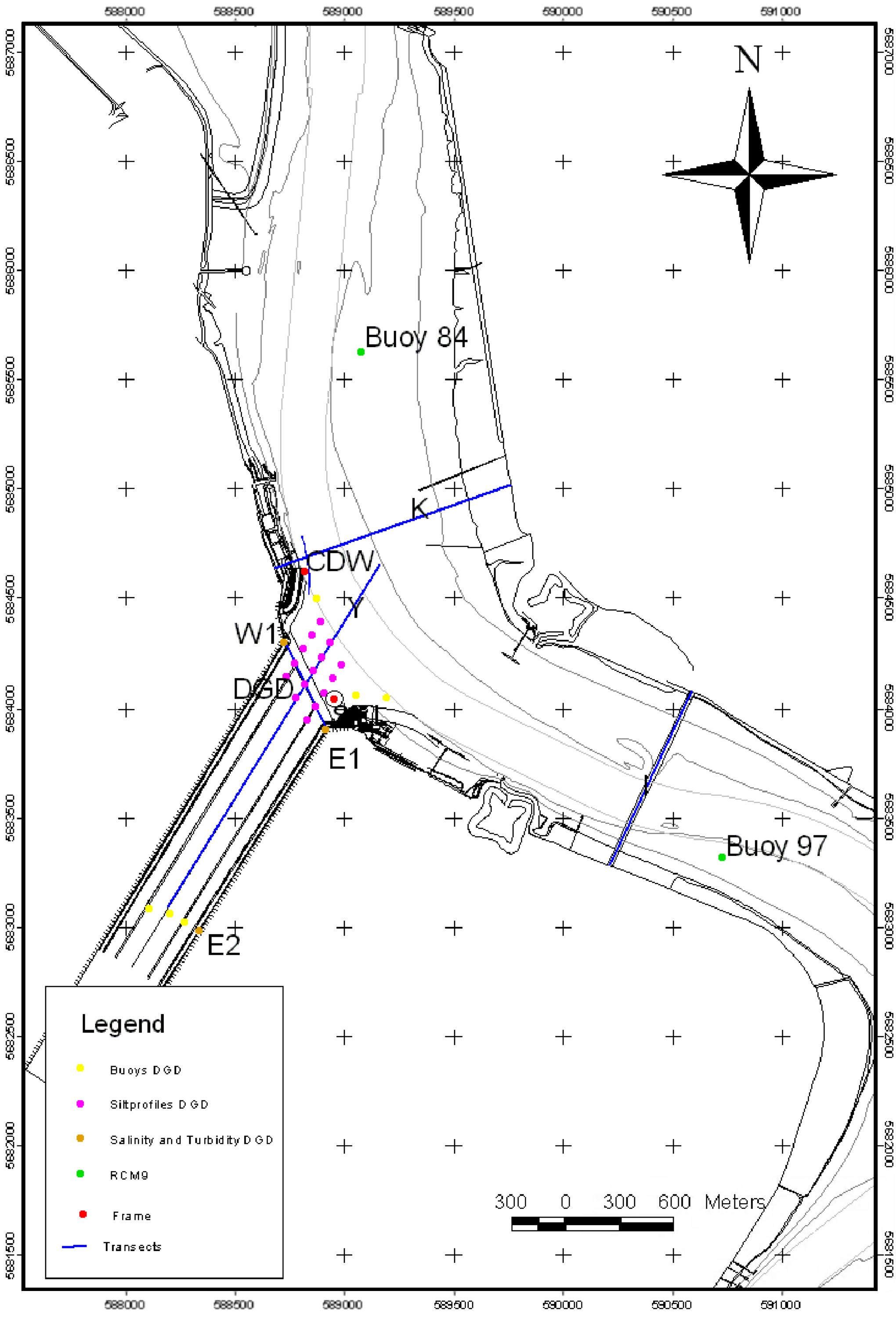
WL Delft Hydraulics (2004). Study of density currents in the framework of the LTV for the Scheldt Estuary. Executive summary. H3981-20.

Annex A Overview of measurement

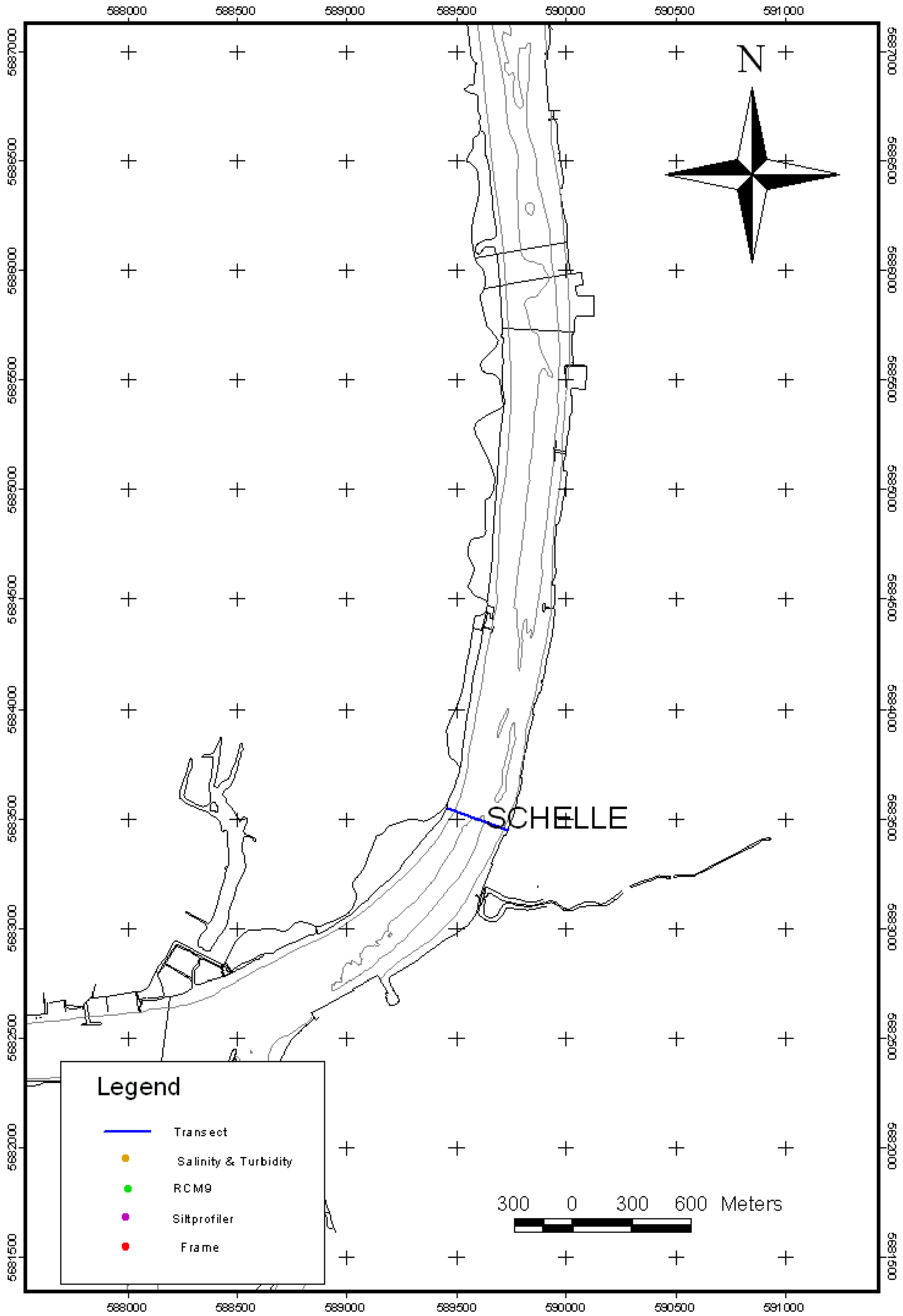
A.1 Overview of the measurement locations for the whole HCBS2 and Deurganckdok measurement campaigns



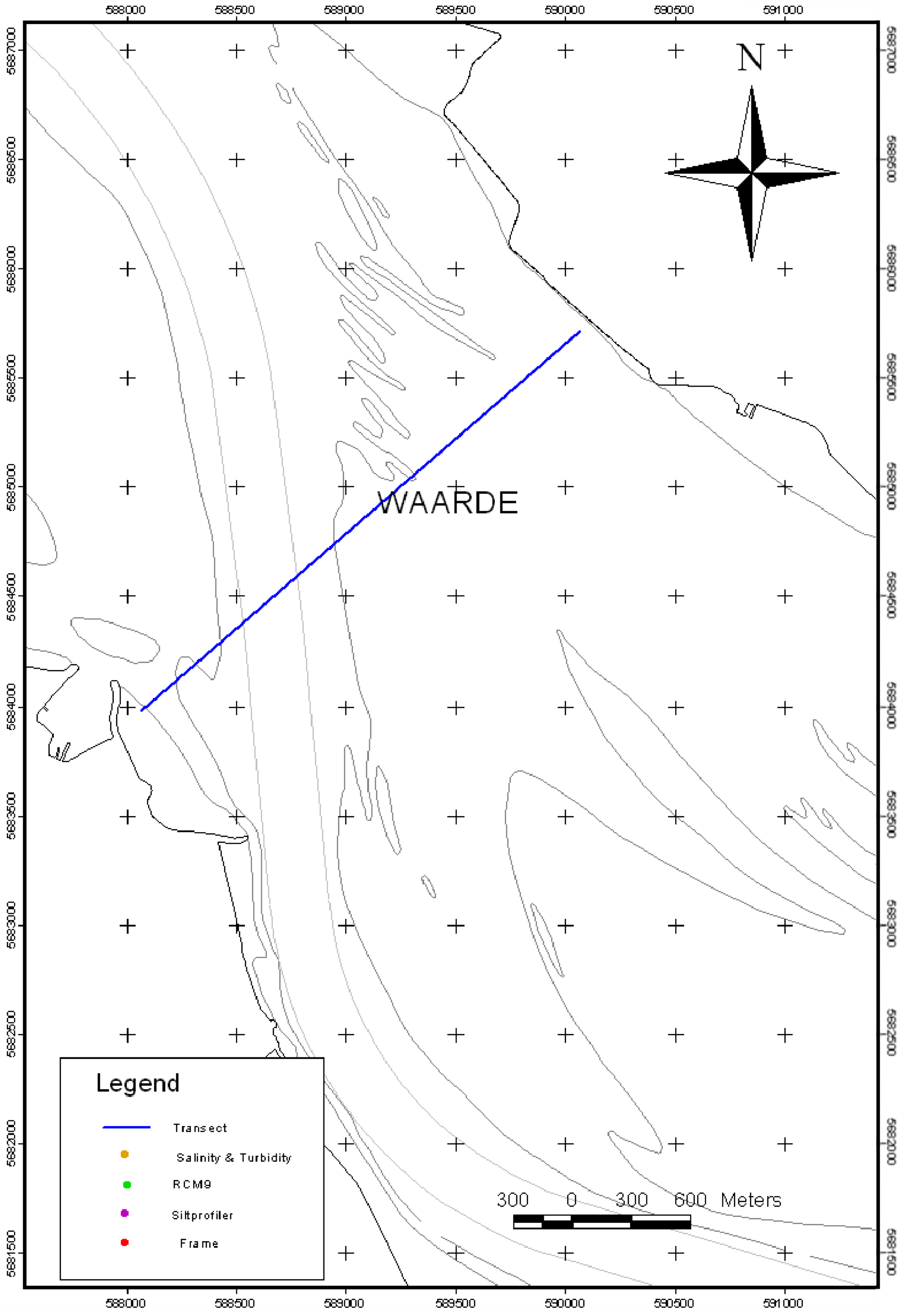
Annex Figure A-1: Overview of the measurement locations



Annex Figure A-2: Overview of the measurement locations at Deurganckdok during previous campaigns



Annex Figure A-3: Transect S in Schelle



Annex Figure A-4: Transect W in Waarde

A.2 Overview of all measurement locations HCBS and Deurganckdok measurement campaigns

Annex Table A-1: coordinates of theoretical transects

Transect	Start Easting	Start Northing	End Easting	End Northing
I	590318	5683302	590771	5684257
K	588484	5684924	589775	5685384
SCHELLE	592645	5665794	592952	5665682
DGD	588765	5684056	588541	5684527
Transect X	588878	5684866	588314	5683955
Transect Y	588934	5684748	588371	5683837
Transect Z	588991	5684630	588427	5683719
Transect 1	588838	5684844	588254	5683880
Transect 2	588891	5684763	588330	5683836
Transect 3	588945	5684681	588406	5683791
Transect 4	588998	5684599	588482	5683746
WAARDE	573541	5696848	571318	5694933

Annex Table A-2: coordinates of SiltProfiler gauging locations

SP	EASTING	NORTHING
1	588737	5684638
2	588690	5684562
3	588643	5684486
4	588596	5684411
5	588549	5684335
6	588606	5684217
7	588653	5684293
8	588700	5684368
9	588747	5684444
10	588793	5684520
11	588850	5684402
12	588803	5684326
13	588756	5684250
14	588709	5684174
15	588662	5684099

A.3 Measurement overview at DGD on 28/09/2011

FileName	*End time [hh:mm UTC]*	*Time after HW [hh:mm]*	*Easting Left (UTM31 WGS84)*	*Northing Left (UTM31 WGS84)*	*Easting Right (UTM31 WGS84)*	*Northing Right (UTM31 WGS84)*	*Transect length [m]*	*Transect heading [°]*
2002dgdT_sub.csv	05:23	3:03	588455	5684300	588662	5683864	483	295
2004dgdT_sub.csv	05:34	3:14	588469	5684272	588655	5683879	435	115
2006dgdT_sub.csv	05:47	3:27	588460	5684289	588649	5683892	440	295
2008dgdT_sub.csv	05:56	3:36	588448	5684314	588642	5683906	452	115
2010dgdT_sub.csv	06:08	3:48	588460	5684289	588641	5683908	421	295
2012dgdT_sub.csv	06:26	4:06	588453	5684305	588644	5683903	446	115
2014dgdT_sub.csv	06:44	4:24	588455	5684299	588655	5683879	465	295
2016dgdT_sub.csv	06:54	4:34	588449	5684313	588655	5683881	479	115
2018dgdT_sub.csv	07:03	4:43	588458	5684294	588653	5683884	453	295
2020dgdT_sub.csv	07:23	5:03	588456	5684298	588648	5683895	446	115
2022dgdT_sub.csv	07:44	5:24	588454	5684302	588646	5683898	448	295
2024dgdT_sub.csv	07:59	5:39	588448	5684314	588646	5683898	460	115
2026dgdT_sub.csv	08:13	5:53	588458	5684293	588652	5683887	450	295
2028dgdT_sub.csv	08:24	6:04	588453	5684304	588651	5683888	461	115
2030dgdT_sub.csv	08:41	6:21	588456	5684299	588655	5683879	464	295
2032dgdT_sub.csv	08:52	6:32	588457	5684295	588663	5683864	478	115
2034dgdT_sub.csv	09:12	6:52	588450	5684312	588648	5683895	461	295
2036dgdT_sub.csv	09:19	6:59	588457	5684296	588650	5683891	448	115
2038dgdT_sub.csv	09:40	7:20	588457	5684295	588657	5683876	465	295
2040dgdT_sub.csv	09:55	7:35	588477	5684254	588662	5683865	431	115
2042dgdT_sub.csv	10:13	7:53	588458	5684294	588653	5683883	455	295
2044dgdT_sub.csv	10:22	-4:22	588449	5684314	588653	5683883	476	115
2046dgdT_sub.csv	10:38	-4:06	588451	5684308	588644	5683904	447	295
2048dgdT_sub.csv	10:55	-3:49	588474	5684260	588656	5683877	425	115
2050dgdT_sub.csv	11:12	-3:32	588454	5684302	588652	5683886	460	295
2052dgdT_sub.csv	11:25	-3:19	588455	5684299	588654	5683882	462	115
2053dgdT_sub.csv	11:38	-3:06	588447	5684317	588643	5683904	457	295
2056dgdT_sub.csv	12:06	-2:38	588455	5684300	588635	5683921	419	295
2058dgdT_sub.csv	12:18	-2:26	588450	5684312	588651	5683889	468	115
2060dgdT_sub.csv	12:32	-2:12	588448	5684316	588654	5683881	481	295
2062dgdT_sub.csv	12:46	-1:58	588448	5684314	588651	5683887	472	115

FileName	*End time [hh:mm UTC]*	*Time after HW [hh:mm]*	*Easting Left (UTM31 WGS84)*	*Northing Left (UTM31 WGS84)*	*Easting Right (UTM31 WGS84)*	*Northing Right (UTM31 WGS84)*	*Transect length [m]*	*Transect heading [°]*
2064dgdT_sub.csv	13:07	-1:37	588469	5684270	588643	5683905	404	295
2066dgdT_sub.csv	13:17	-1:27	588448	5684315	588668	5683853	511	115
2068dgdT_sub.csv	13:33	-1:11	588457	5684295	588664	5683861	481	295
2070dgdT_sub.csv	13:55	-0:49	588448	5684315	588663	5683862	502	115
2072dgdT_sub.csv	14:11	-0:33	588453	5684305	588659	5683872	480	295
2074dgdT_sub.csv	14:32	-0:12	588451	5684310	588659	5683872	485	115
2076dgdT_sub.csv	14:46	0:01	588453	5684305	588648	5683894	454	295
2078dgdT_sub.csv	14:55	0:10	588448	5684315	588658	5683873	489	115
2080dgdT_sub.csv	15:18	0:33	588456	5684297	588659	5683871	472	295
2082dgdT_sub.csv	15:37	0:52	588453	5684305	588663	5683863	490	115
2084dgdT_sub.csv	15:52	1:07	588462	5684286	588655	5683880	450	295
2086dgdT_sub.csv	16:01	1:16	588447	5684317	588652	5683887	476	115
2088dgdT_sub.csv	16:13	1:28	588457	5684297	588658	5683872	470	295
2090dgdT_sub.csv	16:21	1:36	588451	5684308	588650	5683890	463	115
2092dgdT_sub.csv	16:42	1:57	588447	5684316	588647	5683896	466	295
2094dgdT_sub.csv	17:13	2:28	588449	5684313	588664	5683860	502	115
2096dgdT_sub.csv	17:20	2:35	588459	5684293	588646	5683898	437	295
2098dgdT_sub.csv	17:29	2:44	588459	5684292	588653	5683883	453	115
2100dgdT_sub.csv	17:42	2:57	588458	5684294	588651	5683889	449	295
2102dgdT_sub.csv	17:51	3:06	588453	5684305	588639	5683913	434	115

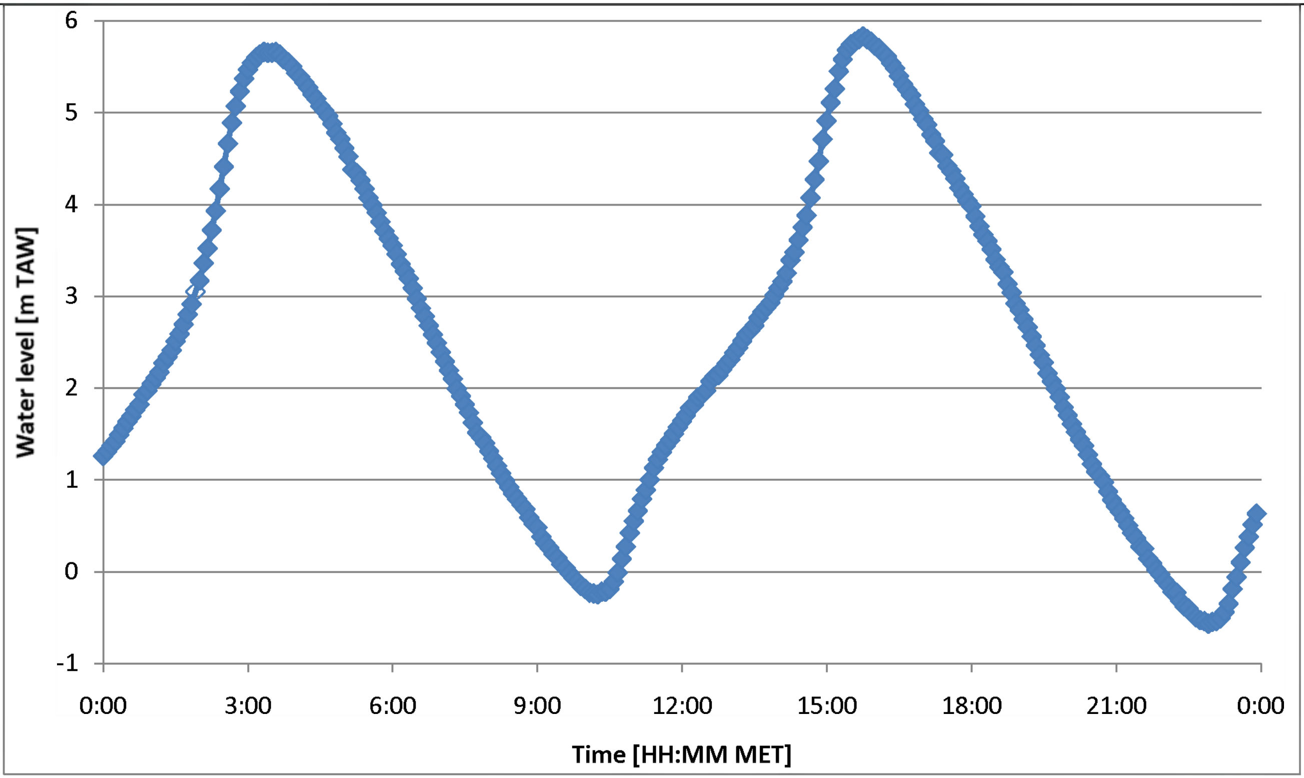
A.4 Measurement overview at DGD on 13/10/2011

FileName	End time [hh:mm UTC]	Time after HW [hh:mm]	Easting Left (UTM31 WGS84)	Northing Left (UTM31 WGS84)	Easting Right (UTM31 WGS84)	Northing Right (UTM31 WGS84)	Transect length [m]	Transect heading [°]
6002DGDtrl_sub.csv	05:51	3:01	588450	5684310	588656	5683877	479	295
6004DGDtlr_sub.csv	06:03	3:13	588450	5684310	588662	5683866	492	115
6006DGDtrl_sub.csv	06:16	3:26	588451	5684308	588659	5683872	483	295
6008DGDtlr_sub.csv	06:26	3:36	588448	5684316	588662	5683865	499	115
6010DGDtrl_sub.csv	06:40	3:50	588447	5684317	588660	5683869	496	295
6012DGDtlr_sub.csv	06:54	4:04	588454	5684302	588664	5683862	488	115
6014DGDtrl_sub.csv	07:08	4:18	588485	5684237	588658	5683874	401	295
6016DGDtlr_sub.csv	07:22	4:32	588452	5684307	588650	5683891	461	115
6018DGDtrl_sub.csv	07:37	4:47	588466	5684276	588658	5683873	447	295
6020DGDtlr_sub.csv	07:49	4:59	588451	5684309	588659	5683871	484	115
6022DGDtrl_sub.csv	08:02	5:12	588448	5684315	588654	5683881	480	295
6024DGDtlr_sub.csv	08:12	5:22	588447	5684316	588655	5683879	485	115
6026DGDtrl_sub.csv	08:24	5:34	588448	5684315	588665	5683859	506	295
6028DGDtlr_sub.csv	08:36	5:46	588448	5684315	588658	5683873	489	115
6030DGDtrl_sub.csv	08:48	5:58	588449	5684313	588658	5683873	488	295
6032DGDtlr_sub.csv	08:59	6:09	588447	5684316	588663	5683862	503	115
6034DGDtrl_sub.csv	09:18	6:28	588453	5684305	588661	5683868	484	295
6036DGDtlr_sub.csv	09:30	6:40	588452	5684307	588654	5683881	472	115
6038DGDtrl_sub.csv	09:41	6:51	588453	5684303	588661	5683868	482	295
6039DGDtlr_sub.csv	09:51	-5:23	588453	5684303	588657	5683876	474	115
6041DGDtrl_sub.csv	10:08	-5:06	588466	5684278	588661	5683867	455	295
6043DGDtlr_sub.csv	10:27	-4:47	588448	5684314	588664	5683860	503	115
6045DGDtrl_sub.csv	10:38	-4:36	588452	5684306	588662	5683865	488	295
6047DGDtlr_sub.csv	10:49	-4:25	588448	5684315	588658	5683873	490	115
6049DGDtrl_sub.csv	11:03	-4:11	588448	5684315	588662	5683866	498	295
6050DGDtlr_sub.csv	11:11	-4:03	588447	5684316	588659	5683871	493	115
6052DGDtrl_sub.csv	11:34	-3:40	588461	5684288	588662	5683866	468	295
6054DGDtlr_sub.csv	11:45	-3:29	588455	5684300	588656	5683879	467	115
6056DGDtrl_sub.csv	12:00	-3:14	588455	5684299	588666	5683857	490	295
6058DGDtlr_sub.csv	12:11	-3:03	588449	5684312	588660	5683868	491	115
6060DGDtrl_sub.csv	12:22	-2:52	588456	5684299	588664	5683861	485	295
6062DGDtlr_sub.csv	12:35	-2:39	588448	5684316	588656	5683877	486	115

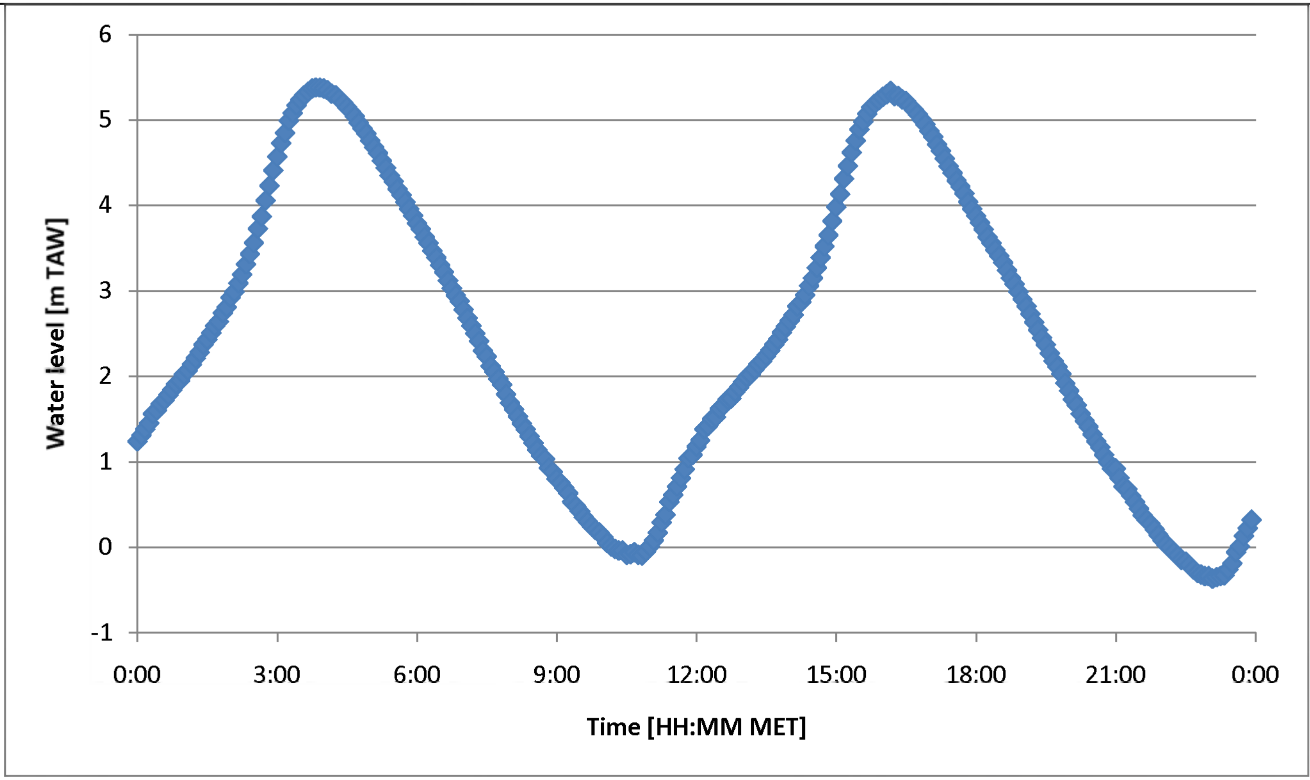
FileName	*End time [hh:mm UTC]*	*Time after HW [hh:mm]*	*Easting Left (UTM31 WGS84)*	*Northing Left (UTM31 WGS84)*	*Easting Right (UTM31 WGS84)*	*Northing Right (UTM31 WGS84)*	*Transect length [m]*	*Transect heading [°]*
6064DGDtrl_sub.csv	12:53	-2:22	588449	5684313	588657	5683875	485	295
6066DGDtlr_sub.csv	13:10	-2:05	588449	5684312	588656	5683878	481	115
6068DGDtrl_sub.csv	13:22	-1:52	588457	5684296	588664	5683860	482	295
6070DGDtlr_sub.csv	13:33	-1:41	588456	5684298	588661	5683868	477	115
6072DGDtrl_sub.csv	13:44	-1:30	588462	5684284	588664	5683862	468	295
6074DGDtlr_sub.csv	14:01	-1:13	588447	5684317	588656	5683877	487	115
6076DGDtlr_sub.csv	14:12	-1:02	588448	5684315	588656	5683878	484	295
6076DGDtlr_subv2.csv	14:12	-1:02	588448	5684315	588656	5683878	484	295
6078DGDtlr_sub.csv	14:22	-0:52	588447	5684316	588658	5683874	490	115
6078DGDtlr_subv2.csv	14:22	-0:52	588447	5684316	588658	5683874	490	115
6080DGDtrl_sub.csv	14:34	-0:40	588449	5684313	588662	5683865	496	295
6080DGDtrl_subv2.csv	14:34	-0:40	588449	5684313	588662	5683865	496	295
6082DGDtlr_sub.csv	14:45	-0:29	588447	5684317	588659	5683870	494	115
6082DGDtlr_subv2.csv	14:45	-0:29	588447	5684317	588659	5683870	494	115
6084DGDtrl_sub.csv	15:02	-0:12	588449	5684313	588661	5683868	493	295
6086DGDtlr_sub.csv	15:18	0:03	588447	5684316	588656	5683877	487	115
6088DGDtlr_sub.csv	15:30	0:15	588447	5684316	588651	5683887	475	295
6090DGDtlr_sub.csv	15:40	0:25	588447	5684316	588663	5683863	502	115
6092DGDtrl_sub.csv	15:52	0:37	588449	5684314	588661	5683866	496	295
6094DGDtrl_sub.csv	16:06	0:51	588448	5684315	588664	5683860	504	115
6096DGDtrl_sub.csv	16:18	1:03	588450	5684311	588658	5683872	485	295
6098DGDtlr_sub.csv	16:44	1:29	588449	5684312	588657	5683876	483	115
6100DGDtrl_sub.csv	16:53	1:38	588459	5684292	588659	5683871	466	295
6102DGDtlr_sub.csv	17:01	1:46	588449	5684312	588658	5683873	486	115
6104DGDtrl_sub.csv	17:15	2:00	588465	5684280	588663	5683863	462	295
6106DGDtlr_sub.csv	17:30	2:15	588456	5684298	588655	5683879	464	115
6108DGDtrl_sub.csv	17:42	2:27	588447	5684316	588652	5683886	476	295
6110DGDtlr_sub.csv	17:51	2:36	588448	5684315	588653	5683885	477	115
6112DGDtrl_sub.csv	18:00	2:45	588448	5684314	588649	5683893	467	295
6114DGDtlr_sub.csv	18:14	2:59	588447	5684316	588631	5683930	428	115
6116DGDtrl_sub.csv	18:23	3:08	588454	5684302	588653	5683884	463	295

Annex B Tidal and discharge data

B.1 Tidal data

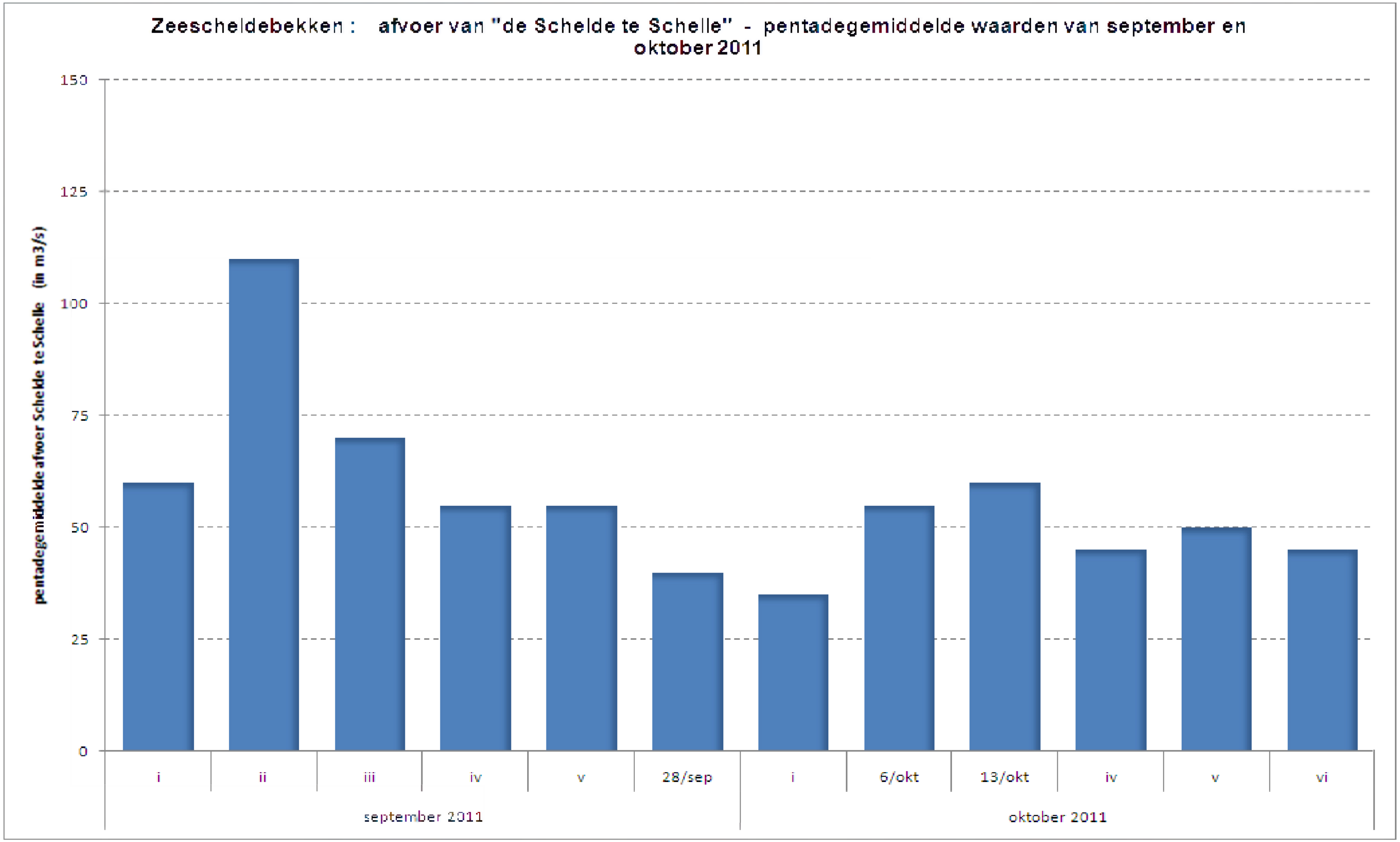
11354 – Autumn 2011 SURVEY		
		
Measured tide on 06/10/2011 at Liefkenshoek		*Data processed by:* IMDC *In association with:* Deltares & GEMS International I/RA/11354/10.106/MBO/ANF
Location: River Scheldt	Date: 28/09/2011	

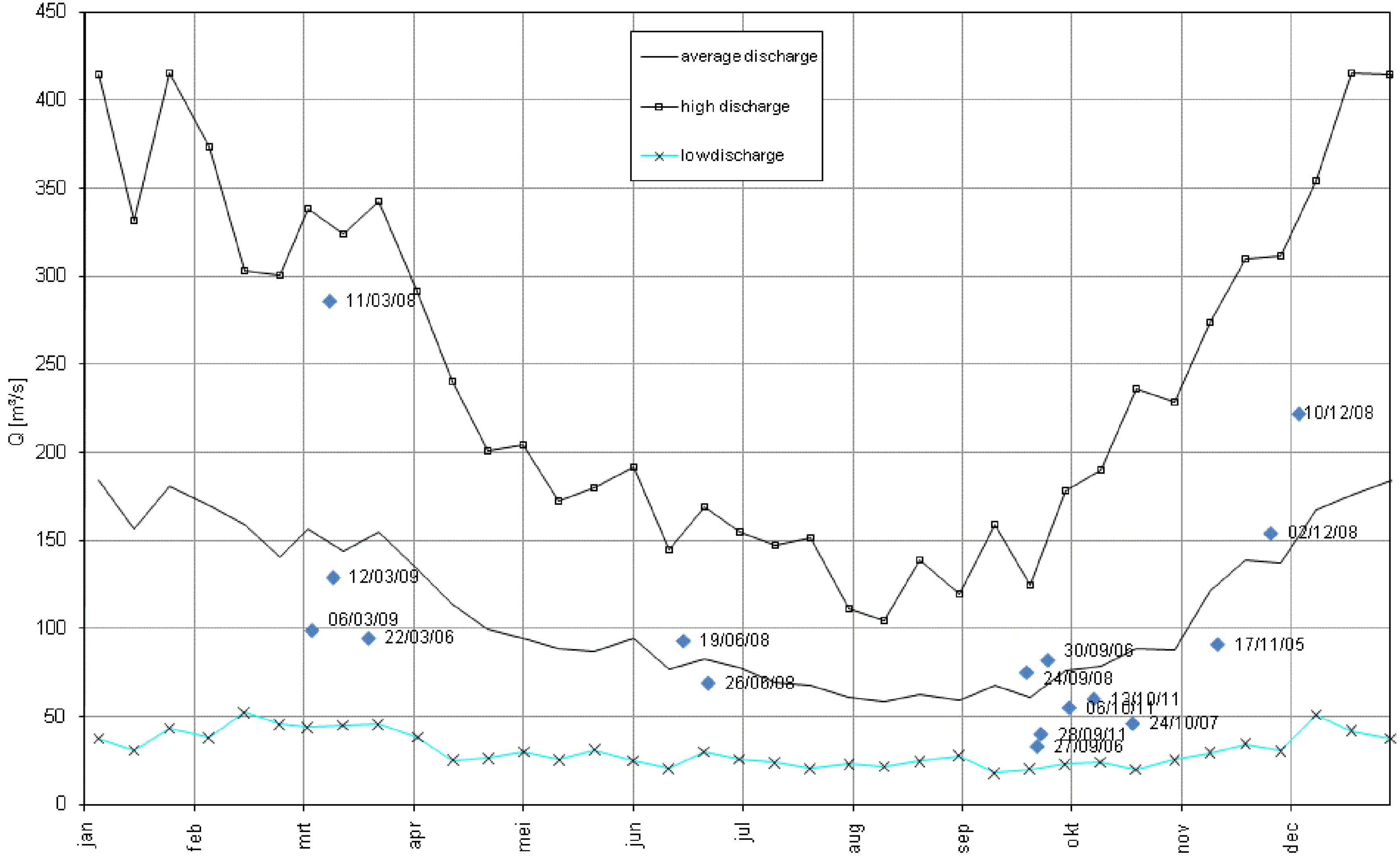
11354 – Autumn 2011 SURVEY



Measured tide on 06/10/2011 at Liefkenshoek		Data processed by: IMDC
Location: River Scheldt	Date: 13/10/2011	In association with: Deltares & GEMS International I/RA/11354/10.106/MBO/ANF

B.2 Discharge data




average discharge
high discharge
lowdischarge
Q [m³/s]
450
400
350
300
250
200
150
100
50
0
jan
feb
mrt
apr
mei
jun
jul
aug
sep
okt
nov
dec
11/03/08
12/03/09
06/03/09
22/03/06
19/06/08
26/06/08
30/09/06
24/09/08
13/10/11
06/10/11
24/10/07
28/09/11
27/09/06
17/11/05
10/12/08
02/12/08

Annex C Navigation information as recorded on site

Ship:		***Parel 36 & Parel II***
Location:		***Deurganckdok (transect DGD)***
Transect	***Remarks***	
28 September 2011		
2002dgdT	Schroefwater: Containerschip uit	
2006dgdT	Schroefwater: Binnenschip in	
2018dgdT	Schroefwater: Binnenschip uit	
2038dgdT	Schroefwater: Baggerschip	
2049dgdB	Schroefwater: Baggerschip	
2053dgdT	Schroefwater: Baggerschip	
2076dgdT	Schroefwater: Baggerschip	
2083dgdB	Schroefwater: Binnenschip in	
2092dgdT	Schroefwater: Containerschip in	
2102dgdT	Schroefwater: Containerschip uit	
13 October 2011		
6006DGDtrl	Schroefwater: Binnenschip uit	
6024DGDtlr	Schroefwater: Binnenschip in	
6034DGDTLR	Schroefwater	
6052DGDTRL	Schroefwater: Binnenschip uit	
6080DGDtRL	Schroefwater: Binnenschip in	
6096DGDtrl	Schroefwater: Binnenschip uit	
6098DGDtlr	Schroefwater: Binnenschip in	
6104DGDtrl	Schroefwater: Binnenschip uit	
6114DGDtlr	Schroefwater: Binnenschip in / out	

Annex D Unesco PPs-78 forumula for calculating salinity

Practical Salinity Scale (PPS 78) Salinity in the range of 2 to 42

Constants from the 19th Edition of Standard Methods

R cond.ratio	0.0117	$R = \frac{C}{42.914 mS/cm}$	
C Cond at t	**0.5**		**Input conductivity in mS/cm of sample**
t deg. C	**22.00**		**Input temperature of sample solution**
P dBar	**20**		**Input pressure at which sample is measured in decibars**
Rp	1.0020845	$R_p = 1 + \frac{p(e_1 + e_2 p + e_3 p^2)}{1 + d_1 t + d_2 t^2 + (d_3 + d_4 t)R}$	
rt	1.1641102	$r_t = c_0 + c_1 t + c_2 t^2 + c_3 t^3 + c_4 t^4$	
Rt	0.0099879	$R_t = \frac{R}{R_p \times r_t}$	
Delta S	-0.0010	$\text{Delta } S = \frac{(t-15)}{1+k(t-15)}(b_0 + b_1 R_t^{1/2} + b_2 R_t + b_3 R_t^{3/2} + b_4 R_t^2 + b_5 R_t^{5/2})$	
S = Salinity	**0.257**	$S = a_0 + a_1 R_t^{1/2} + a_2 R_t + a_3 R_t^{3/2} + a_4 R_t^2 + a_5 R_t^{5/2} + \text{delta } S$	

a0	0.0080	b0	0.0005	c0	0.6766097	d1	3.426E-02	e1	2.070E-04
a1	-0.1692	b1	-0.0056	c1	2.00564E-02	d2	4.464E-04	e2	-6.370E-08
a2	25.3851	b2	-0.0066	c2	1.104259E-04	d3	4.215E-01	e3	3.989E-12
a3	14.0941	b3	-0.0375	c3	-6.9698E-07	d4	-3.107E-03		
a4	-7.0261	b4	0.0636	c4	1.0031E-09				
a5	2.7081	b5	-0.0144						
		k	0.0162						

R = ratio of measured conductivity to the conductivity of the Standard Seawater Solution

Conductivity Ratio R is a function of salinity, temperature, and hydraulic pressure. So that we can factor R into three parts i.e.

R = Rt x Rp x rt

R = C(S,t,p)/C(35,15,0)

C = 42.914 mS/cm at 15 deg C and 0 dbar pressure ie C(35,15,0) where 35 is the salinity

Ocean pressure is usually measured in decibars. 1 dbar = 10^-1 bar = 10^5 dyne/cm^2 = 10^4 Pascal.

Annex E Overview of sediview settings

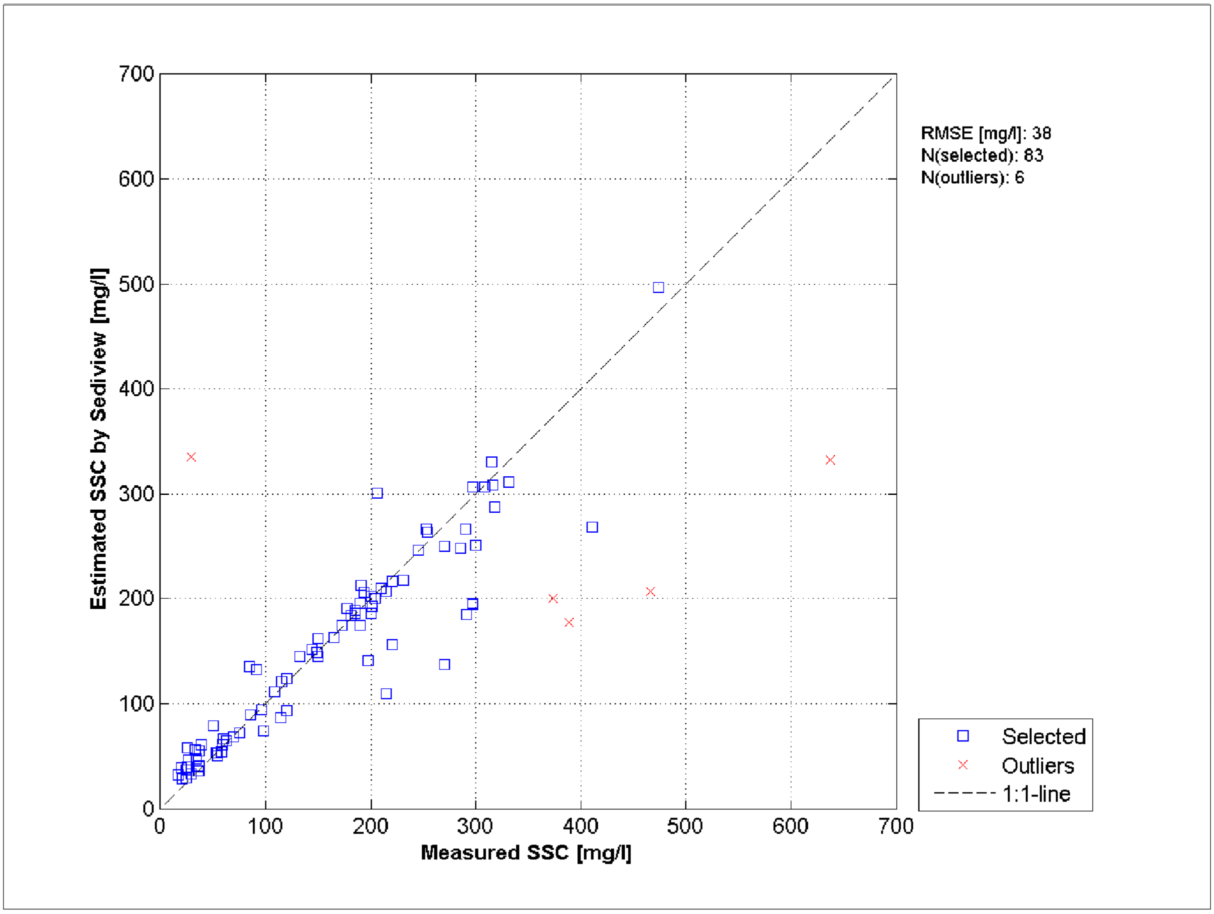
E.1 Sediview settings for data collected on the 28th of September 2011

Ship:		Parel II	
Location:		Deurganckdok (transect DGD)	
Date		28/09/2011	
Parameters	***Value***	***Parameters***	***Value***
Inst. Depth (m)	1	*Compass offset (°)*	0
Force depth (m)	0	*Beam 3 misalignment (°)*	0
Velocity reference	BT	*Effective particle size (µm)*	20
Speed of sound algorithm	Urick	*Beam1 scale factor*	0.4425
Error velocity	YES	*Beam2 scale factor*	0.41
External heading	NO	*Beam3 scale factor*	0.425
External Depth	NO	*Beam4 scale factor*	0.4425
SSC factor top (%)	100	*Discharge factor top*	Constant
SSC factor bottom (%)	125	*Discharge factor bottom*	Power
Shape factor left bank	0.91	*Shape factor right bank*	0.91

Filename	***Calibration const (Ks)***	***Backscatter coefficient (S)***	***Distance to the left bank (m)***	***Distance to the right bank (m)***
2002dgdT_sub.csv	44	20.5	18.31	19.87
2004dgdT_sub.csv	44	21	50.22	36.69
2006dgdT_sub.csv	44	20.5	30.52	51.09
2008dgdT_sub.csv	44	21.5	3.16	66.61
2010dgdT_sub.csv	44	22.25	31.22	69.09
2012dgdT_sub.csv	44	22.25	13.27	62.76
2014dgdT_sub.csv	44	22.25	19.75	36.91
2016dgdT_sub.csv	44	22.25	4.56	38.38
2018dgdT_sub.csv	44	22.75	25.9	42.2
2020dgdT_sub.csv	44	22.25	21.51	54.04
2022dgdT_sub.csv	44	22.5	16.13	57.92
2024dgdT_sub.csv	44	22.75	3.35	57.71
2026dgdT_sub.csv	44	22.75	26.1	45.22
2028dgdT_sub.csv	44	22.75	14.27	46.34

Filename	*Calibration const (Ks)*	*Backscatter coefficient (S)*	*Distance to the left bank (m)*	*Distance to the right bank (m)*
2030dgdT_sub.csv	44	21.25	20.4	36.69
2032dgdT_sub.csv	44	19.75	24.09	19.48
2034dgdT_sub.csv	44	19.75	5.94	54.16
2036dgdT_sub.csv	44	19.75	23.29	50.03
2038dgdT_sub.csv	44	19.75	24.13	32.76
2040dgdT_sub.csv	44	20.5	70.07	20.79
2042dgdT_sub.csv	44	21.75	25.73	41.09
2044dgdT_sub.csv	44	21.25	3.84	41.49
2046dgdT_sub.csv	44	20.75	10.34	63.99
2048dgdT_sub.csv	44	21	62.65	34.39
2050dgdT_sub.csv	44	20.75	16.51	44.72
2052dgdT_sub.csv	44	20.75	19.6	40.23
2053dgdT_sub.csv	44	20.75	0.04	64.08
2056dgdT_sub.csv	44	20.5	19.37	82.86
2058dgdT_sub.csv	44	20.5	5.84	47.72
2060dgdT_sub.csv	44	20.75	1.62	39.13
2062dgdT_sub.csv	44	21	3.19	45.88
2064dgdT_sub.csv	44	21.25	51.68	65.85
2066dgdT_sub.csv	44	21.25	2.16	7.91
2068dgdT_sub.csv	44	21.25	24.41	16.31
2070dgdT_sub.csv	44	21.5	2.13	17.88
2072dgdT_sub.csv	44	21.25	13.22	28.65
2074dgdT_sub.csv	44	20.75	8.18	28.73
2076dgdT_sub.csv	44	21.75	13.71	53.7
2078dgdT_sub.csv	44	20.75	2.19	30.23
2080dgdT_sub.csv	44	19.75	21.86	28.04
2082dgdT_sub.csv	44	20.75	13.47	18.43
2084dgdT_sub.csv	44	21.25	34.1	37.3
2086dgdT_sub.csv	44	22	0.04	45.25
2088dgdT_sub.csv	44	22	22.66	29.32
2090dgdT_sub.csv	44	21	9.85	48.49
2092dgdT_sub.csv	44	19.75	0.89	54.97
2094dgdT_sub.csv	44	20.5	4.4	15.43

Filename	***Calibration const (Ks)***	***Backscatter coefficient (S)***	***Distance to the left bank (m)***	***Distance to the right bank (m)***
2096dgdT_sub.csv	44	21.75	26.88	58.04
2098dgdT_sub.csv	44	22.5	27.58	41.08
2100dgdT_sub.csv	44	22	25.08	47.25
2102dgdT_sub.csv	44	19	13.5	74.17



Annex Figure E-1: Calibration in Sediview for 28/09/2011 data

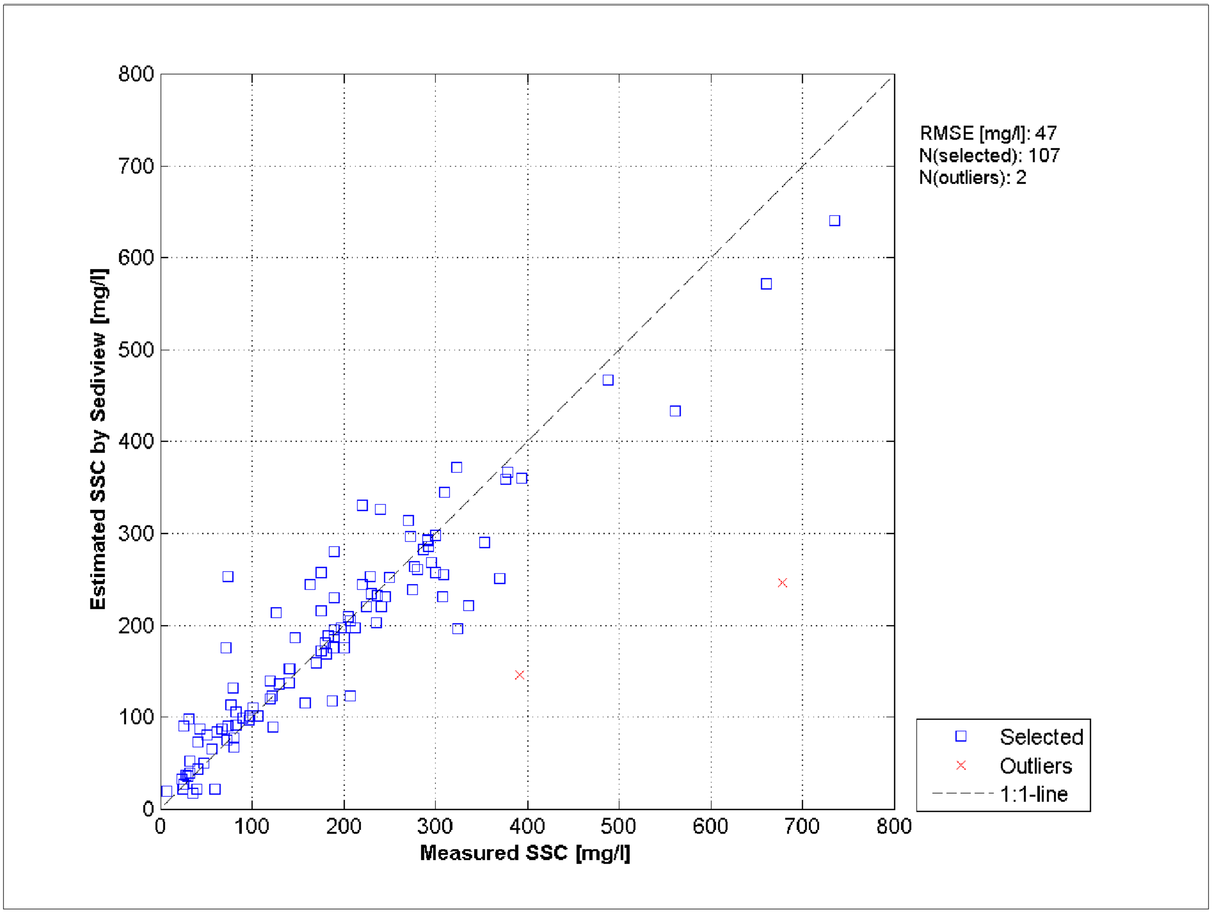
E.2 Sediview settings for data collected on the 13th of October 2011

Ship:		***Parel II***	
Location:		***Deurganckdok (transect DGD)***	
Date		***13/10/2011***	
Parameters	***Value***	***Parameters***	***Value***
Inst. Depth (m)	1	*Compass offset (°)*	0
Force depth (m)	0	*Beam 3 misalignment (°)*	0
Velocity reference	BT	*Effective particle size (µm)*	20
Speed of sound algorithm	Urick	*Beam1 scale factor*	0.4375
Error velocity	YES	*Beam2 scale factor*	0.4175
External heading	NO	*Beam3 scale factor*	0.430
External Depth	NO	*Beam4 scale factor*	0.435
SSC factor top (%)	100	*Discharge factor top*	Constant
SSC factor bottom (%)	125	*Discharge factor bottom*	Power
Shape factor left bank	0.91	*Shape factor right bank*	0.91

Filename	***Calibration const (Ks)***	***Backscatter coefficient (S)***	***Distance to the left bank (m)***	***Distance to the right bank (m)***
6002DGDtrl_sub.csv	42	20	7.69	34.4
6004DGDtlr_sub.csv	42	20.25	7.25	22.12
6006DGDtrl_sub.csv	42	20.5	9.56	28.6
6008DGDtlr_sub.csv	42	21.5	1.4	21.58
6010DGDtrl_sub.csv	42	22.75	0.34	24.99
6012DGDtlr_sub.csv	42	22.75	16.62	17.37
6014DGDtrl_sub.csv	42	22.5	88.71	31.41
6016DGDtlr_sub.csv	42	22.5	11.21	49.38
6018DGDtrl_sub.csv	42	22.5	45.01	29.63
6020DGDtlr_sub.csv	42	22.5	9.22	28.05
6022DGDtrl_sub.csv	42	22.75	2.2	39.28
6024DGDtlr_sub.csv	42	23.75	0.67	36.21
6026DGDtrl_sub.csv	42	24.5	2.01	13.92

Filename	*Calibration const (Ks)*	*Backscatter coefficient (S)*	*Distance to the left bank (m)*	*Distance to the right bank (m)*
6028DGDtlr_sub.csv	42	24.5	2.26	29.95
6030DGDtrl_sub.csv	42	21.75	4.04	29.85
6032DGDtlr_sub.csv	42	19.5	0.7	18.02
6034DGDtrl_sub.csv	42	19.25	13.53	24.42
6036DGDtlr_sub.csv	42	19	11.25	38.53
6038DGDtlr_sub.csv	42	20.25	15.02	24.17
6039DGDtlr_sub.csv	42	20.25	14.98	32.72
6041DGDtrl_sub.csv	42	20.75	43.7	23.28
6043DGDtlr_sub.csv	42	20.5	3.16	15.7
6045DGDtrl_sub.csv	42	20.25	12.55	20.6
6047DGDtlr_sub.csv	42	20.75	1.93	29.6
6049DGDtrl_sub.csv	42	21.5	1.8	21.6
6050DGDtlr_sub.csv	42	21.25	0.97	27.3
6052DGDtrl_sub.csv	42	21	31.99	22
6054DGDtlr_sub.csv	42	21	18.71	36.08
6056DGDtrl_sub.csv	42	20.75	19.63	11.86
6058DGDtlr_sub.csv	42	20.75	5.66	24.51
6060DGDtrl_sub.csv	42	21.5	19.8	16.28
6062DGDtlr_sub.csv	42	21.5	1.59	33.77
6064DGDtrl_sub.csv	42	22	4.43	31.81
6066DGDtlr_sub.csv	42	23	5.52	35.06
6068DGDtrl_sub.csv	42	22	23.19	15.88
6070DGDtlr_sub.csv	42	22.25	20.85	24.12
6072DGDtrl_sub.csv	42	22.25	36.04	17.21
6074DGDtlr_sub.csv	42	21.75	0.41	33.83
6076DGDtlr_subv2.csv	42	20.75	1.99	35.19
6078DGDtlr_subv2.csv	42	20	0.98	30.49
6080DGDtrl_subv2.csv	42	20	4.7	20.66
6082DGDtlr_subv2.csv	42	20	0.16	26.97
6084DGDtrl_sub.csv	42	20	4.26	24.1
6086DGDtlr_sub.csv	42	20	0.59	34.08

Filename	***Calibration const (Ks)***	***Backscatter coefficient (S)***	***Distance to the left bank (m)***	***Distance to the right bank (m)***
6088DGDtlr_sub.csv	42	20.25	0.65	45.53
6090DGDtlr_sub.csv	42	20.5	0.92	19.1
6092DGDtrl_sub.csv	42	20.5	3.63	22.12
6094DGDtrl_sub.csv	42	20.75	1.84	15.89
6096DGDtrl_sub.csv	42	21.5	7.18	29.13
6098DGDtlr_sub.csv	42	22.5	5.21	33.17
6100DGDtrl_sub.csv	42	22.75	27.58	28.22
6102DGDtlr_sub.csv	42	22	5.77	29.35
6104DGDtrl_sub.csv	42	21	41.44	18.61
6106DGDtlr_sub.csv	42	20.75	20.94	37.04
6108DGDtrl_sub.csv	42	20.75	0.8	44.32
6110DGDtlr_sub.csv	42	19.75	1.68	42.86
6112DGDtrl_sub.csv	42	19.25	2.9	51.52
6114DGDtlr_sub.csv	42	19.75	0.87	92.59
6116DGDtrl_sub.csv	42	20	16.5	42.32



Annex Figure E-2: Calibration in Sediview for 13/10/2011 data

Annex F Contourplots of flow velocities, Sediment Concentration and Sediment Flux, per sailed transect

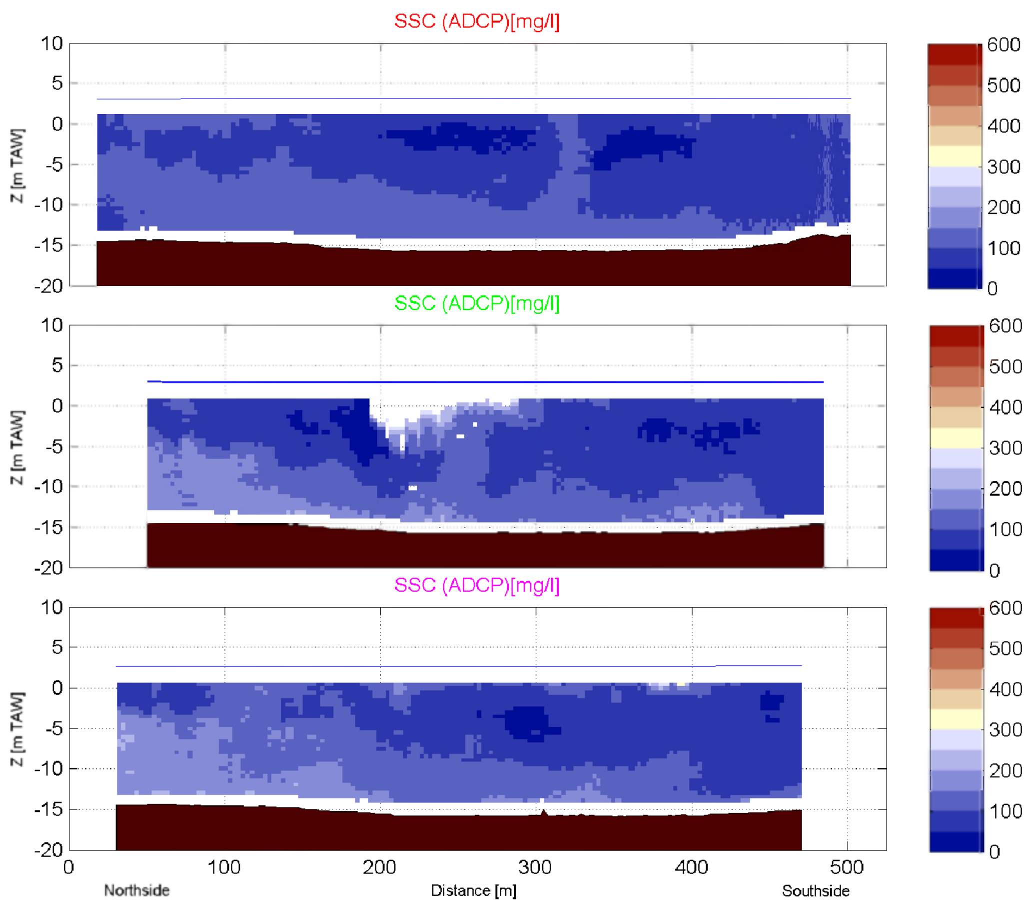
F.1 Sediment concentrations for 28/09/2012

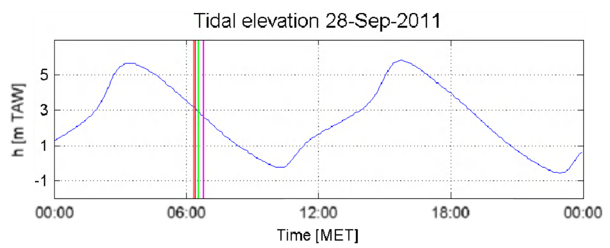
Evaluatie externe effecten aanslibbing Deurganckdok

Equipment:
ADCP

Sourcefile:
2002dgdT_sub.csv, 2004dgdT_sub.csv, 2006dgdT_sub.csv

Location:
Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
06:19 - 06:47

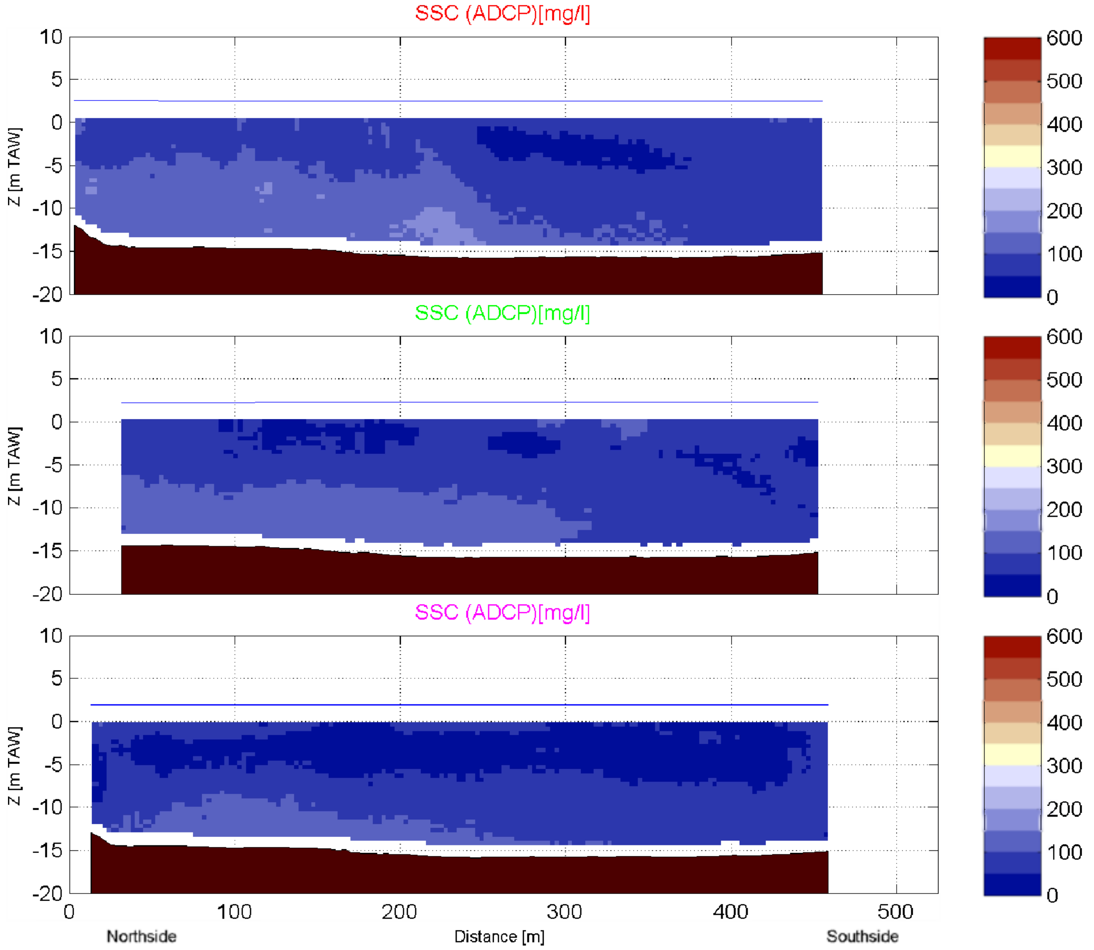
Time after HW:
3:01, 3:12, 3:26

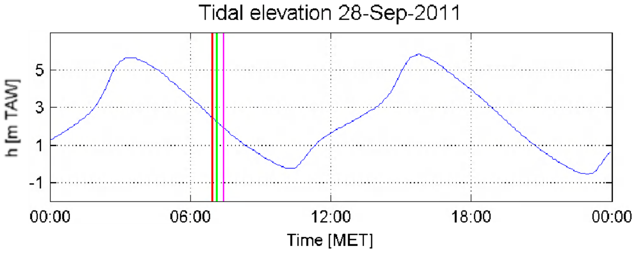
I/RA/11354/10.108/ANF/MBO

Data Processed by:

In association with :

Evaluatie externe effecten aanslibbing Deurganckdok	
	Equipment: ADCP
Sourcefile: 2008dgdT_sub.csv, 2010dgdT_sub.csv, 2012dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
06:54 - 07:26

Time after HW:
3:35, 3:46, 4:05

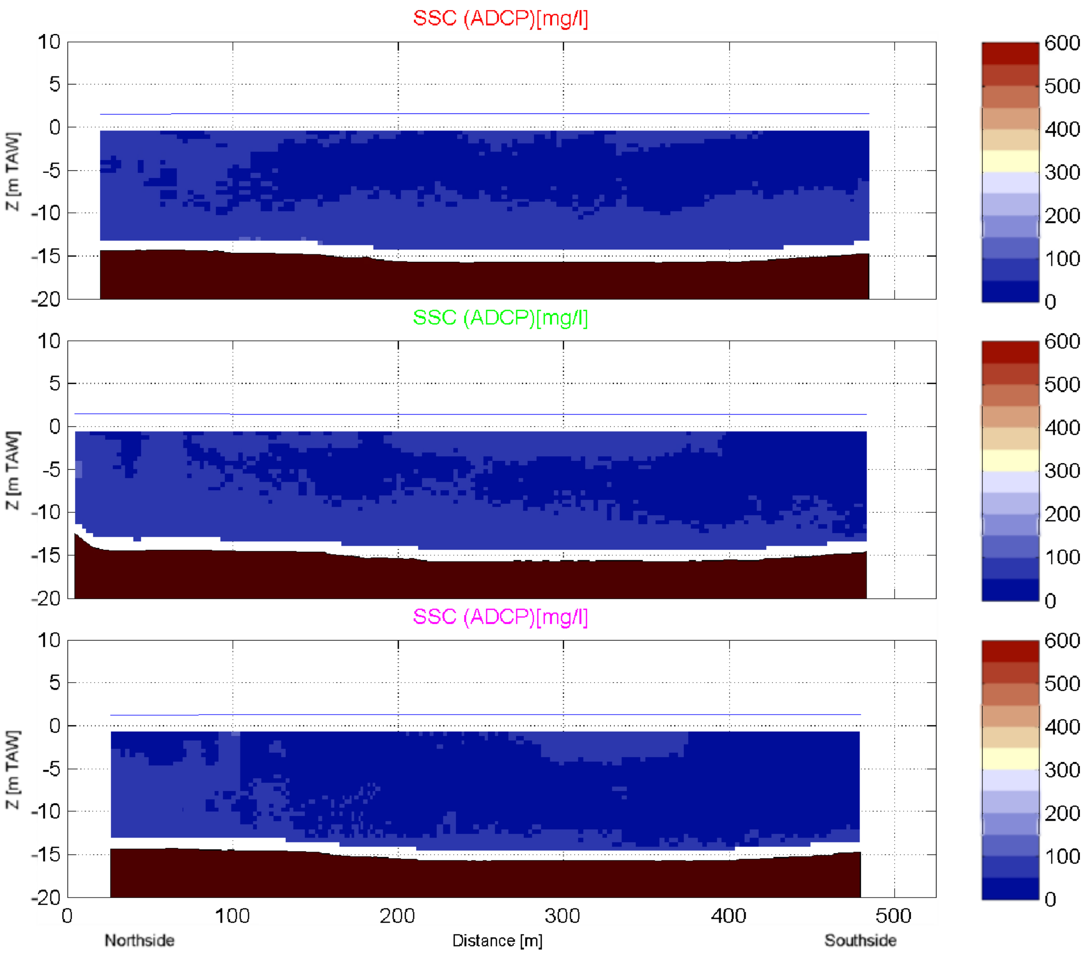
I/RA/11354/10.108/ANF/MBO

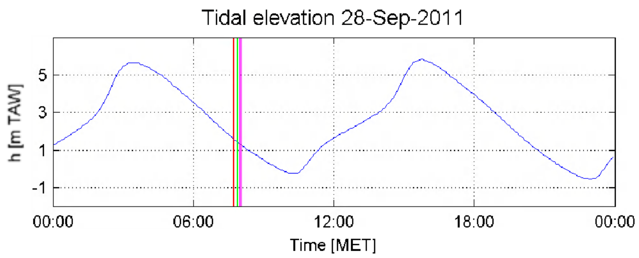
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2014dgdT_sub.csv, 2016dgdT_sub.csv, 2018dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
07:41 - 08:03

Time after HW:
4:23, 4:32, 4:41

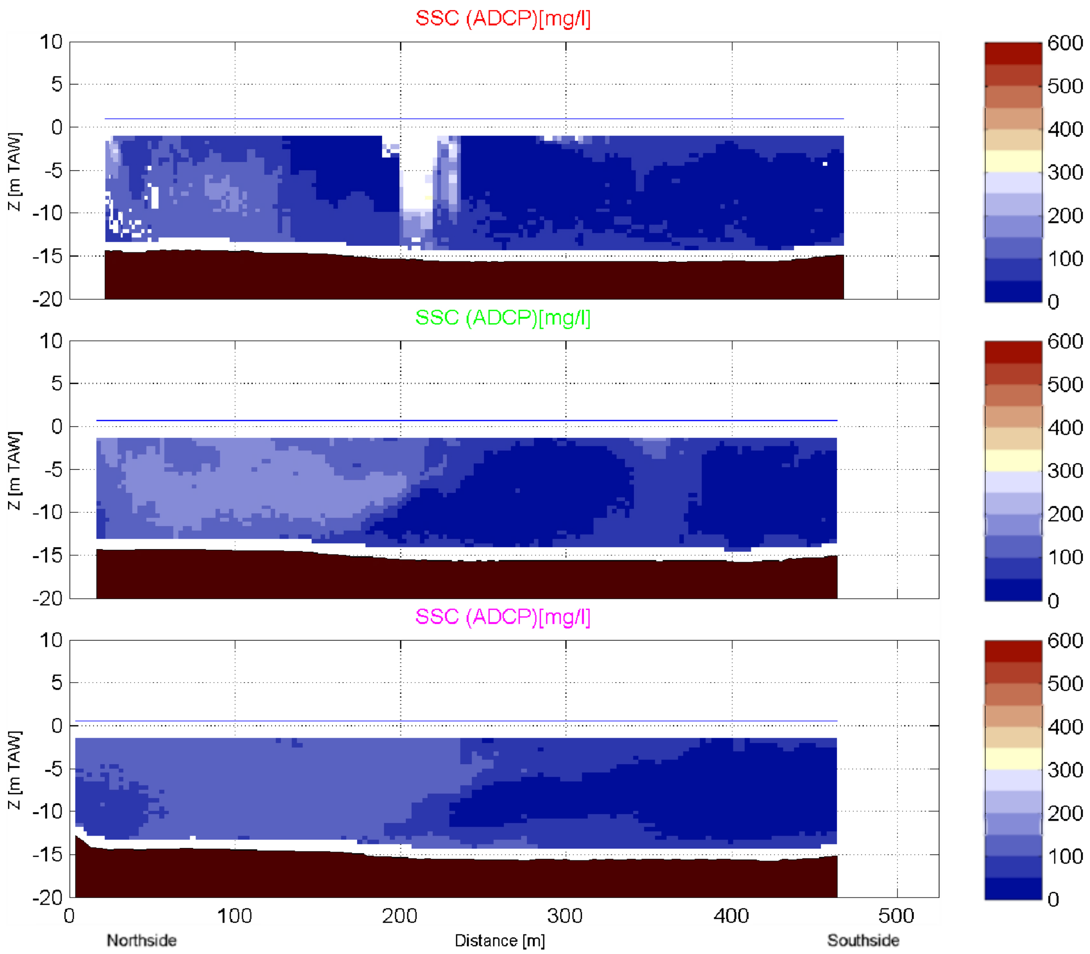
I/RA/11354/10.108/ANF/MBO

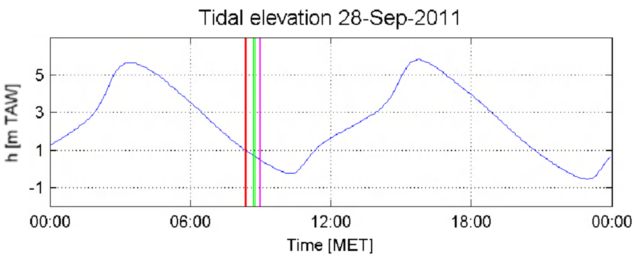
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2020dgdT_sub.csv, 2022dgdT_sub.csv, 2024dgdT_sub.csv	Location: Deurganckdok





HW/LW	
	03:20: h = 5.66m
	15:45: h = 5.83m
	10:15: h = -0.25m

Date/time:

28-Sep-2011

08:20 - 08:59

Time after HW:

5:01, 5:23, 5:37

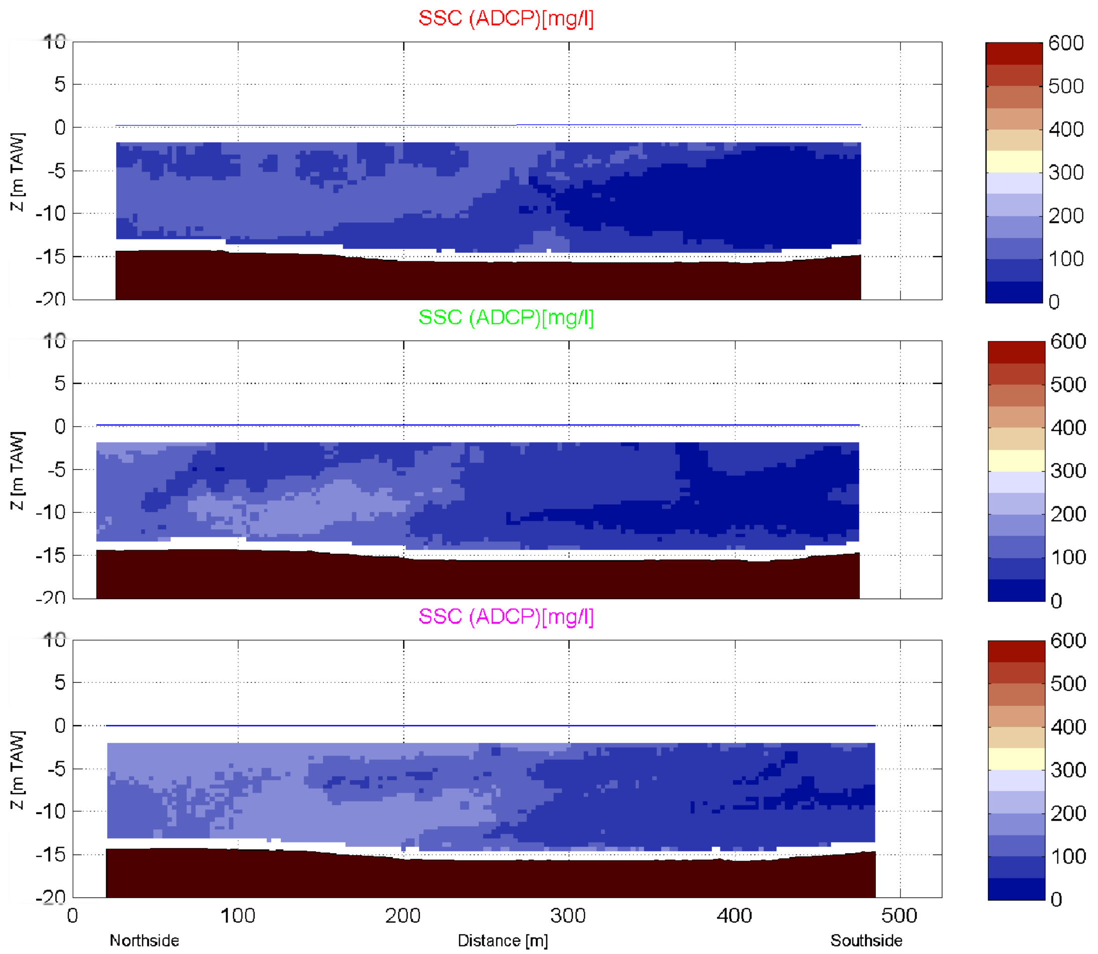
I/RA/11354/10.108/ANF/MBO

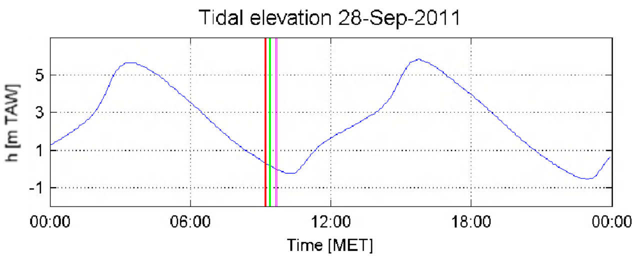
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2026dgdT_sub.csv, 2028dgdT_sub.csv, 2030dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
09:10 - 09:41

Time after HW:
5:51, 6:03, 6:20

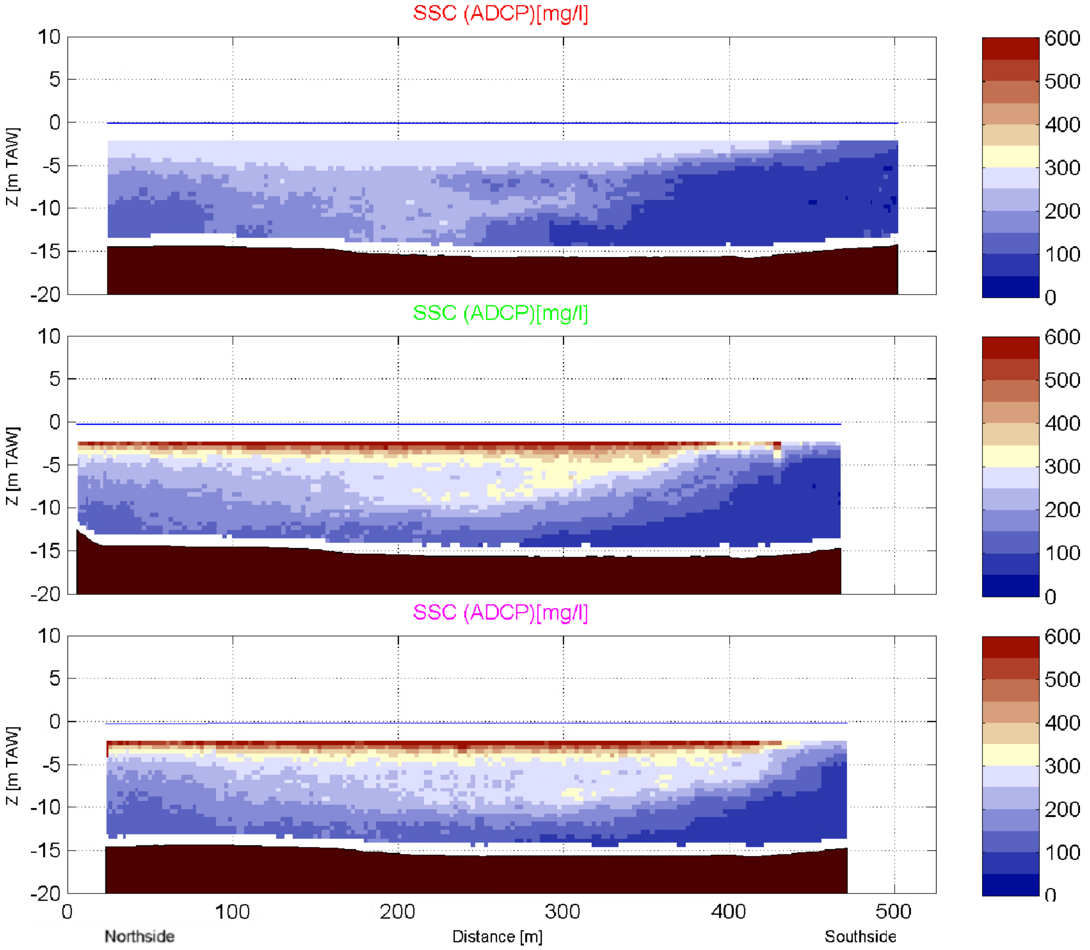
I/RA/11354/10.108/ANF/MBO

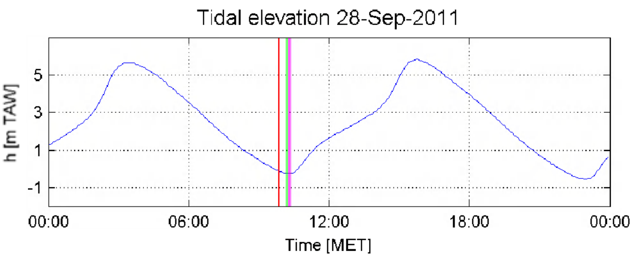
Data Processed by:

In association with :

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2032dgdT_sub.csv, 2034dgdT_sub.csv, 2036dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
09:49 - 10:19

Time after HW:
6:30, 6:50, -5:26

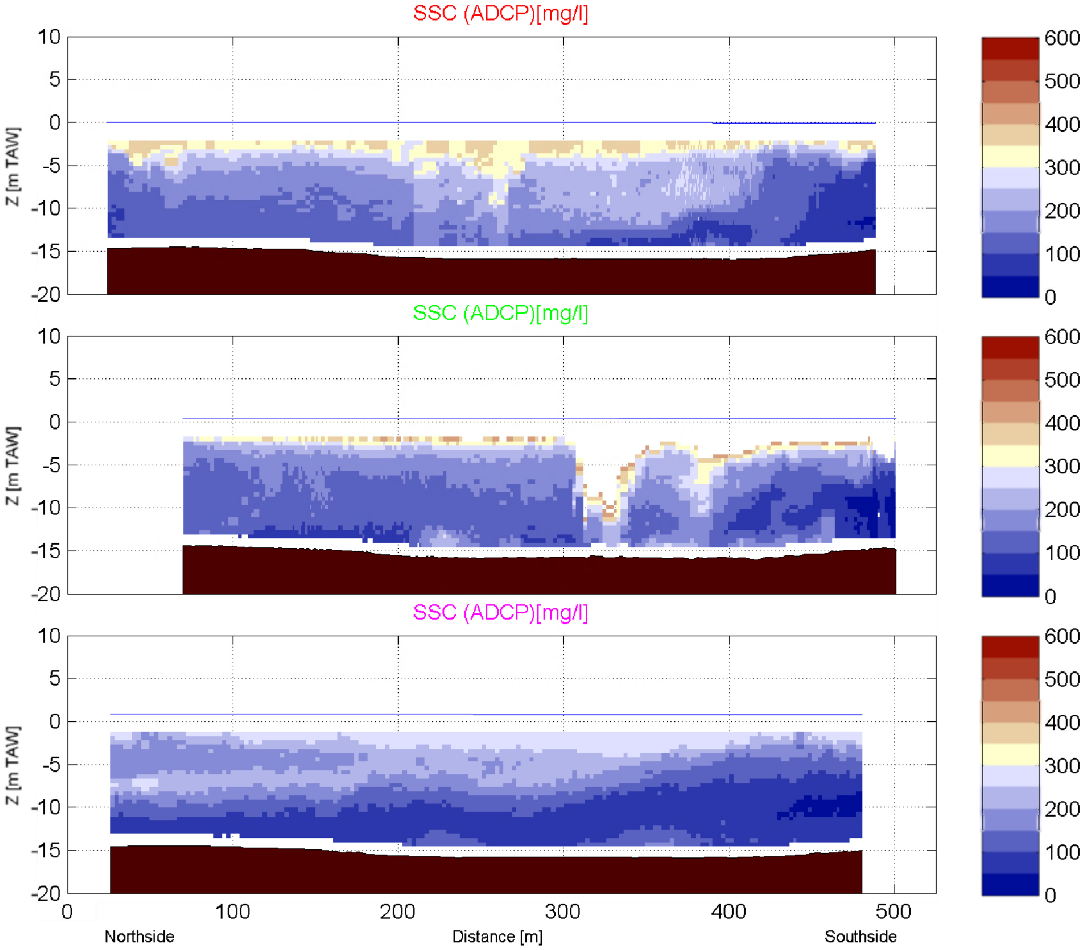
I/RA/11354/10.108/ANF/MBO

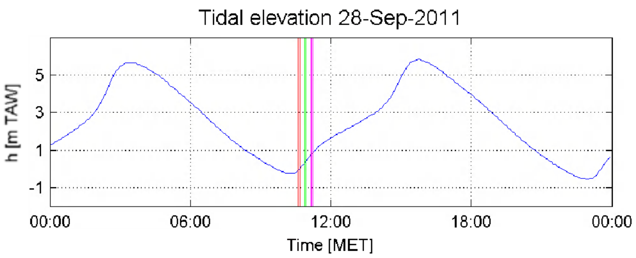
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2038dgdT_sub.csv, 2040dgdT_sub.csv, 2042dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
10:36 - 11:13

Time after HW:
-5:06, -4:51, -4:33

I/RA/11354/10.108/ANF/MBO

Data Processed by:

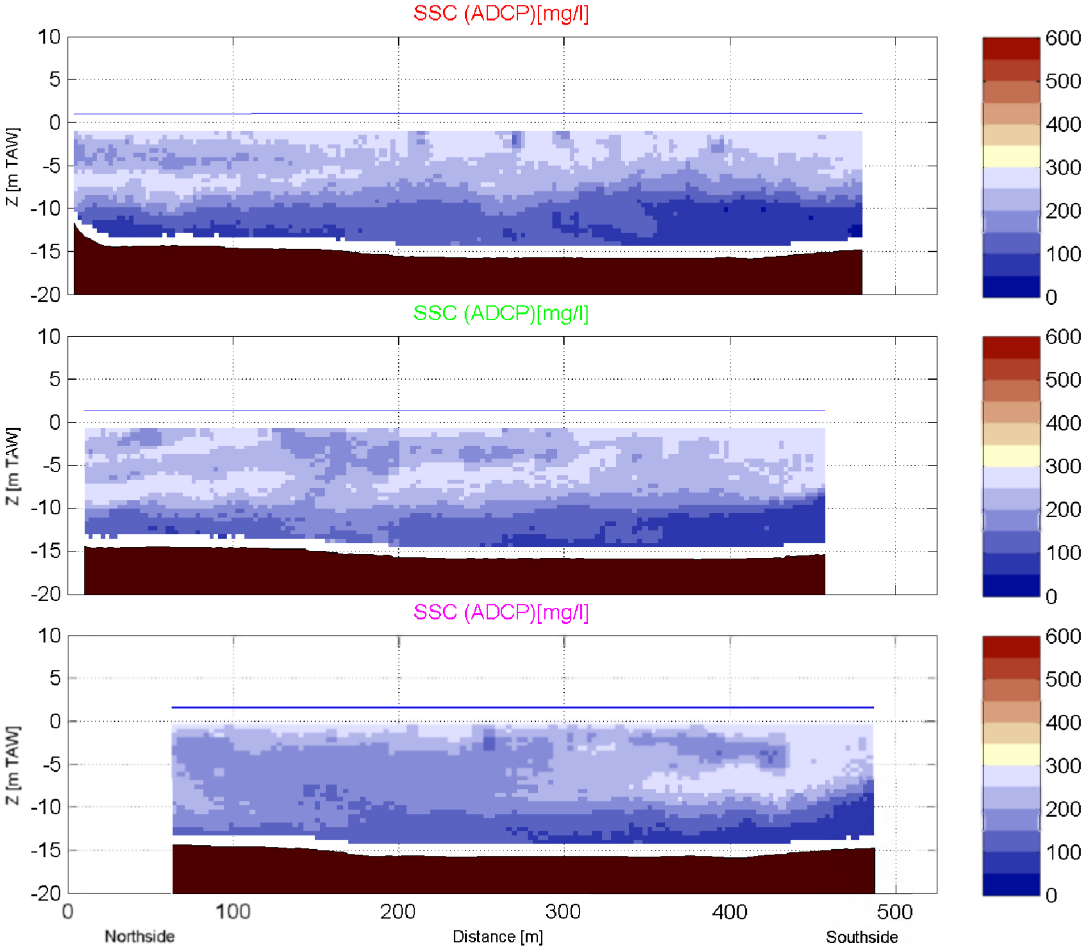
In association with :

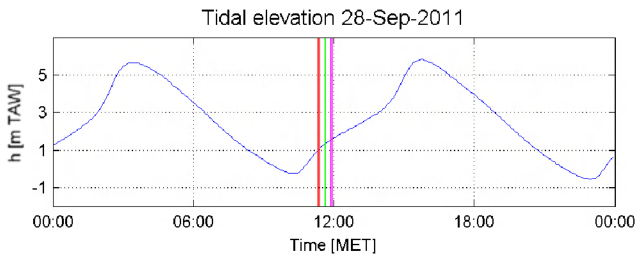
Evaluatie externe effecten aanslibbing Deurganckdok

Equipment:
ADCP

Sourcefile:
2044dgdT_sub.csv, 2046dgdT_sub.csv, 2048dgdT_sub.csv

Location:
Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
11:19 - 11:55

Time after HW:
-4:24, -4:07, -3:50

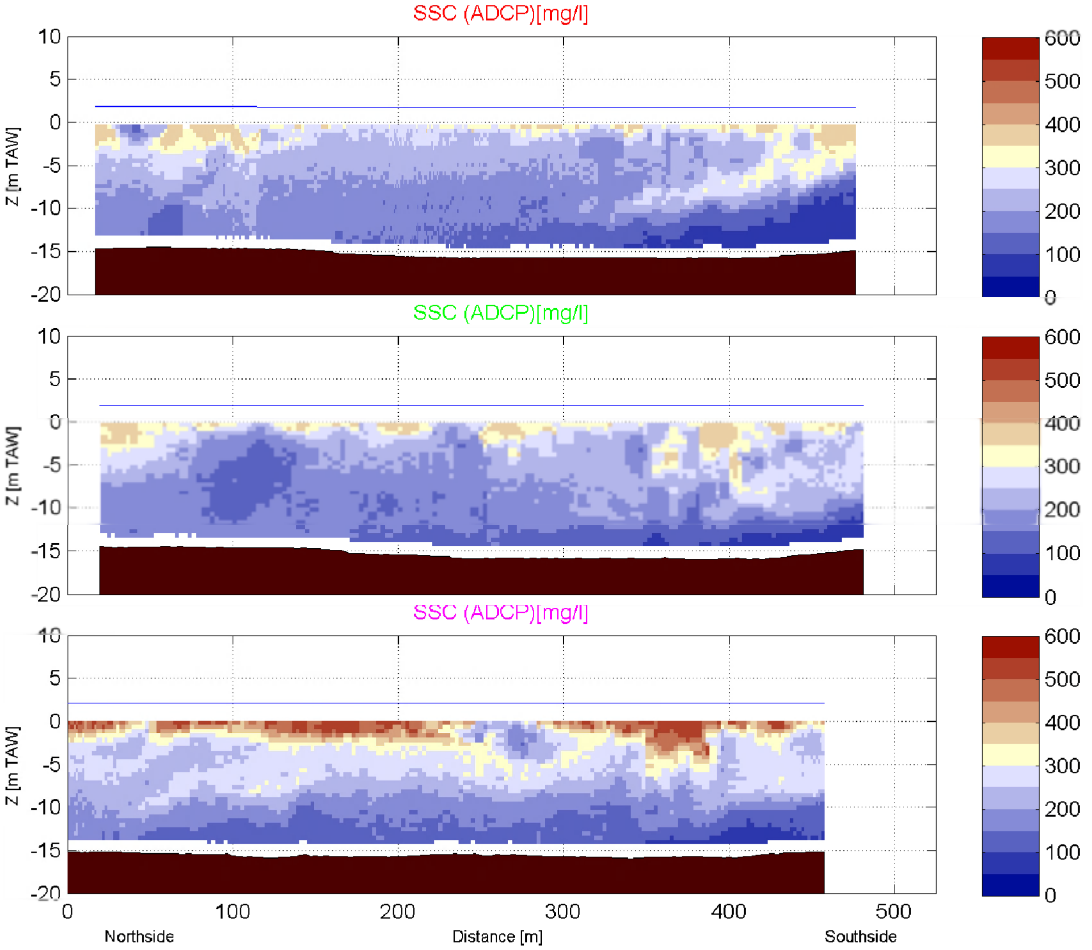
I/RA/11354/10.108/ANF/MBO

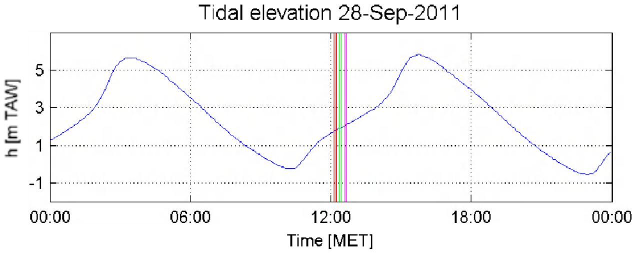
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2050dgdT_sub.csv, 2052dgdT_sub.csv, 2053dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
12:08 - 12:38

Time after HW:
-3:34, -3:21, -3:08

I/RA/11354/10.108/ANF/MBO

Data Processed by: IMDC

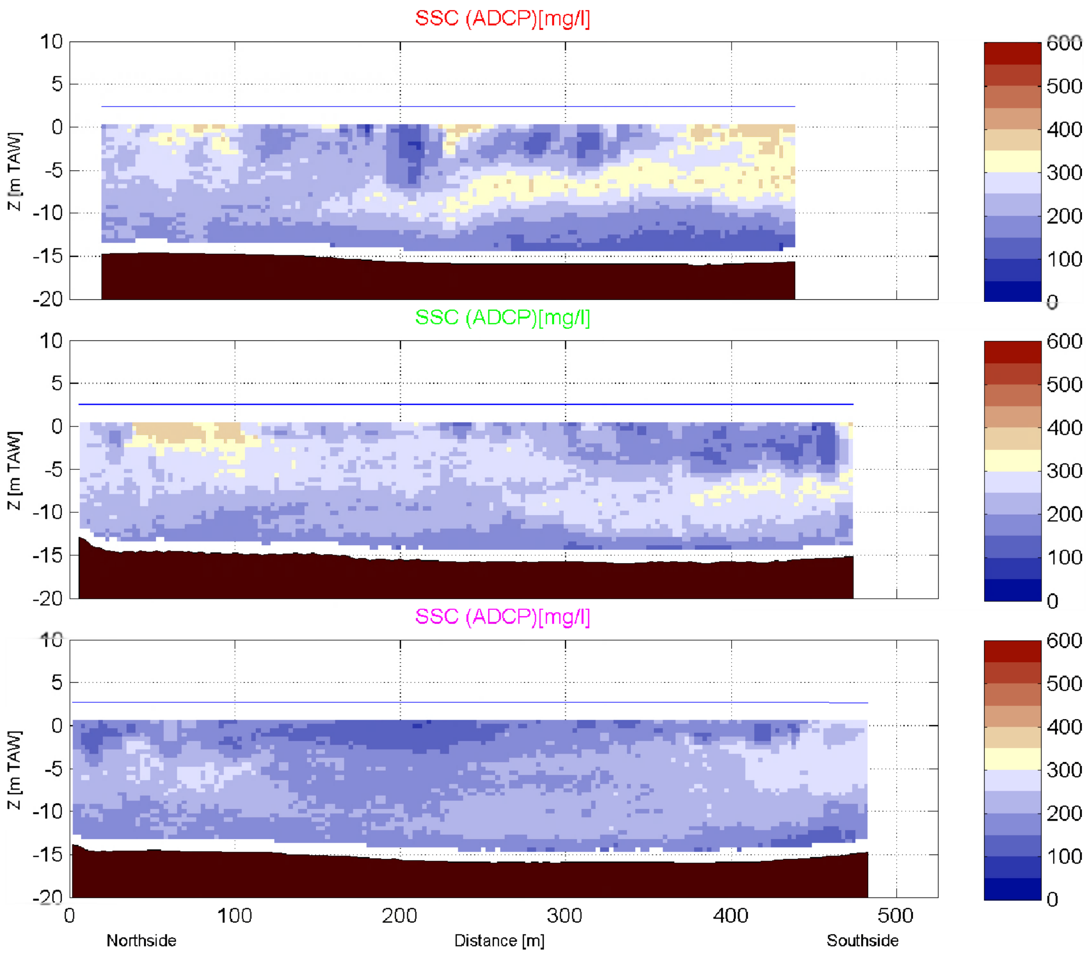
In association with : GEMS International, Deltares

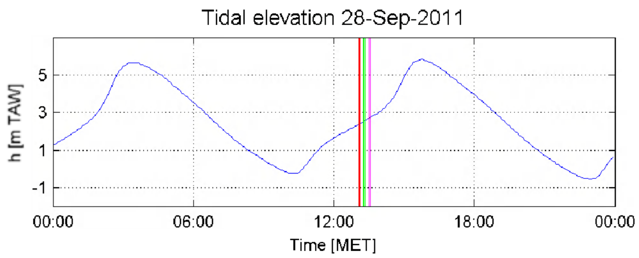
Evaluatie externe effecten aanslibbing Deurganckdok

Equipment:
ADCP

Sourcefile:
2056dgdT_sub.csv, 2058dgdT_sub.csv, 2060dgdT_sub.csv

Location:
Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
13:03 - 13:32

Time after HW:
-2:39, -2:27, -2:14

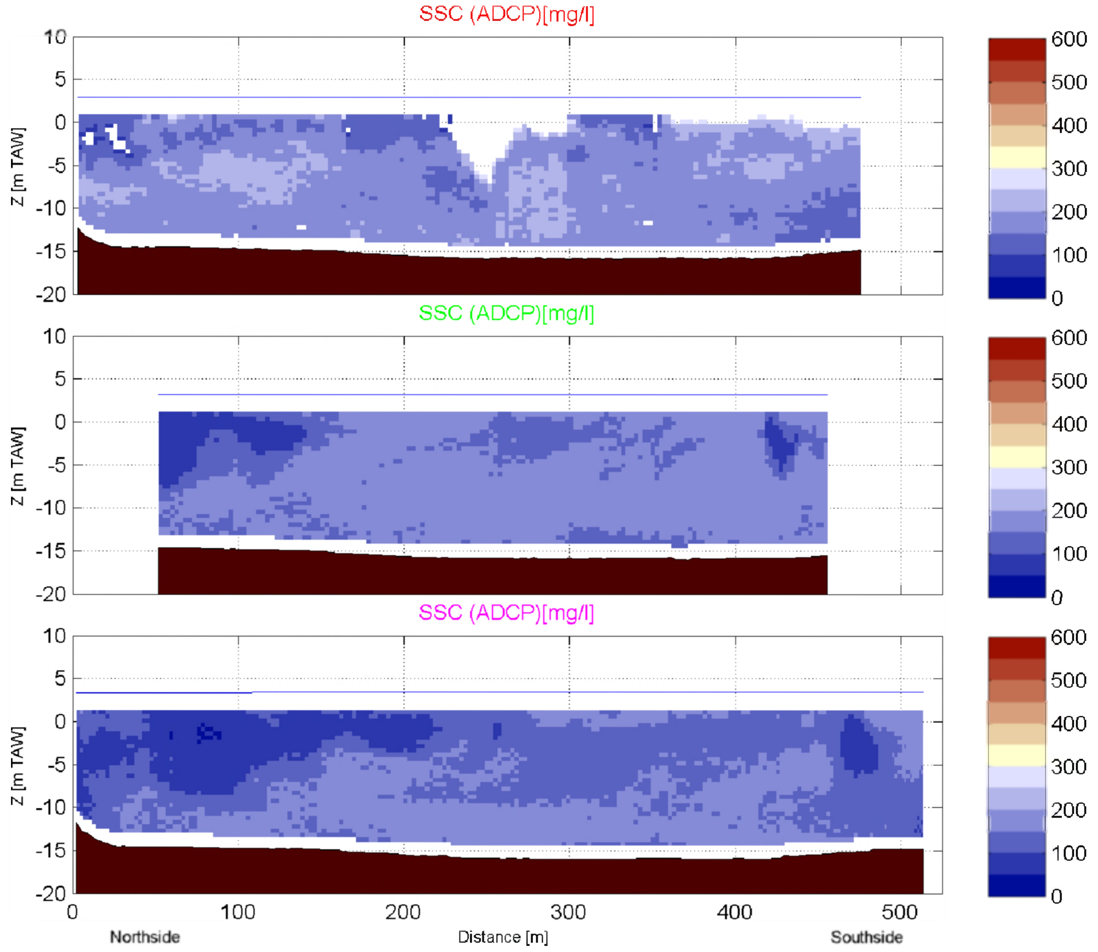
I/RA/11354/10.108/ANF/MBO

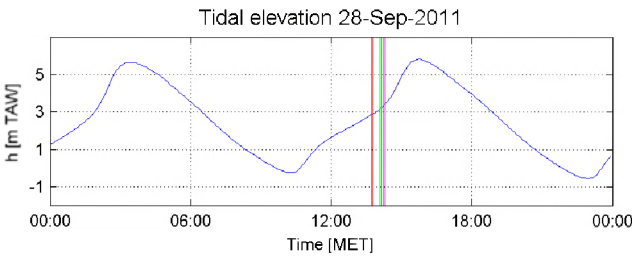
Data Processed by:

In association with :

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2062dgdT_sub.csv, 2064dgdT_sub.csv, 2066dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
13:43 - 14:17

Time after HW:
-1:59, -1:38, -1:29

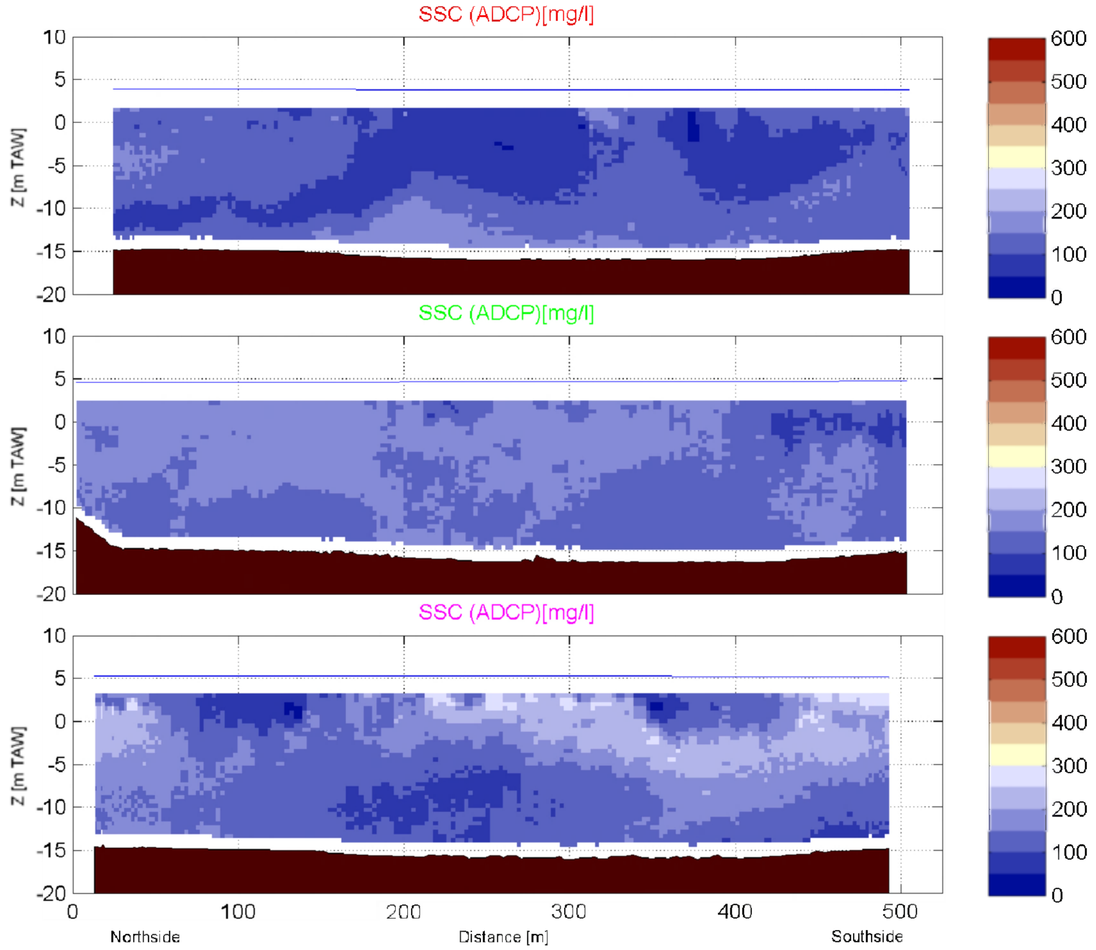
I/RA/11354/10.108/ANF/MBO

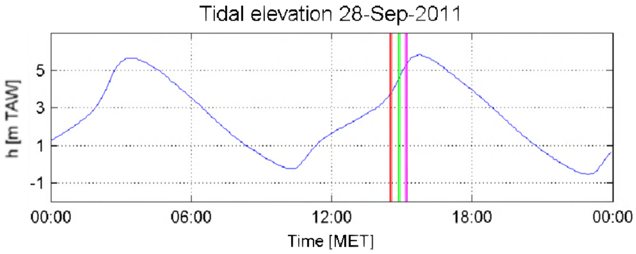
Data Processed by: IMDC

In association with: GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2068dgdT_sub.csv, 2070dgdT_sub.csv, 2072dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
14:30 - 15:11

Time after HW:
-1:12, -0:51, -0:35

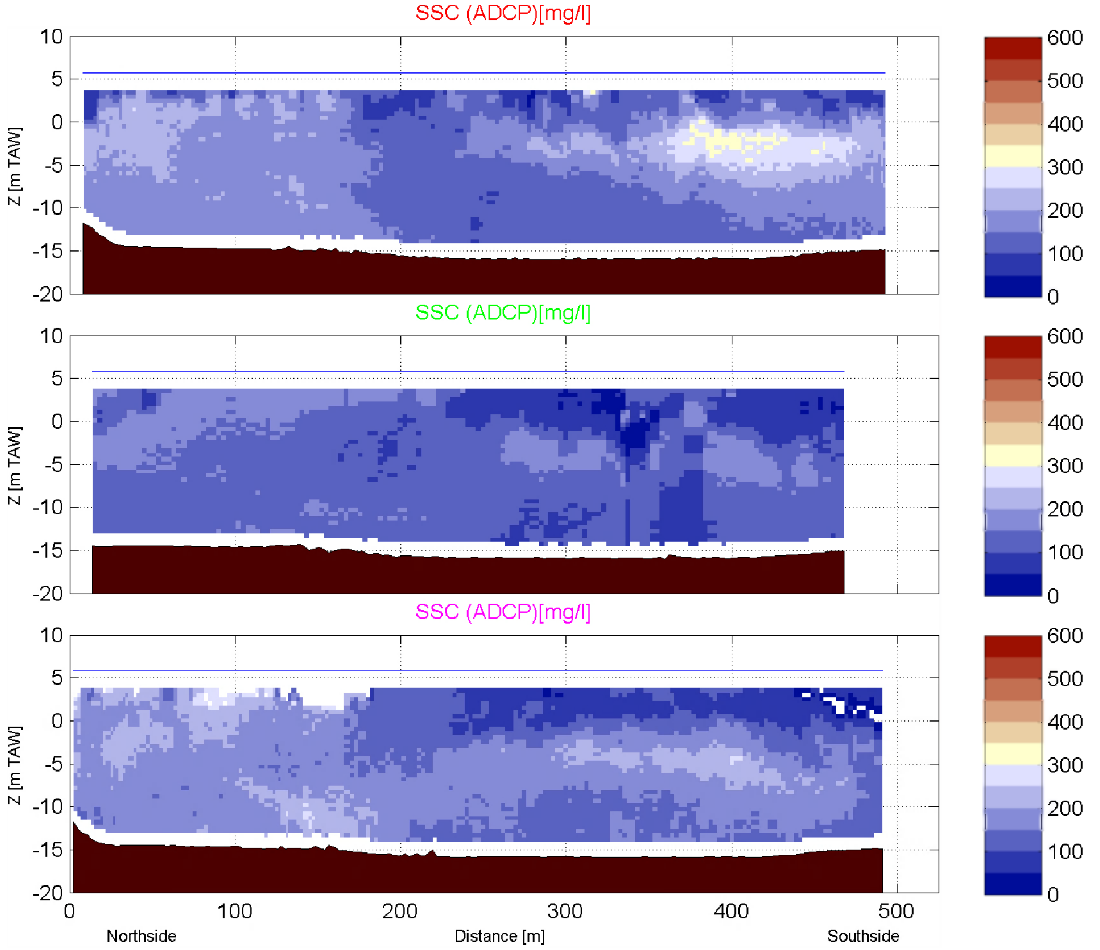
I/RA/11354/10.108/ANF/MBO

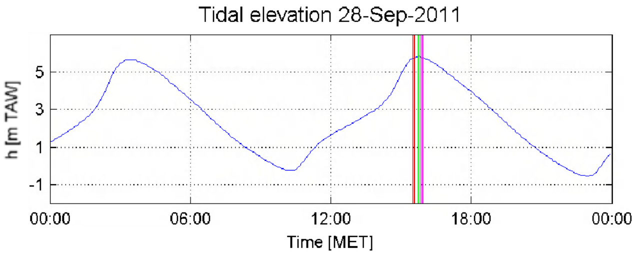
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2074dgdT_sub.csv, 2076dgdT_sub.csv, 2078dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
15:29 - 15:55

Time after HW:
-0:13, 0:00, 0:08

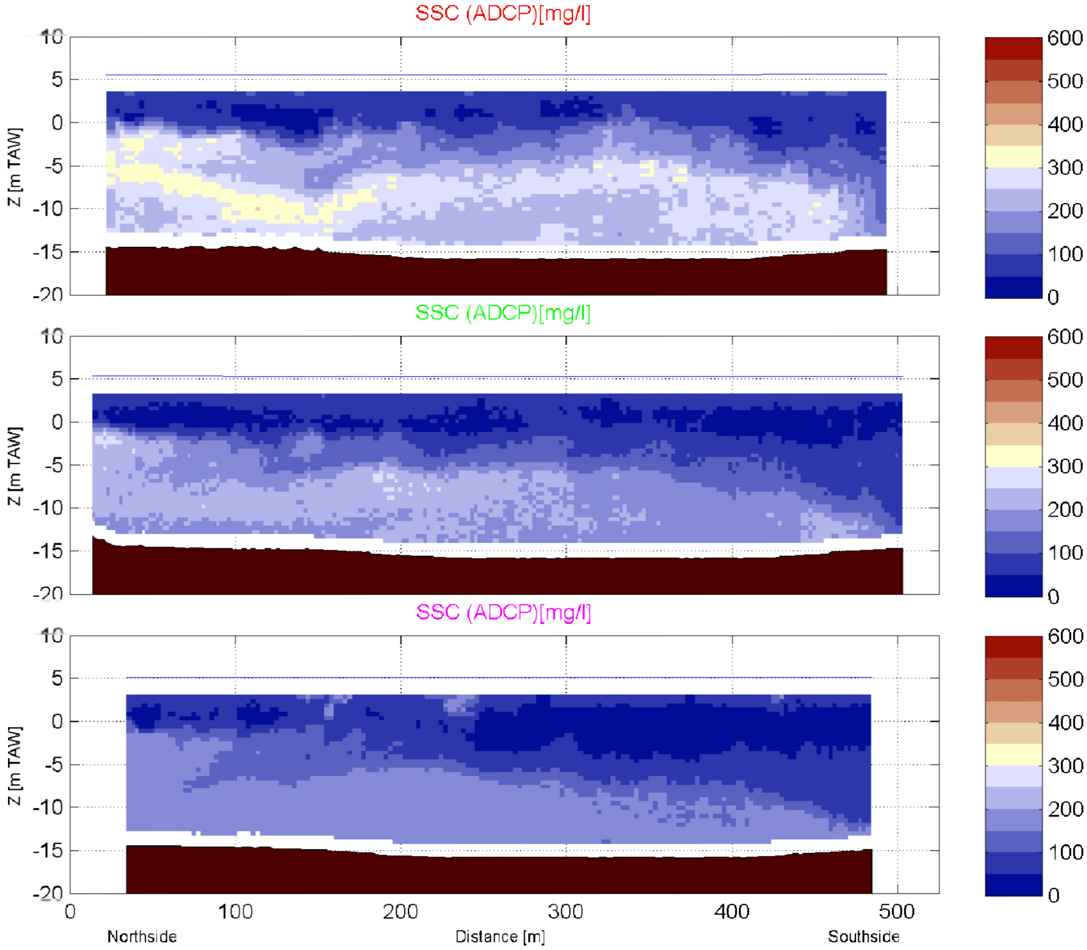
I/RA/11354/10.108/ANF/MBO

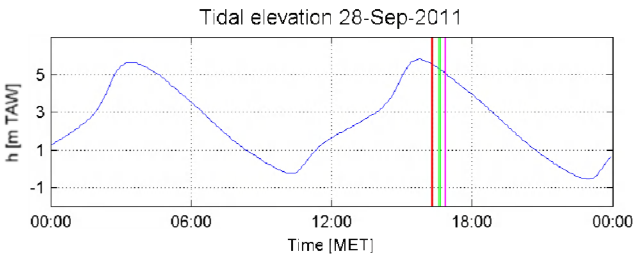
Data Processed by:

In association with :

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2080dgdT_sub.csv, 2082dgdT_sub.csv, 2084dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
16:16 - 16:52

Time after HW:
0:32, 0:50, 1:05

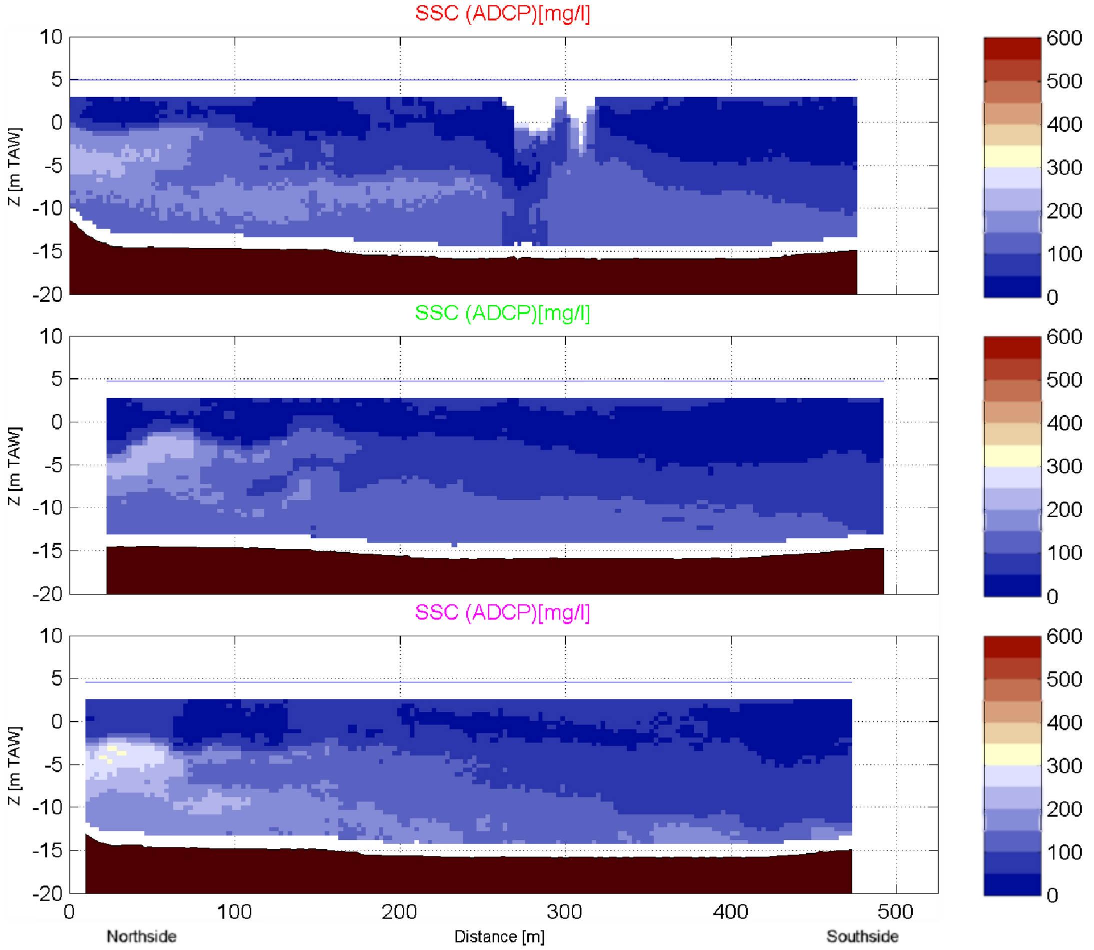
I/RA/11354/10.108/ANF/MBO

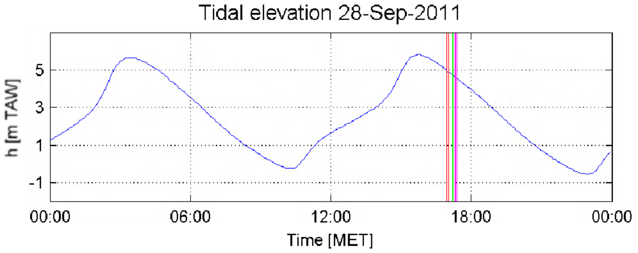
Data Processed by:

In association with :

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2086dgdT_sub.csv, 2088dgdT_sub.csv, 2090dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
16:58 - 17:21

Time after HW:
1:14, 1:27, 1:35

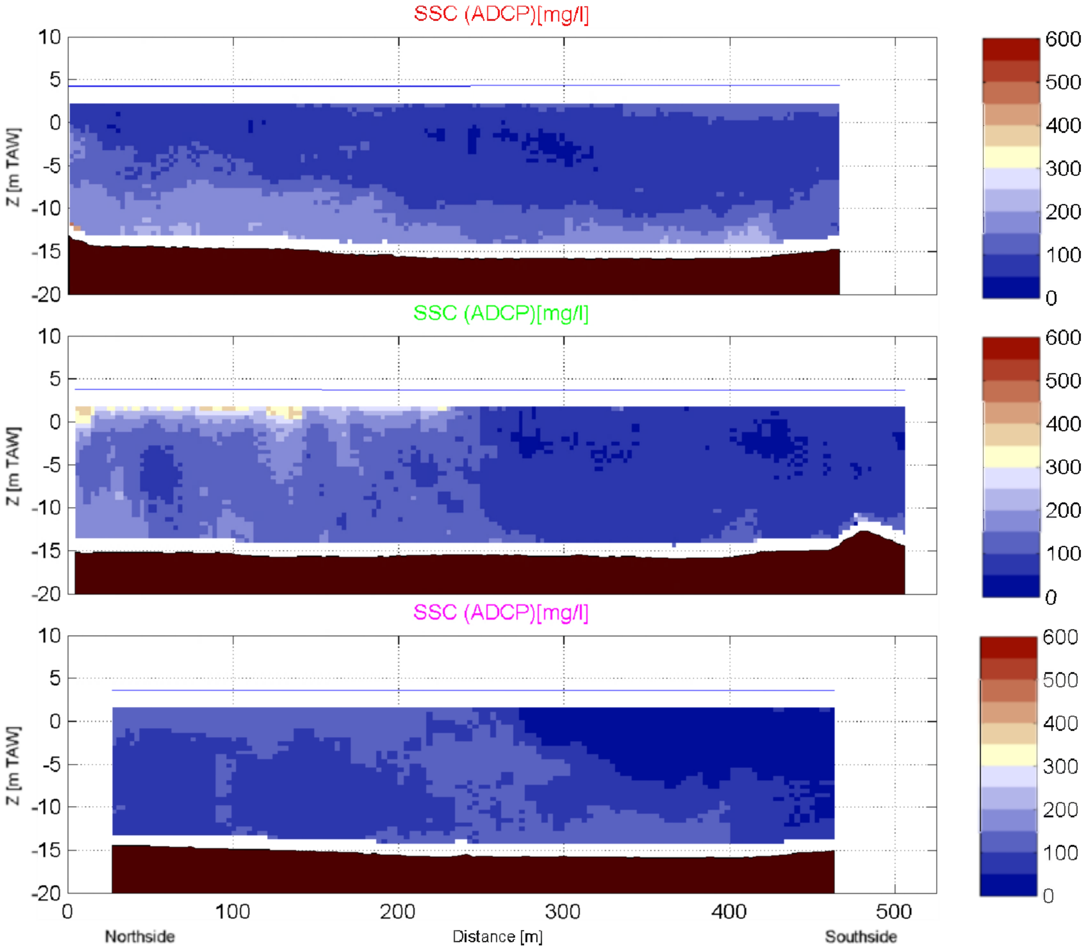
I/RA/11354/10.108/ANF/MBO

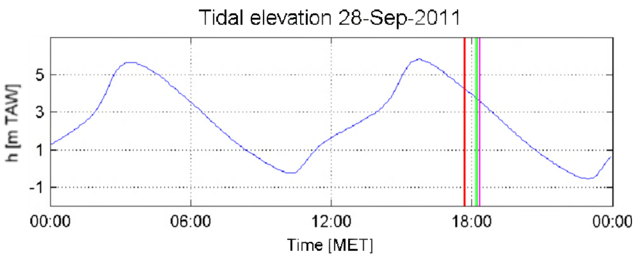
Data Processed by: IMDC

In association with : GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok

	Equipment: ADCP
Sourcefile: 2092dgdT_sub.csv, 2094dgdT_sub.csv, 2096dgdT_sub.csv	Location: Deurganckdok





HW/LW 03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
17:39 - 18:20

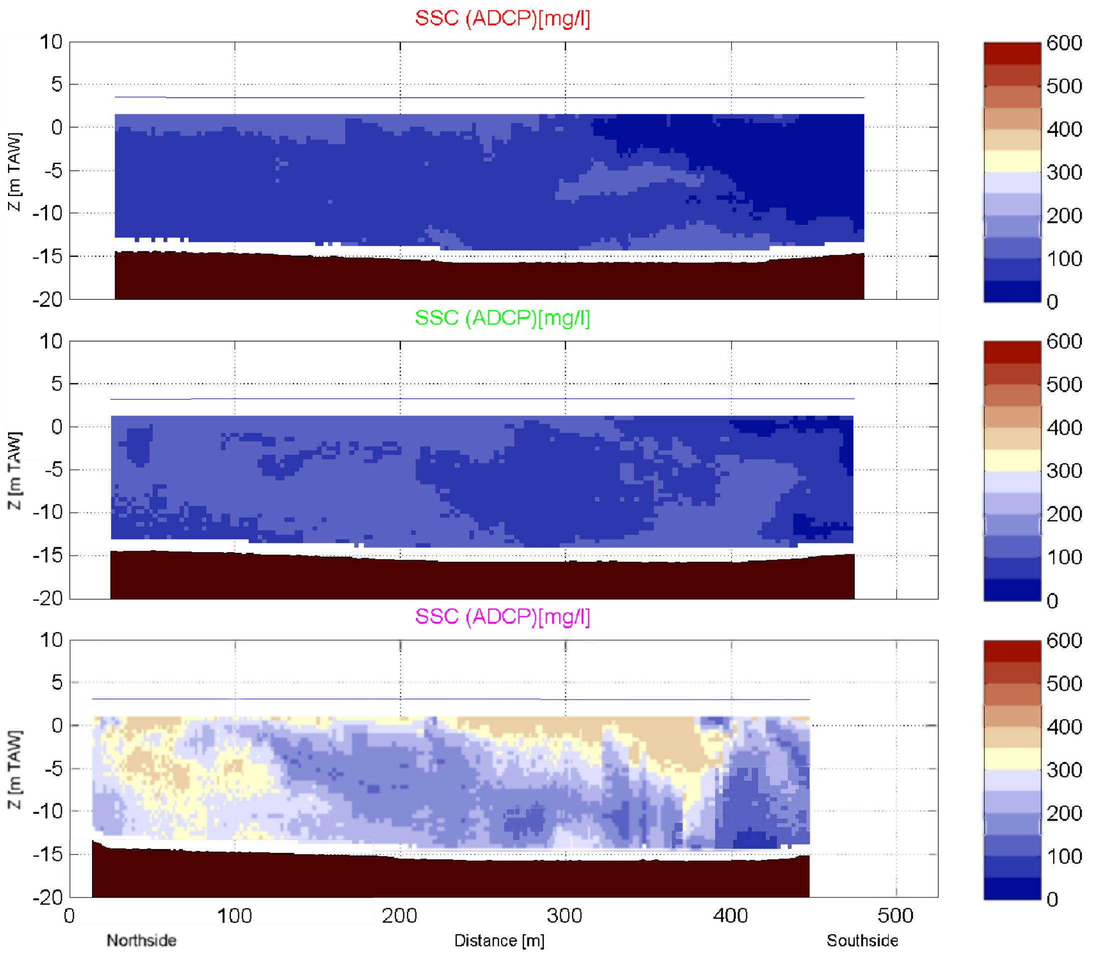
Time after HW:
1:56, 2:26, 2:34

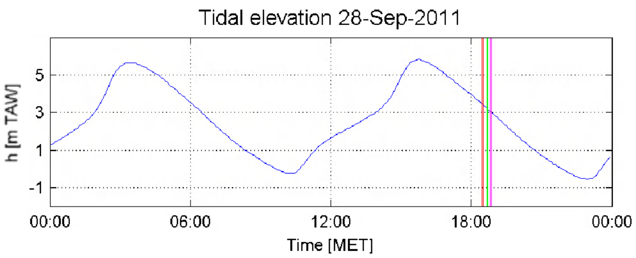
I/RA/11354/10.108/ANF/MBO

Data Processed by: IMDC

In association with: GEMS International, Deltares

Evaluatie externe effecten aanslibbing Deurganckdok	
	Equipment: ADCP
Sourcefile: 2098dgdT_sub.csv, 2100dgdT_sub.csv, 2102dgdT_sub.csv	Location: Deurganckdok





HW/LW
03:20: h = 5.66m
15:45: h = 5.83m
10:15: h = -0.25m

Date/time:
28-Sep-2011
18:26 - 18:51

Time after HW:
2:43, 2:56, 3:04

I/RA/11354/10.108/ANF/MBO

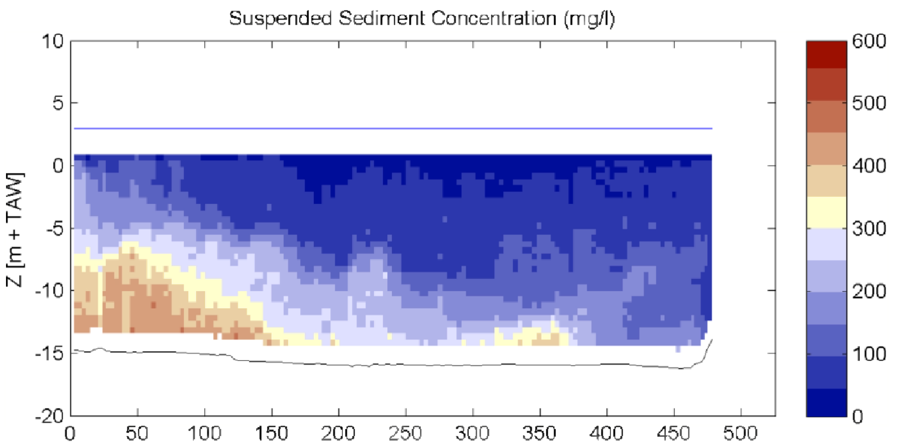
Data Processed by: IMDC

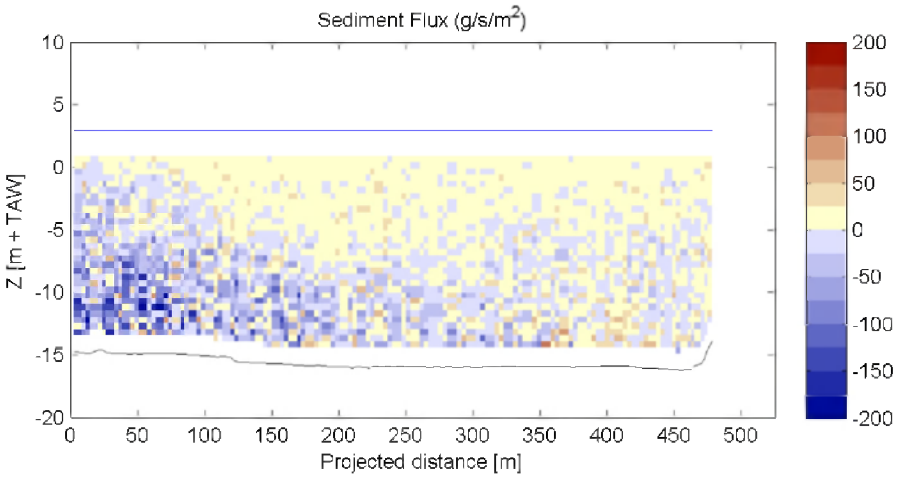
In association with : GEMS International, Deltares

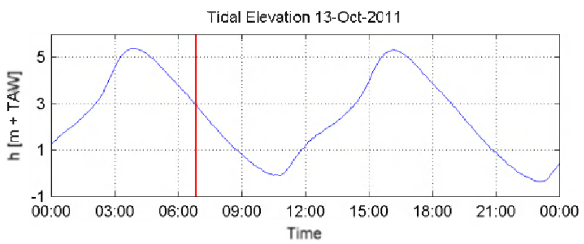
F.2 Sediment concentrations, sediment fluxes and contourplots of flow velocities for 13/10/2012

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6002DGDtrl_sub.csv	Location: Deurganckdok







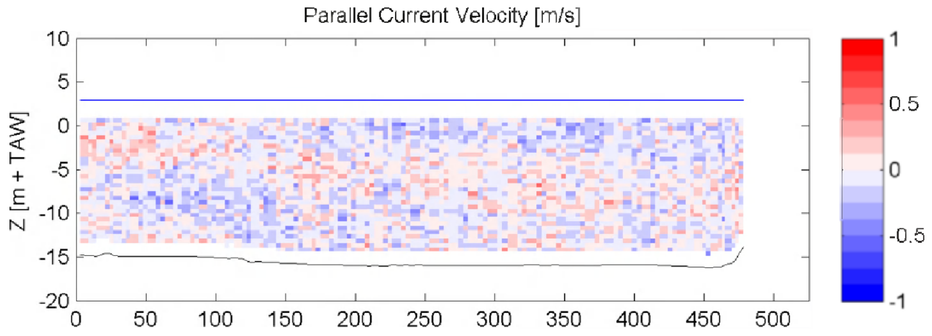
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

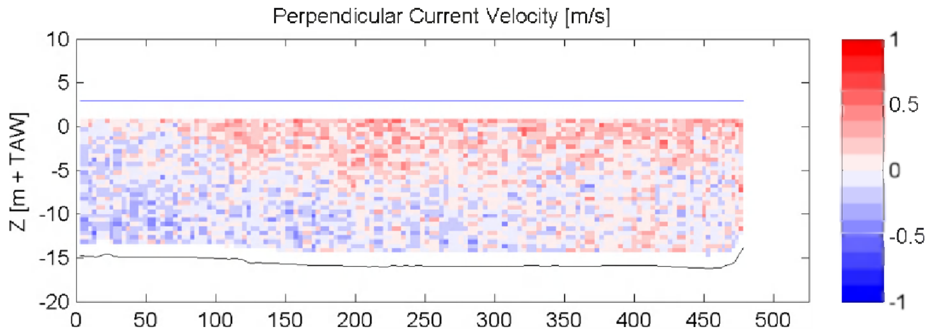
Date / Time [MET]:
13-Oct-2011
06:48 - 06:51

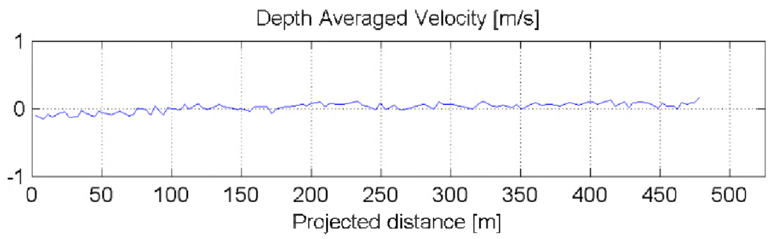
Time after HW [HH:MM]
2:59

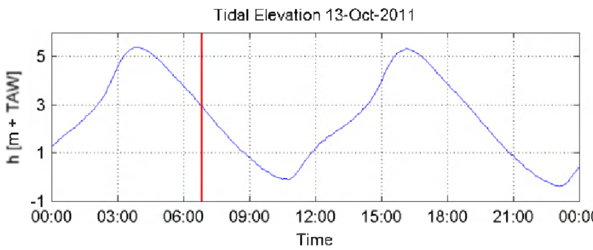
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6002DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

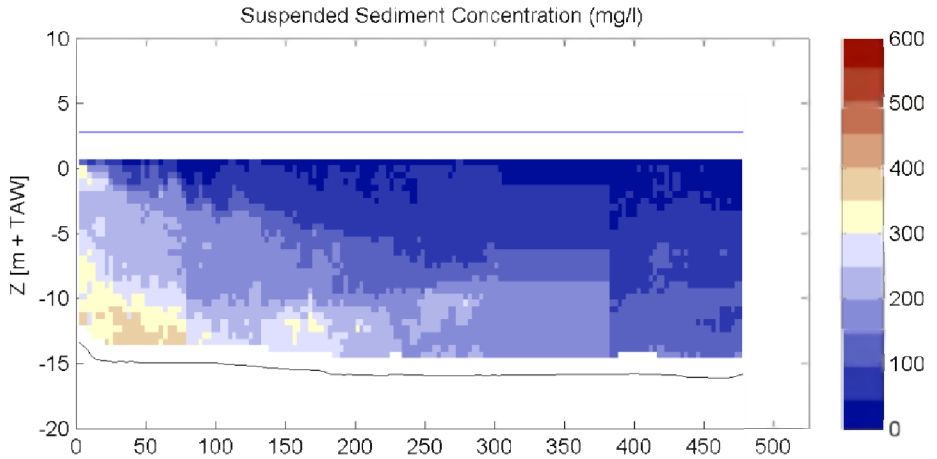
Date / Time [MET] :
13-Oct-2011
06:48 - 06:51

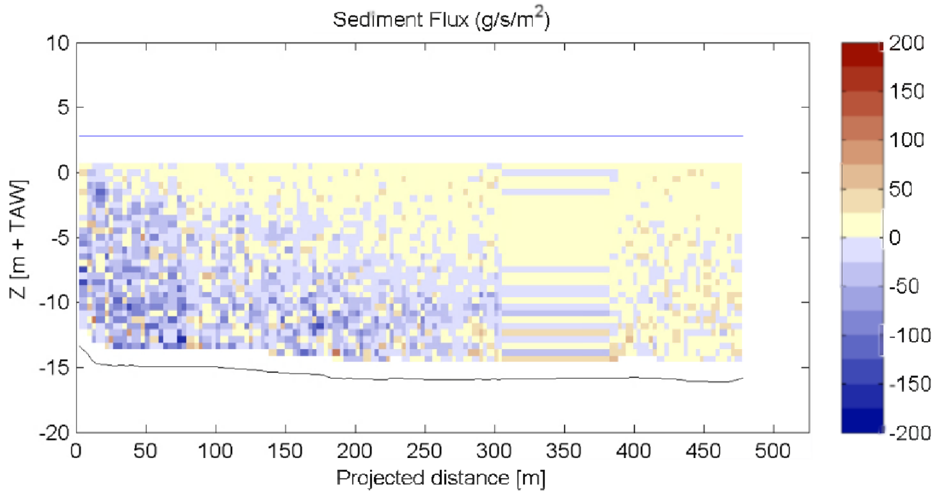
Time after HW [HH:MM]
2:59

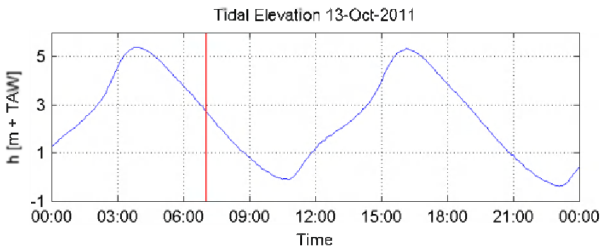
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6004DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

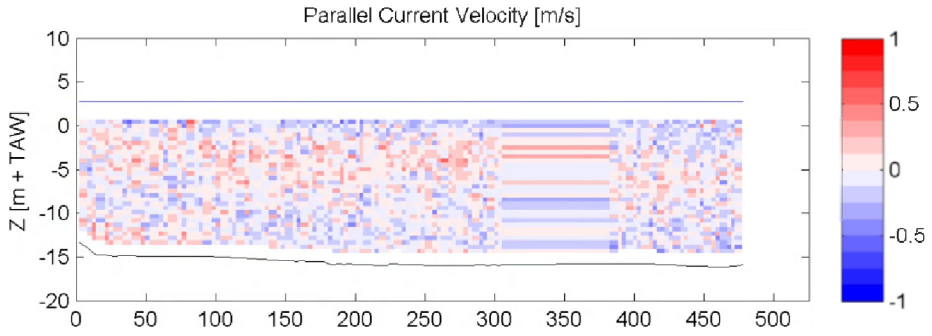
Date / Time [MET] :
13-Oct-2011
07:01 - 07:03

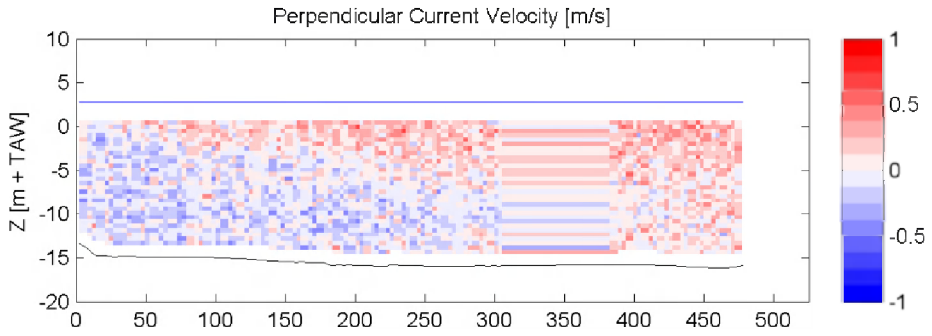
Time after HW [HH:MM]
3:12

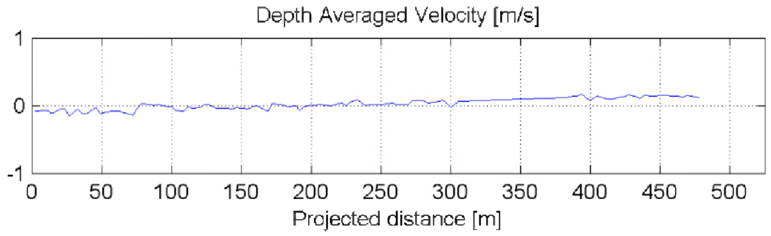
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

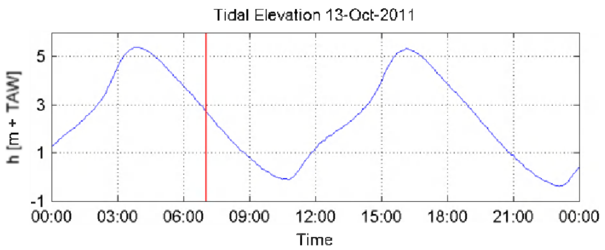
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6004DGDtlr_sub.csv	Location: Deurganckdok









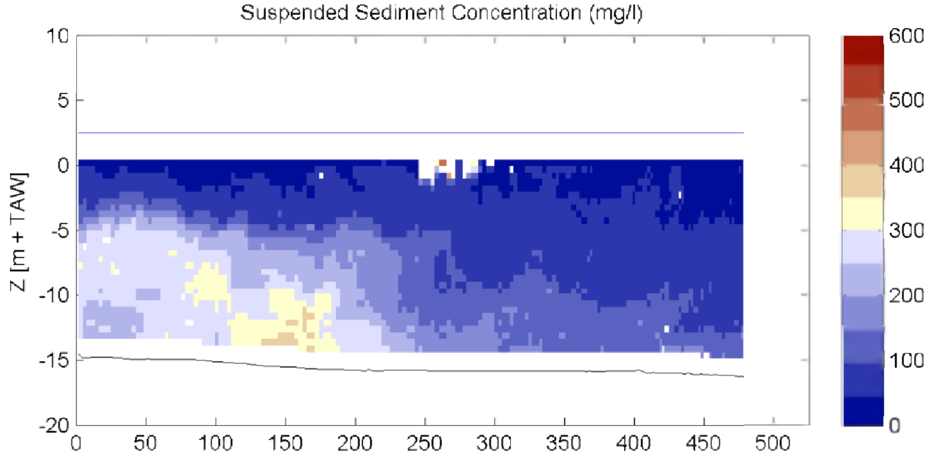
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

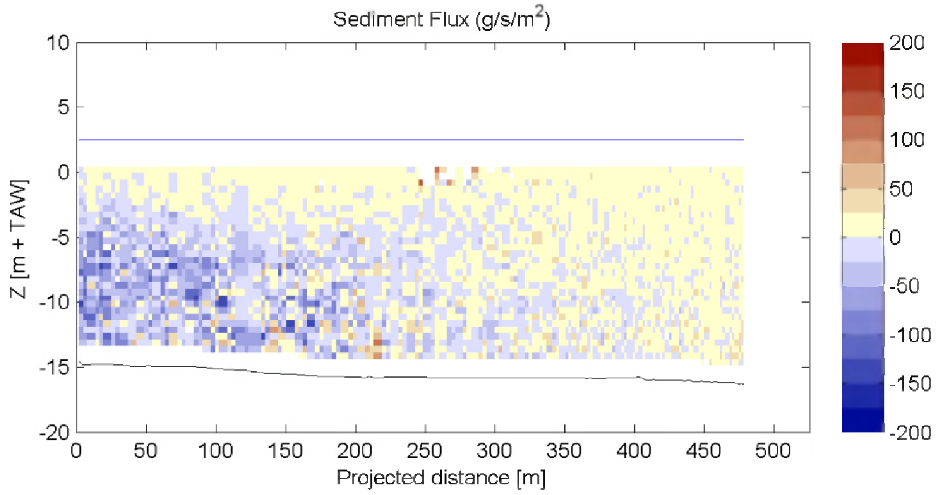
Date / Time [MET] :
13-Oct-2011
07:01 - 07:03

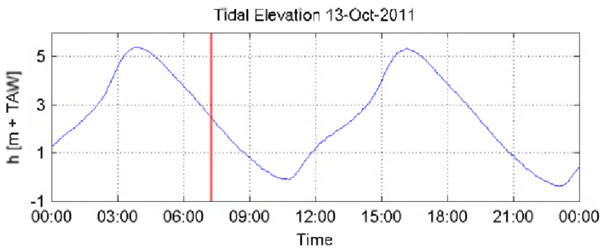
Time after HW [HH:MM]
3:12

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6006DGDtrl_sub.csv	Location: Deurganckdok







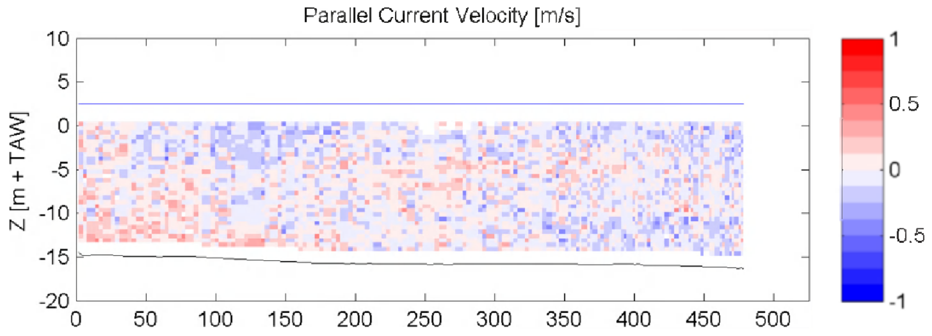
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

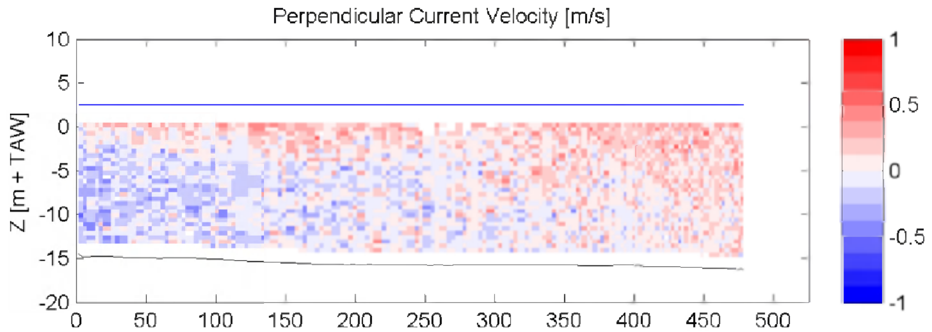
Date / Time [MET] :
13-Oct-2011
07:13 - 07:16

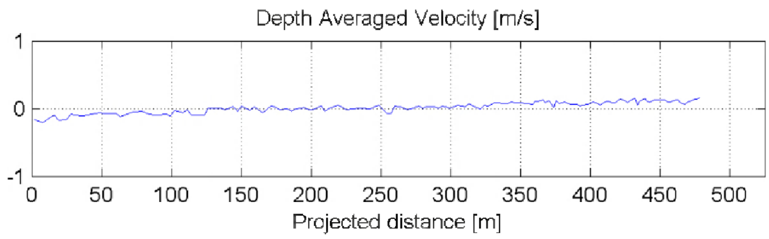
Time after HW [HH:MM]
3:25

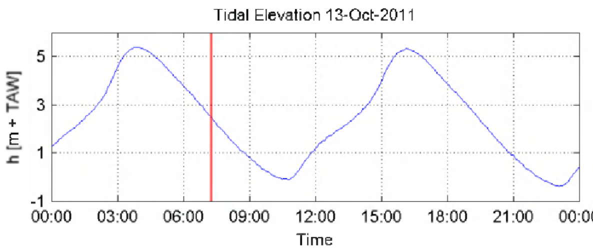
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6006DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

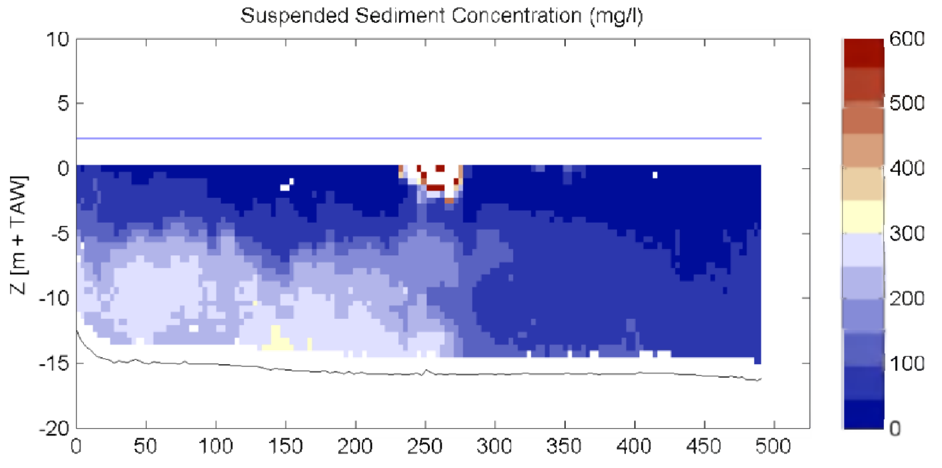
Date / Time [MET] :
13-Oct-2011
07:13 - 07:16

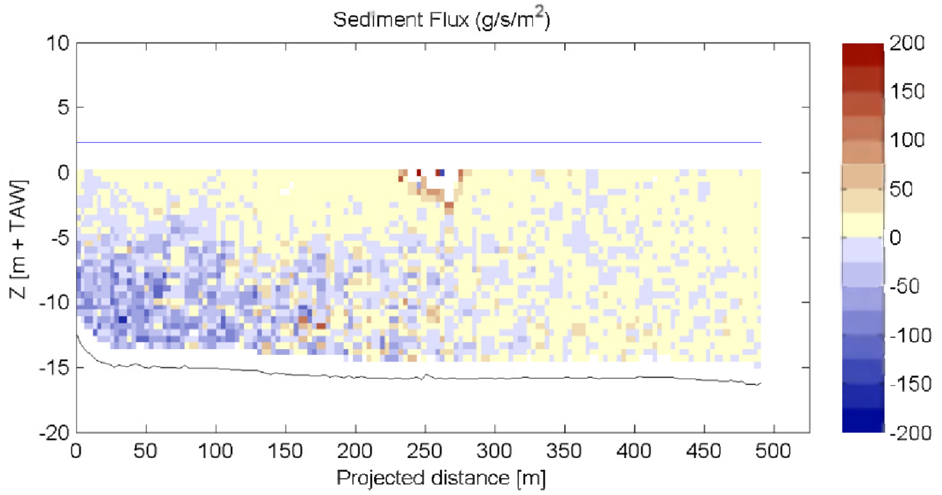
Time after HW [HH:MM]
3:25

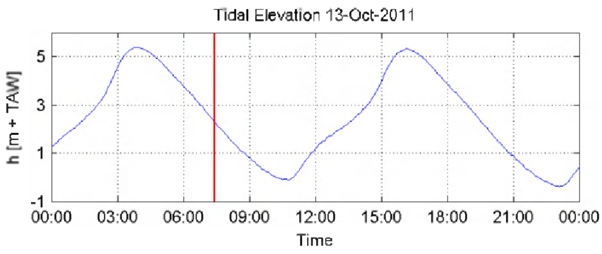
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6008DGDtlr_sub.csv	Location: Deurganckdok







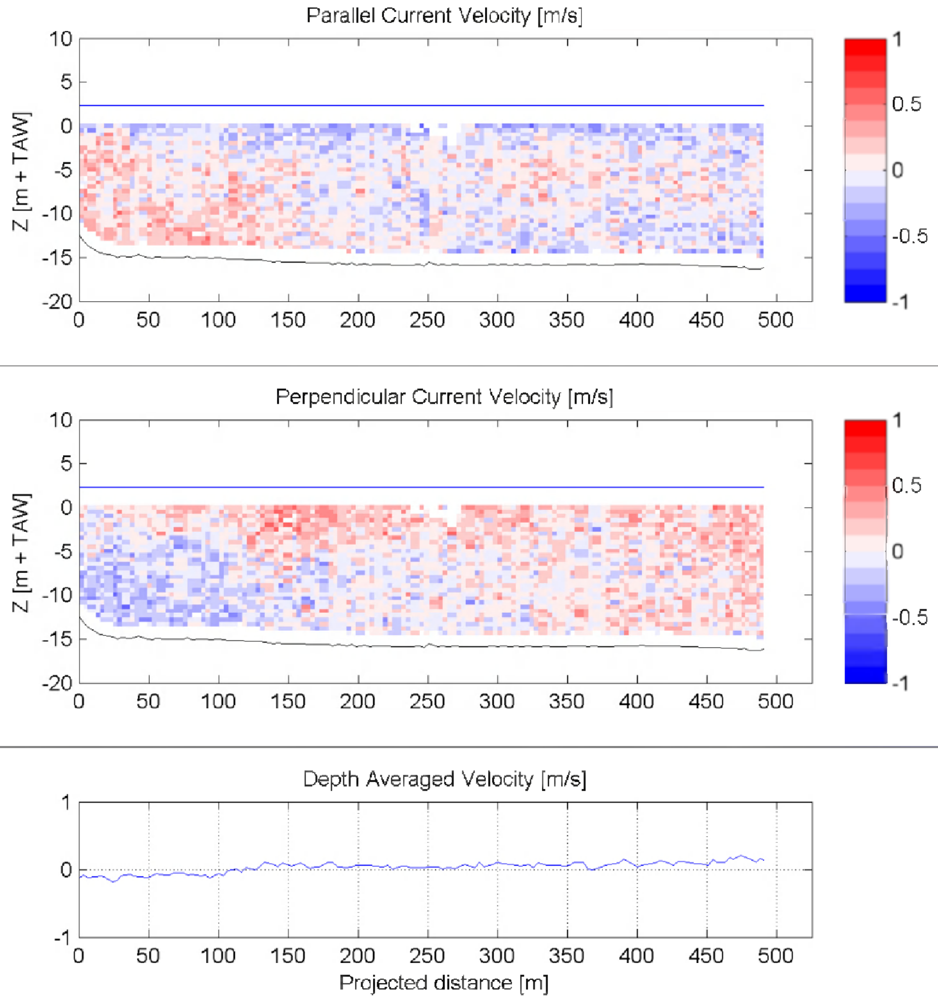
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

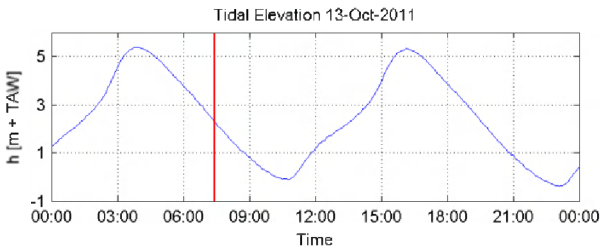
Date / Time [MET]:
13-Oct-2011
07:23 - 07:26

Time after HW [HH:MM]
3:35

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6008DGDtlr_sub.csv	Location: Deurganckdok





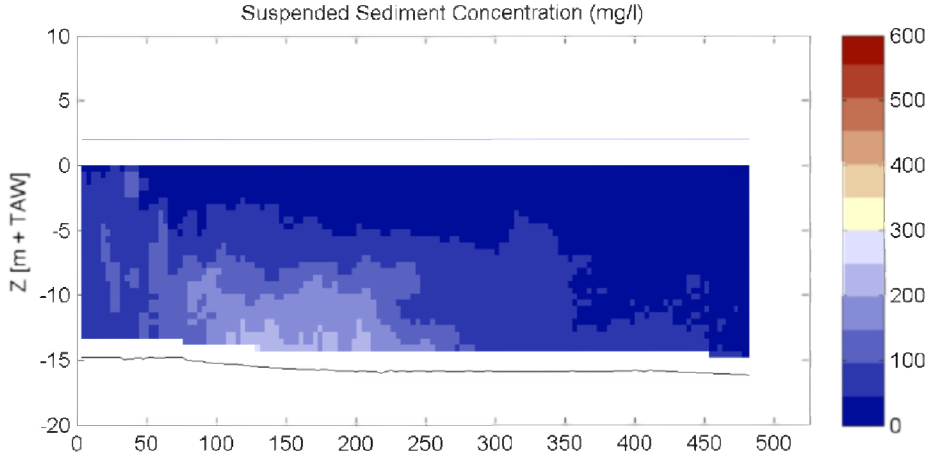
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

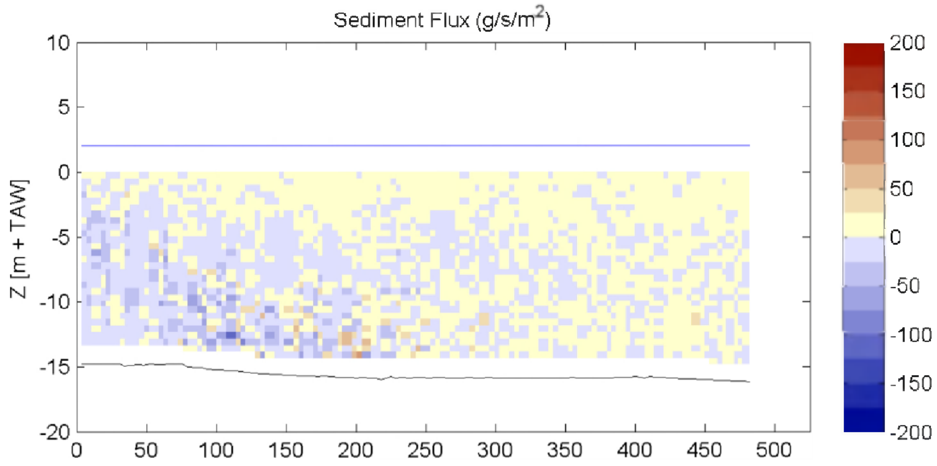
Date / Time [MET] :
13-Oct-2011
07:23 - 07:26

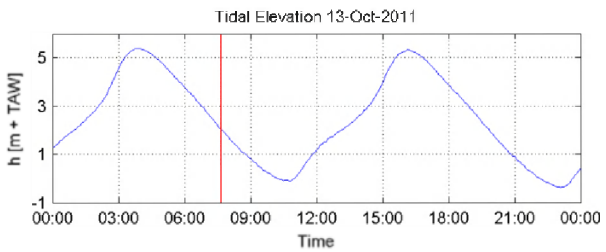
Time after HW [HH:MM]
3:35

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6010DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

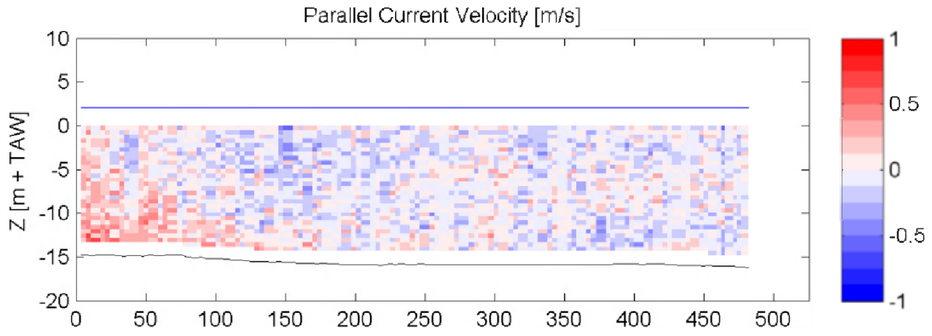
Date / Time [MET] :
13-Oct-2011
07:37 - 07:40

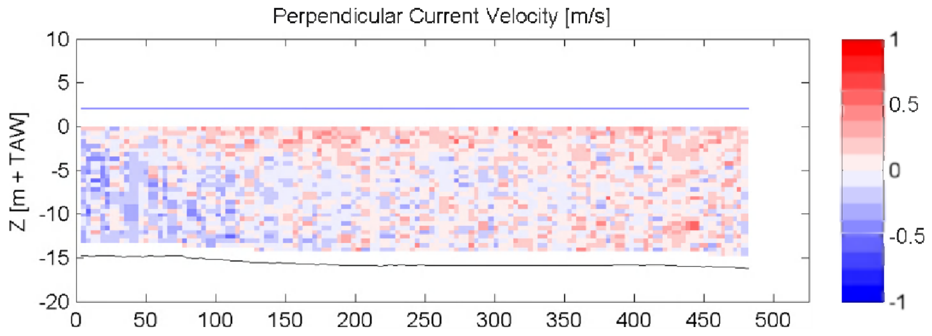
Time after HW [HH:MM]
3:49

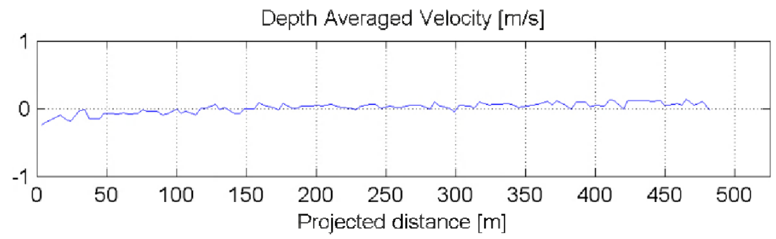
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

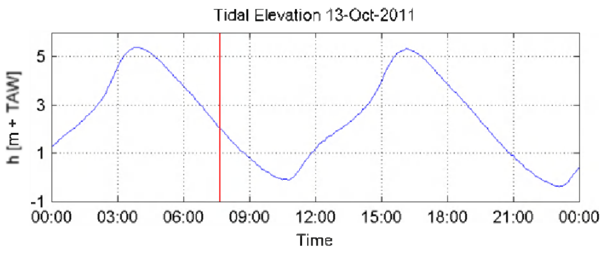
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6010DGDtrl_sub.csv	Location: Deurganckdok









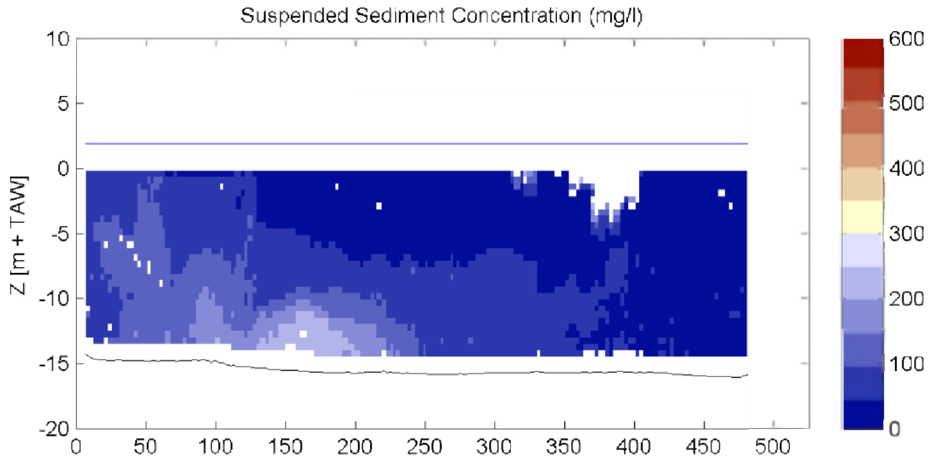
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

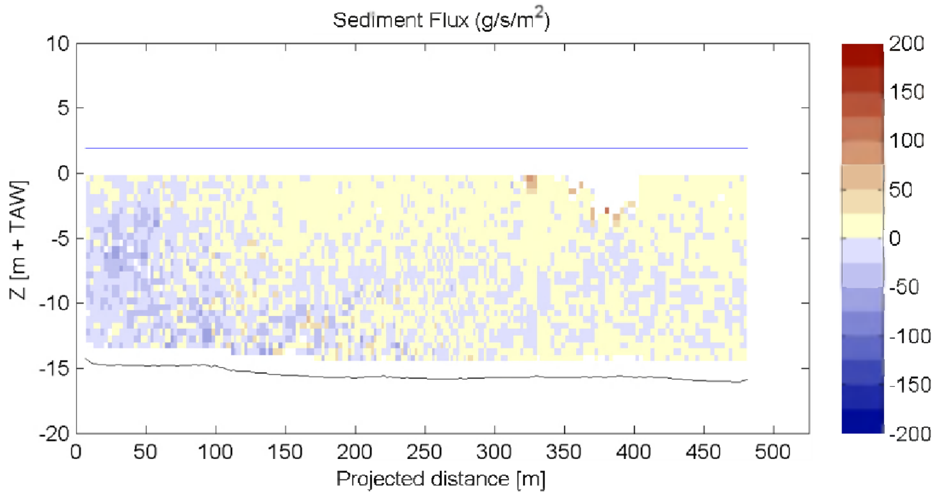
Date / Time [MET] :
13-Oct-2011
07:37 - 07:40

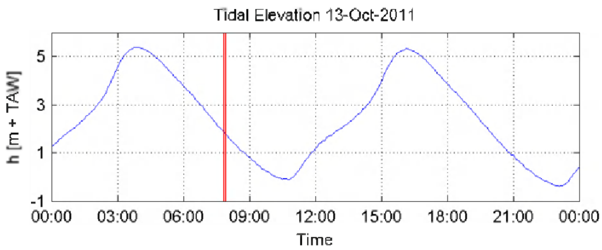
Time after HW [HH:MM]
3:49

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6012DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :
13-Oct-2011
07:51 - 07:54

Time after HW [HH:MM]
4:02

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

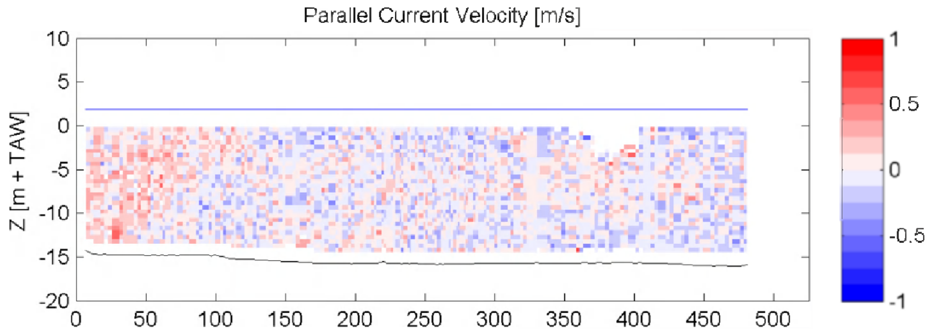
Evaluatie aanslibbing Deurganckdok

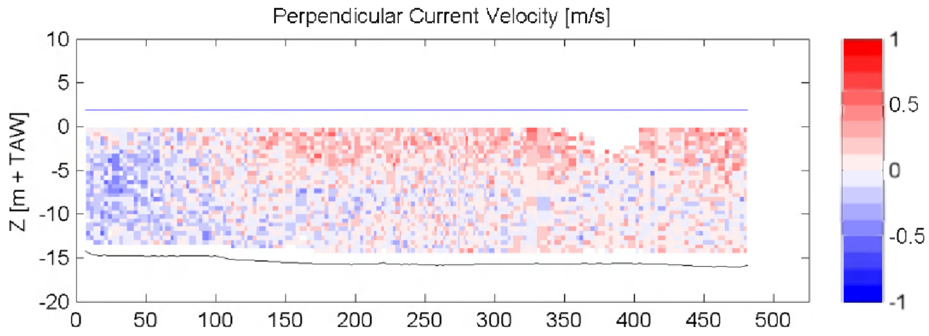
11354

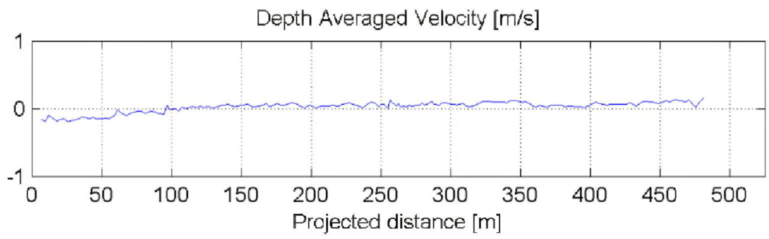
Equipment(s):
ADCP

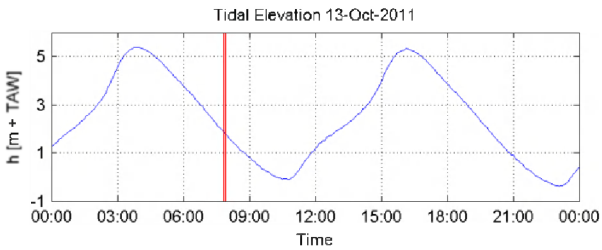
Sourcefile:
6012DGDtlr_sub.csv

Location:
Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

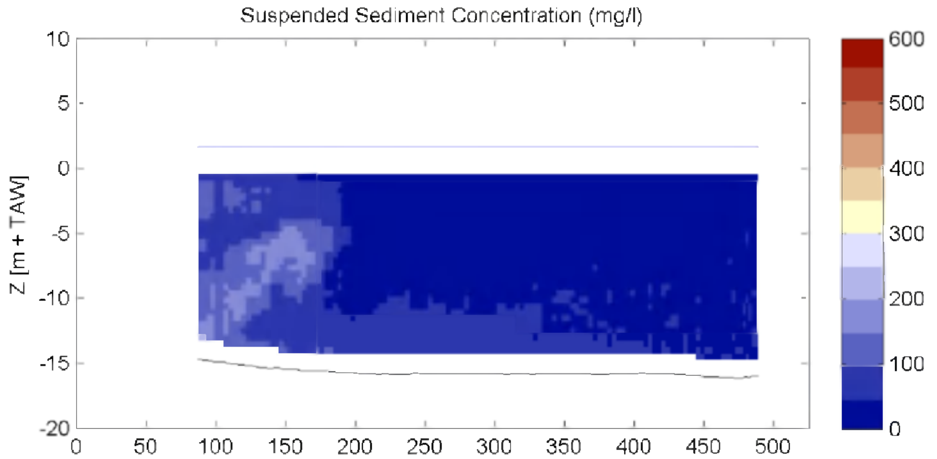
Date / Time [MET] :
13-Oct-2011
07:51 - 07:54

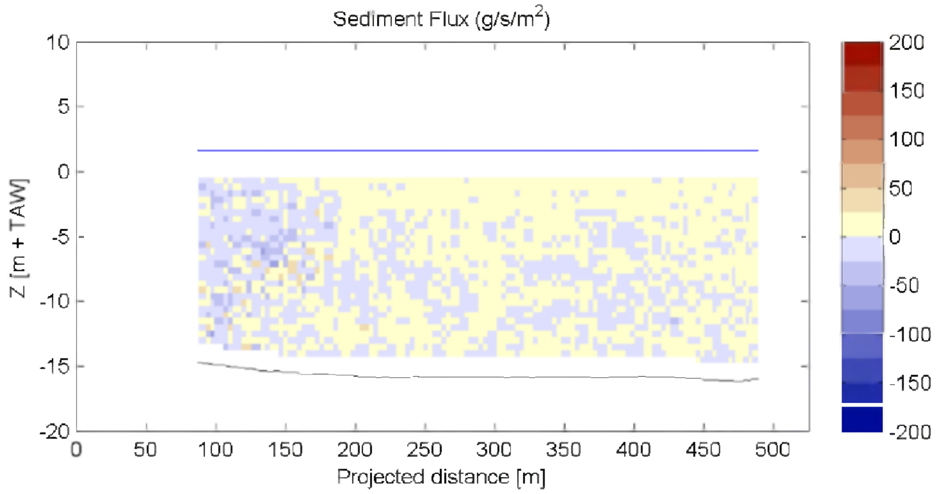
Time after HW [HH:MM]
4:02

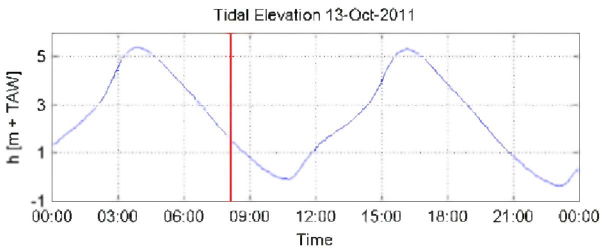
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6014DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

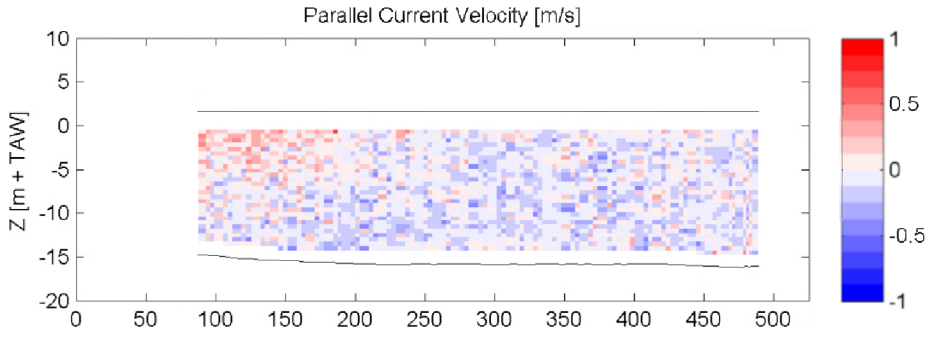
Date / Time [MET] :
13-Oct-2011
08:06 - 08:08

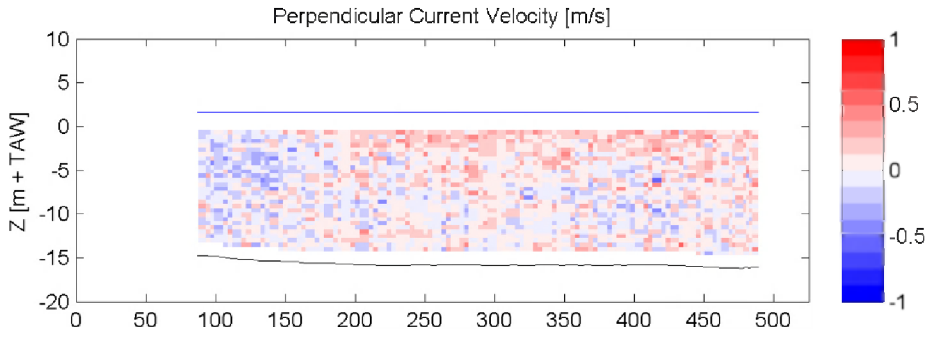
Time after HW [HH:MM]
4:17

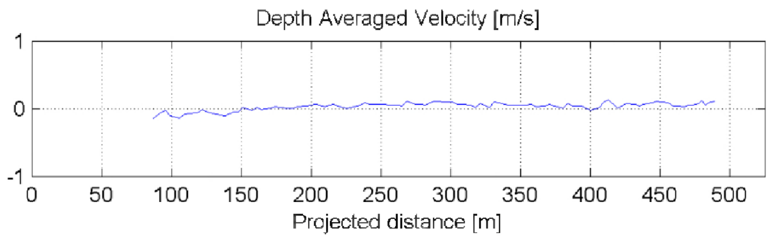
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

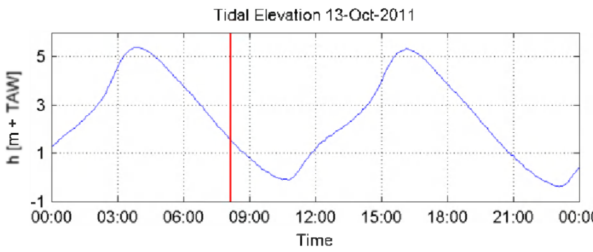
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6014DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

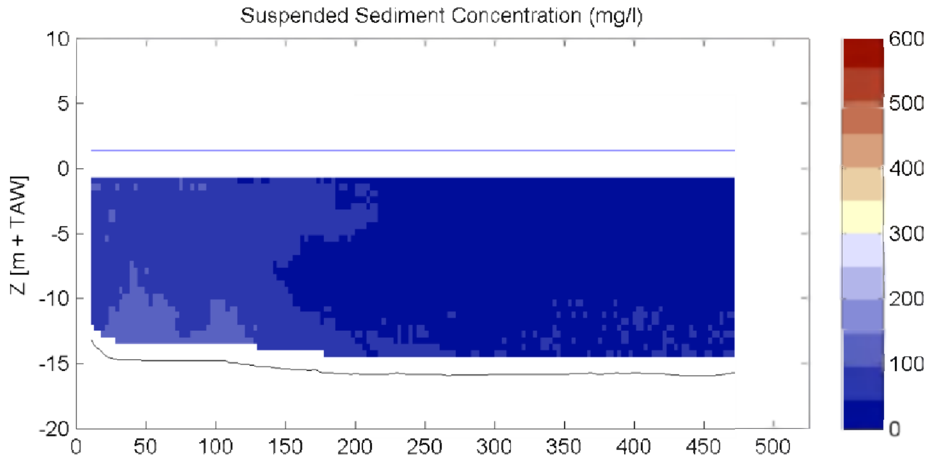
Date / Time [MET] :
13-Oct-2011
08:06 - 08:08

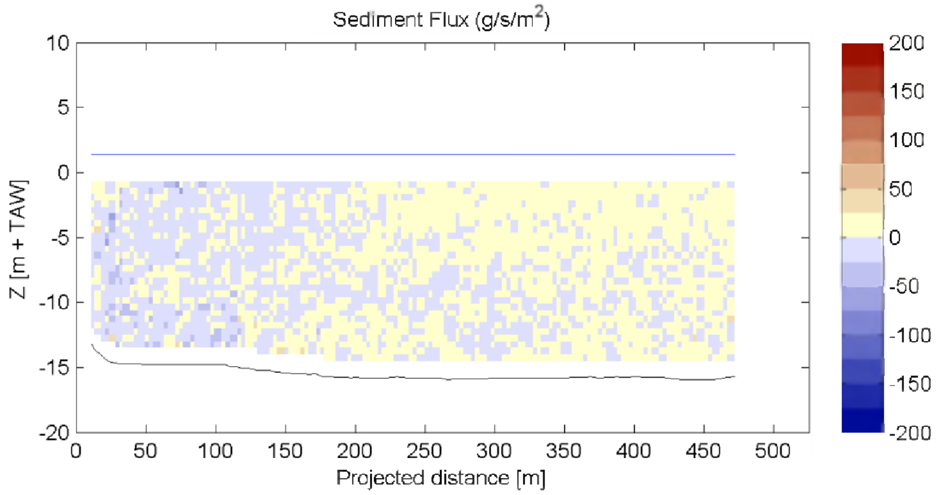
Time after HW [HH:MM]
4:17

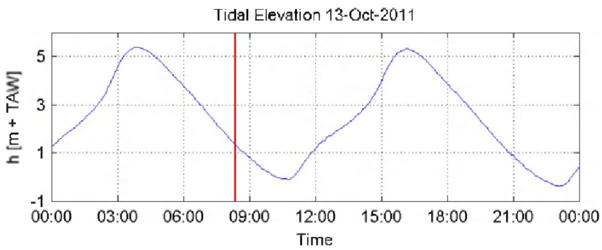
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6016DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

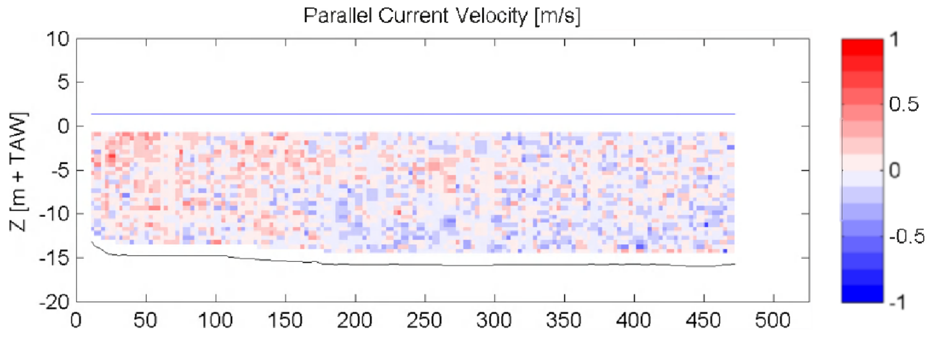
Date / Time [MET] :
13-Oct-2011
08:19 - 08:22

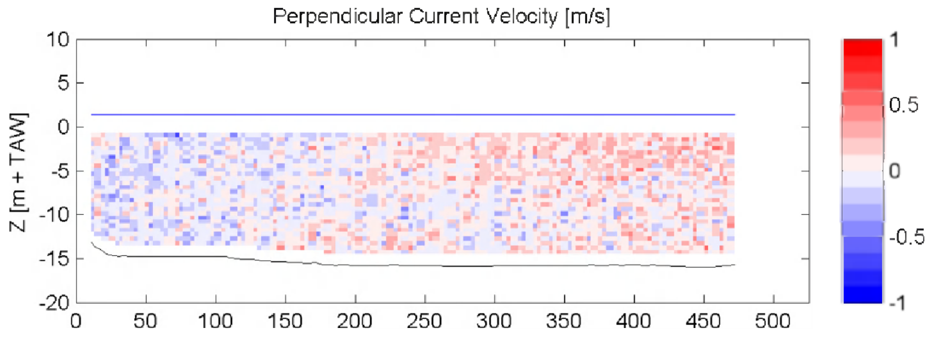
Time after HW [HH:MM]
4:31

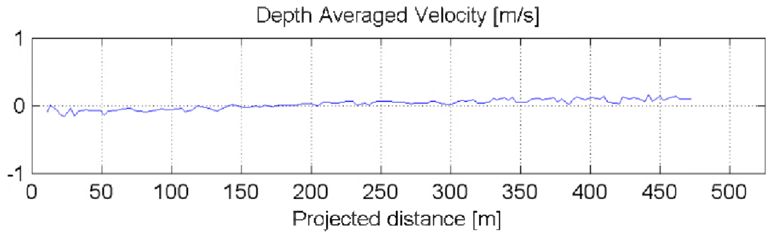
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

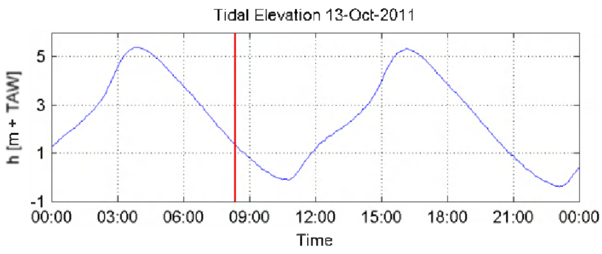
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6016DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

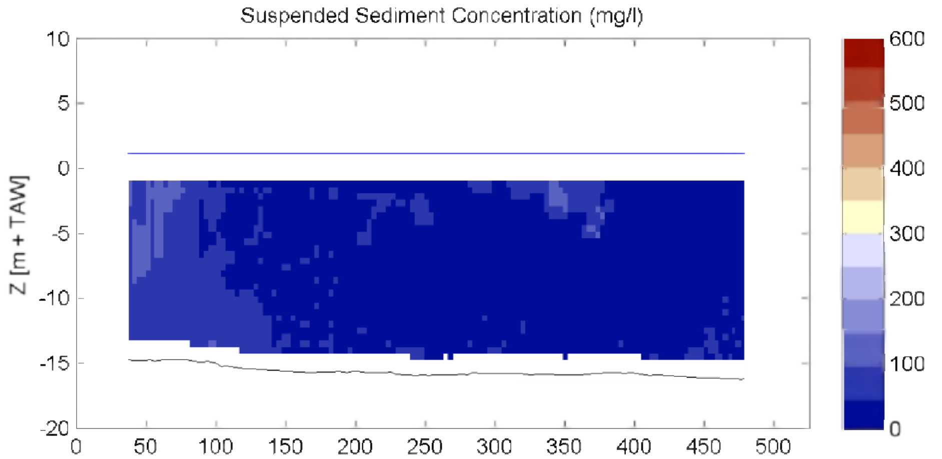
Date / Time [MET] :
13-Oct-2011
08:19 - 08:22

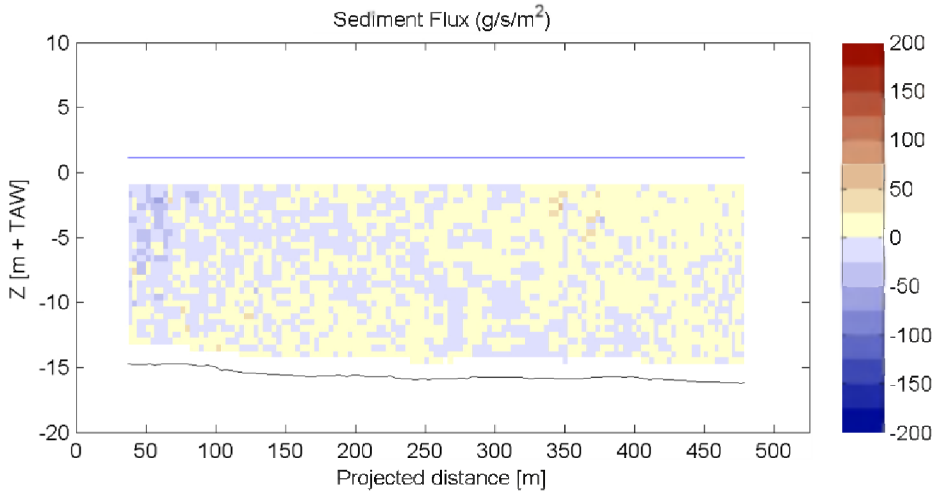
Time after HW [HH:MM]
4:31

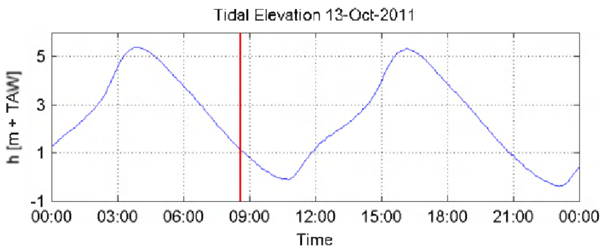
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6018DGDtrl_sub.csv	Location: Deurganckdok







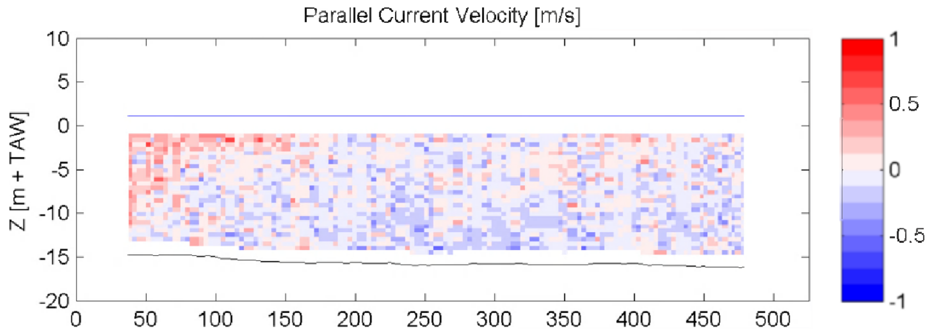
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

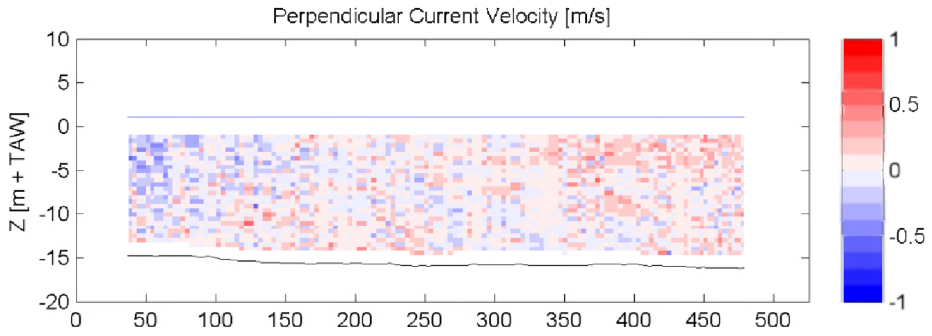
Date / Time [MET] :
13-Oct-2011
08:34 - 08:37

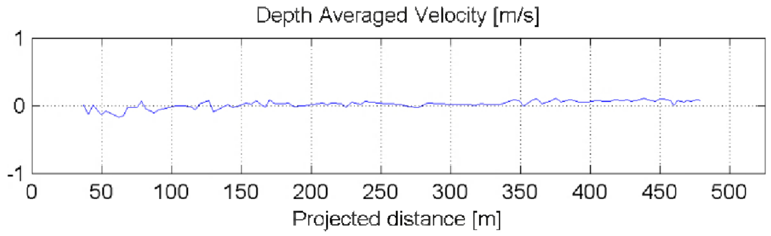
Time after HW [HH:MM]
4:45

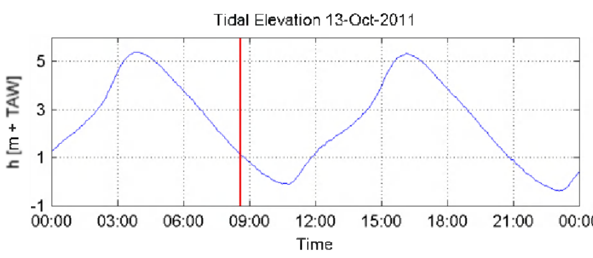
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6018DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

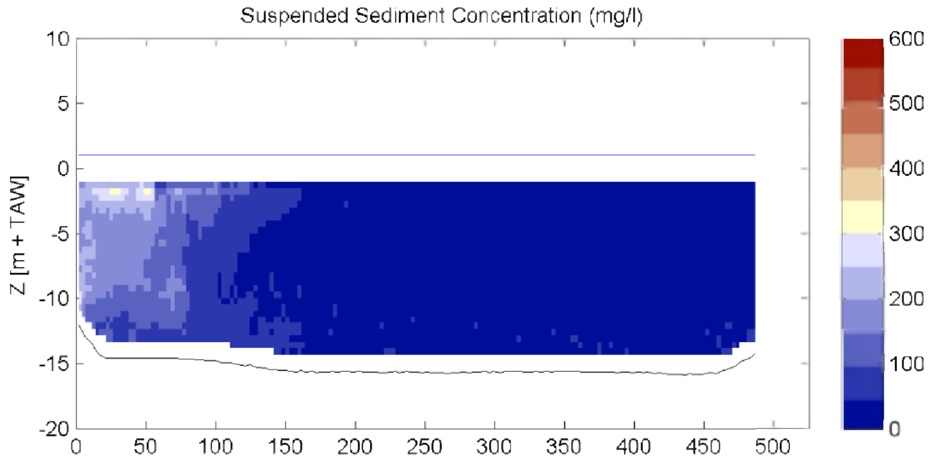
Date / Time [MET] :
13-Oct-2011
08:34 - 08:37

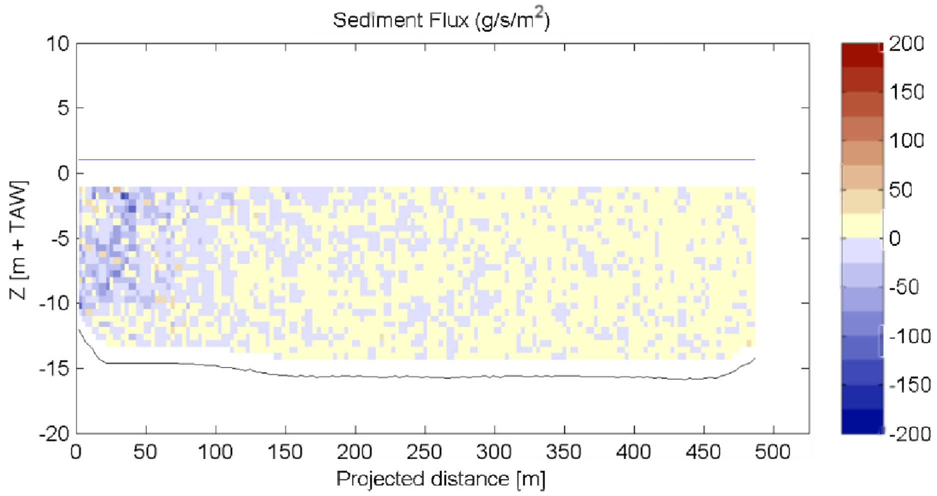
Time after HW [HH:MM]
4:45

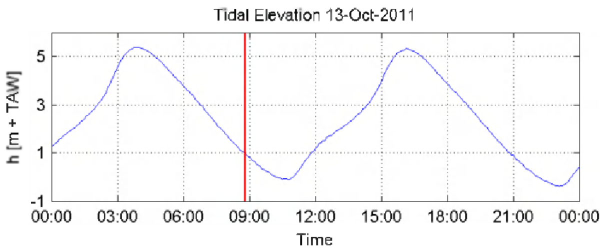
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6020DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

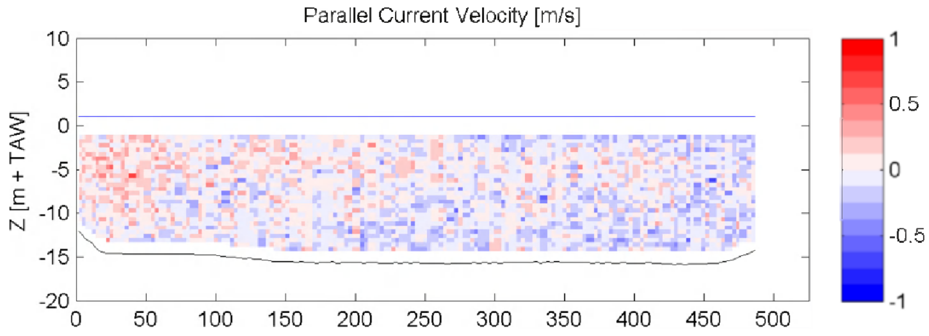
Date / Time [MET] :
13-Oct-2011
08:46 - 08:49

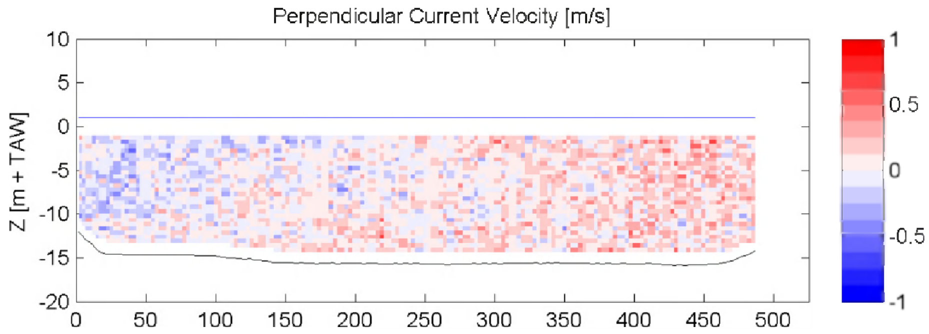
Time after HW [HH:MM]
4:57

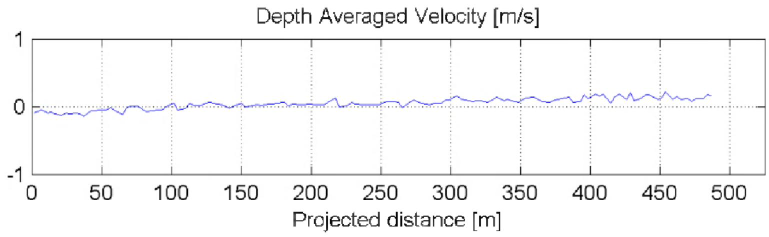
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

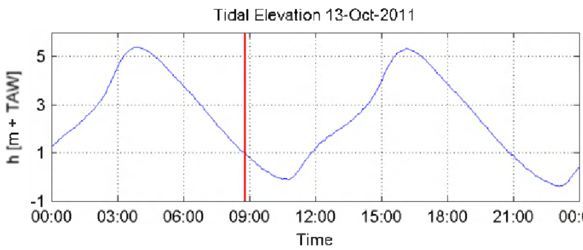
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6020DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
08:46 - 08:49

Time after HW [HH:MM]

4:57

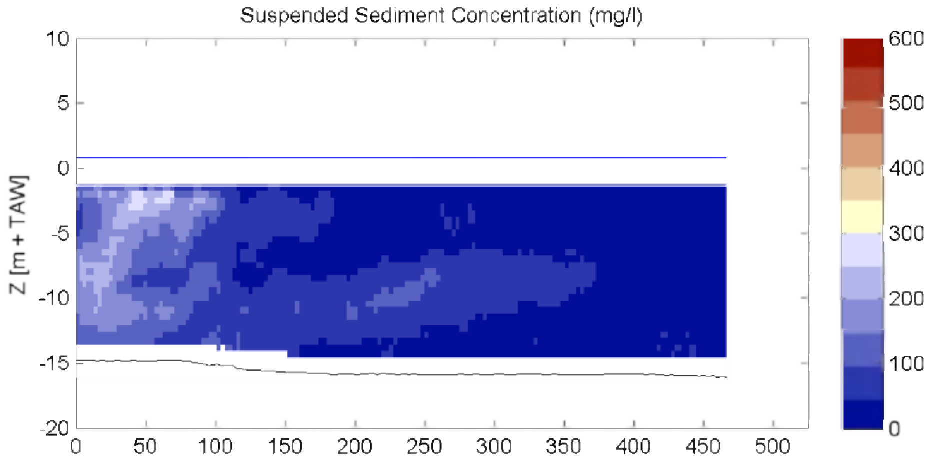
Data Processed by:

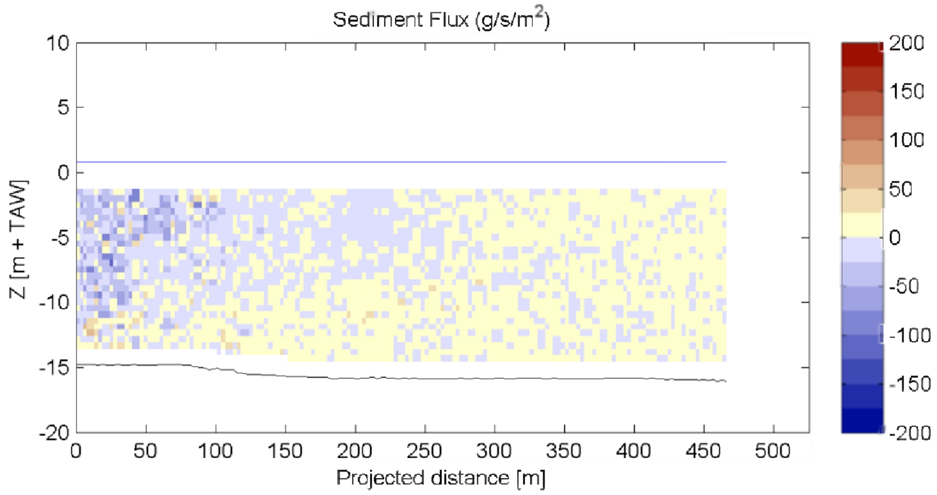
In association with :

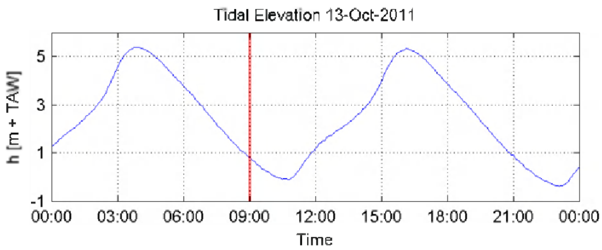
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6022DGDtrl_sub.csv	Location: Deurganckdok







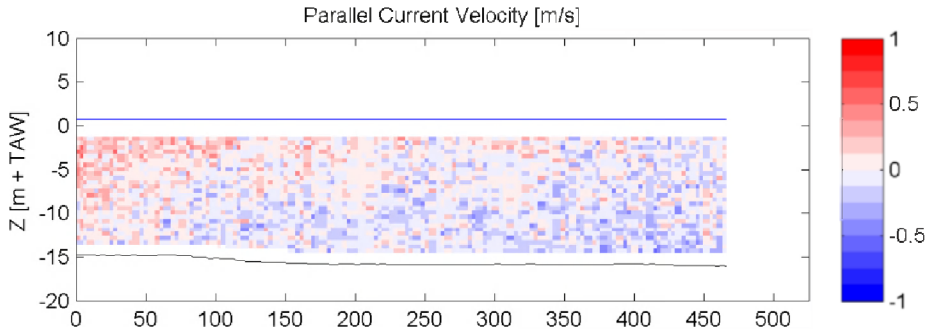
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

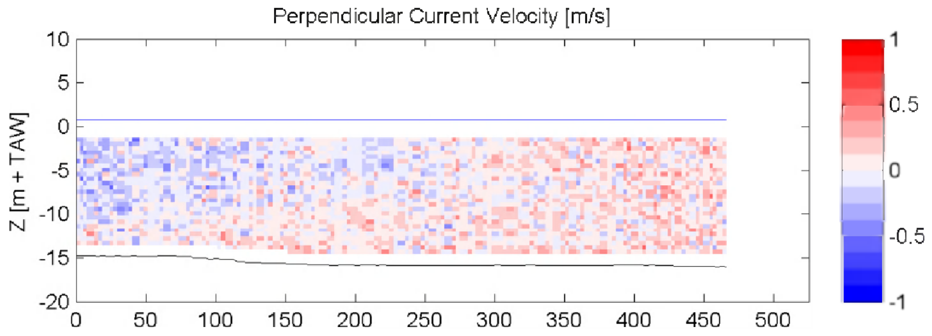
Date / Time [MET] :
13-Oct-2011
08:59 - 09:02

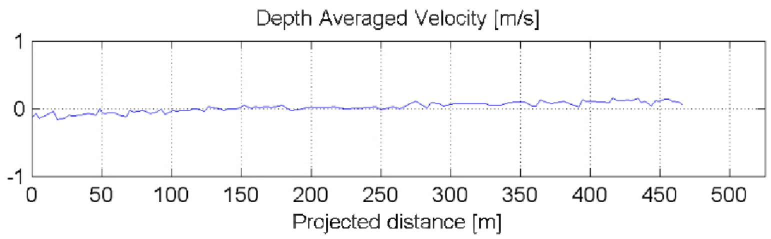
Time after HW [HH:MM]
5:10

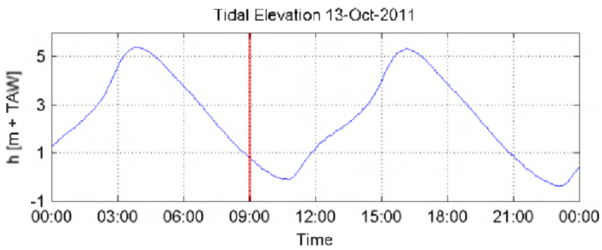
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6022DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

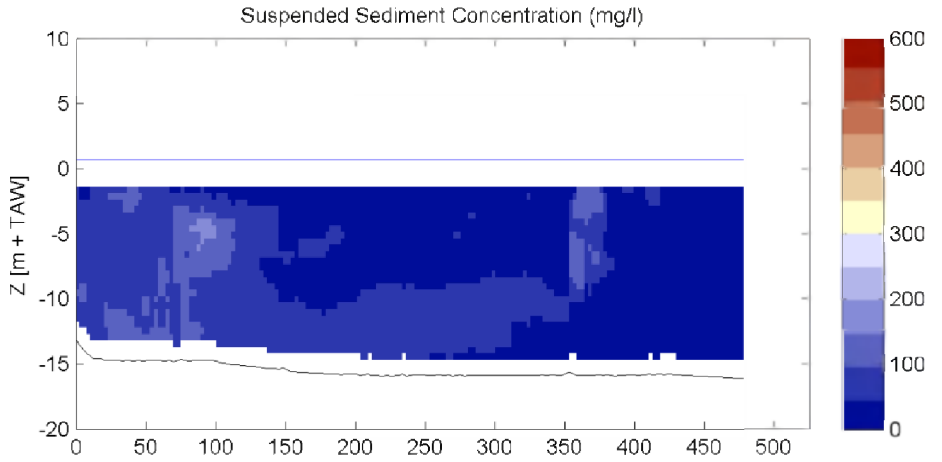
Date / Time [MET] :
13-Oct-2011
08:59 - 09:02

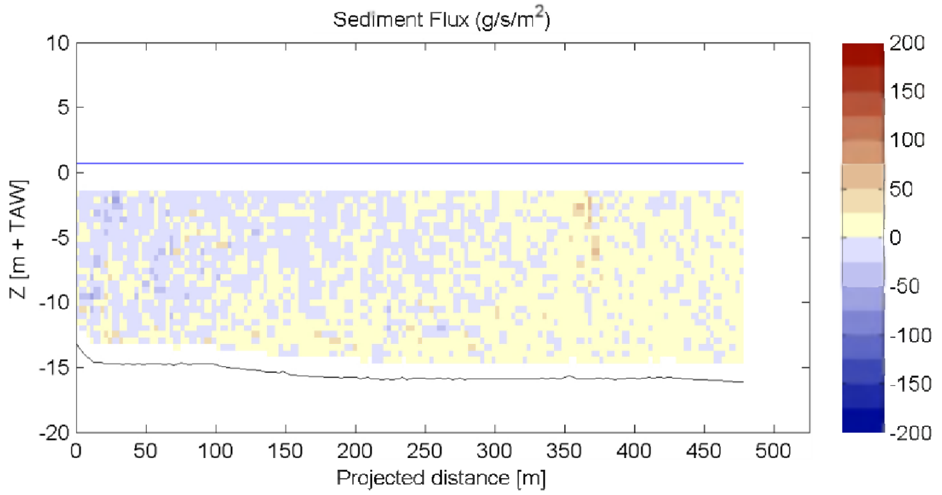
Time after HW [HH:MM]
5:10

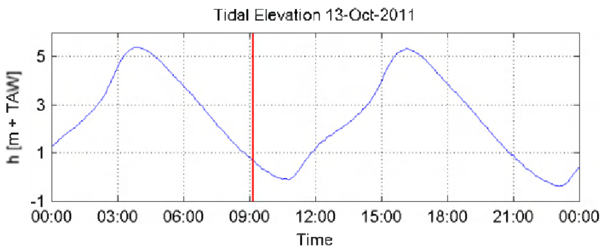
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6024DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

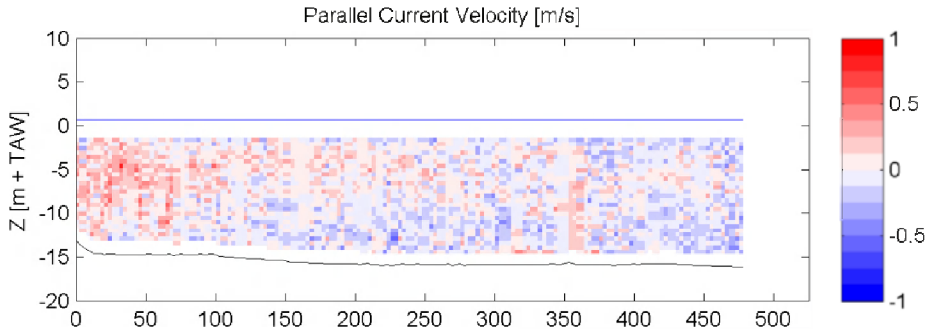
Date / Time [MET] :
13-Oct-2011
09:08 - 09:12

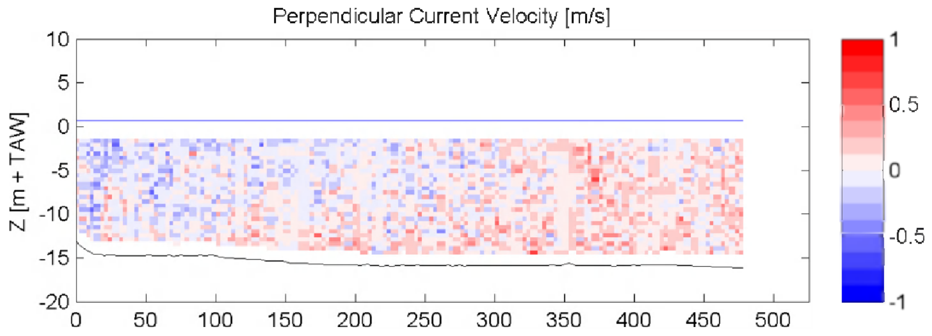
Time after HW [HH:MM]
5:20

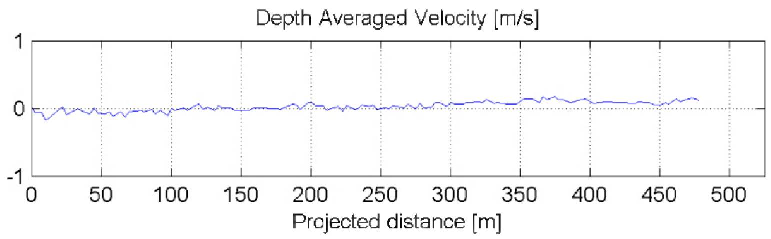
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

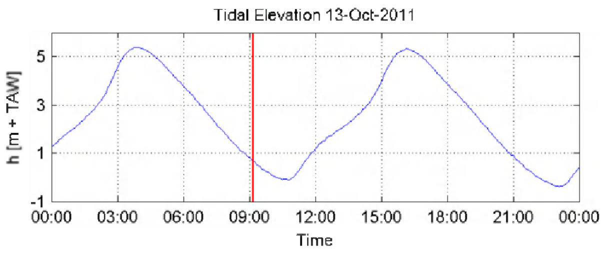
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6024DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

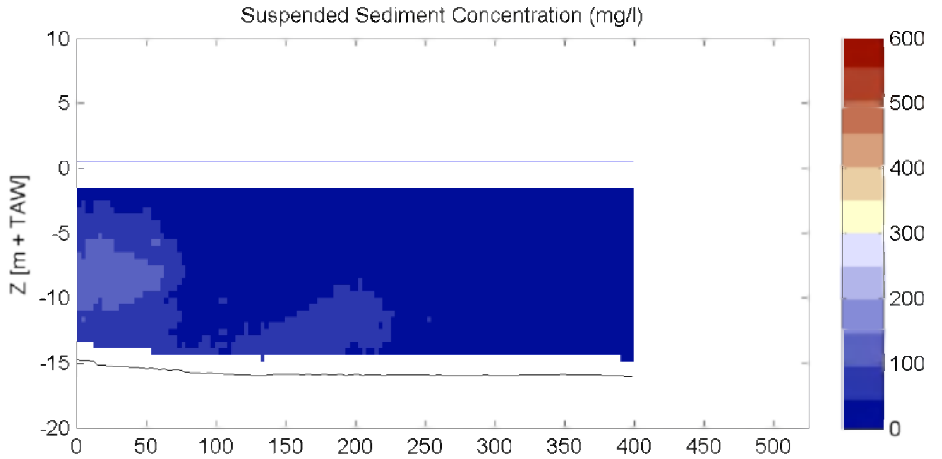
Date / Time [MET] :
13-Oct-2011
09:08 - 09:12

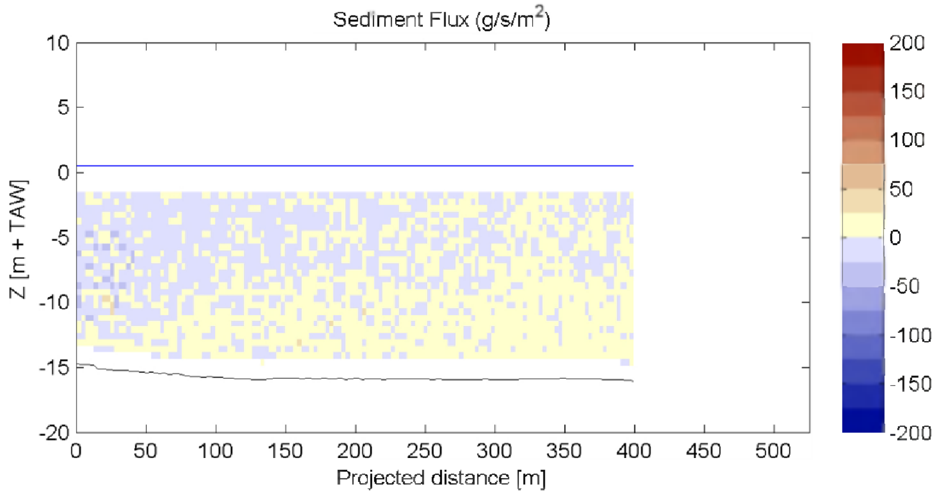
Time after HW [HH:MM]
5:20

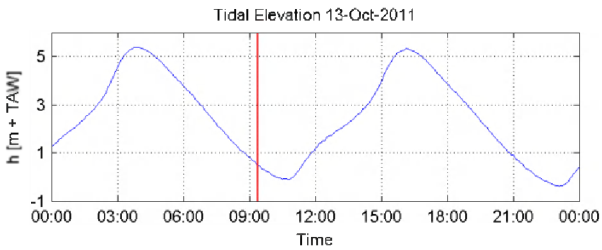
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6026DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

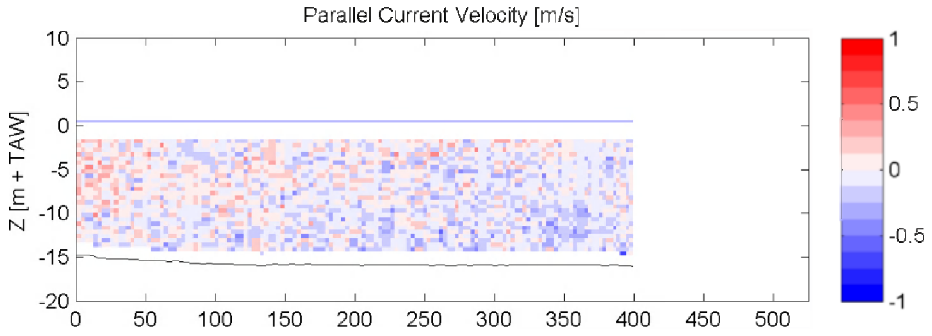
Date / Time [MET] :
13-Oct-2011
09:21 - 09:24

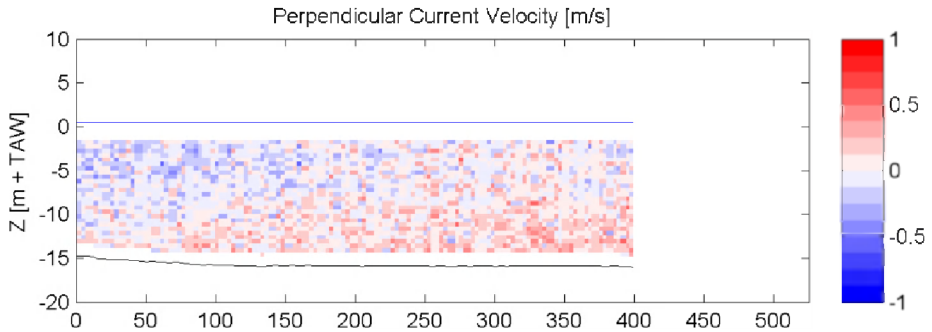
Time after HW [HH:MM]
5:32

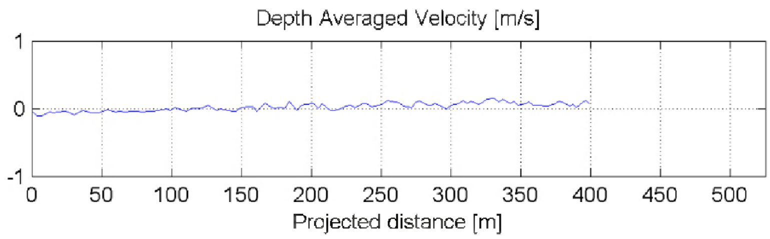
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

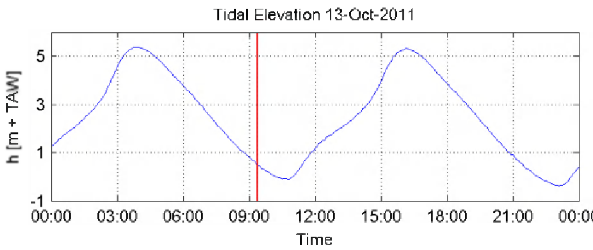
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6026DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

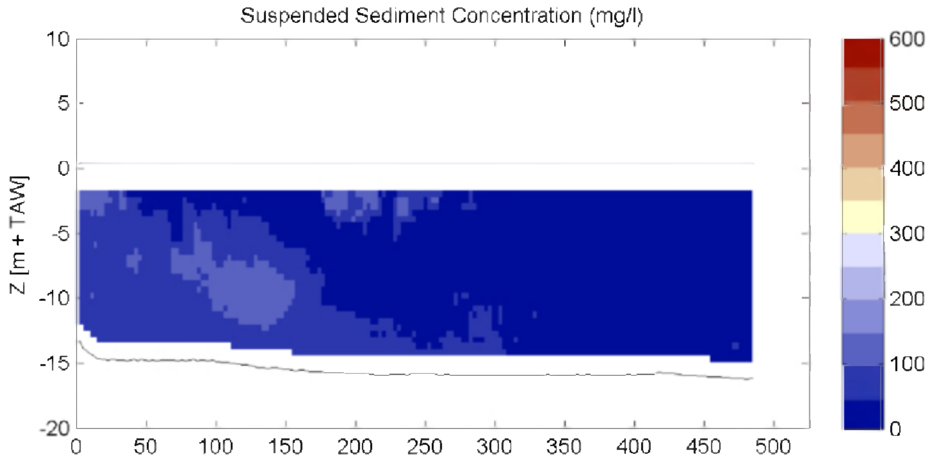
Date / Time [MET] :
13-Oct-2011
09:21 - 09:24

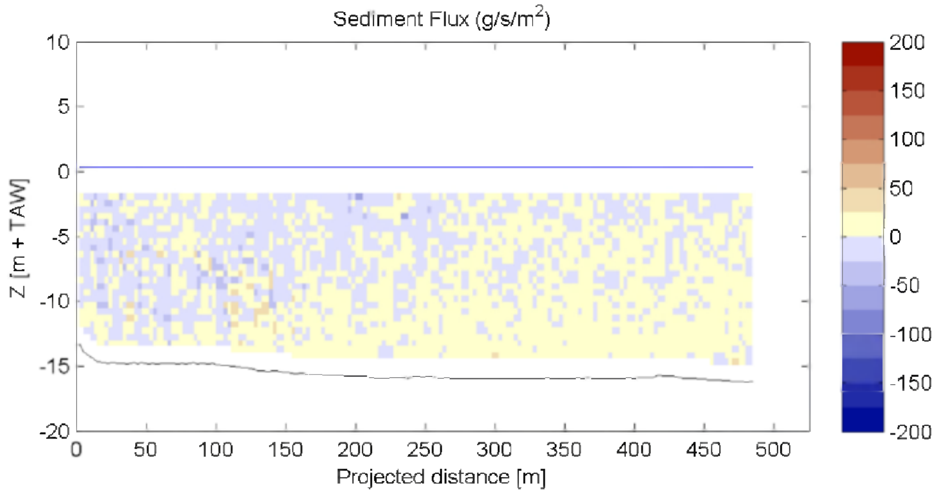
Time after HW [HH:MM]
5:32

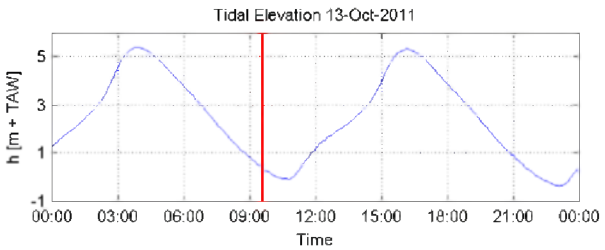
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6028DGDtlr_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

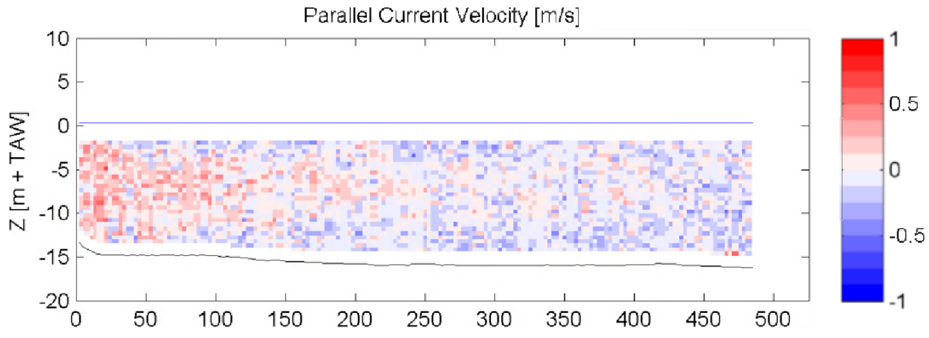
Date / Time [MET] :
13-Oct-2011
09:33 - 09:36

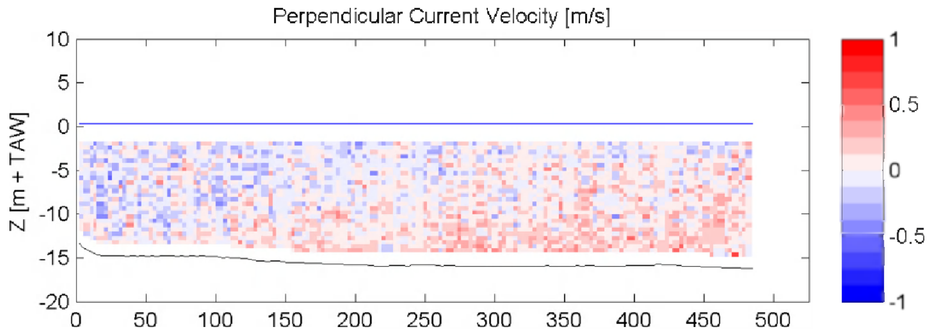
Time after HW [HH:MM]
5:45

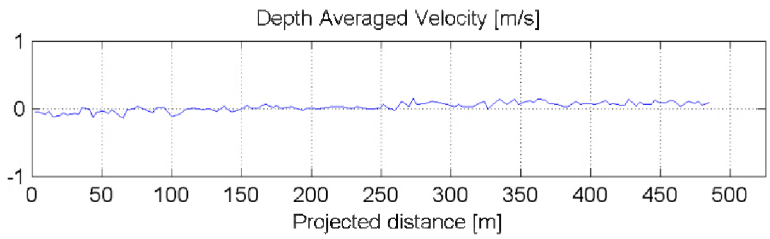
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

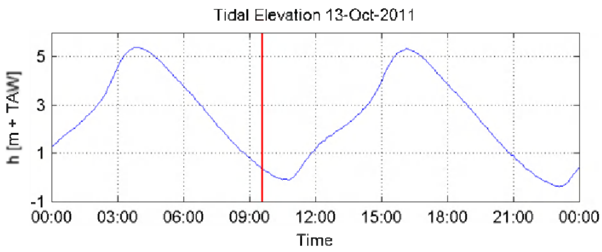
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6028DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
09:33 - 09:36

Time after HW [HH:MM]

5:45

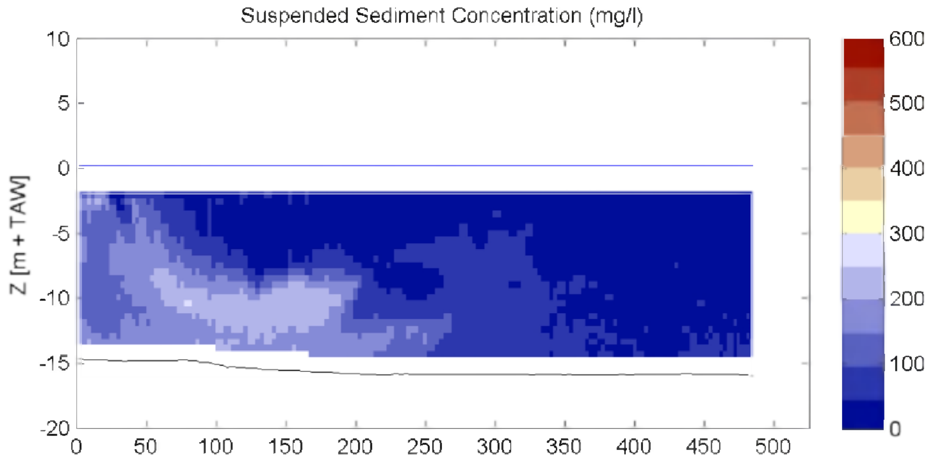
Data Processed by:

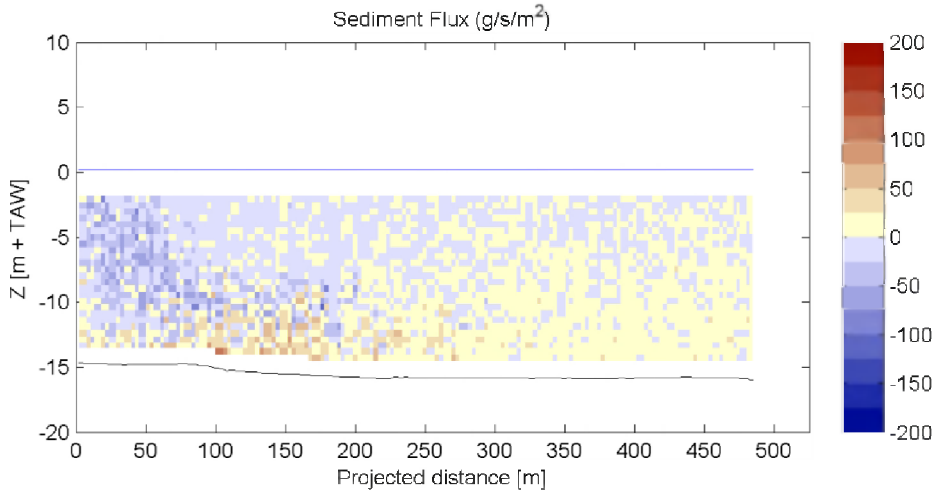
In association with :

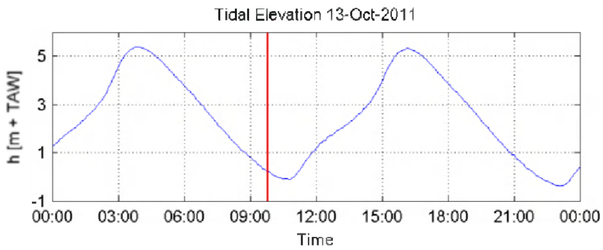
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6030DGDtrl_sub.csv	Location: Deurganckdok







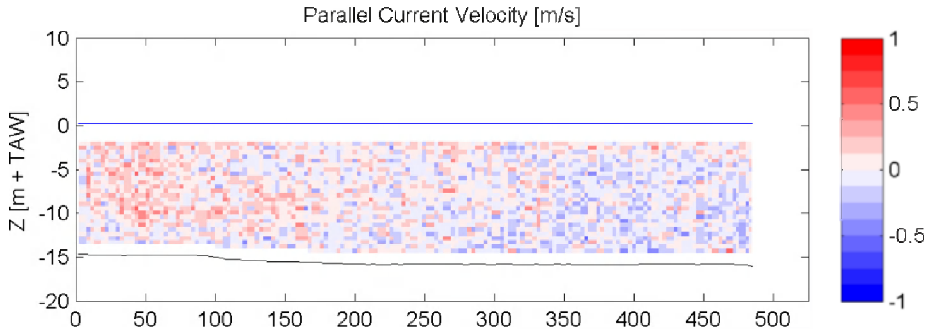
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

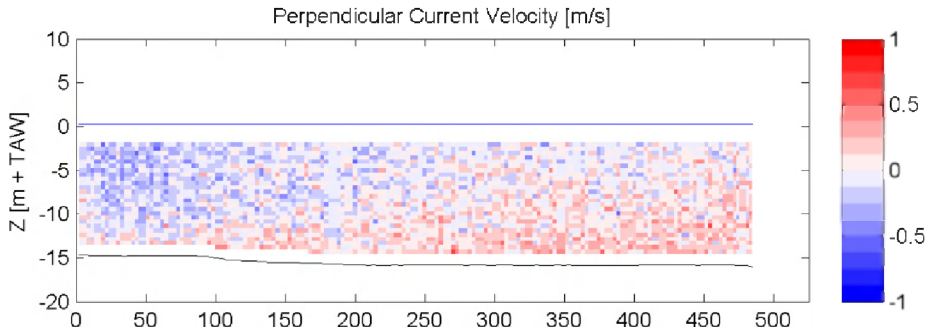
Date / Time [MET] :
13-Oct-2011
09:45 - 09:48

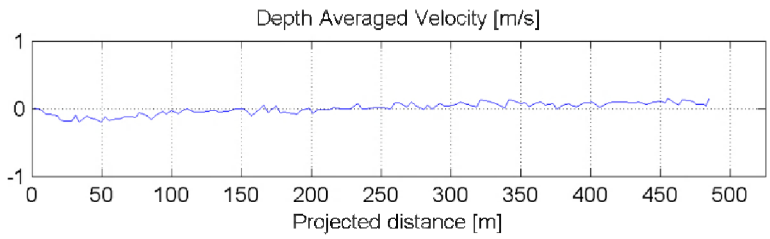
Time after HW [HH:MM]
5:57

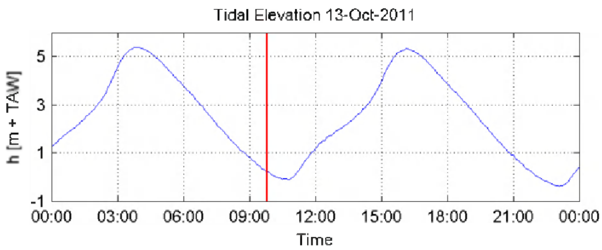
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6030DGDtrl_sub.csv	Location: Deurganckdok









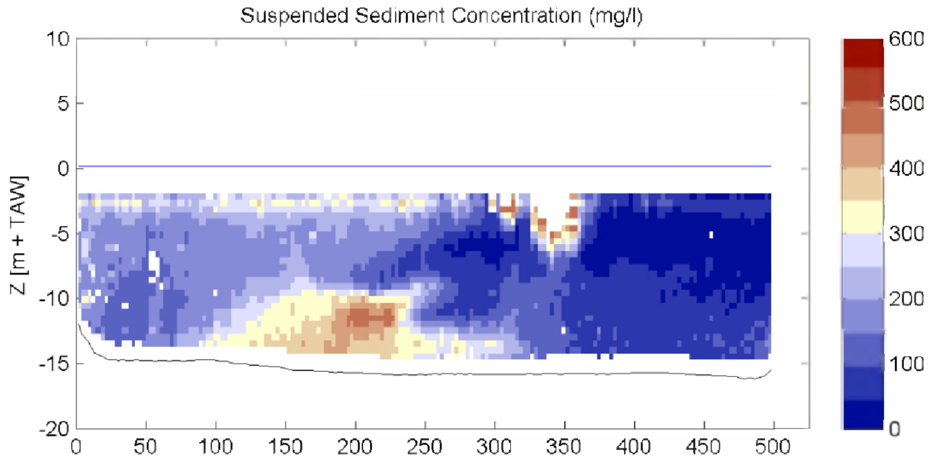
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

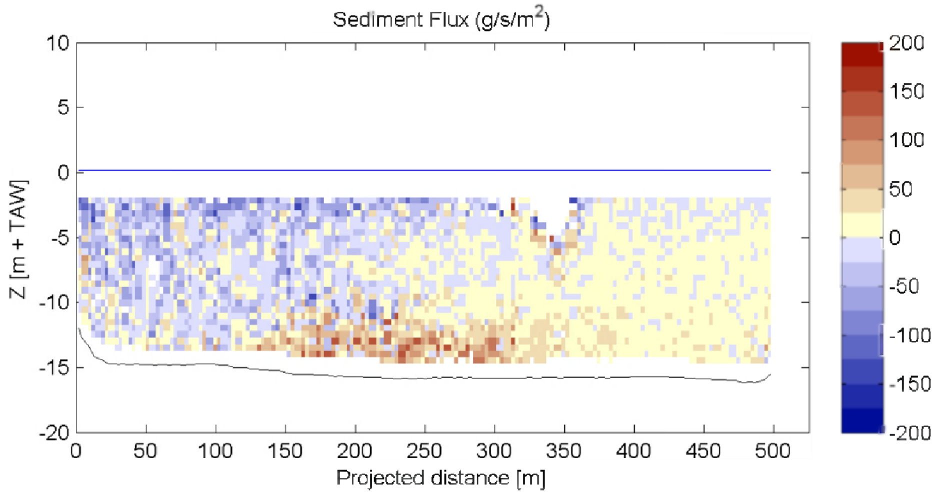
Date / Time [MET] :
13-Oct-2011
09:45 - 09:48

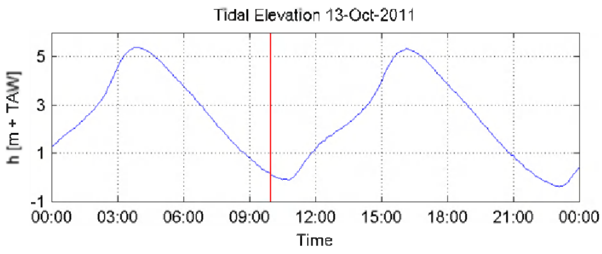
Time after HW [HH:MM]
5:57

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6032DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

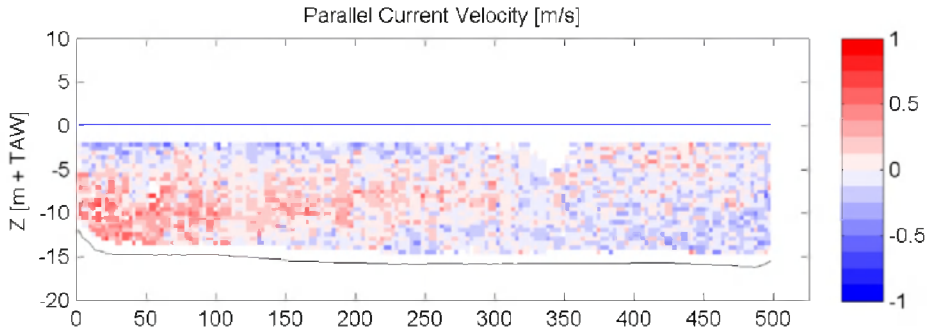
Date / Time [MET] :
13-Oct-2011
09:56 - 09:59

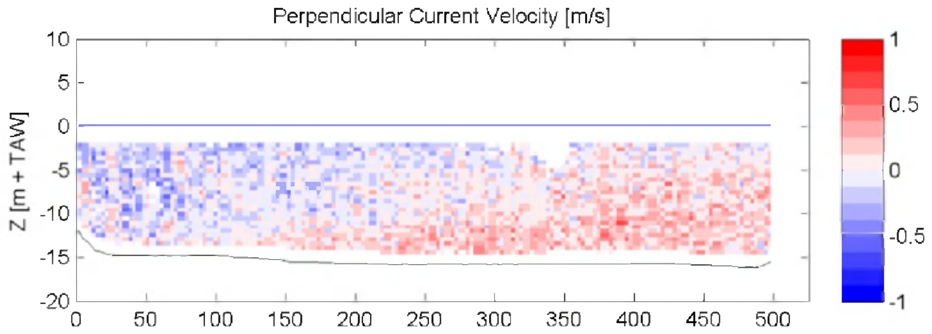
Time after HW [HH:MM]
6:07

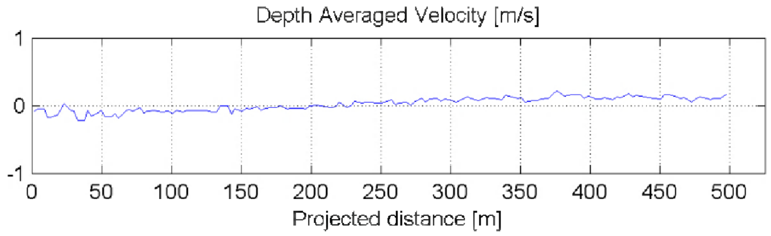
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

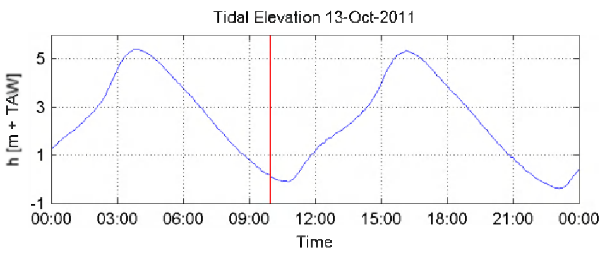
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6032DGDtlr_sub.csv	Location: Deurganckdok









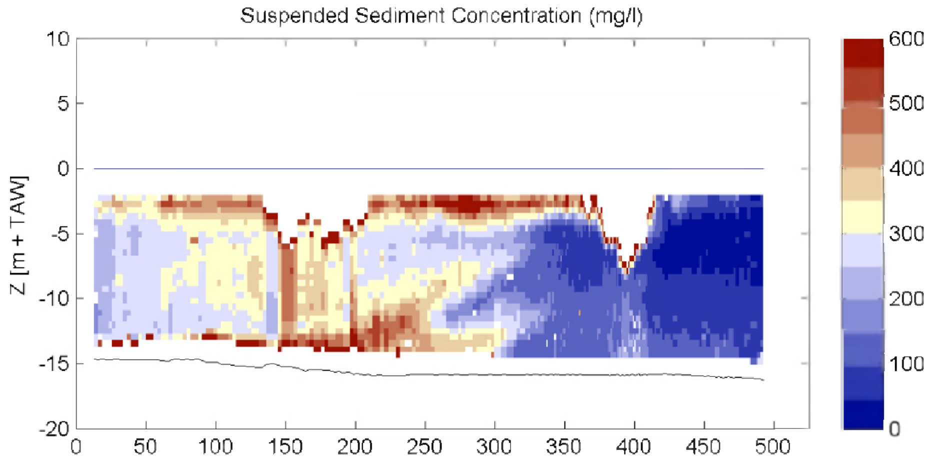
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

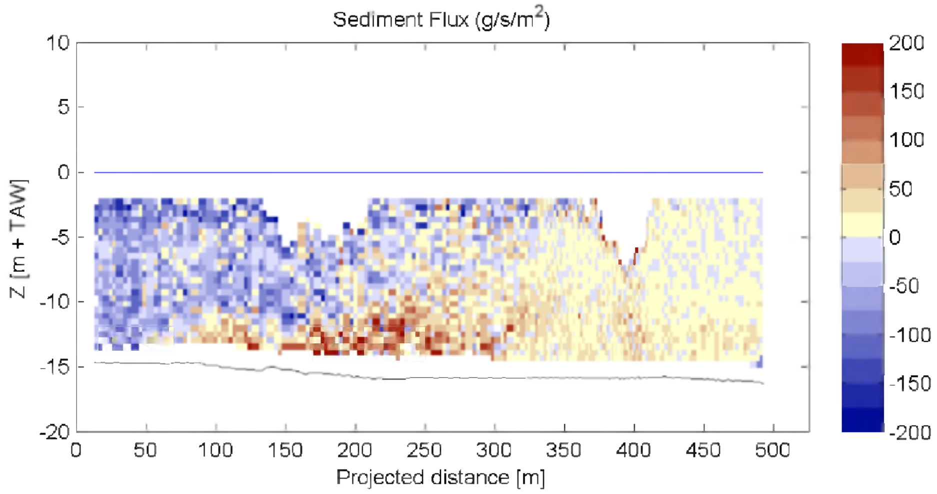
Date / Time [MET] :
13-Oct-2011
09:56 - 09:59

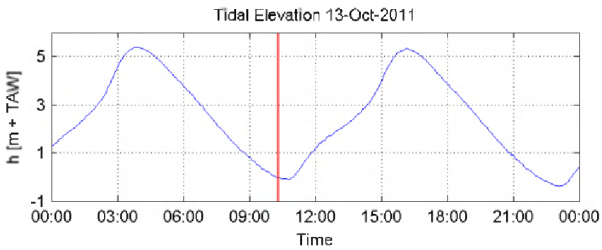
Time after HW [HH:MM]
6:07

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6034DGDtrl_sub.csv	Location: Deurganckdok







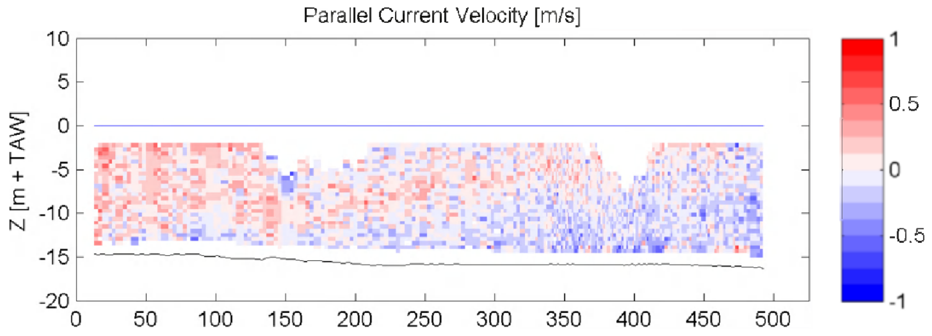
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

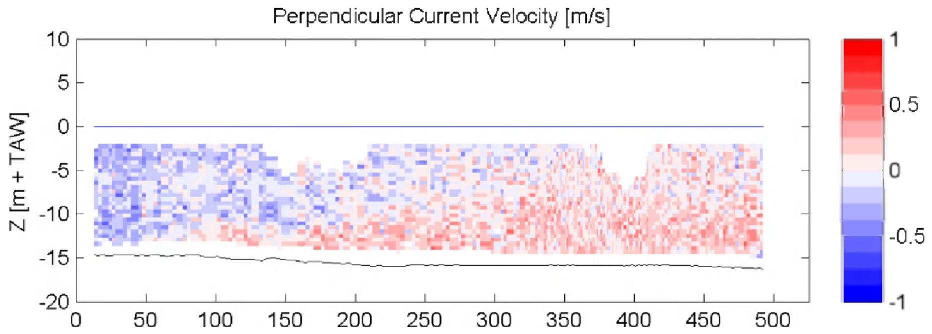
Date / Time [MET] :
13-Oct-2011
10:14 - 10:18

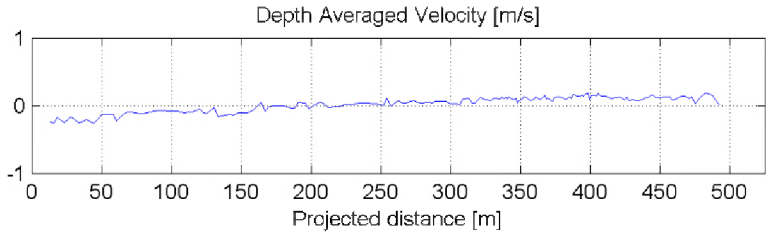
Time after HW [HH:MM]
6:26

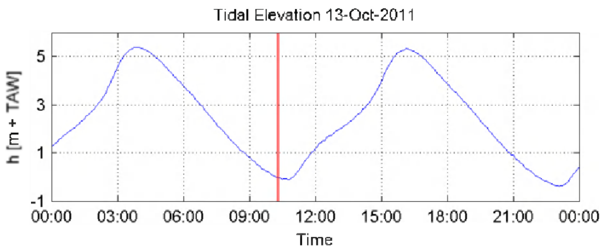
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6034DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

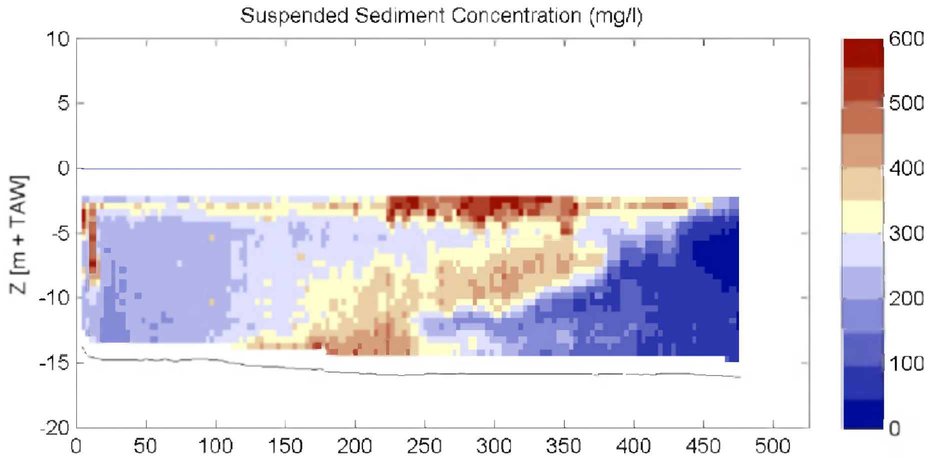
Date / Time [MET] :
13-Oct-2011
10:14 - 10:18

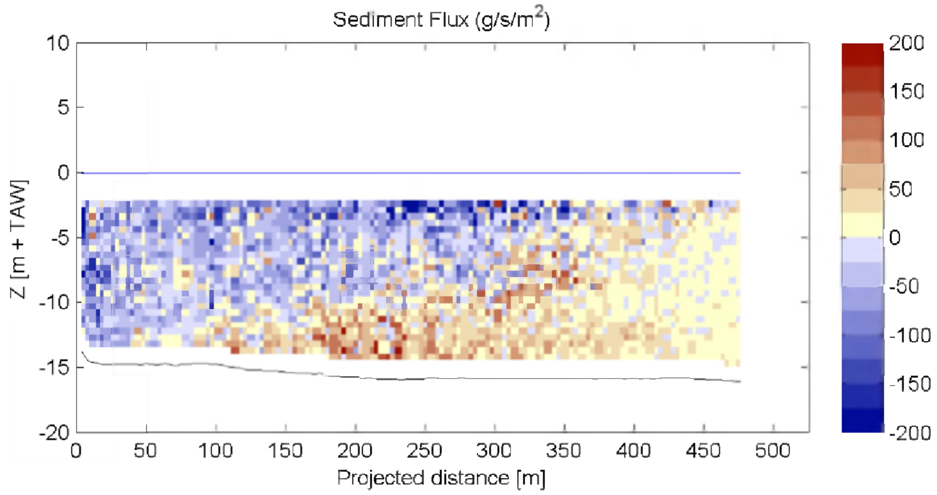
Time after HW [HH:MM]
6:26

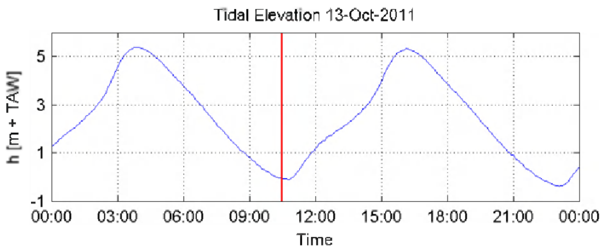
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6036DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

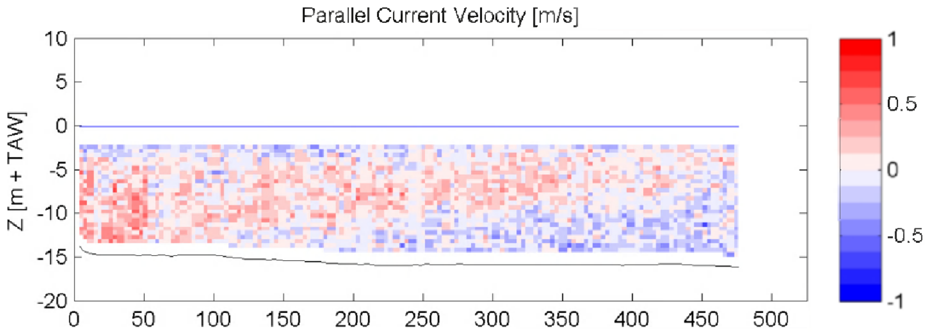
Date / Time [MET] :
13-Oct-2011
10:27 - 10:30

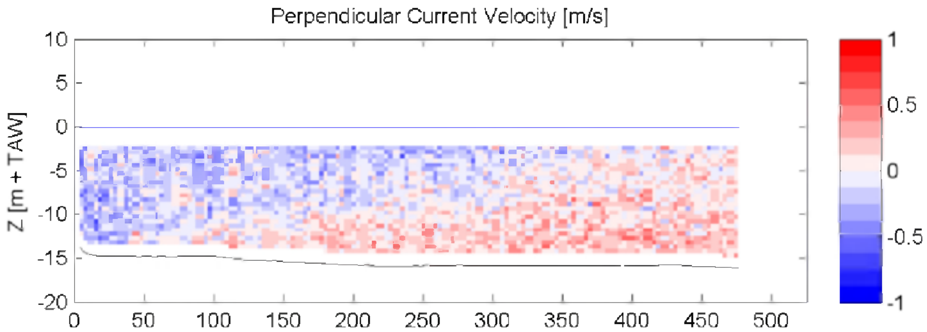
Time after HW [HH:MM]
-5:46

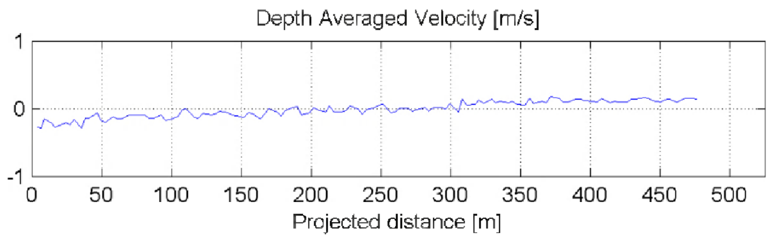
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

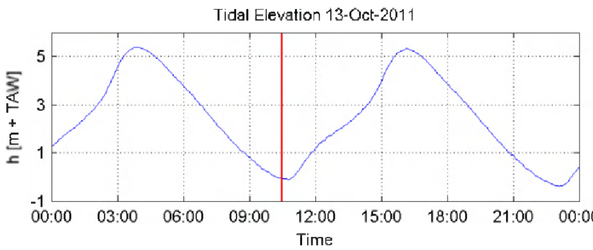
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6036DGDtlr_sub.csv	Location: Deurganckdok









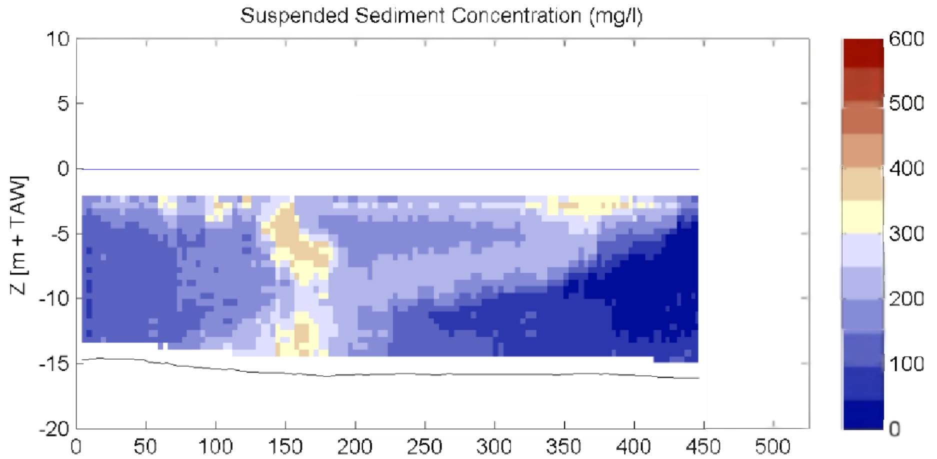
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

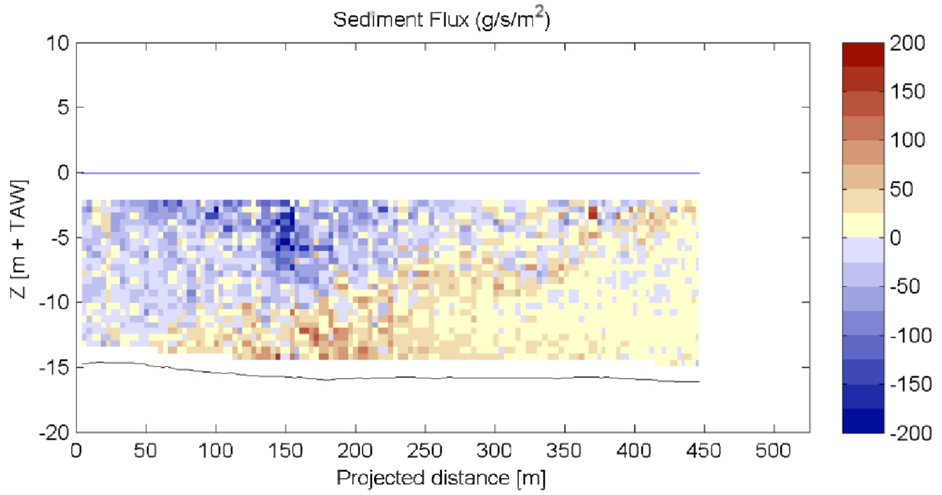
Date / Time [MET] :
13-Oct-2011
10:27 - 10:30

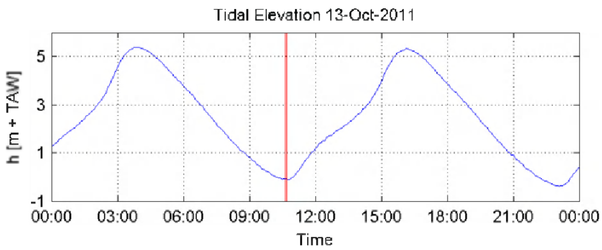
Time after HW [HH:MM]
-5:46

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6038DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

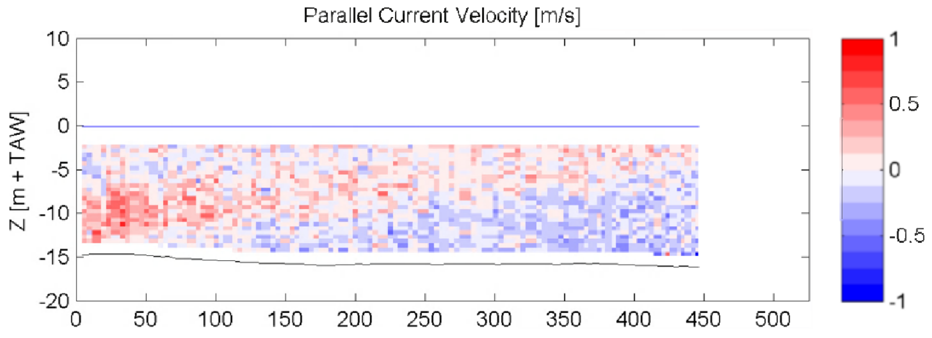
Date / Time [MET] :
13-Oct-2011
10:39 - 10:41

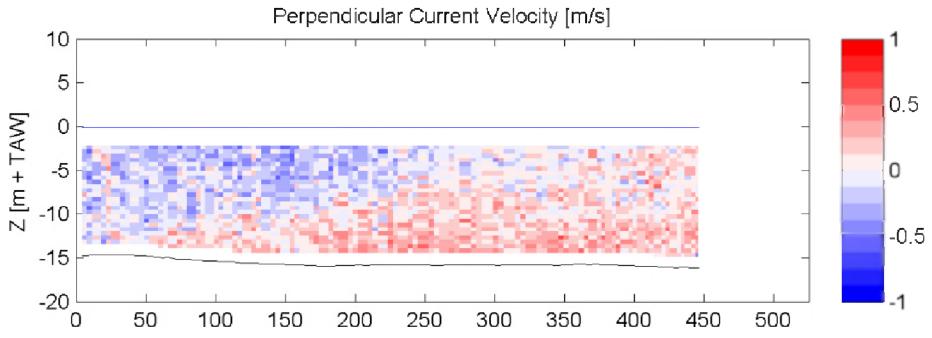
Time after HW [HH:MM]
-5:34

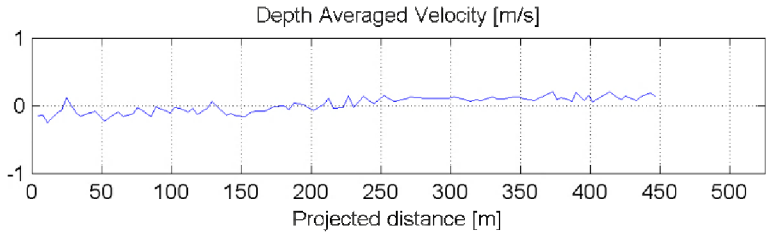
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

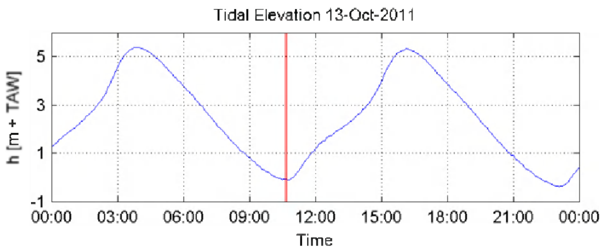
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6038DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

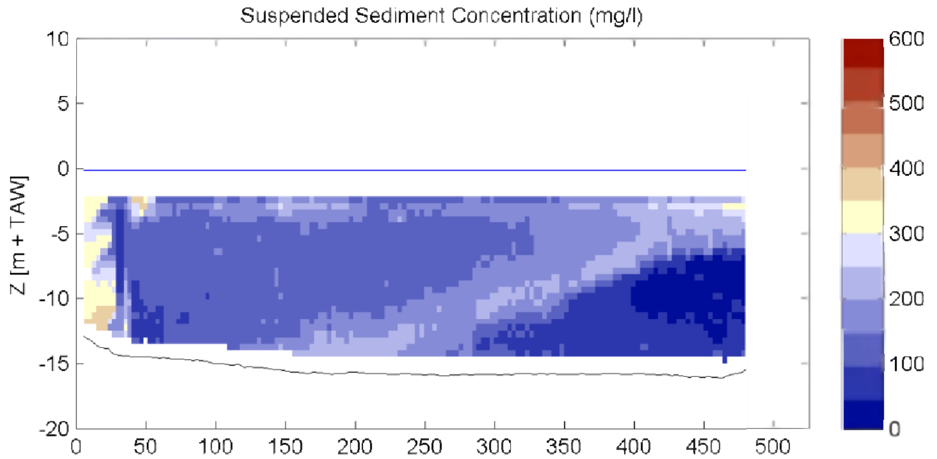
Date / Time [MET] :
13-Oct-2011
10:39 - 10:41

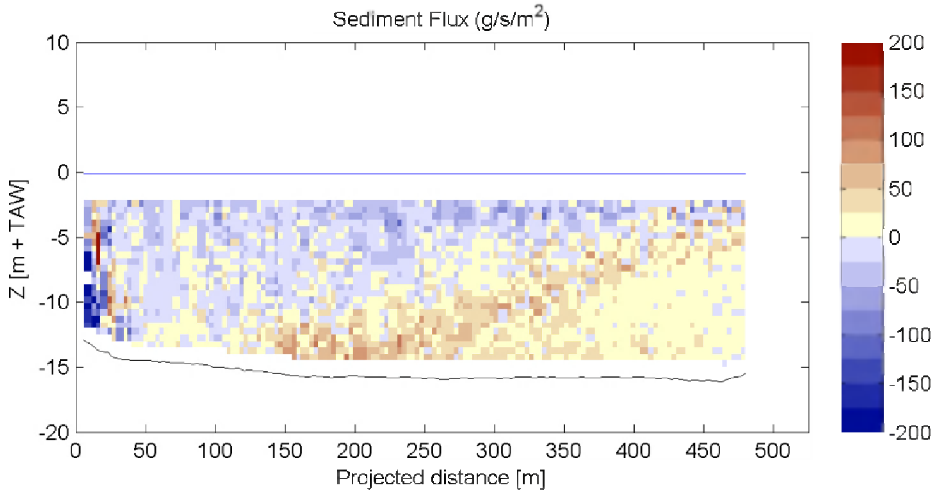
Time after HW [HH:MM]
-5:34

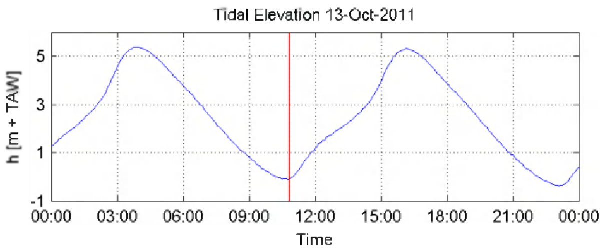
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6039DGDtlr_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

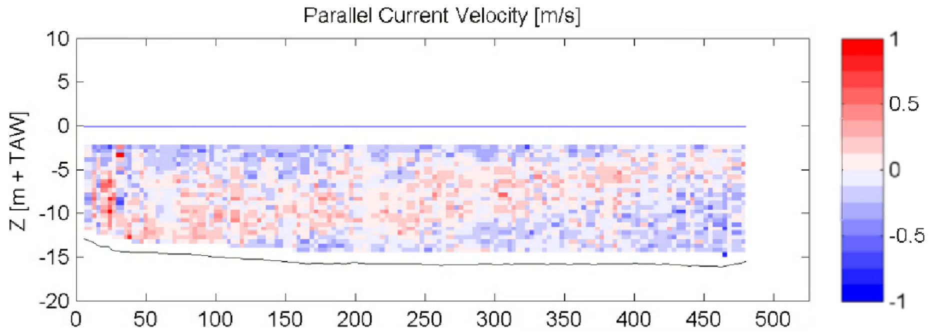
Date / Time [MET] :
13-Oct-2011
10:49 - 10:51

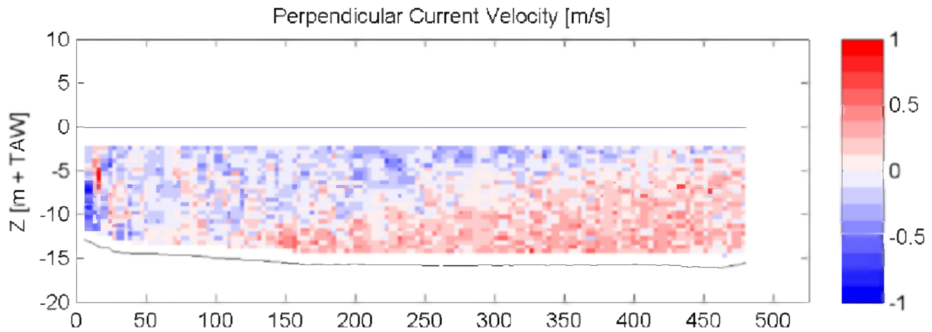
Time after HW [HH:MM]
-5:24

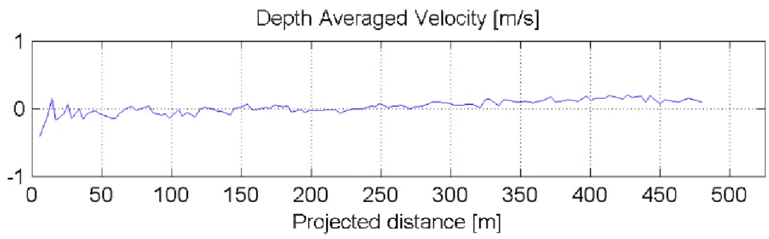
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

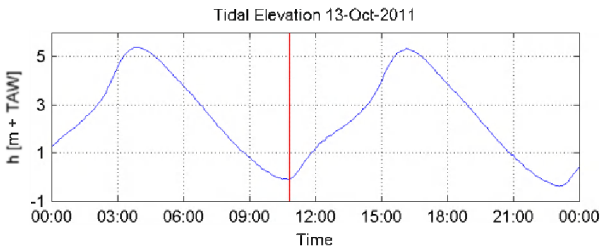
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6039DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

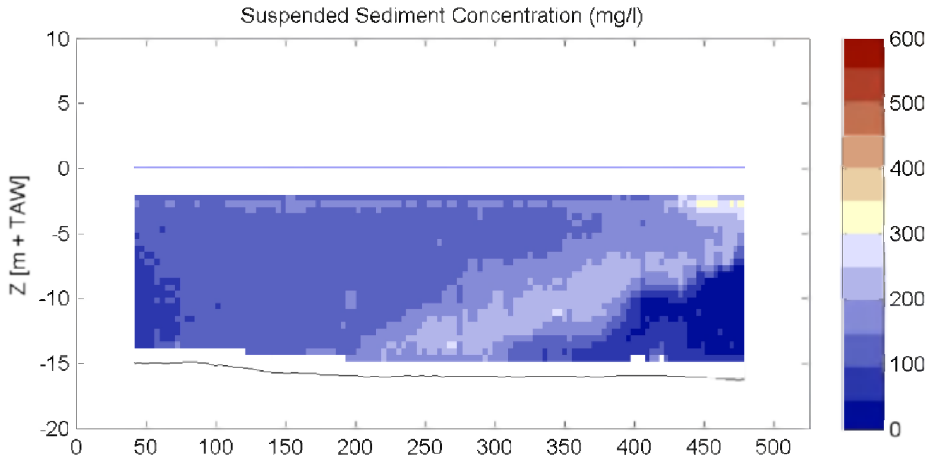
Date / Time [MET] :
13-Oct-2011
10:49 - 10:51

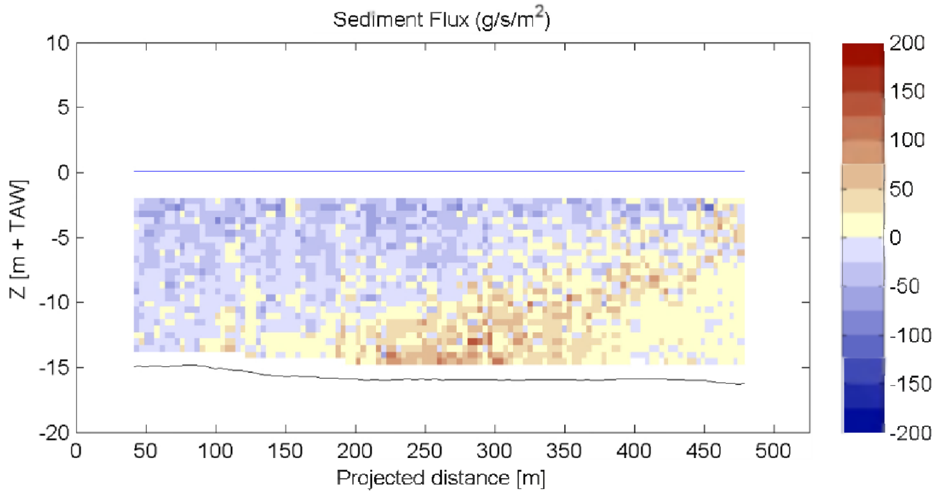
Time after HW [HH:MM]
-5:24

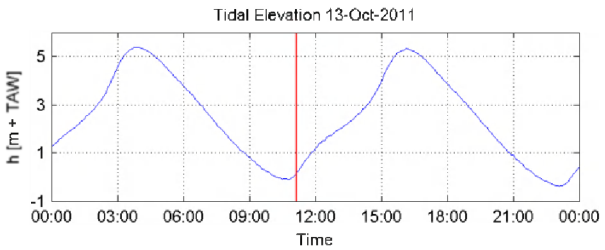
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6041DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:

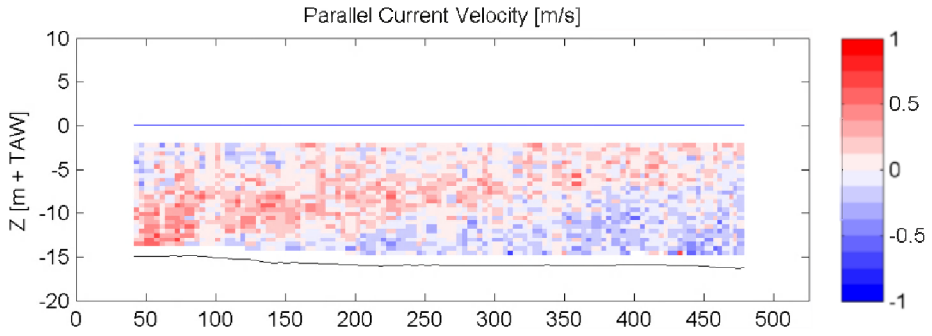
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

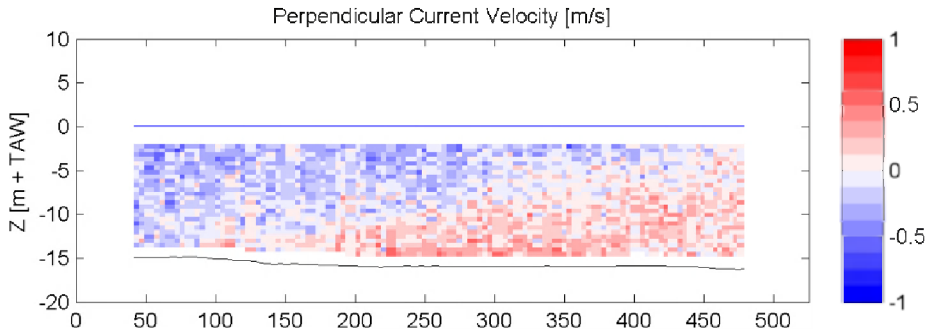
Date / Time [MET] :
13-Oct-2011
11:06 - 11:08

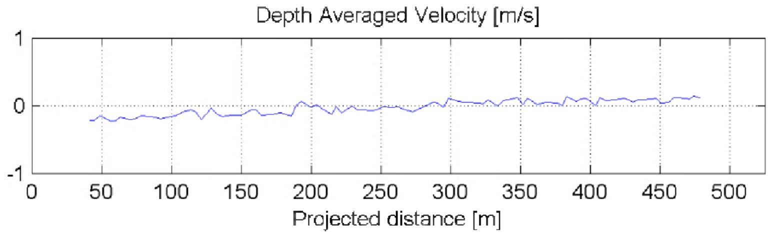
Time after HW [HH:MM]
-5:07

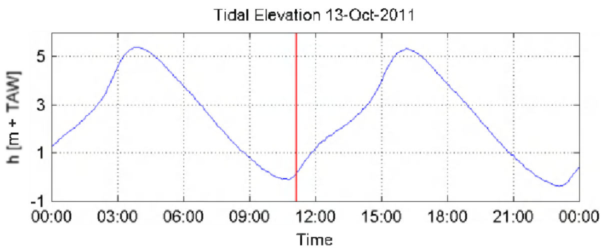
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6041DGDtrl_sub.csv	Location: Deurganckdok









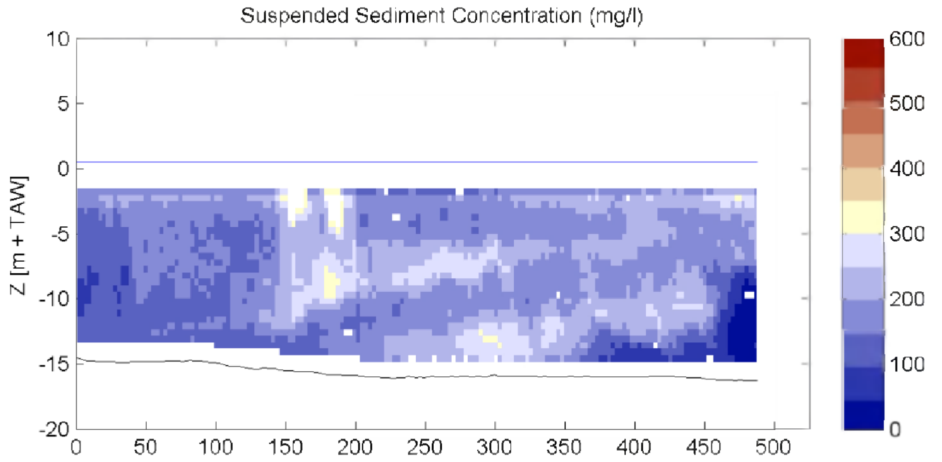
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

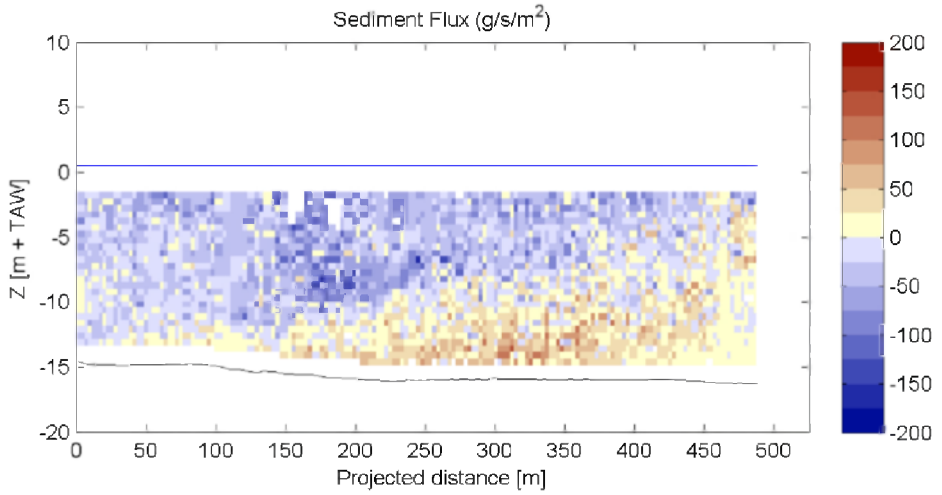
Date / Time [MET] :
13-Oct-2011
11:06 - 11:08

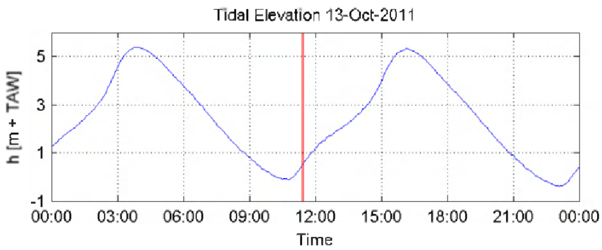
Time after HW [HH:MM]
-5:07

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6043DGDtlr_sub.csv	Location: Deurganckdok







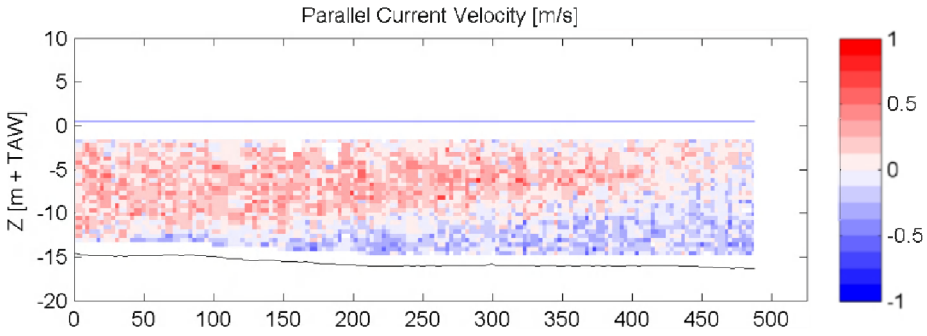
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

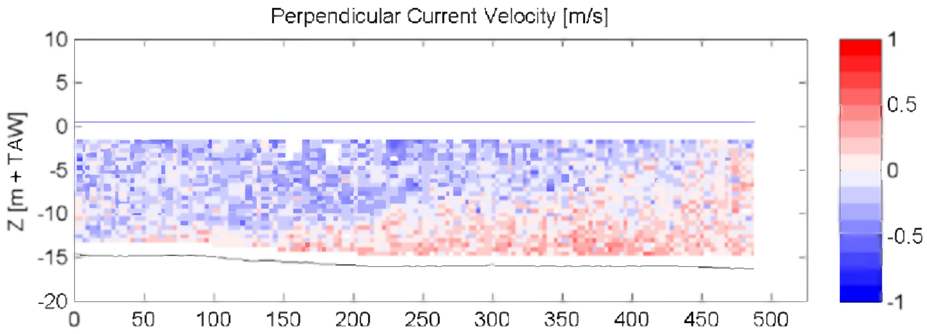
Date / Time [MET] :
13-Oct-2011
11:24 - 11:27

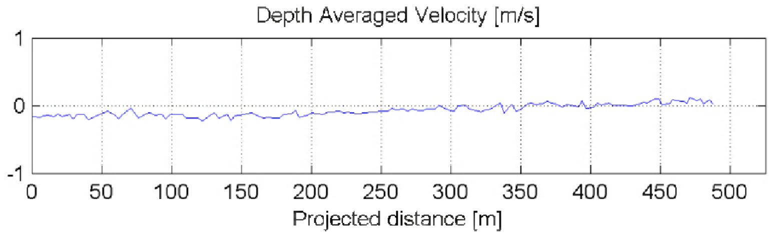
Time after HW [HH:MM]
-4:48

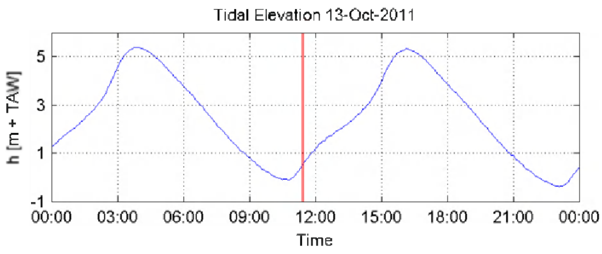
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6043DGDtlr_sub.csv	Location: Deurganckdok









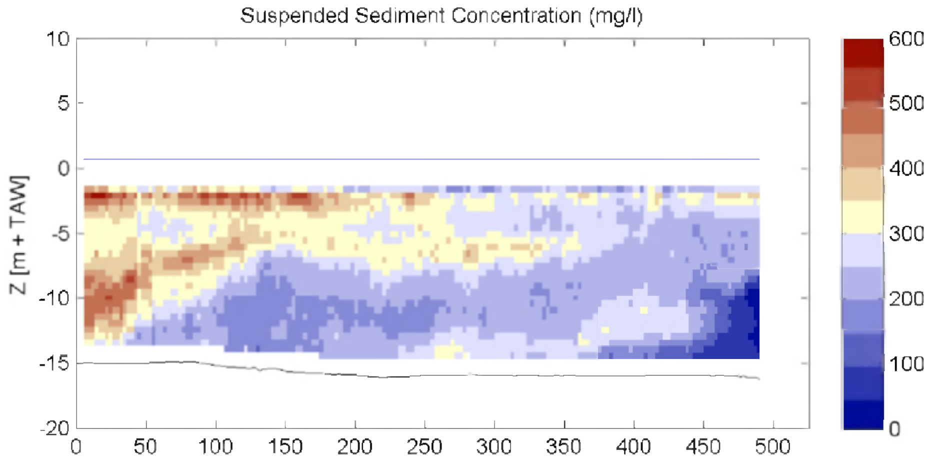
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

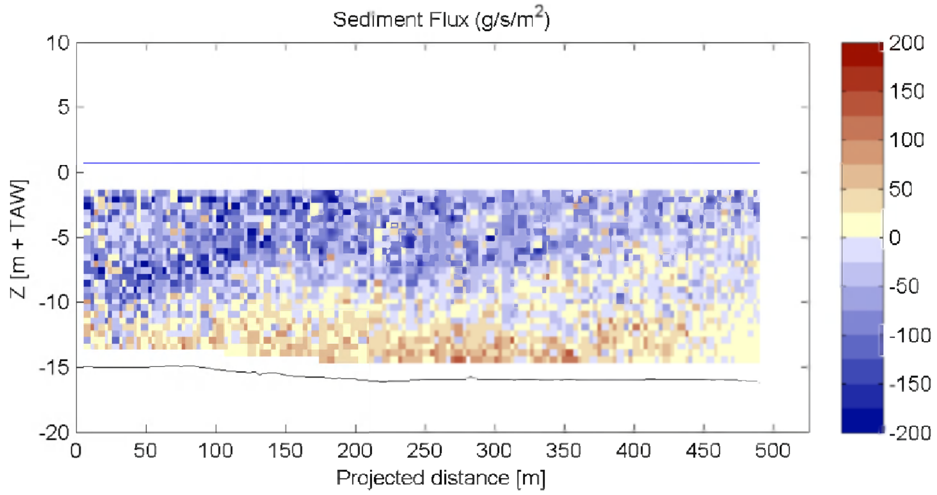
Date / Time [MET] :
13-Oct-2011
11:24 - 11:27

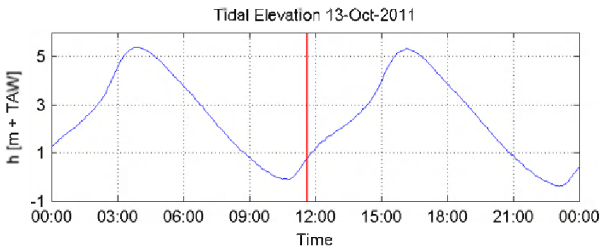
Time after HW [HH:MM]
-4:48

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6045DGDtrl_sub.csv	Location: Deurganckdok







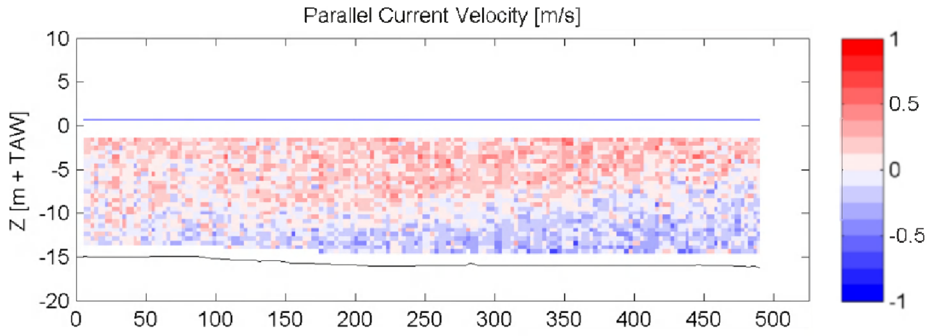
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

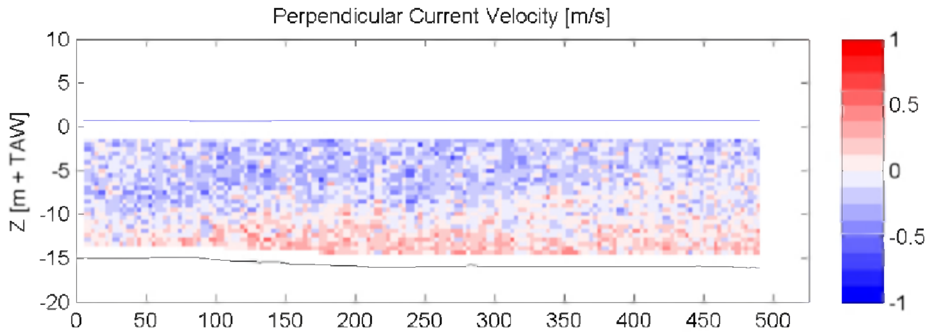
Date / Time [MET] :
13-Oct-2011
11:35 - 11:38

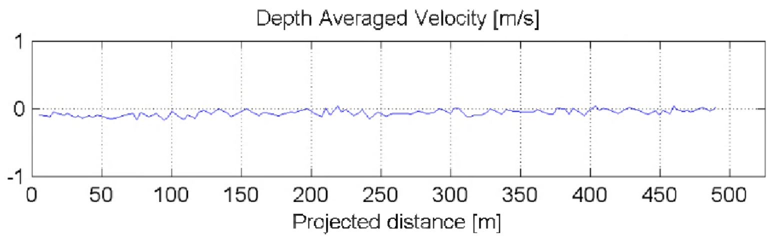
Time after HW [HH:MM]
-4:38

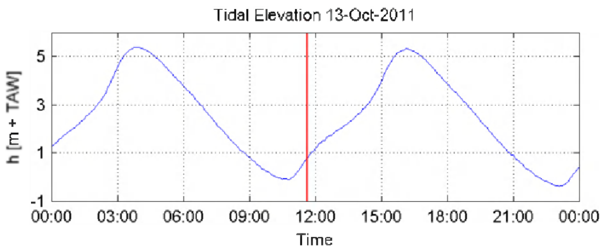
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6045DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

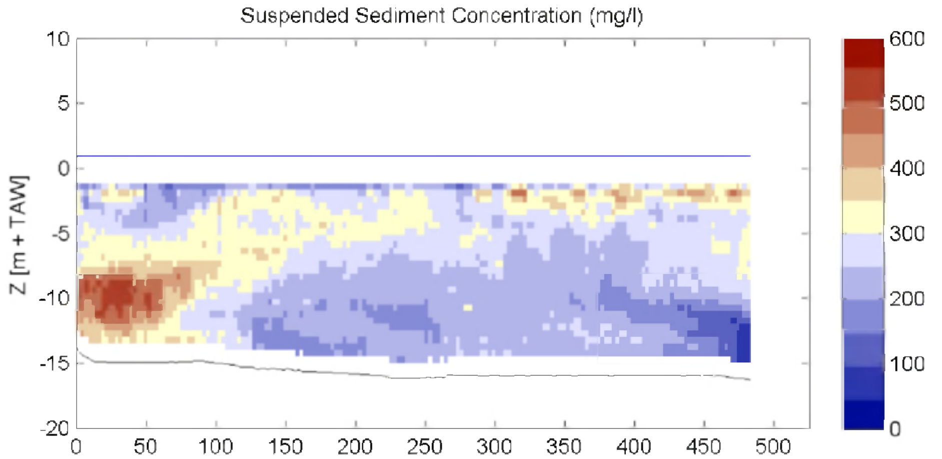
Date / Time [MET] :
13-Oct-2011
11:35 - 11:38

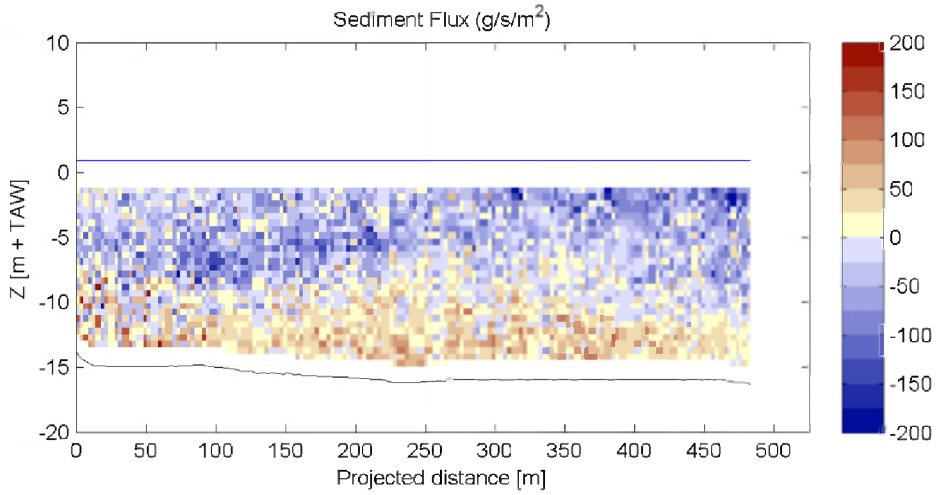
Time after HW [HH:MM]
-4:38

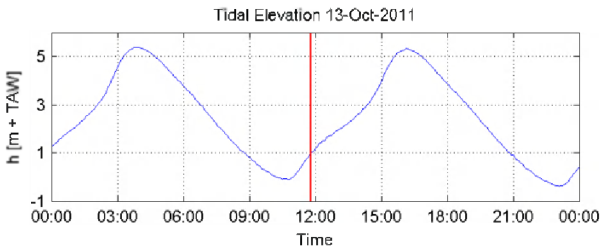
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6047DGDtlr_sub.csv	Location: Deurganckdok







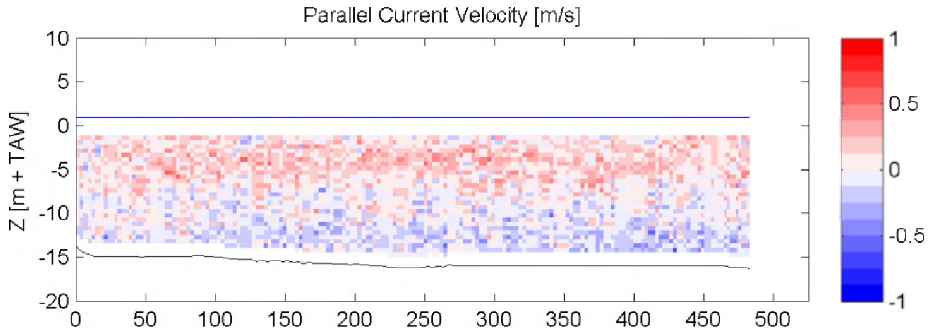
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

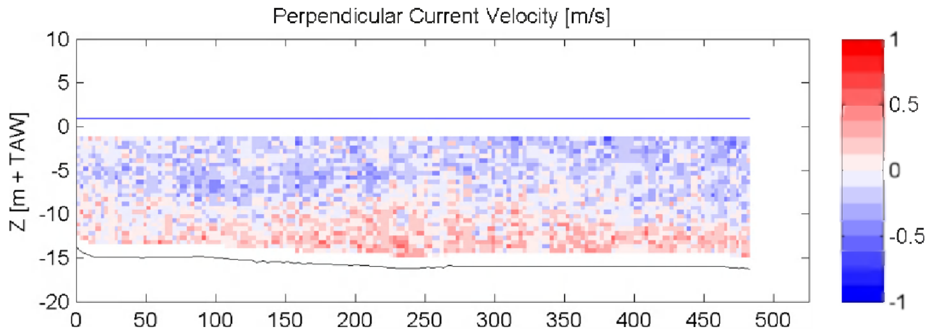
Date / Time [MET] :
13-Oct-2011
11:46 - 11:49

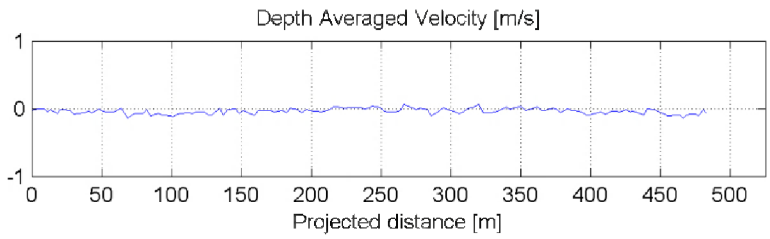
Time after HW [HH:MM]
-4:27

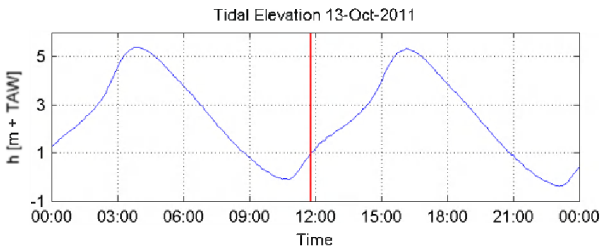
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6047DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
11:46 - 11:49

Time after HW [HH:MM]

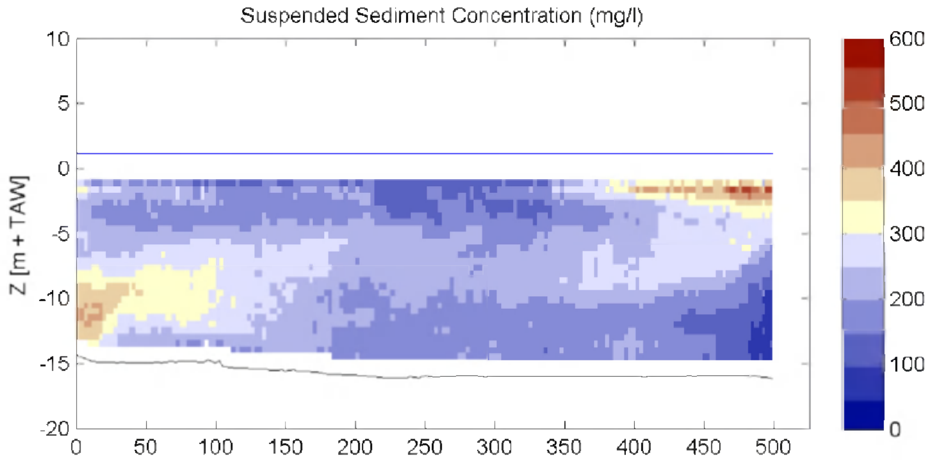
-4:27

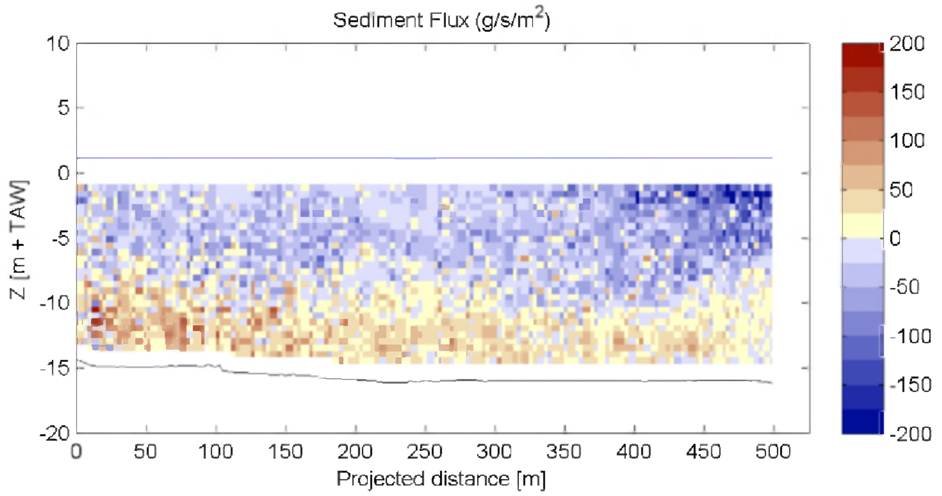
Data Processed by:

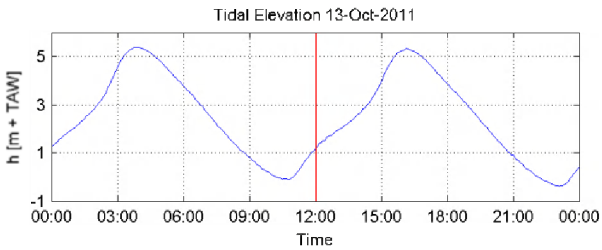
In association with :

I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6049DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

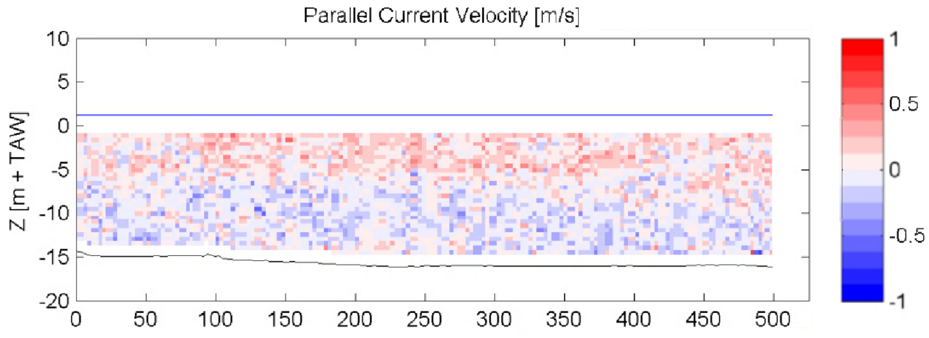
Date / Time [MET] :
13-Oct-2011
12:00 - 12:03

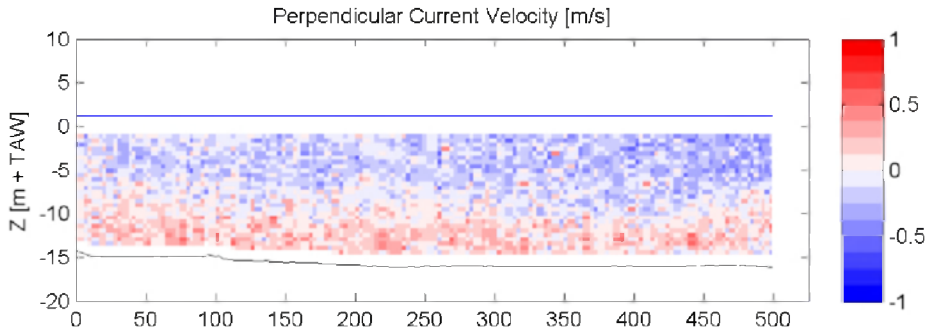
Time after HW [HH:MM]
-4:12

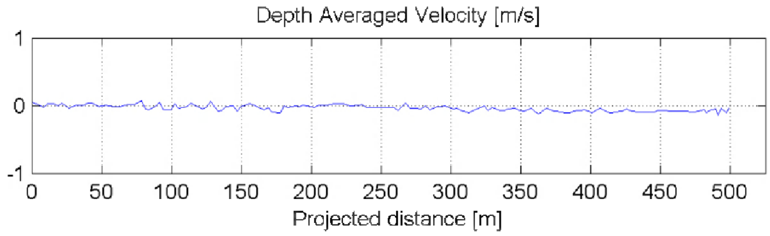
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

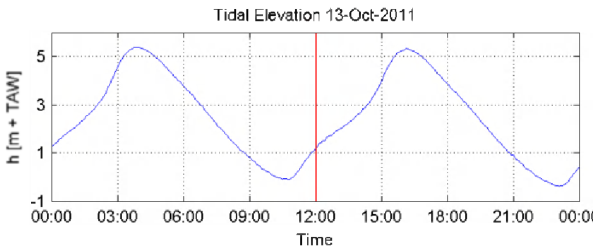
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6049DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
12:00 - 12:03

Time after HW [HH:MM]

-4:12

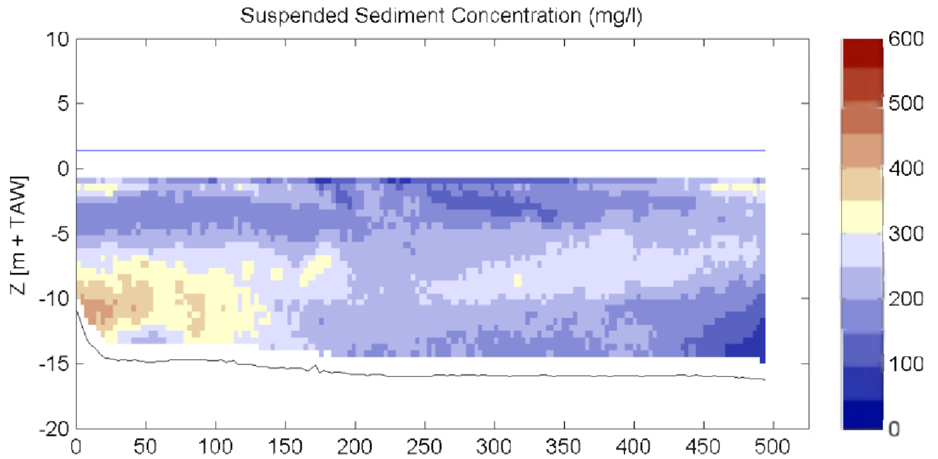
Data Processed by:

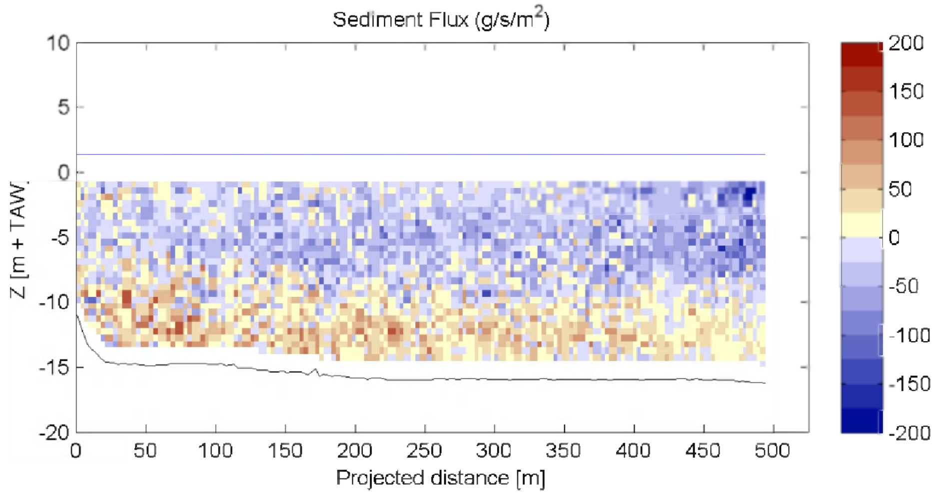
In association with :

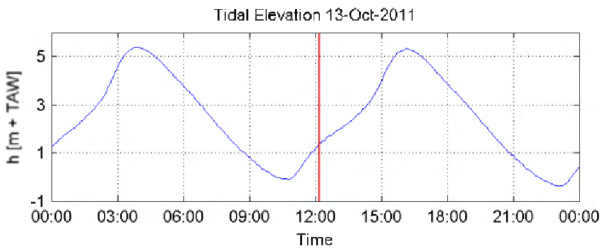
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6050DGDtlr_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

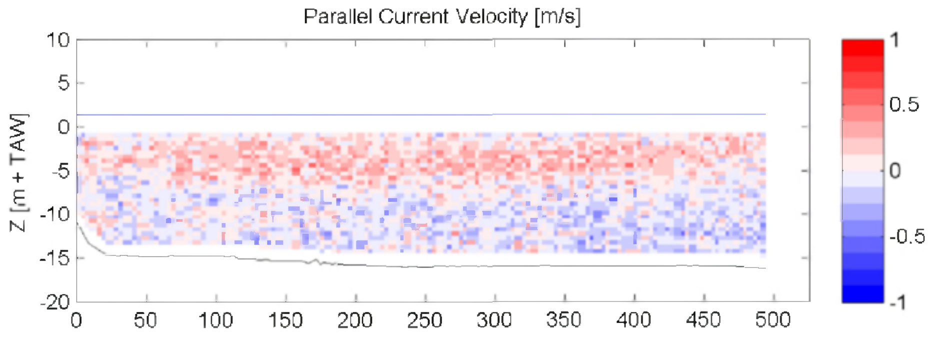
Date / Time [MET] :
13-Oct-2011
12:08 - 12:11

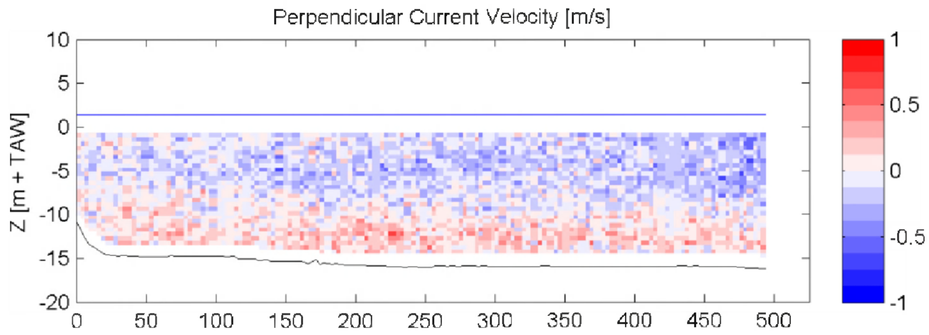
Time after HW [HH:MM]
-4:04

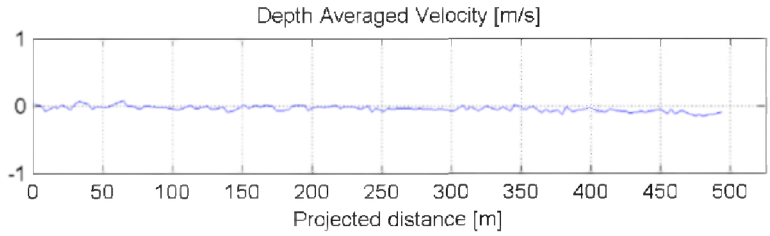
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

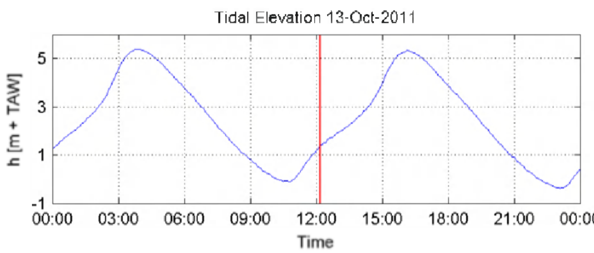
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6050DGDtlr_sub.csv	Location: Deurganckdok









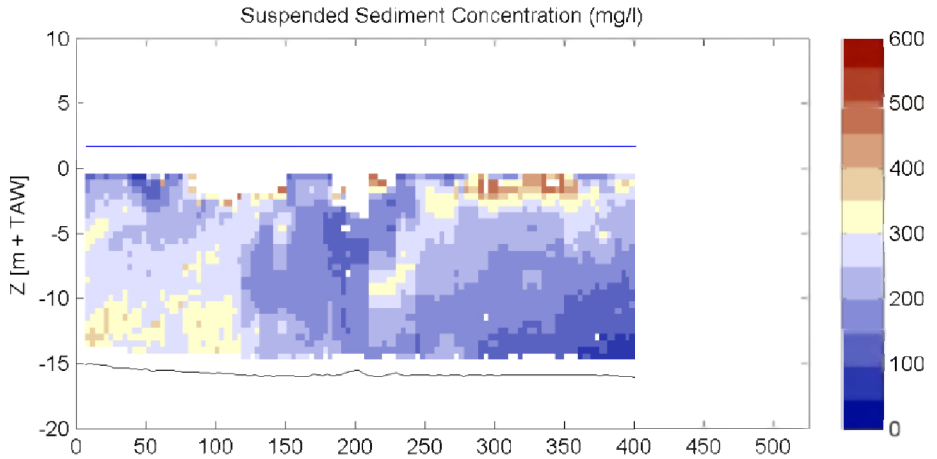
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

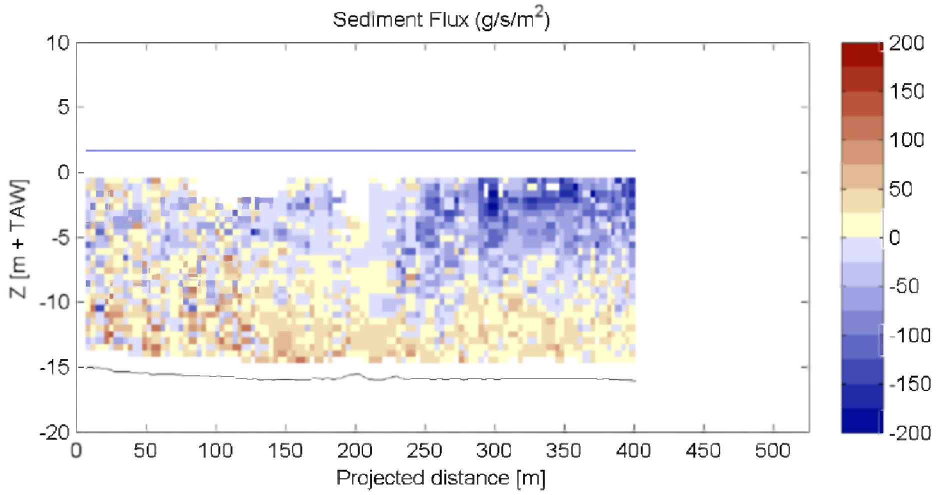
Date / Time [MET] :
13-Oct-2011
12:08 - 12:11

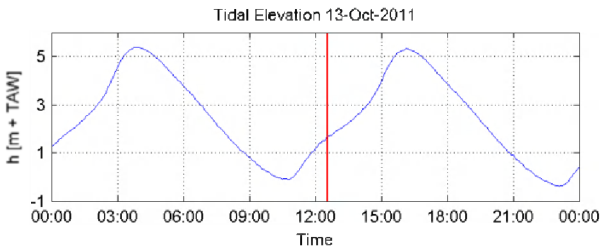
Time after HW [HH:MM]
-4:04

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6052DGDtrl_sub.csv	Location: Deurganckdok







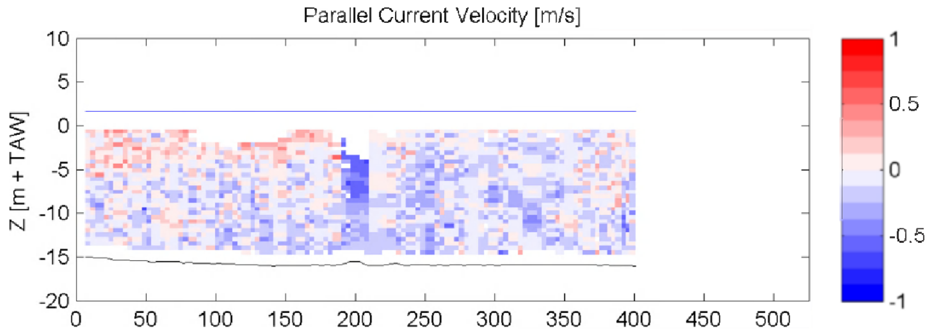
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

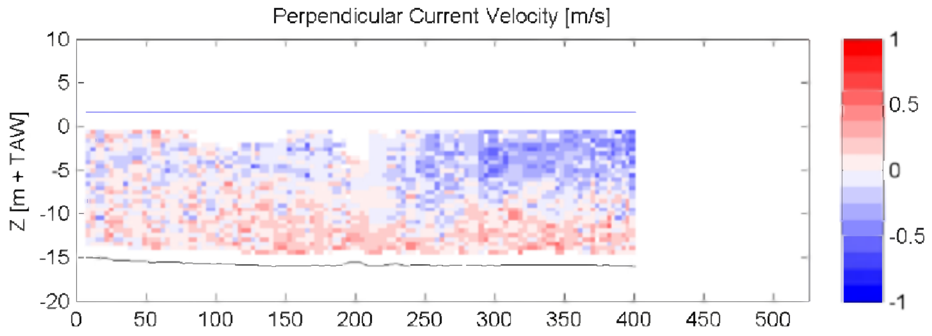
Date / Time [MET] :
13-Oct-2011
12:32 - 12:34

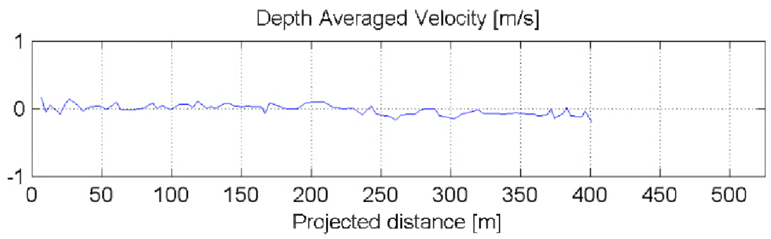
Time after HW [HH:MM]
-3:41

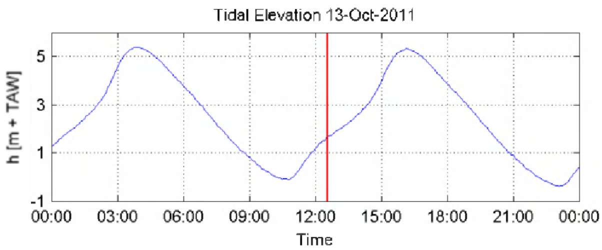
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6052DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

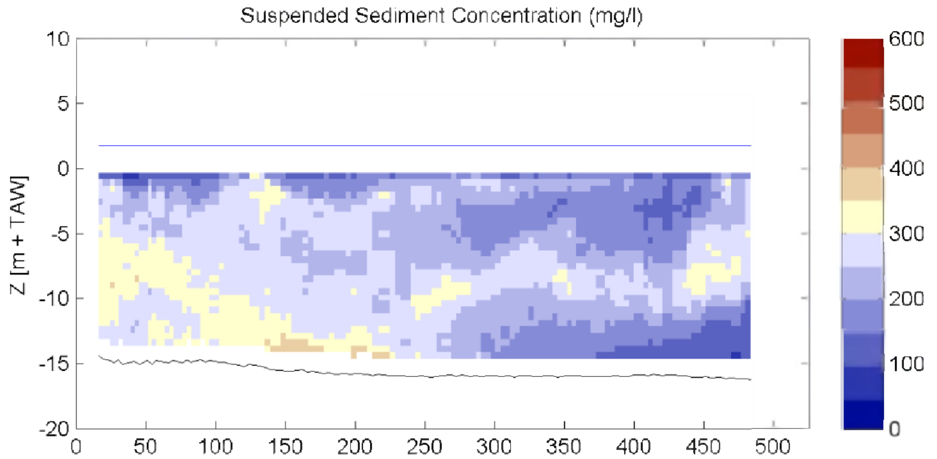
Date / Time [MET] :
13-Oct-2011
12:32 - 12:34

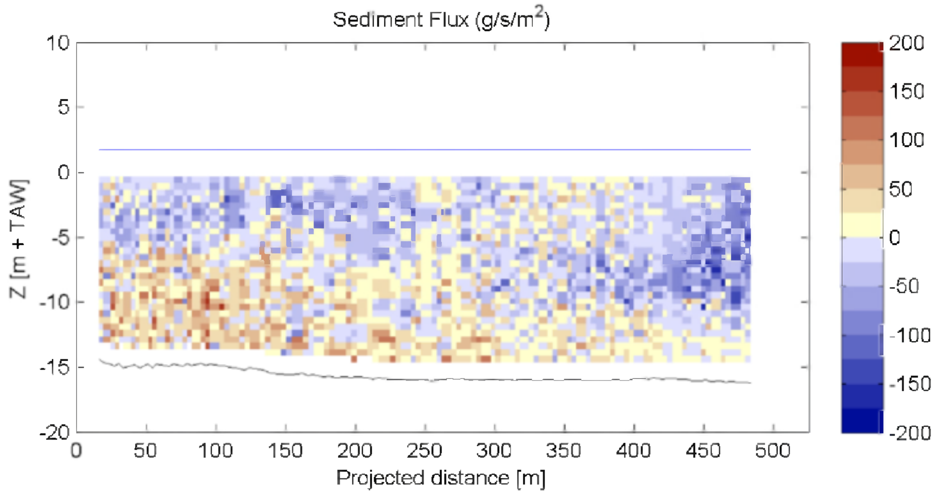
Time after HW [HH:MM]
-3:41

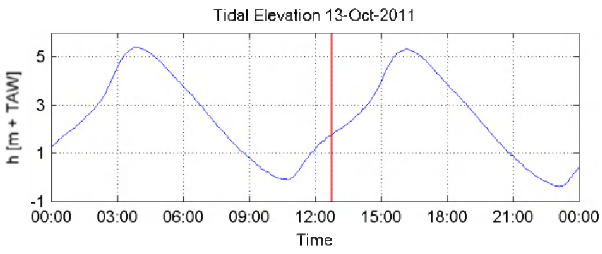
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6054DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

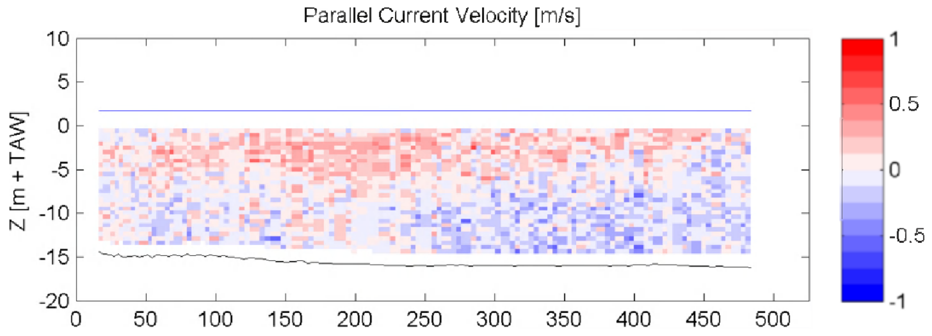
Date / Time [MET] :
13-Oct-2011
12:43 - 12:45

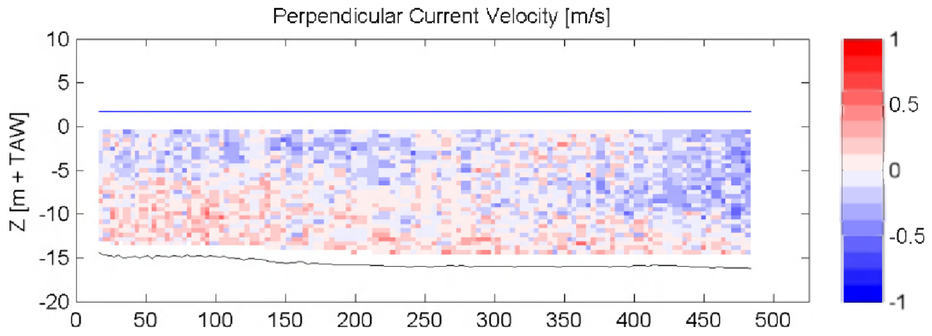
Time after HW [HH:MM]
-3:30

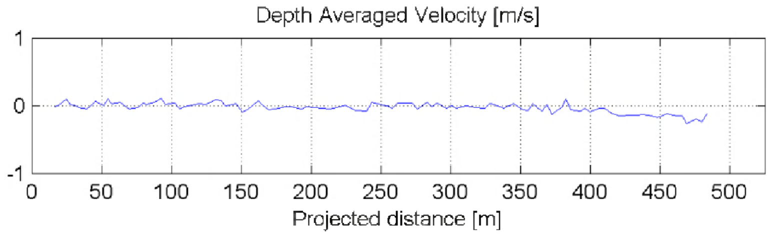
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

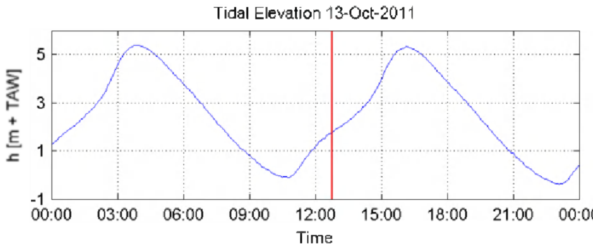
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6054DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

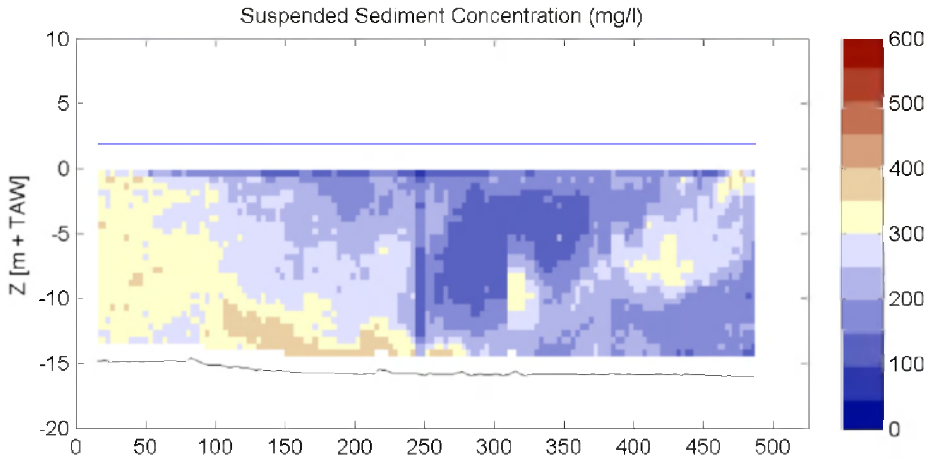
Date / Time [MET] :
13-Oct-2011
12:43 - 12:45

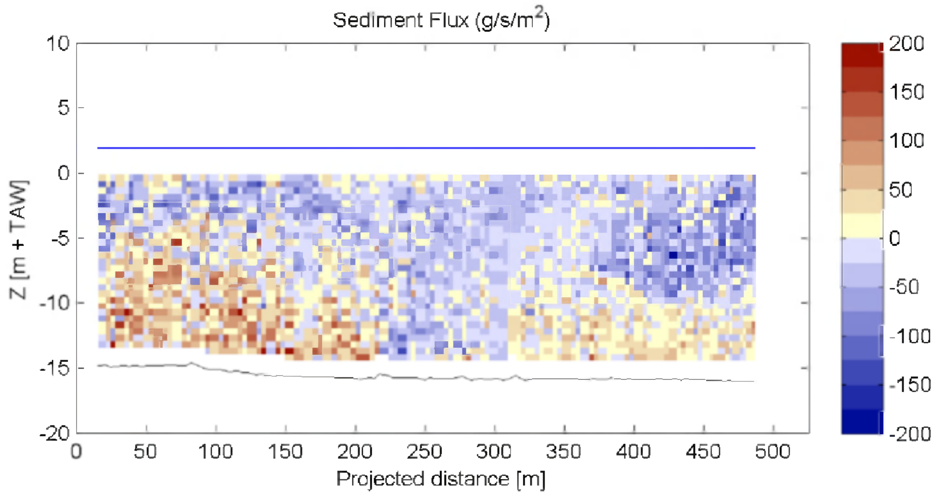
Time after HW [HH:MM]
-3:30

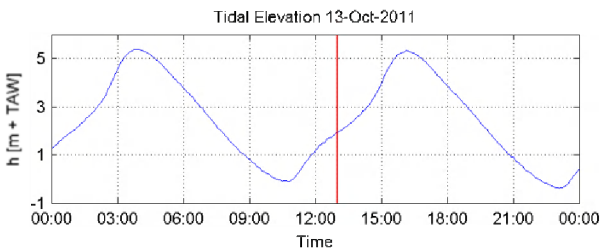
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6056DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

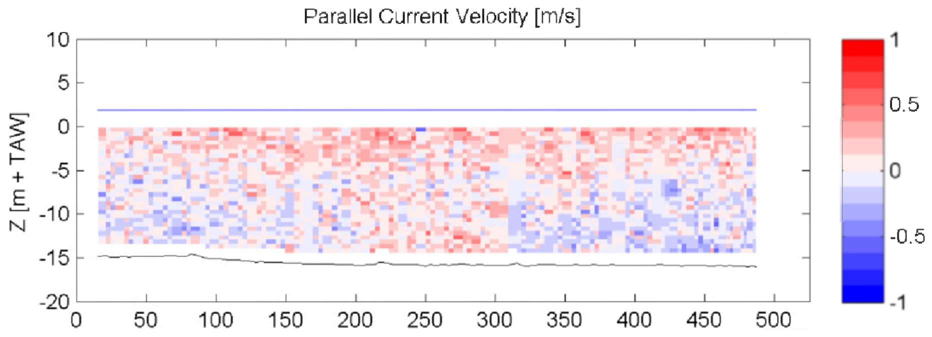
Date / Time [MET] :
13-Oct-2011
12:58 - 13:00

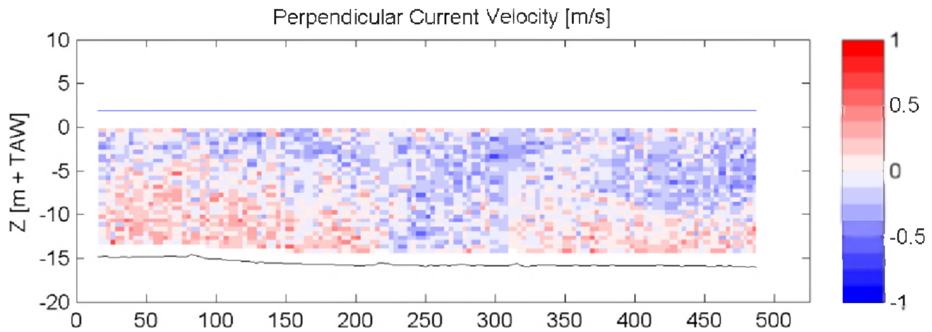
Time after HW [HH:MM]
-3:15

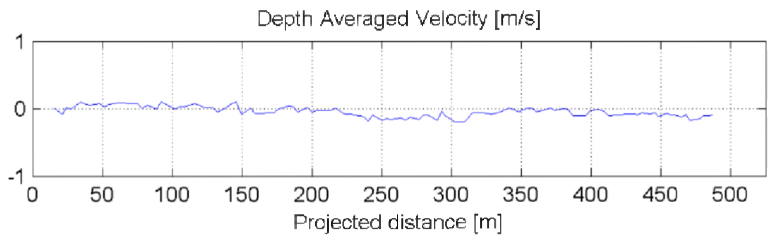
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

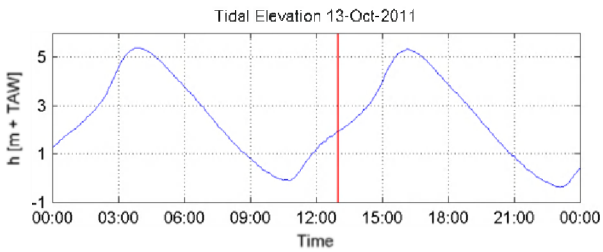
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6056DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

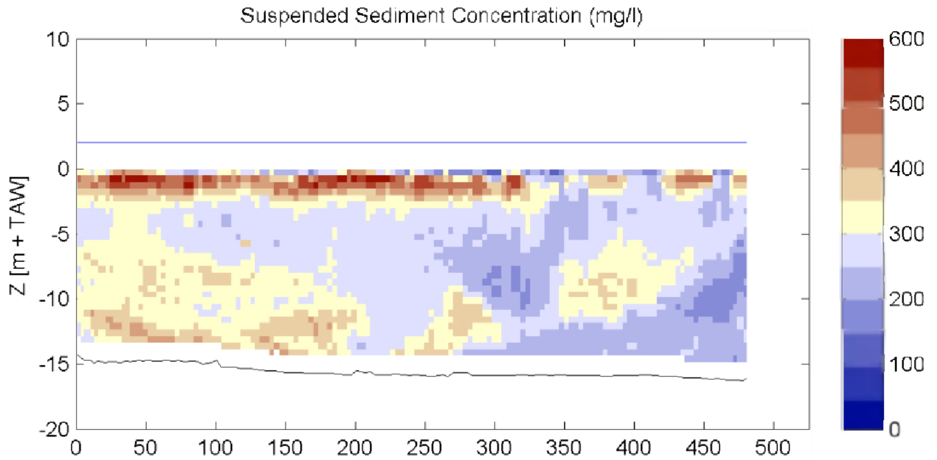
Date / Time [MET] :
13-Oct-2011
12:58 - 13:00

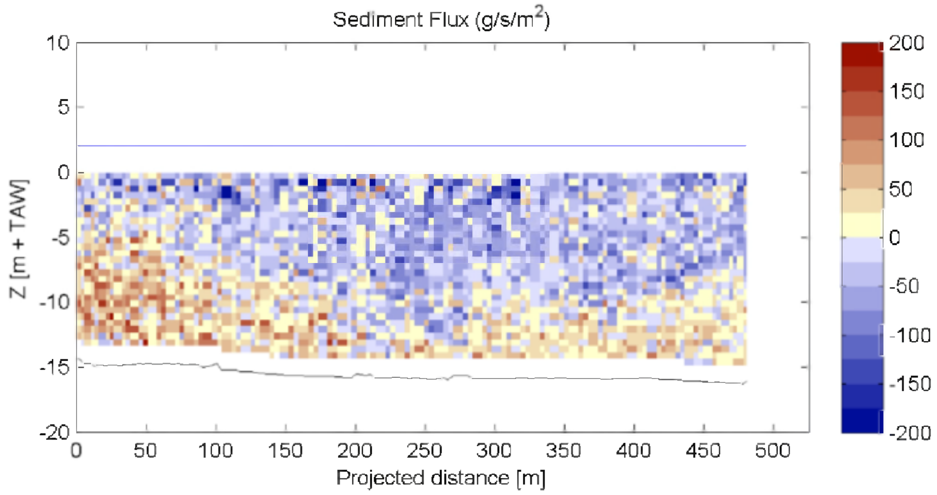
Time after HW [HH:MM]
-3:15

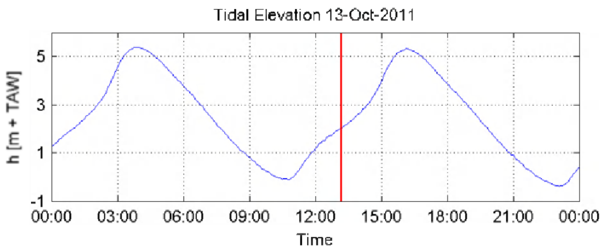
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6058DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

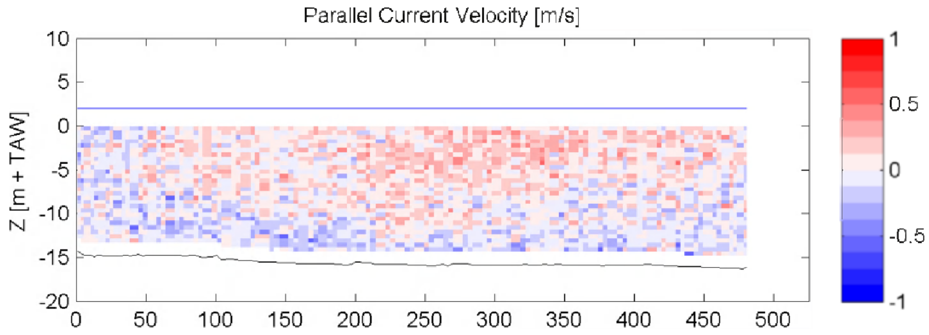
Date / Time [MET] :
13-Oct-2011
13:09 - 13:11

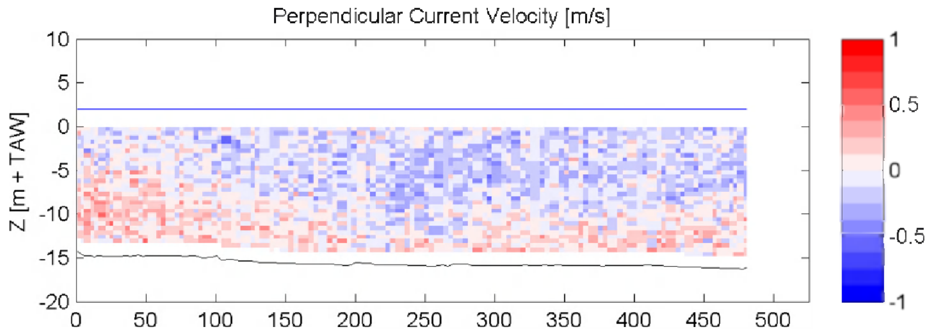
Time after HW [HH:MM]
-3:04

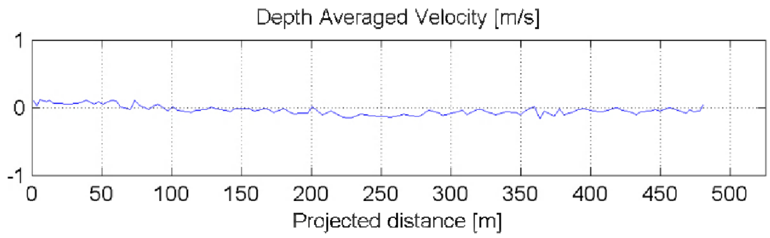
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

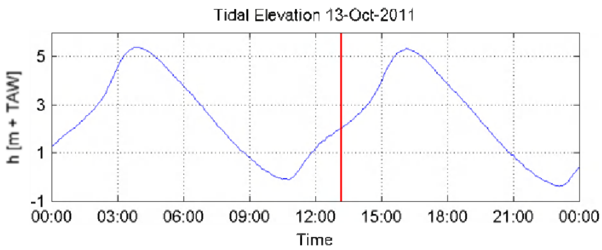
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6058DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

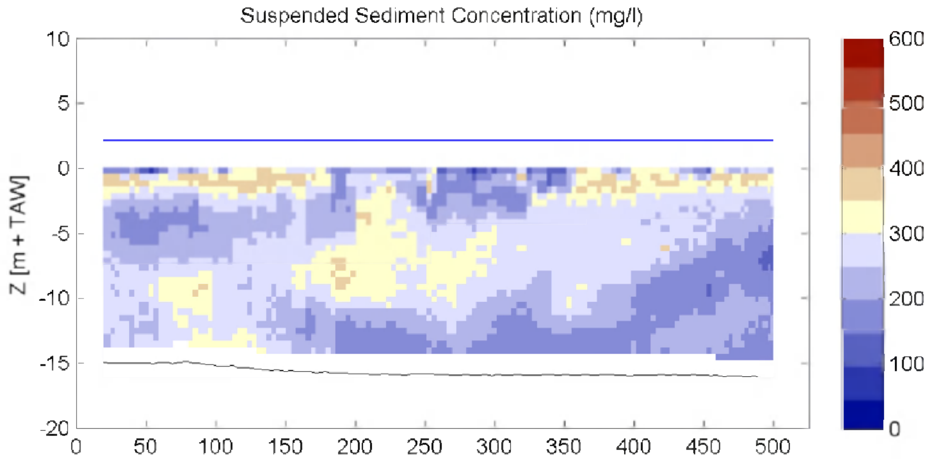
Date / Time [MET] :
13-Oct-2011
13:09 - 13:11

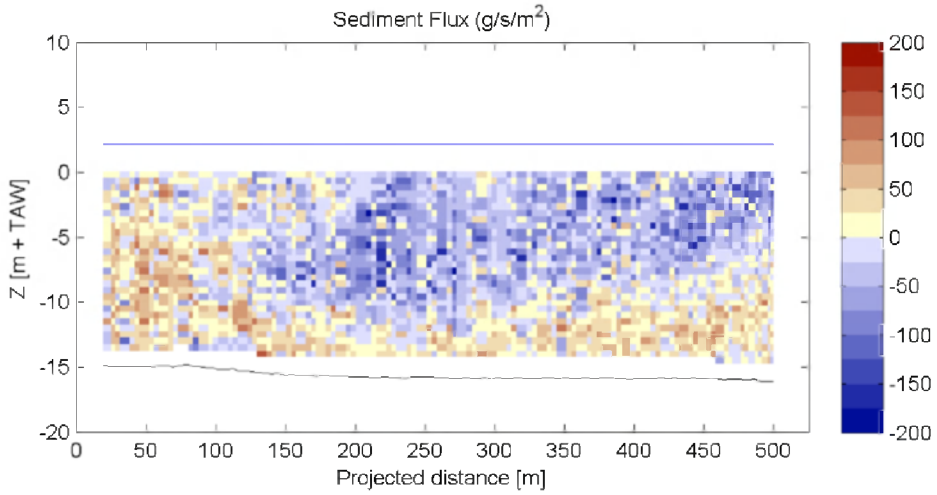
Time after HW [HH:MM]
-3:04

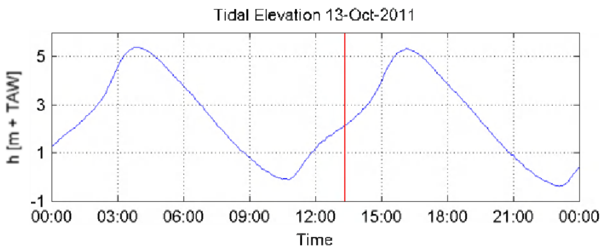
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6060DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

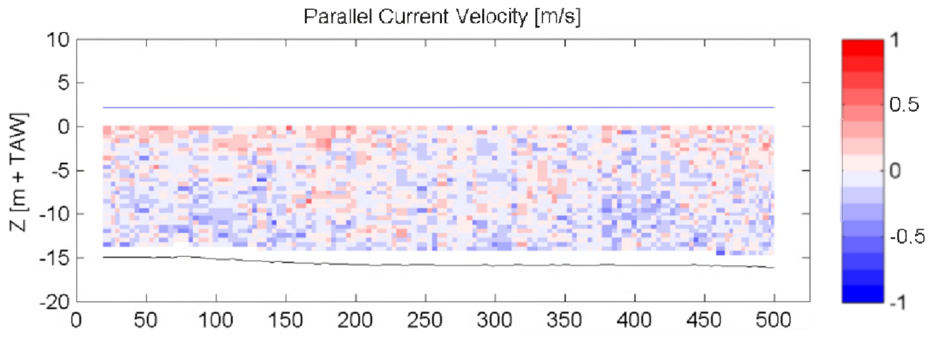
Date / Time [MET] :
13-Oct-2011
13:20 - 13:22

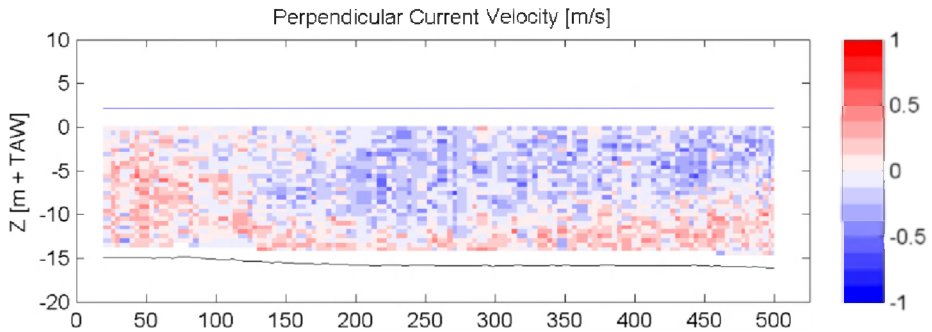
Time after HW [HH:MM]
-2:53

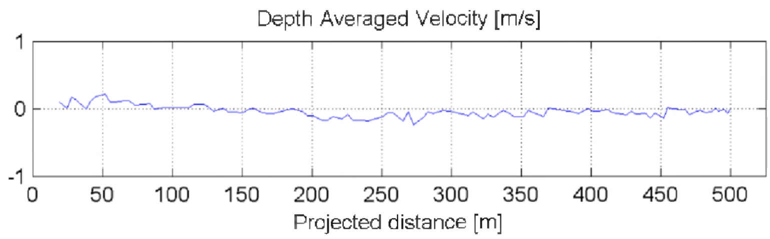
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

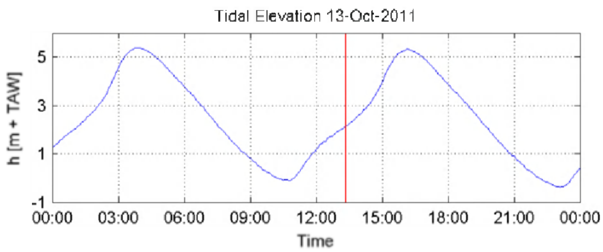
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6060DGDtrl_sub.csv	Location: Deurganckdok









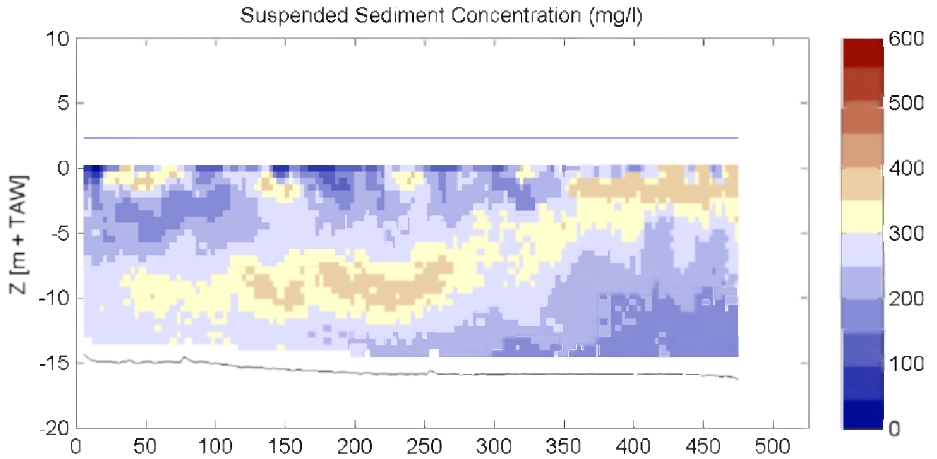
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

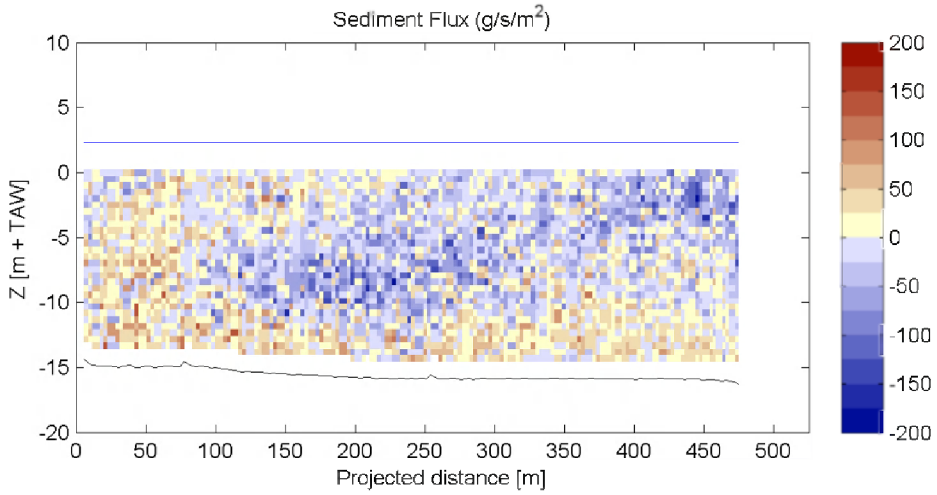
Date / Time [MET] :
13-Oct-2011
13:20 - 13:22

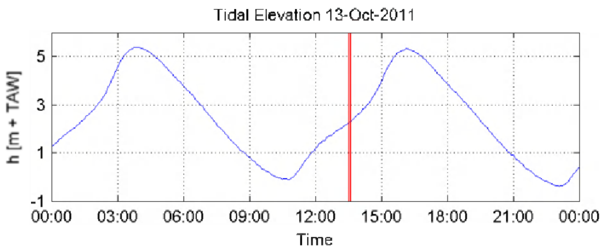
Time after HW [HH:MM]
-2:53

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6062DGDtlr_sub.csv	Location: Deurganckdok







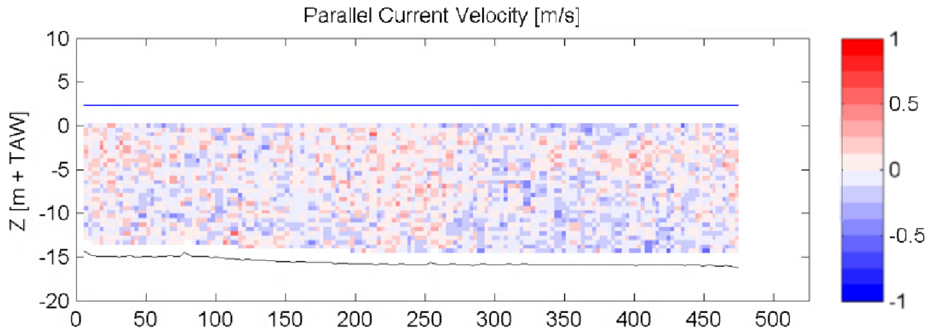
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

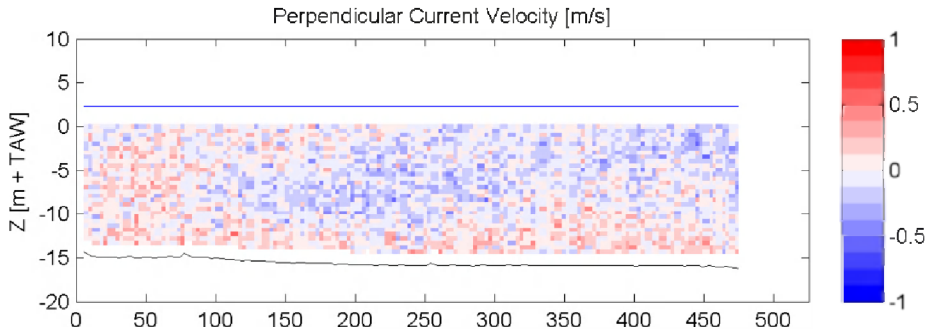
Date / Time [MET] :
13-Oct-2011
13:32 - 13:35

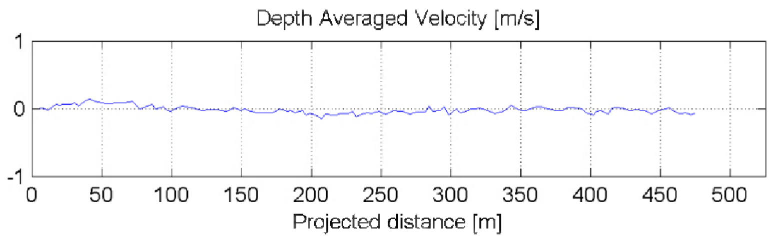
Time after HW [HH:MM]
-2:40

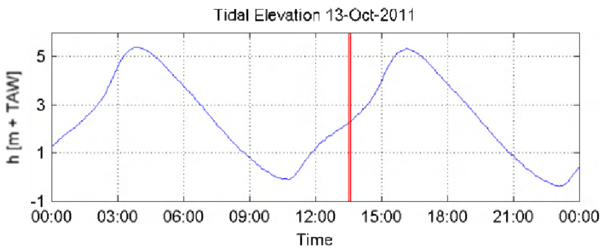
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6062DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

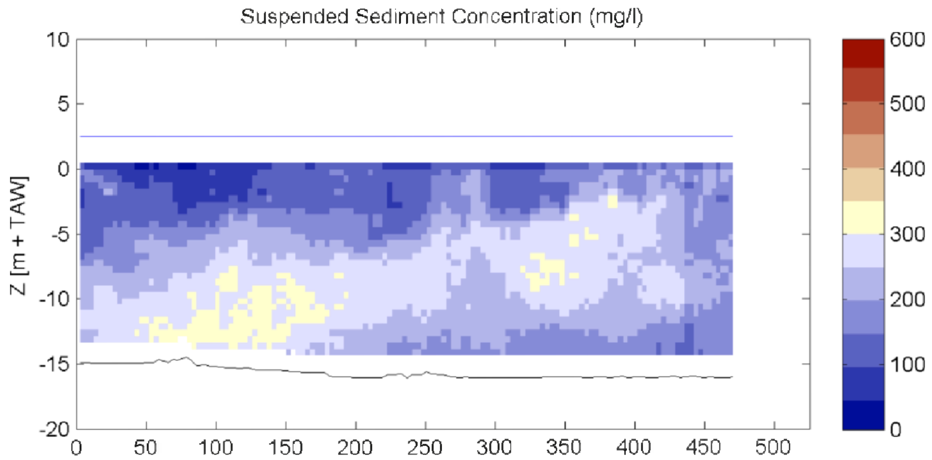
Date / Time [MET] :
13-Oct-2011
13:32 - 13:35

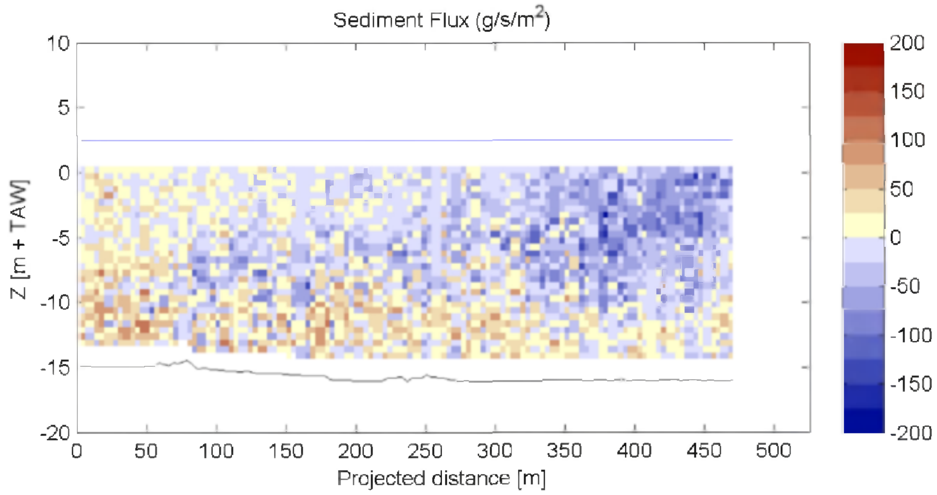
Time after HW [HH:MM]
-2:40

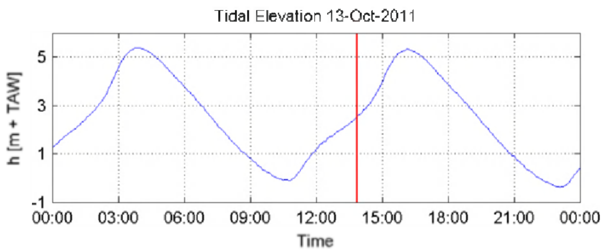
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6064DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

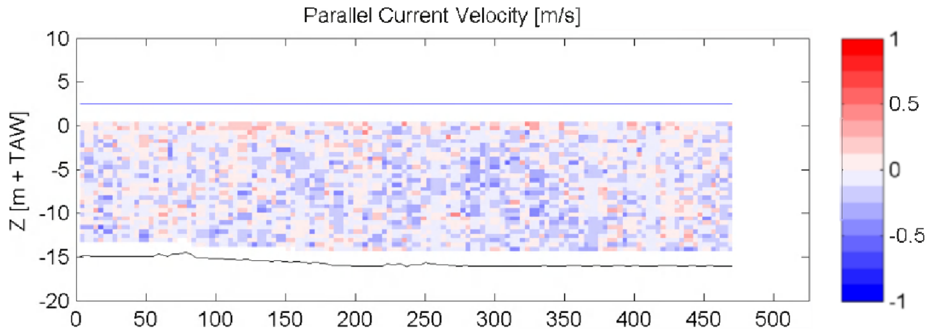
Date / Time [MET] :
13-Oct-2011
13:50 - 13:53

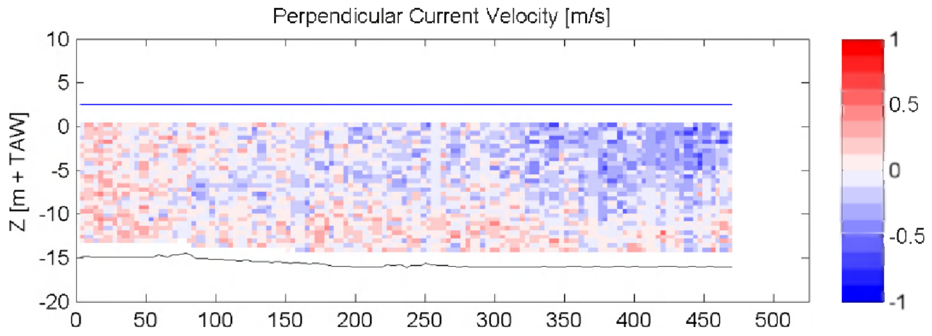
Time after HW [HH:MM]
-2:23

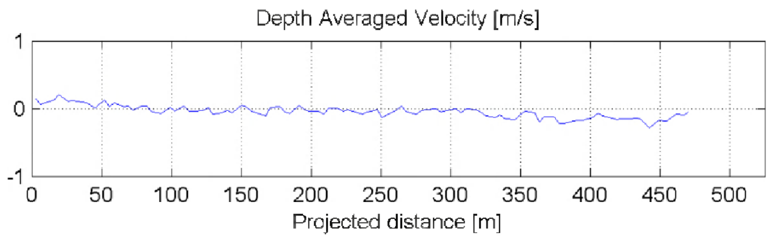
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

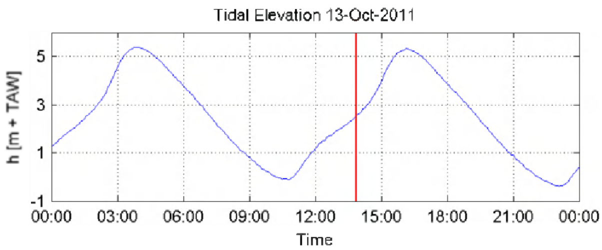
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6064DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
13:50 - 13:53

Time after HW [HH:MM]

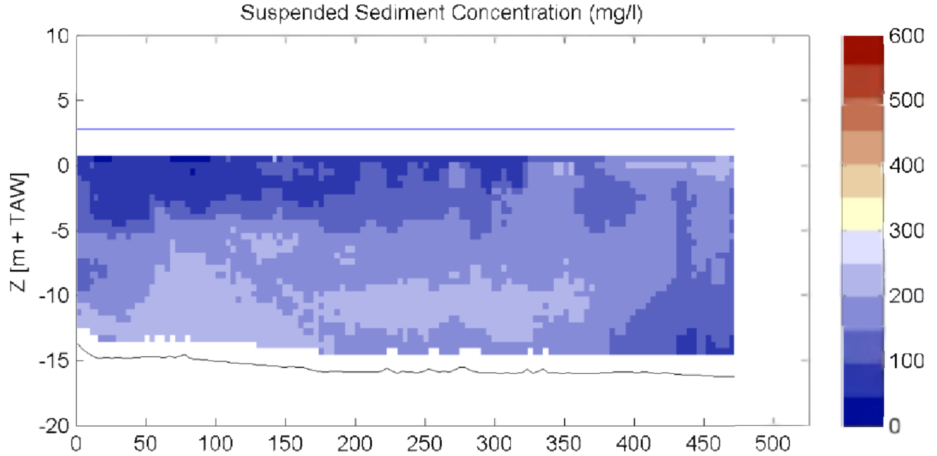
-2:23

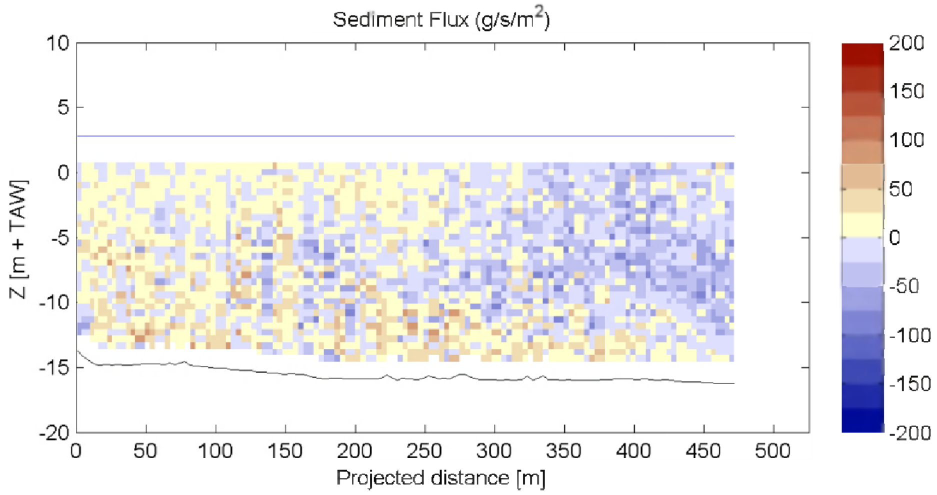
Data Processed by:

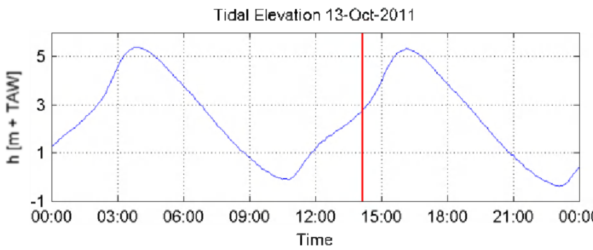
In association with :

I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6066DGDtlr_sub.csv	Location: Deurganckdok







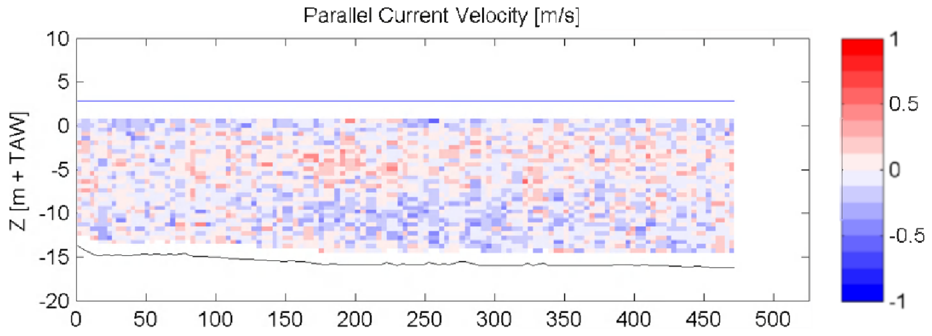
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

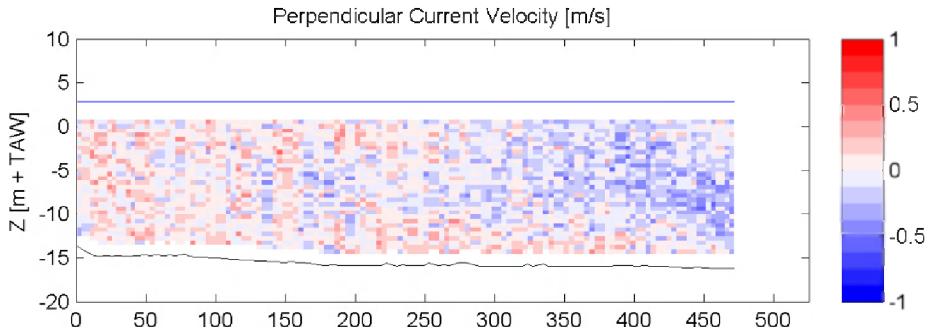
Date / Time [MET] :
13-Oct-2011
14:07 - 14:10

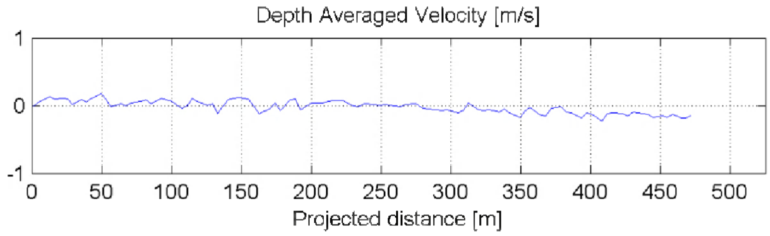
Time after HW [HH:MM]
-2:06

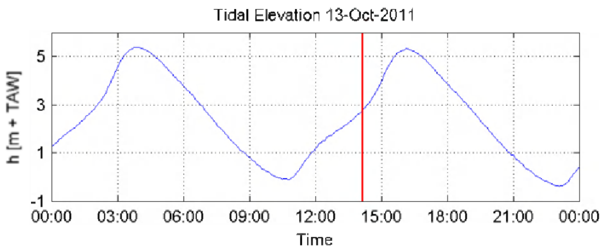
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6066DGDtlr_sub.csv	Location: Deurganckdok









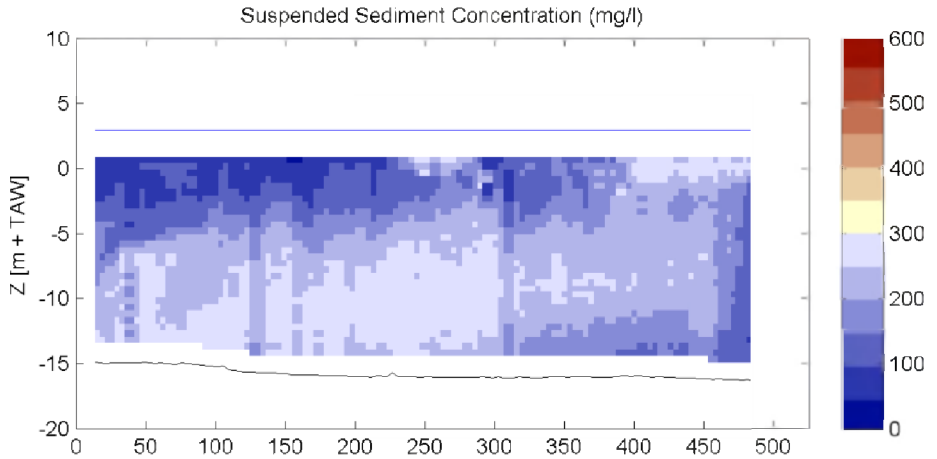
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

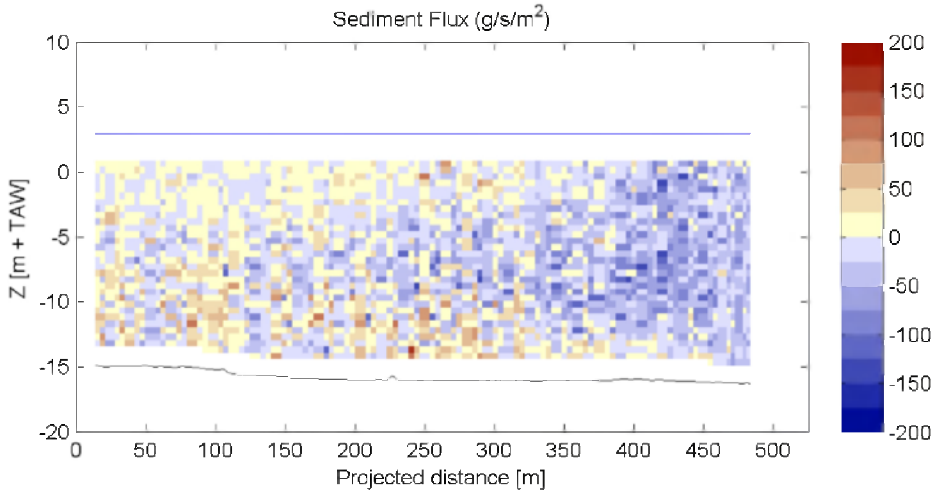
Date / Time [MET] :
13-Oct-2011
14:07 - 14:10

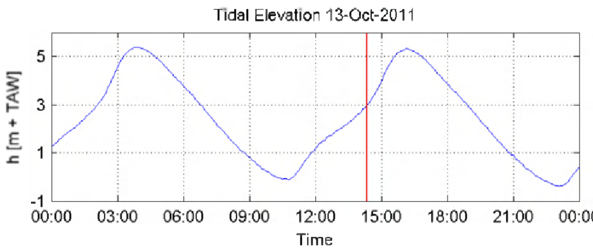
Time after HW [HH:MM]
-2:06

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6068DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

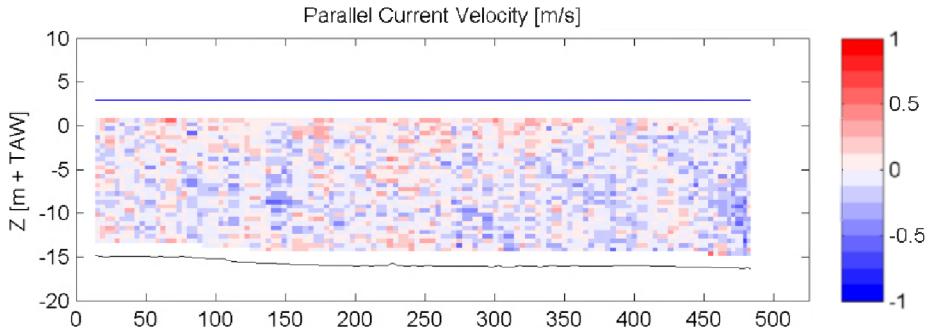
Date / Time [MET] :
13-Oct-2011
14:20 - 14:22

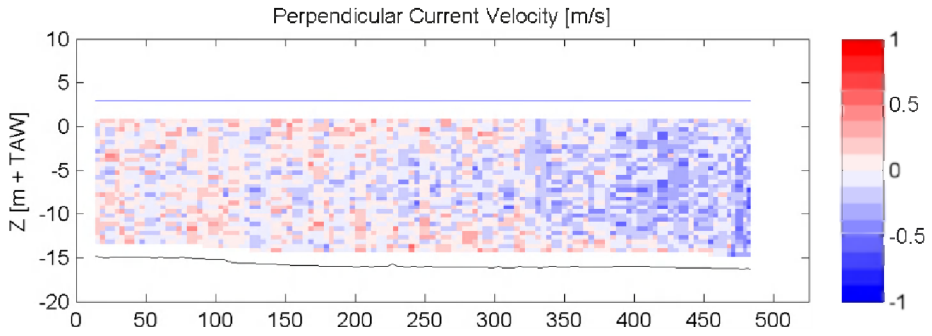
Time after HW [HH:MM]
-1:53

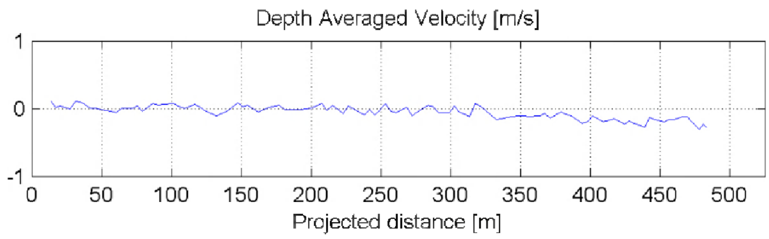
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

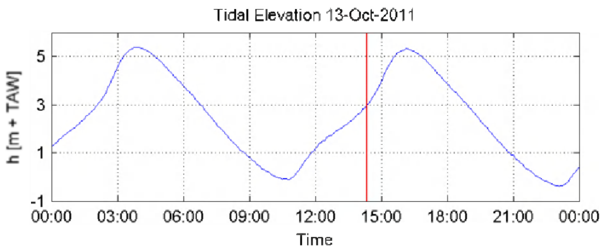
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6068DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :
13-Oct-2011
14:20 - 14:22

Time after HW [HH:MM]
-1:53

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

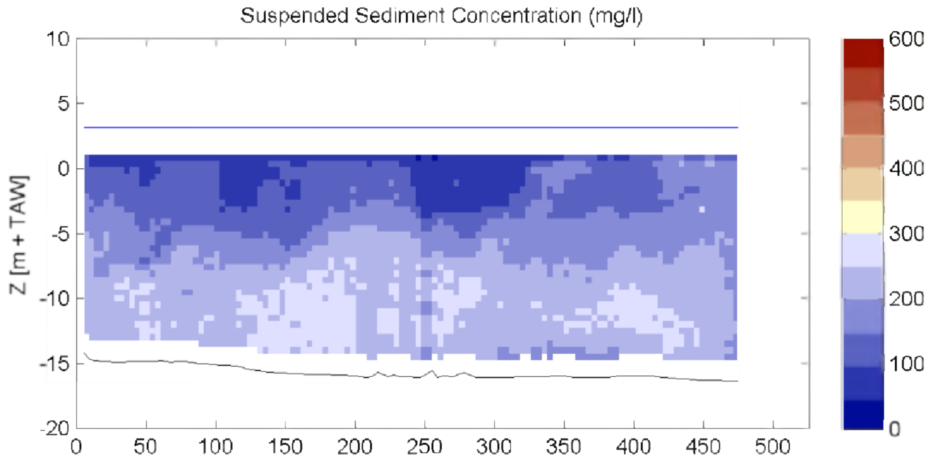
Evaluatie aanslibbing Deurganckdok

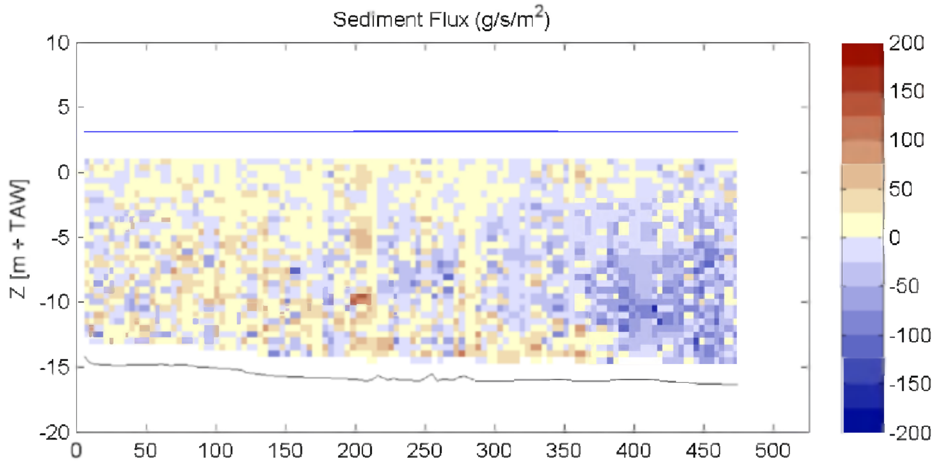
11354

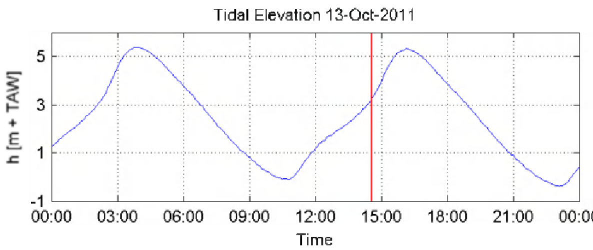
Equipment(s):
ADCP

Sourcefile:
6070DGDtlr_sub.csv

Location:
Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

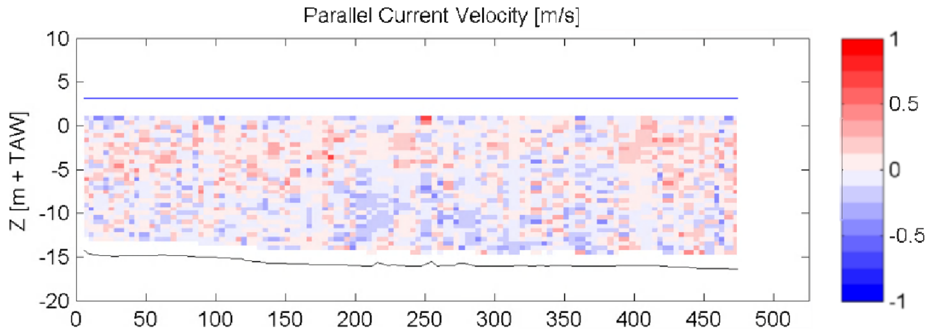
Date / Time [MET] :
13-Oct-2011
14:31 - 14:33

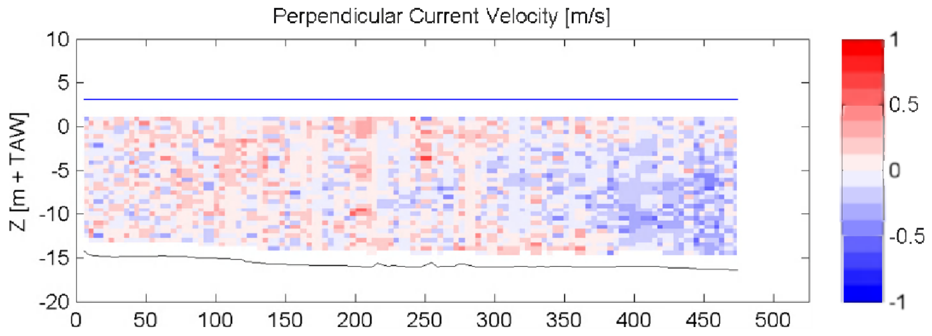
Time after HW [HH:MM]
-1:42

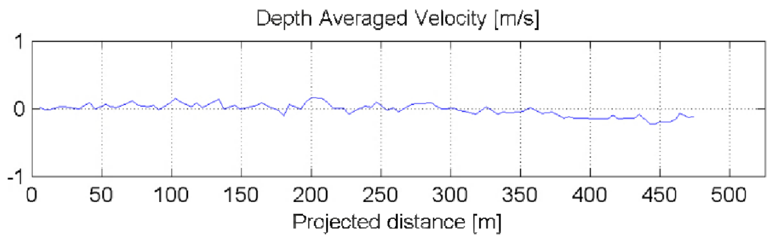
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

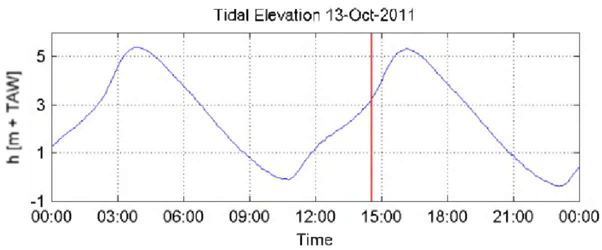
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6070DGDtlr_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

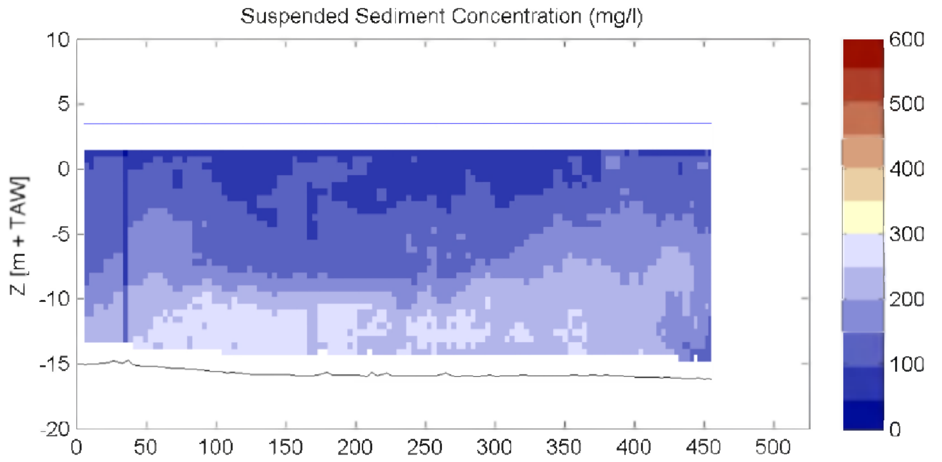
Date / Time [MET] :
13-Oct-2011
14:31 - 14:33

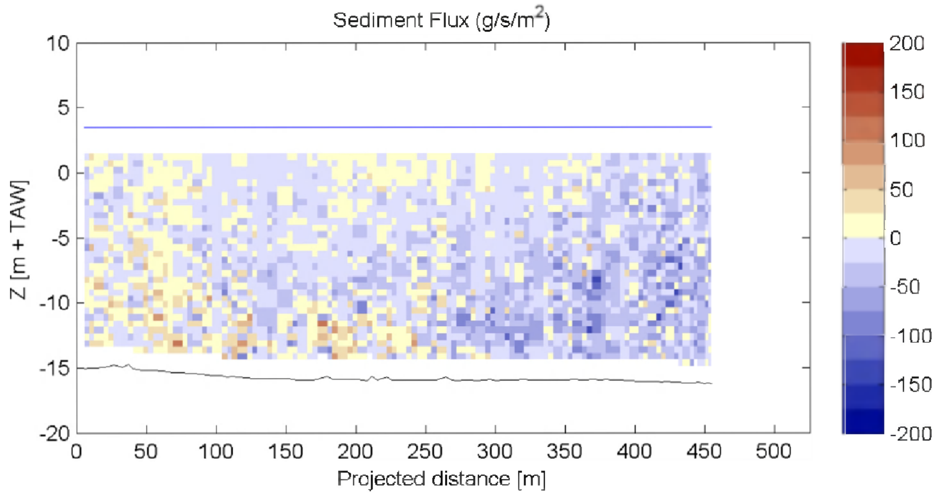
Time after HW [HH:MM]
-1:42

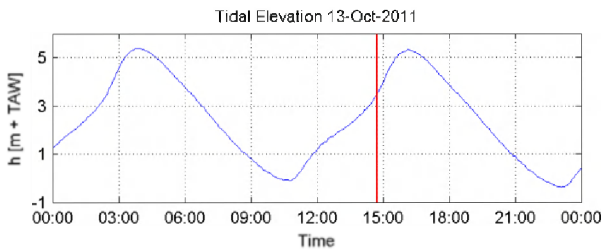
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6072DGDtrl_sub.csv	Location: Deurganckdok







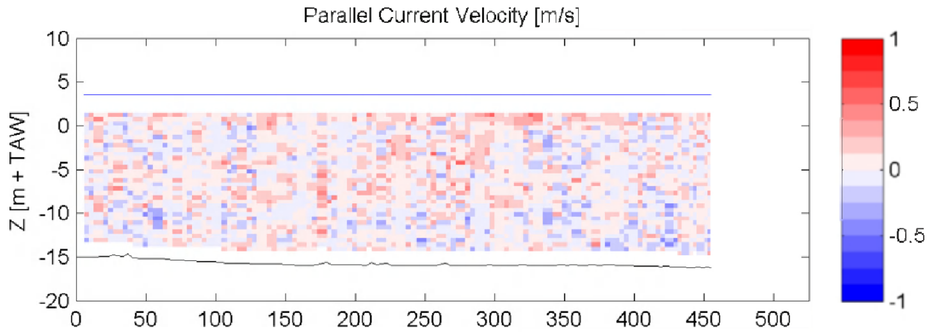
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

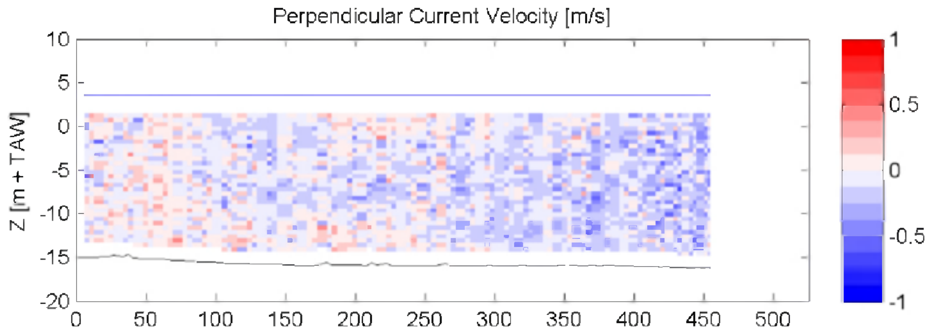
Date / Time [MET] :
13-Oct-2011
14:42 - 14:44

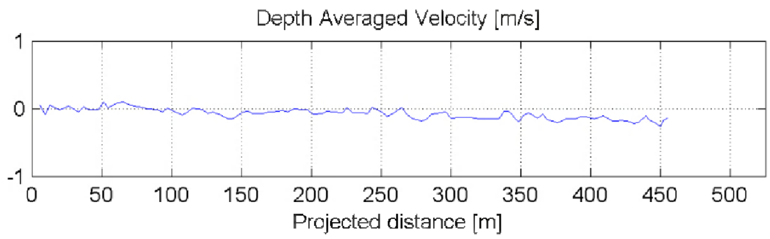
Time after HW [HH:MM]
-1:31

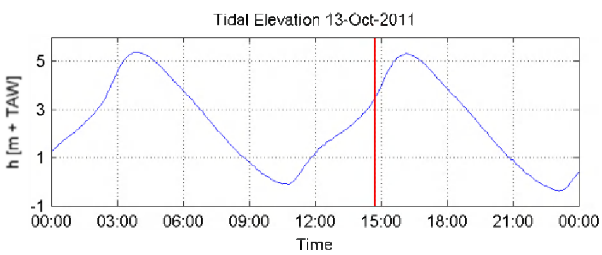
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6072DGDtrl_sub.csv	Location: Deurganckdok









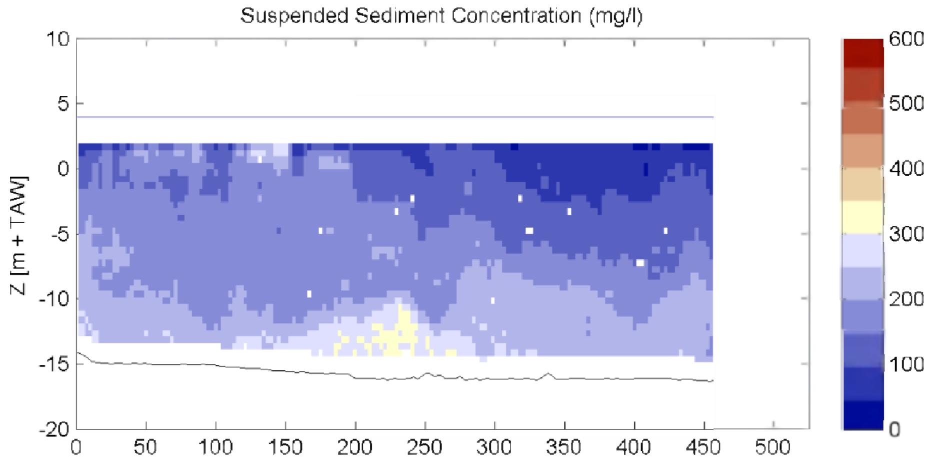
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

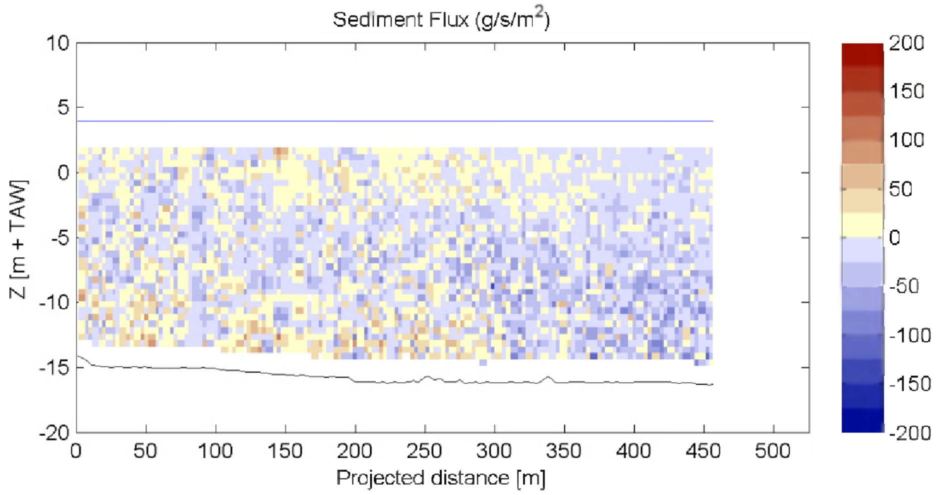
Date / Time [MET] :
13-Oct-2011
14:42 - 14:44

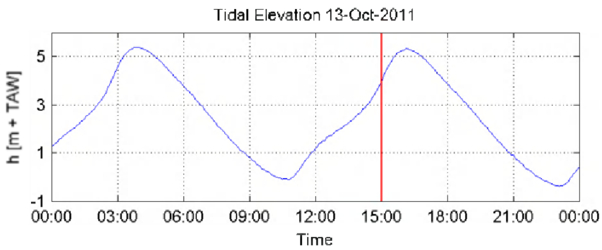
Time after HW [HH:MM]
-1:31

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6074DGDtlr_sub.csv	Location: Deurganckdok







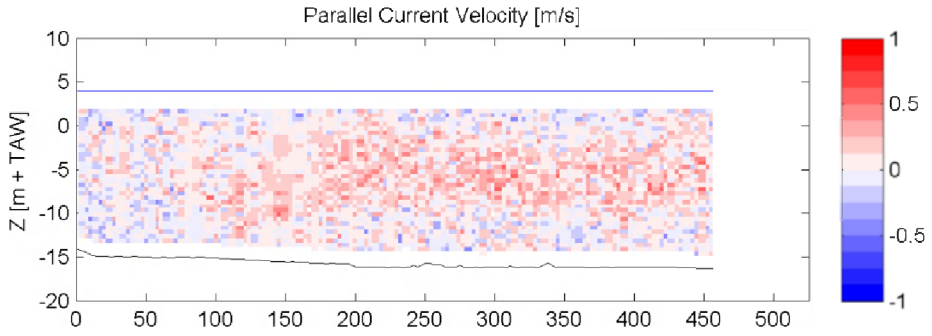
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

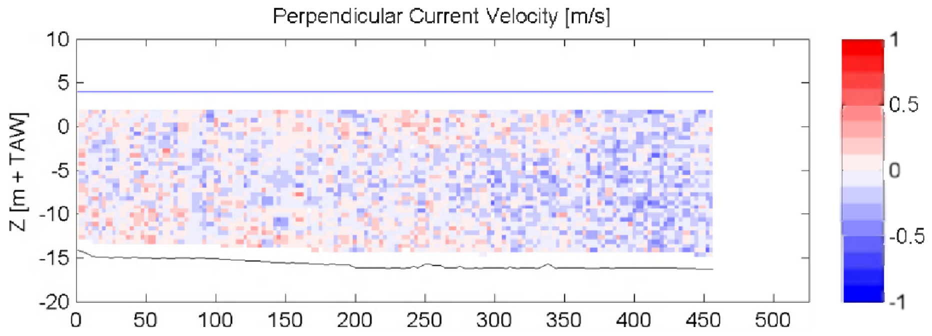
Date / Time [MET] :
13-Oct-2011
14:58 - 15:01

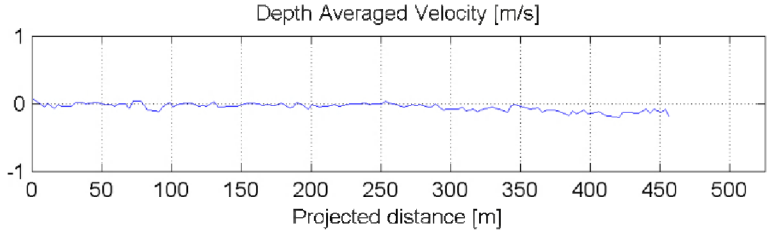
Time after HW [HH:MM]
-1:15

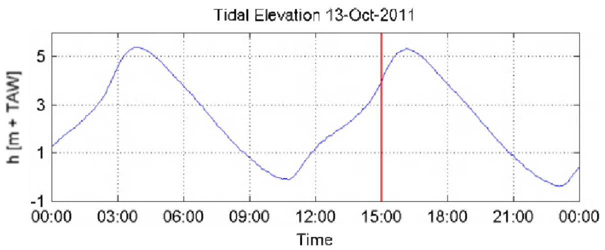
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6074DGDtlr_sub.csv	Location: Deurganckdok









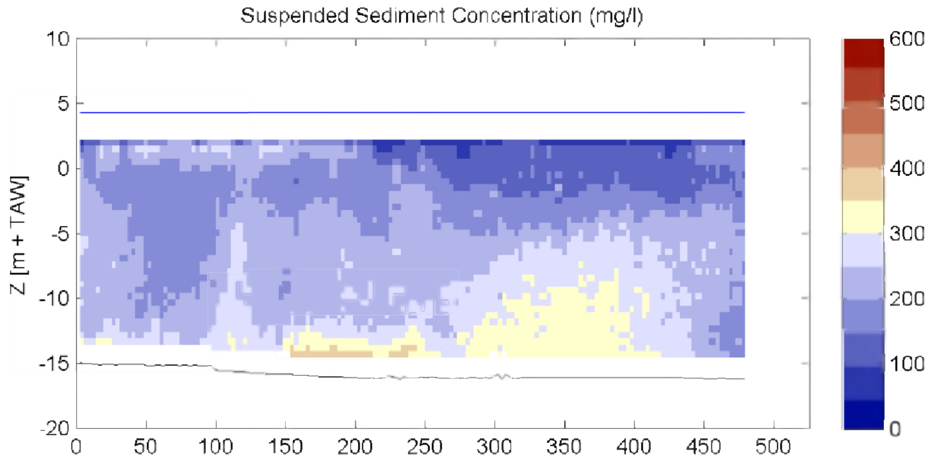
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

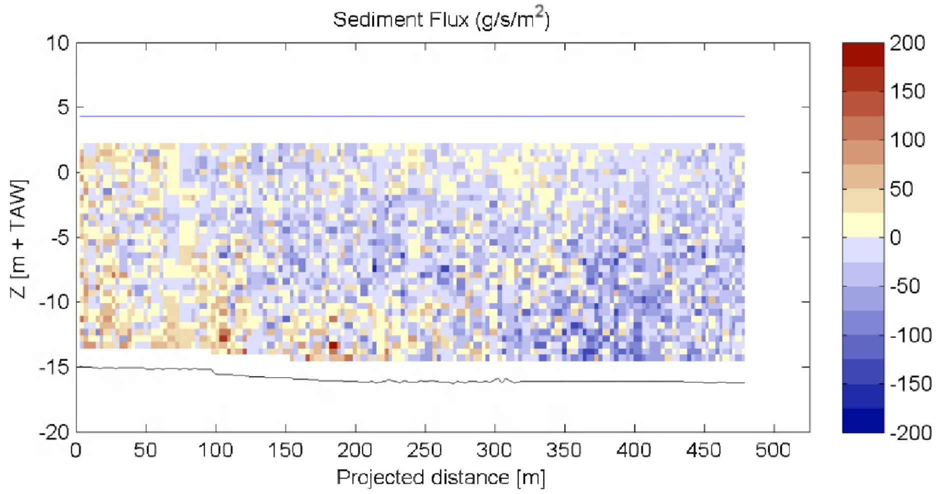
Date / Time [MET] :
13-Oct-2011
14:58 - 15:01

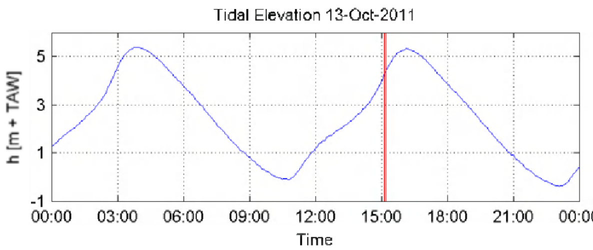
Time after HW [HH:MM]
-1:15

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6076DGDtlr_subv2.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

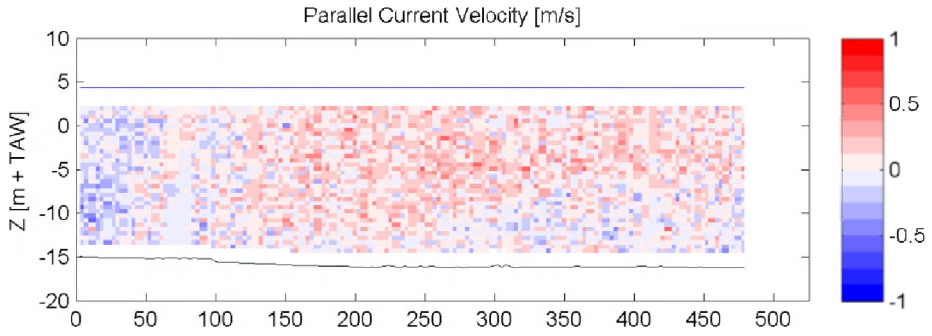
Date / Time [MET] :
13-Oct-2011
15:09 - 15:12

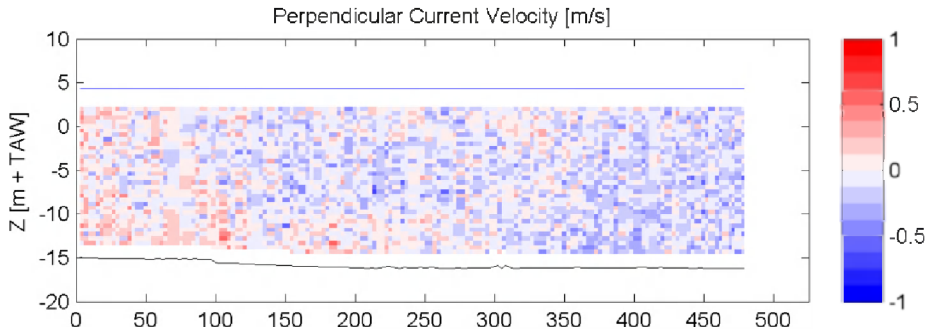
Time after HW [HH:MM]
-1:03

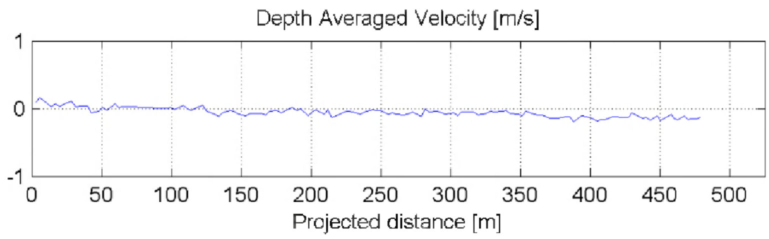
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

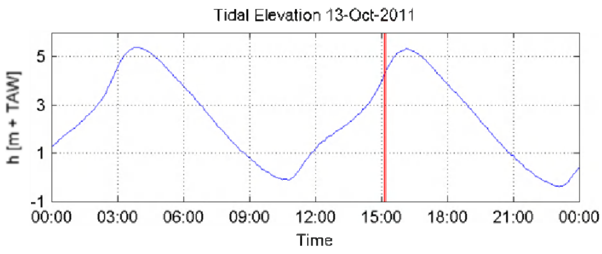
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6076DGDtlr_subv2.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

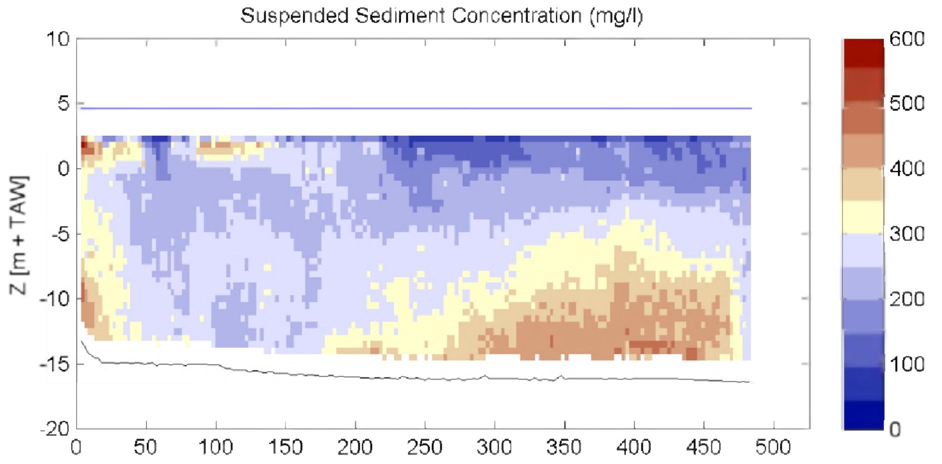
Date / Time [MET] :
13-Oct-2011
15:09 - 15:12

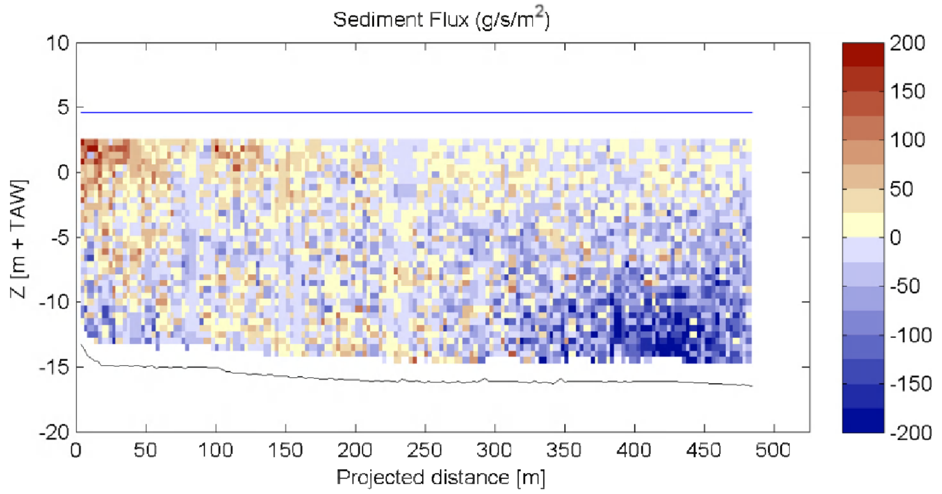
Time after HW [HH:MM]
-1:03

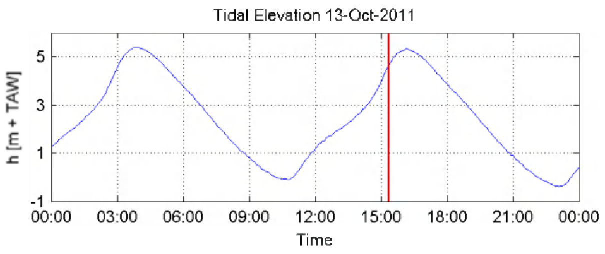
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6078DGDtlr_subv2.csv	Location: Deurganckdok







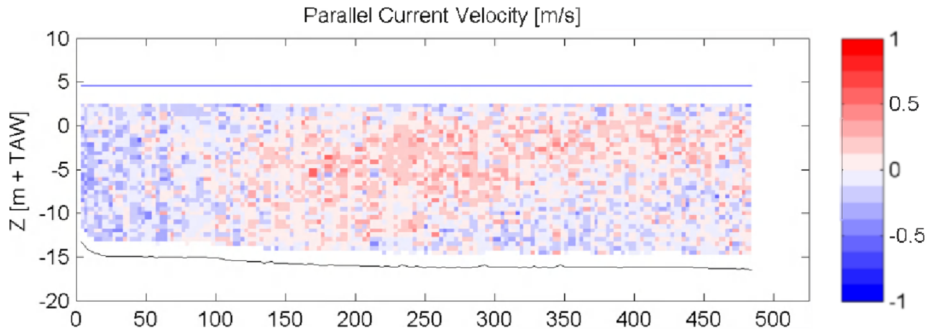
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

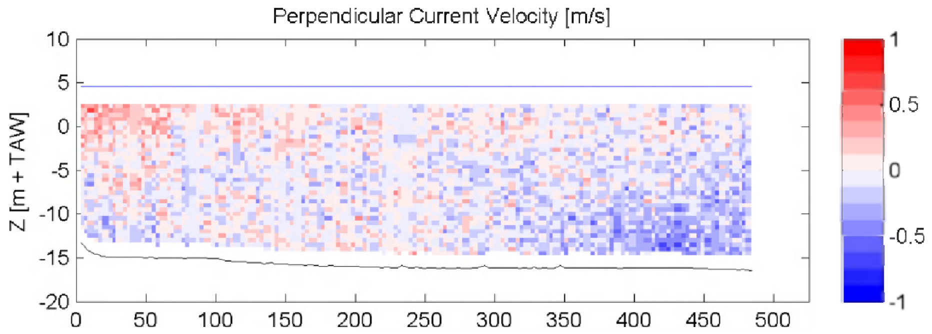
Date / Time [MET] :
13-Oct-2011
15:19 - 15:22

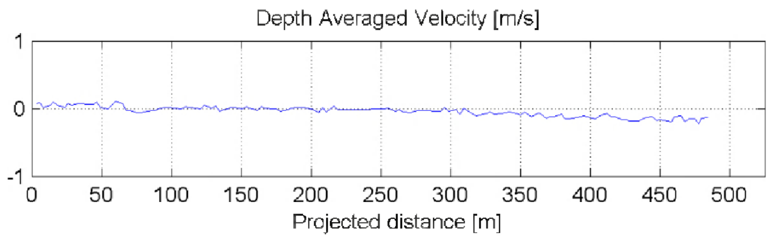
Time after HW [HH:MM]
-0:53

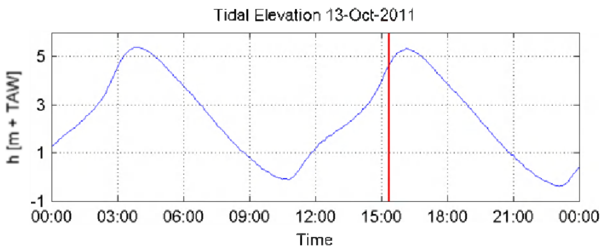
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6078DGDtlr_subv2.csv	Location: Deurganckdok









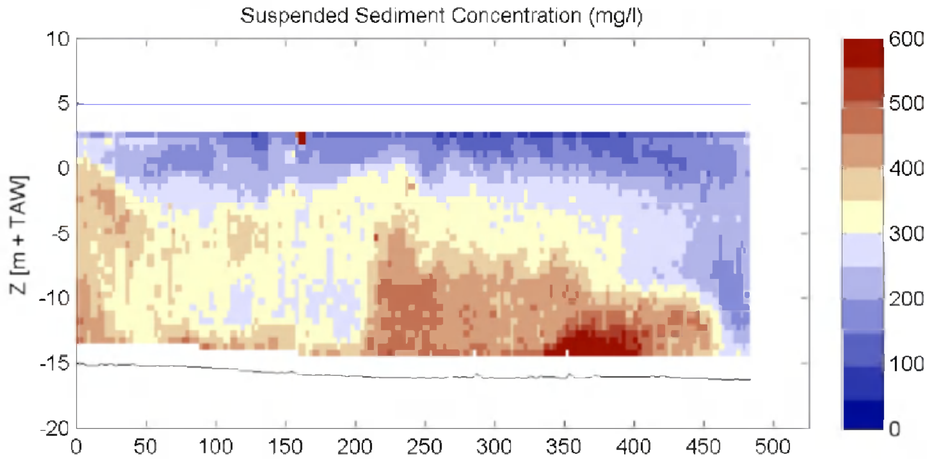
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

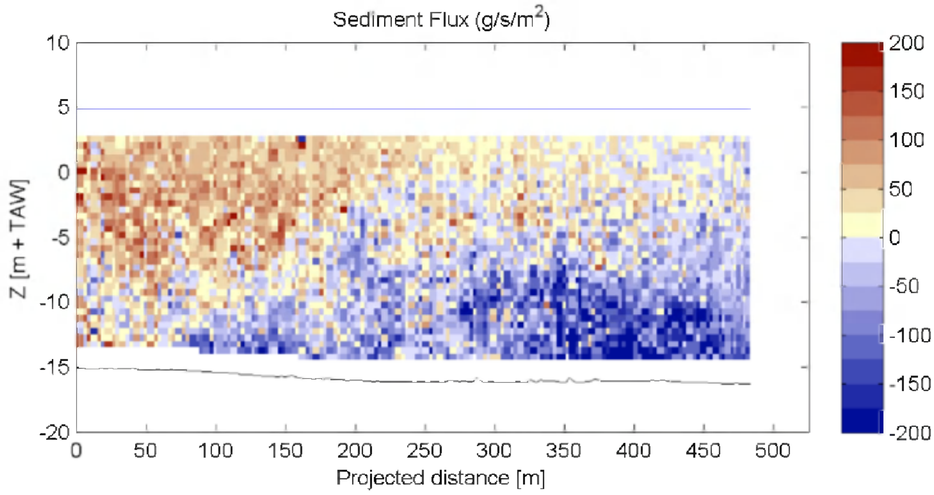
Date / Time [MET] :
13-Oct-2011
15:19 - 15:22

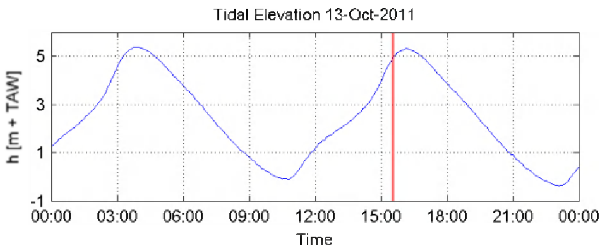
Time after HW [HH:MM]
-0:53

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6080DGDtrl_subv2.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

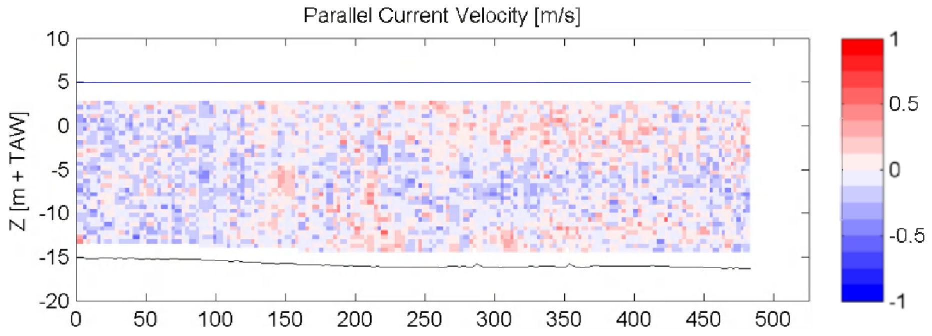
Date / Time [MET] :
13-Oct-2011
15:30 - 15:34

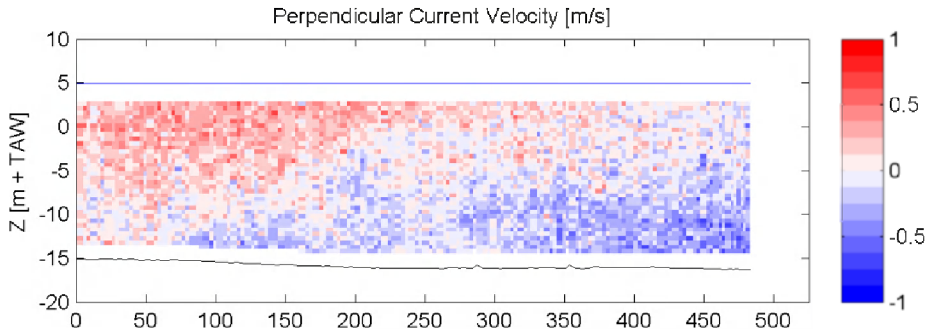
Time after HW [HH:MM]
-0:42

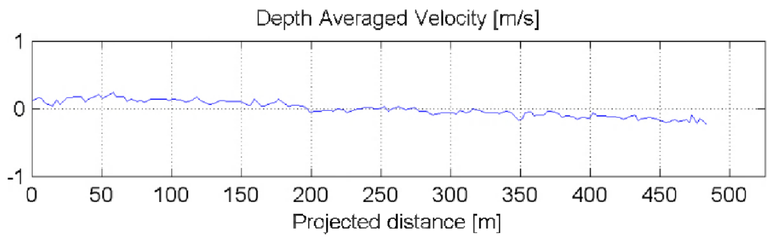
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

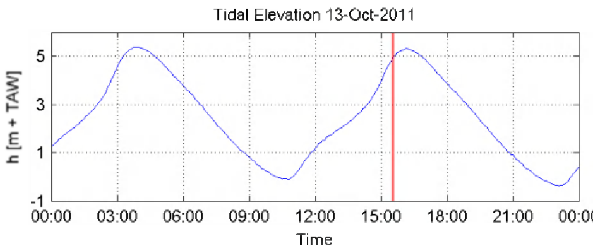
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6080DGDtrl_subv2.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

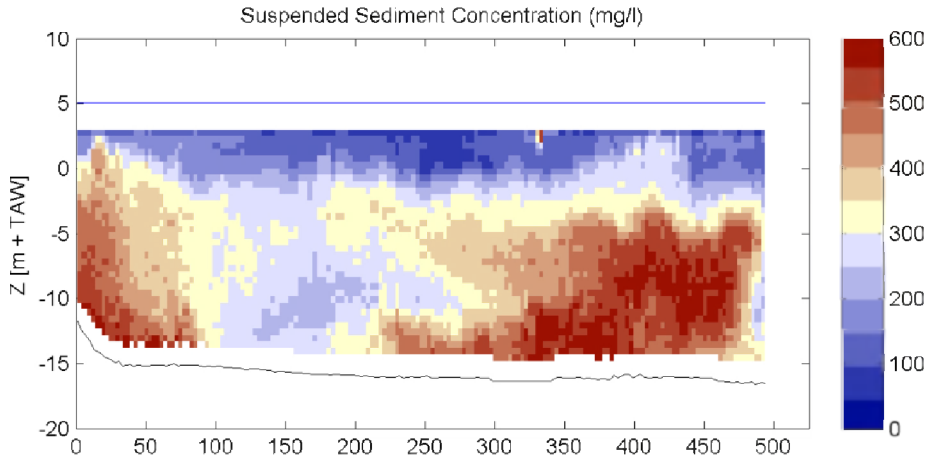
Date / Time [MET] :
13-Oct-2011
15:30 - 15:34

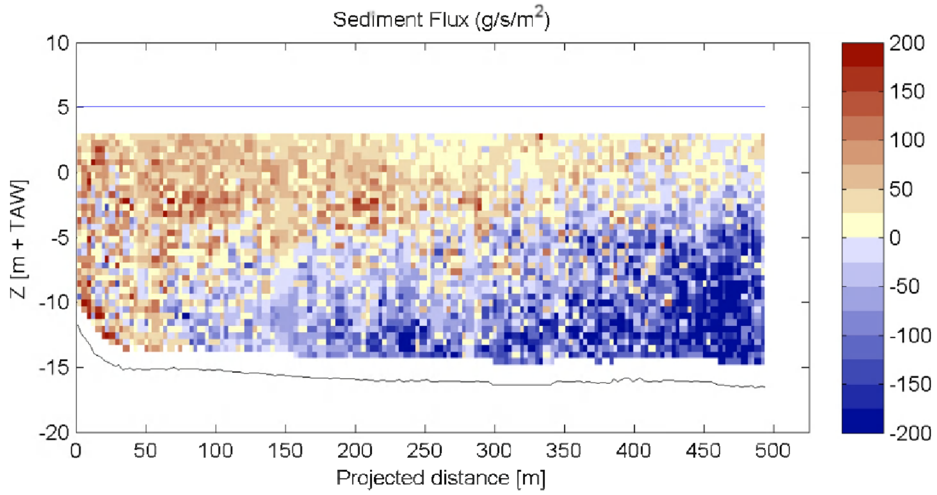
Time after HW [HH:MM]
-0:42

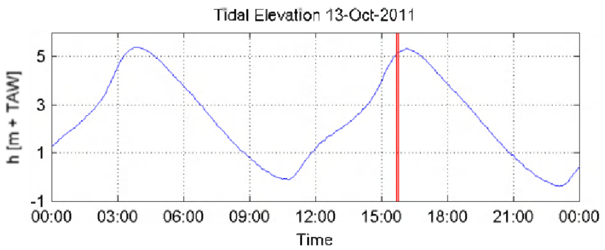
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6082DGDtlr_subv2.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

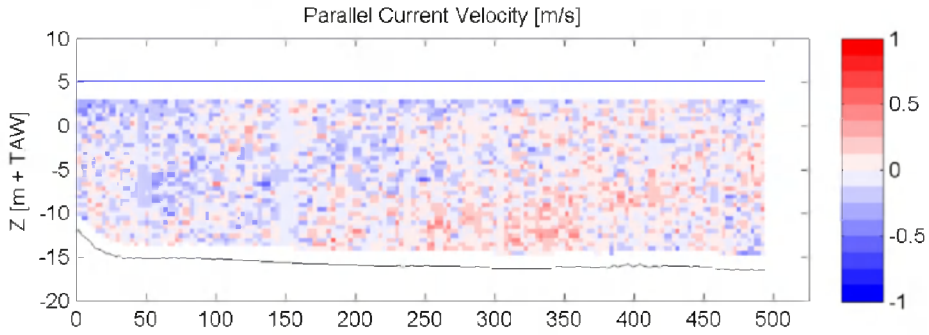
Date / Time [MET] :
13-Oct-2011
15:42 - 15:45

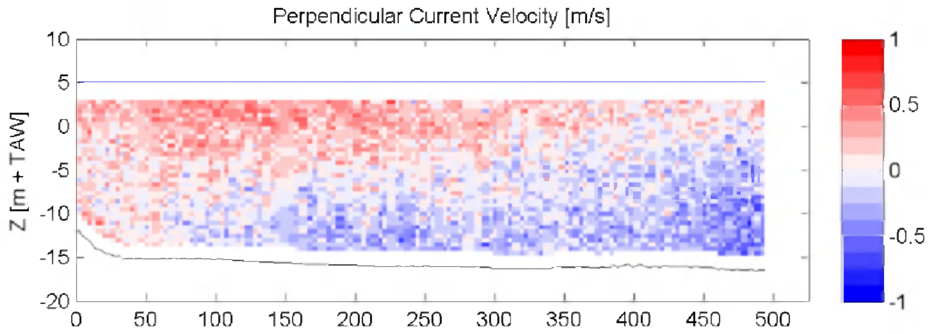
Time after HW [HH:MM]
-0:30

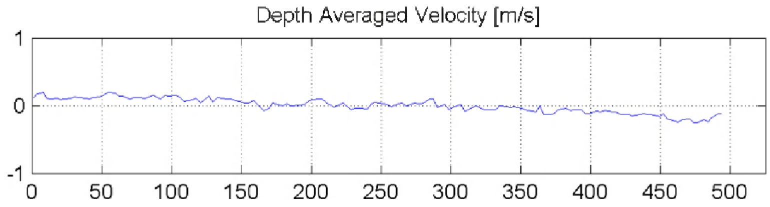
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

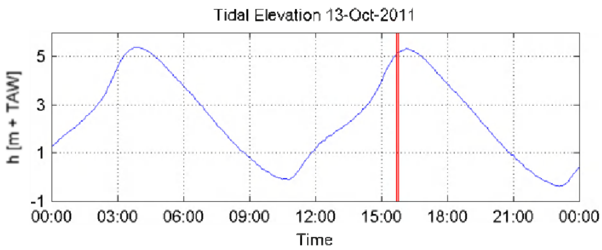
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6082DGDtlr_subv2.csv	Location: Deurganckdok









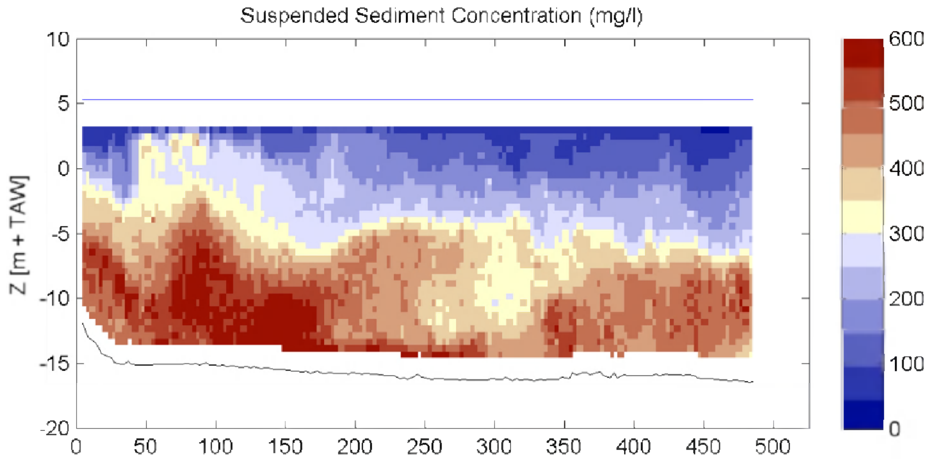
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

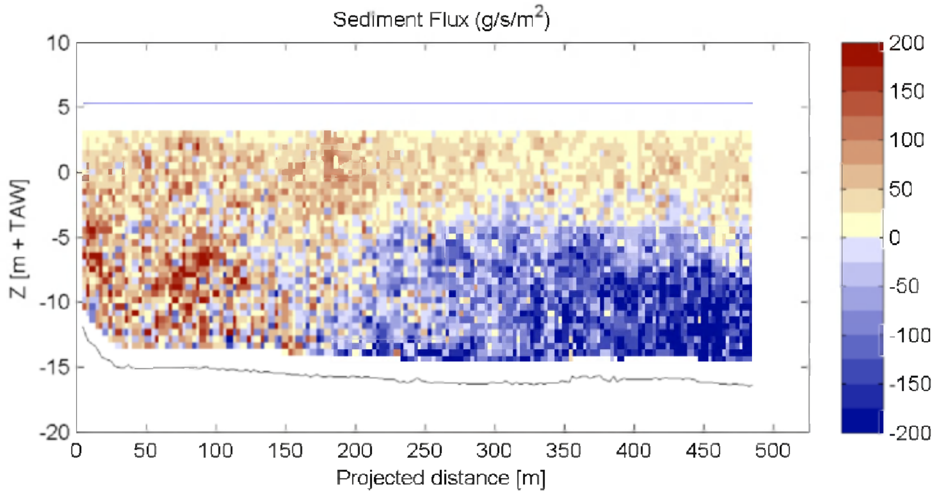
Date / Time [MET] :
13-Oct-2011
15:42 - 15:45

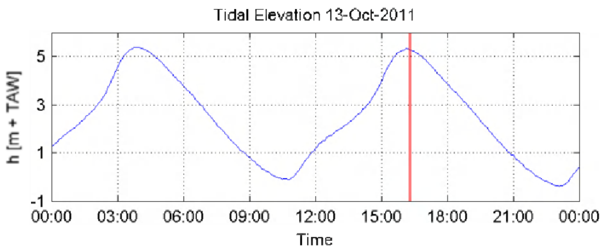
Time after HW [HH:MM]
-0:30

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6086DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

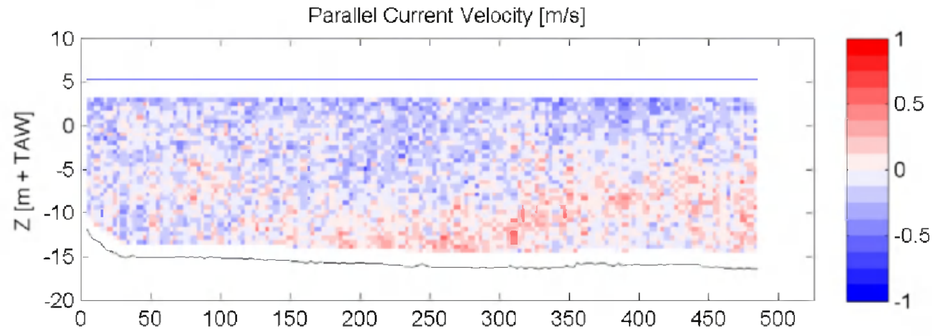
Date / Time [MET] :
13-Oct-2011
16:15 - 16:18

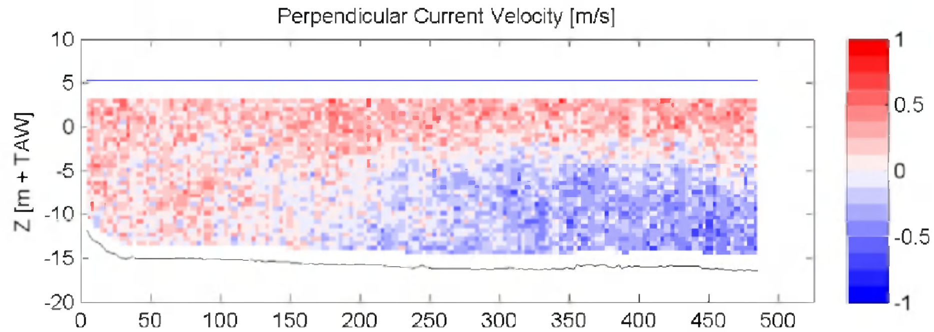
Time after HW [HH:MM]
0:02

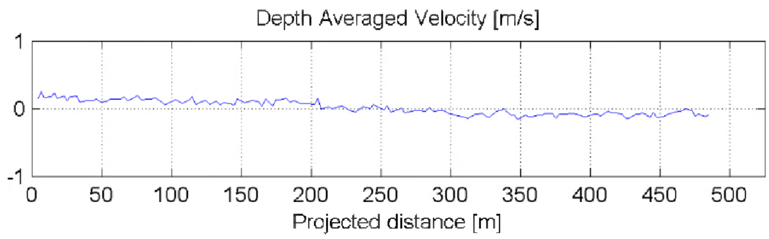
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

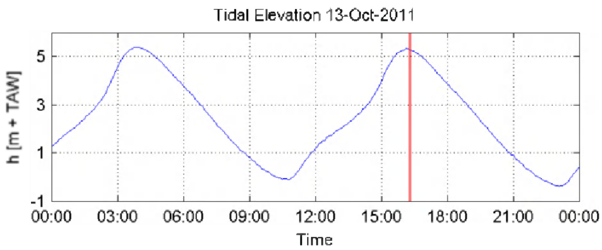
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6086DGDtlr_sub.csv	Location: Deurganckdok









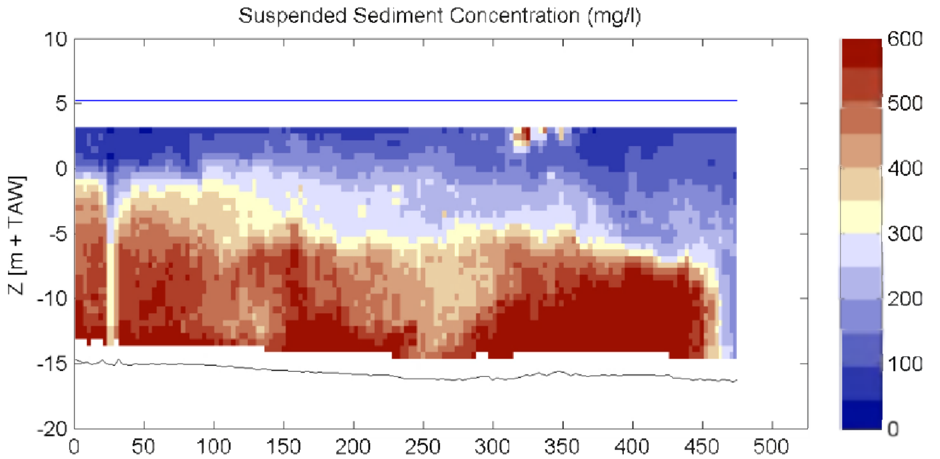
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

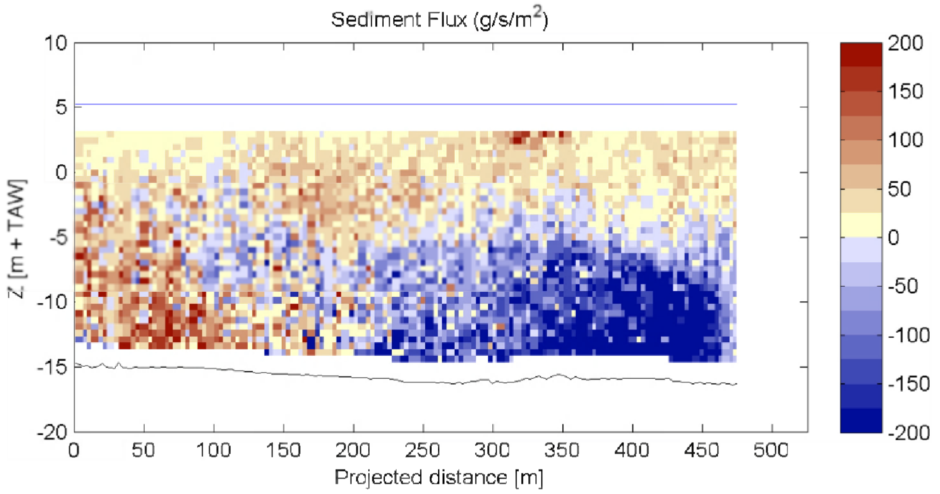
Date / Time [MET] :
13-Oct-2011
16:15 - 16:18

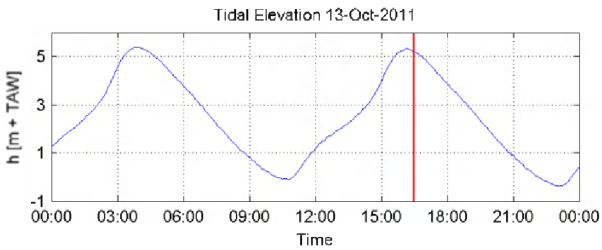
Time after HW [HH:MM]
0:02

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6088DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

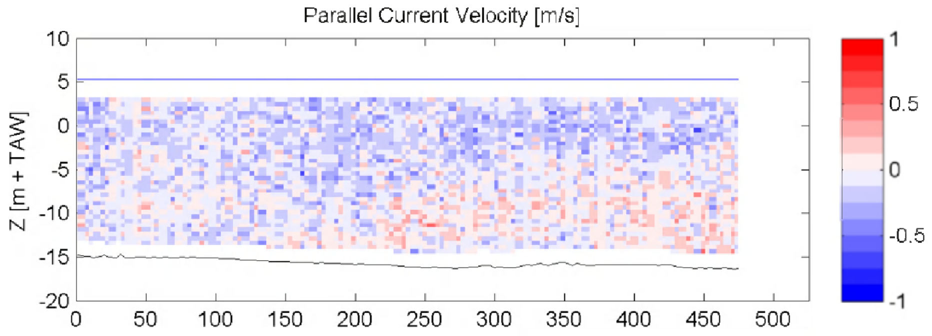
Date / Time [MET] :
13-Oct-2011
16:27 - 16:30

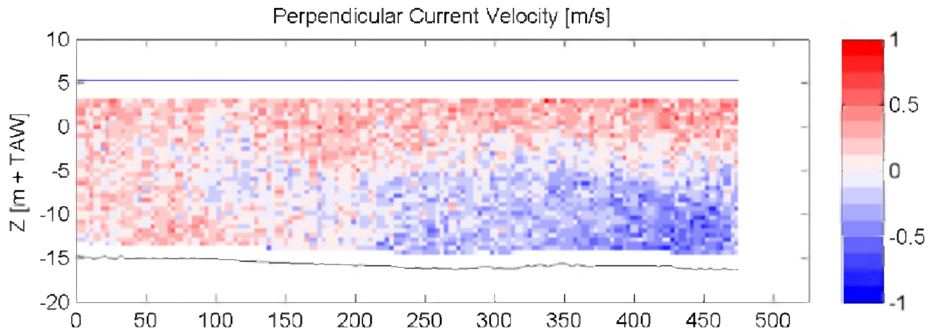
Time after HW [HH:MM]
0:13

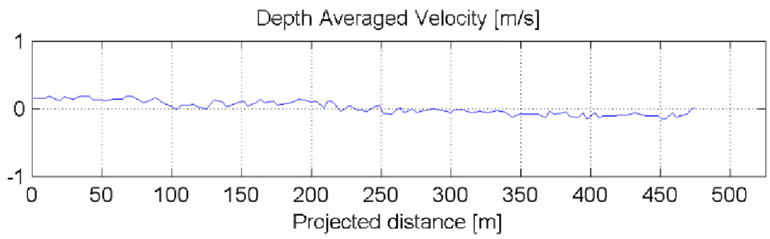
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

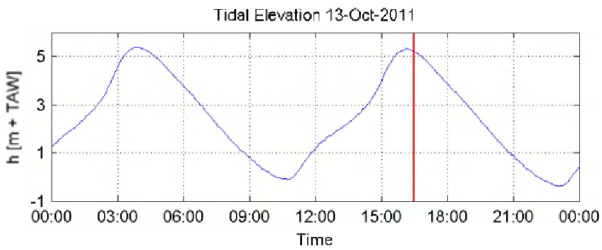
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6088DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
16:27 - 16:30

Time after HW [HH:MM]

0:13

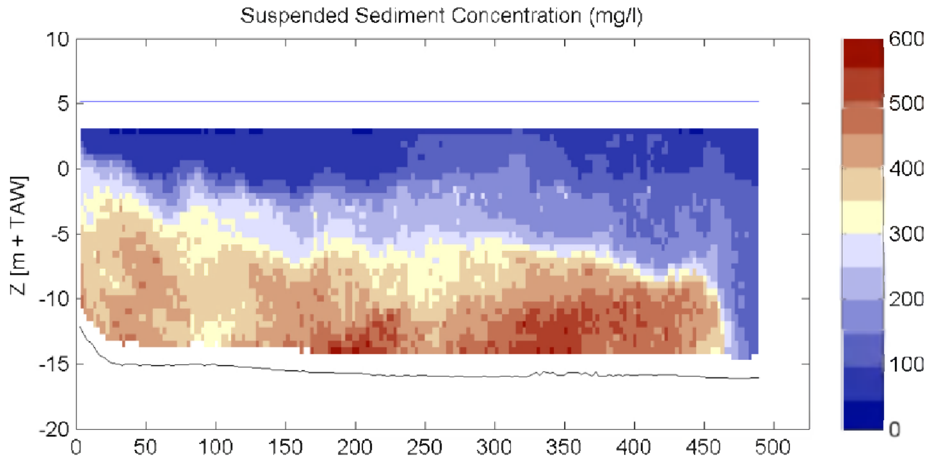
Data Processed by:

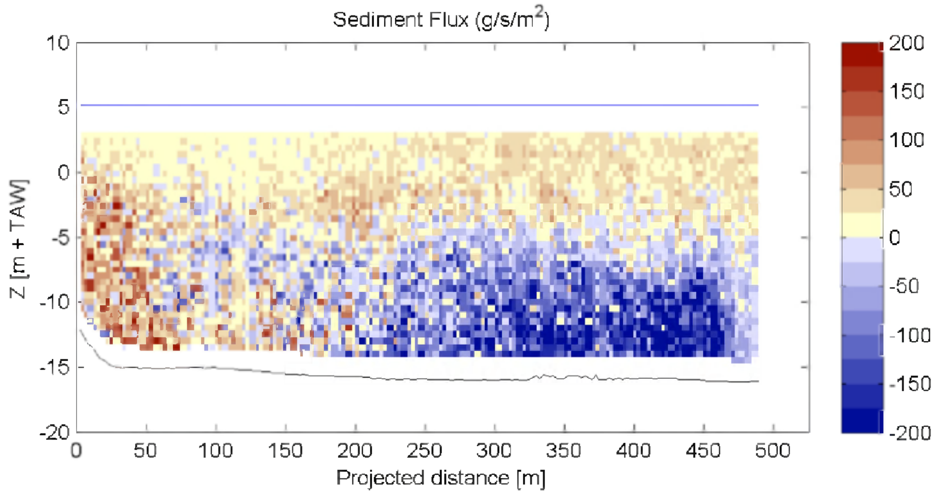
In association with :

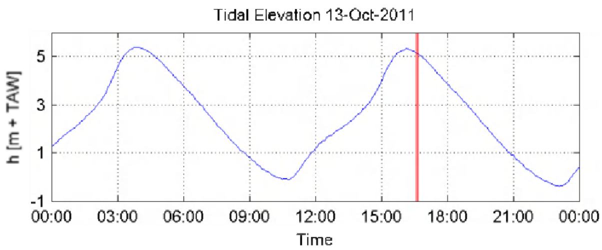
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6090DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

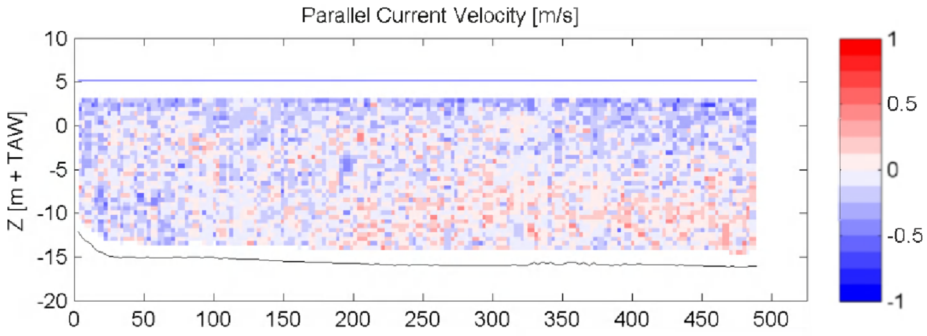
Date / Time [MET] :
13-Oct-2011
16:37 - 16:40

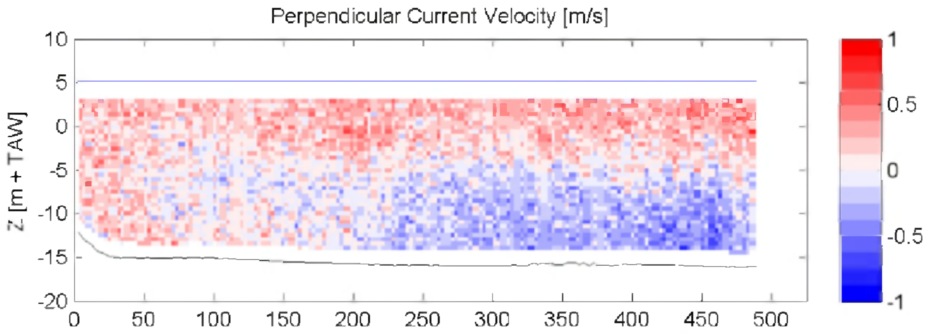
Time after HW [HH:MM]
0:24

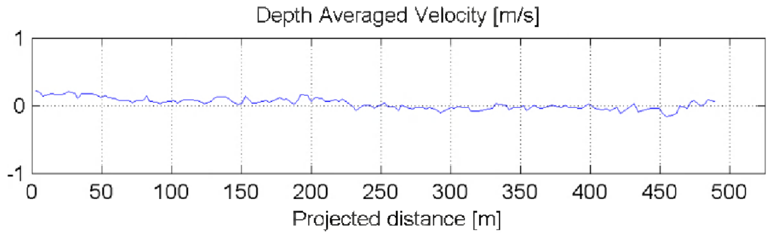
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

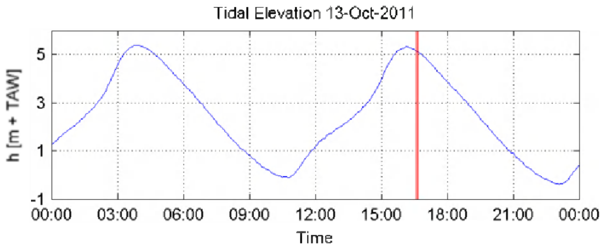
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6090DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

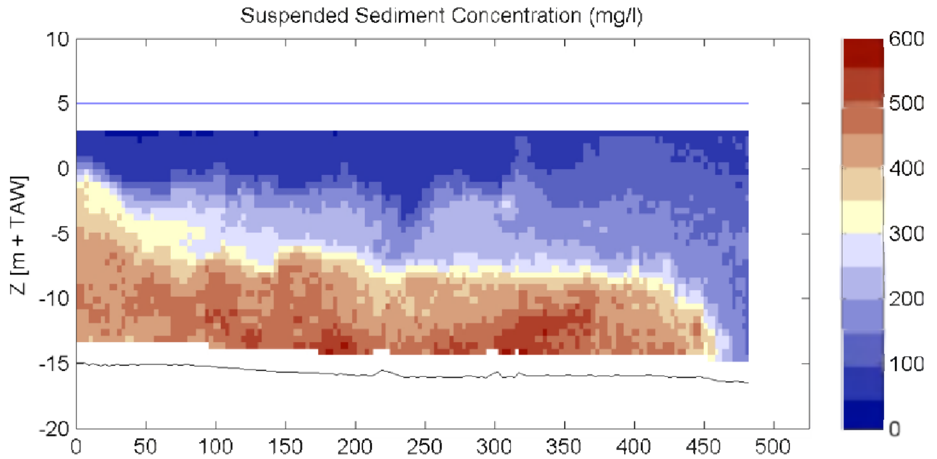
Date / Time [MET] :
13-Oct-2011
16:37 - 16:40

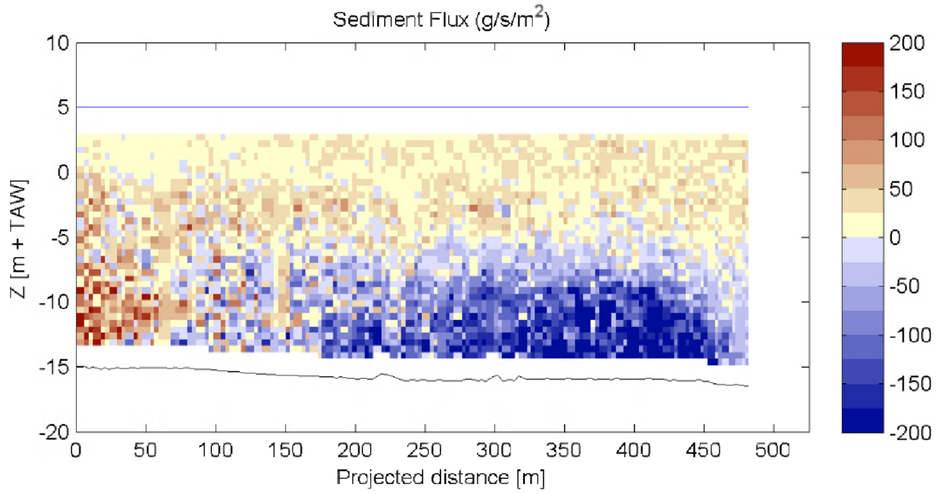
Time after HW [HH:MM]
0:24

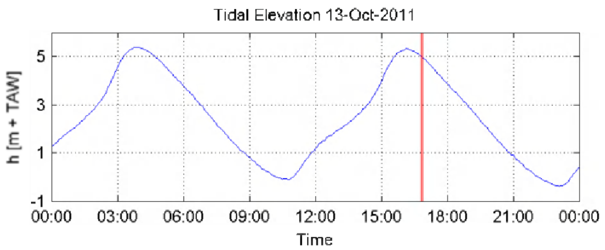
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6092DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

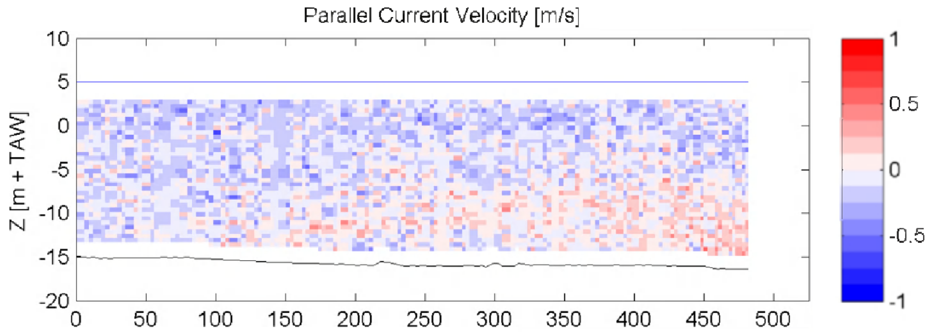
Date / Time [MET] :
13-Oct-2011
16:49 - 16:52

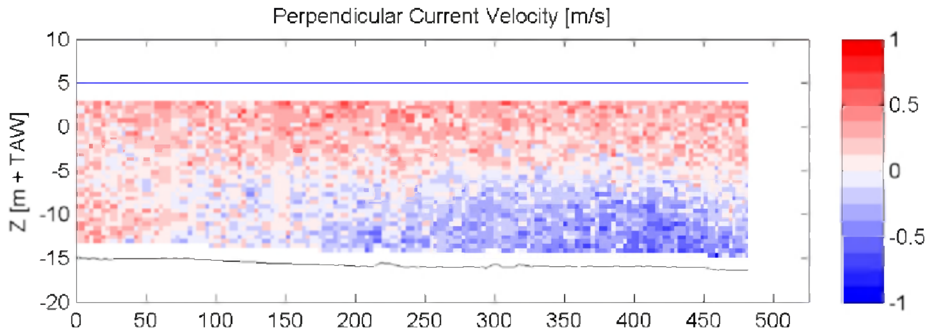
Time after HW [HH:MM]
0:35

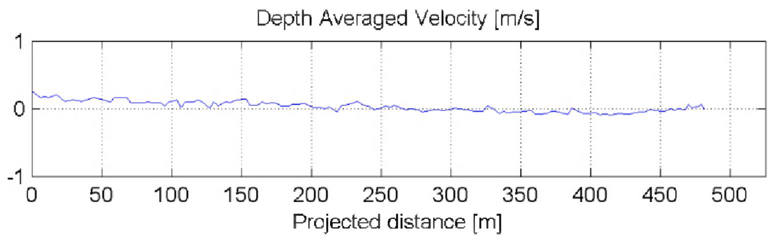
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

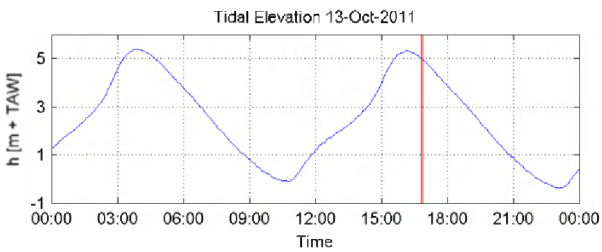
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6092DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

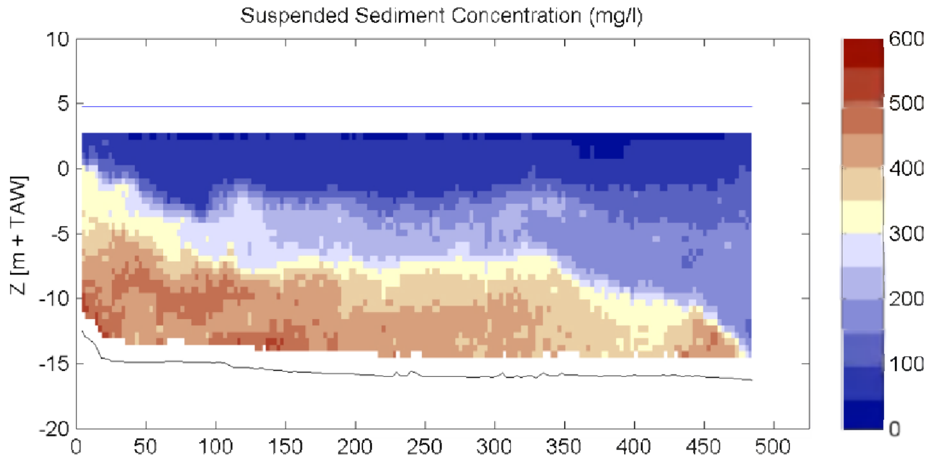
Date / Time [MET] :
13-Oct-2011
16:49 - 16:52

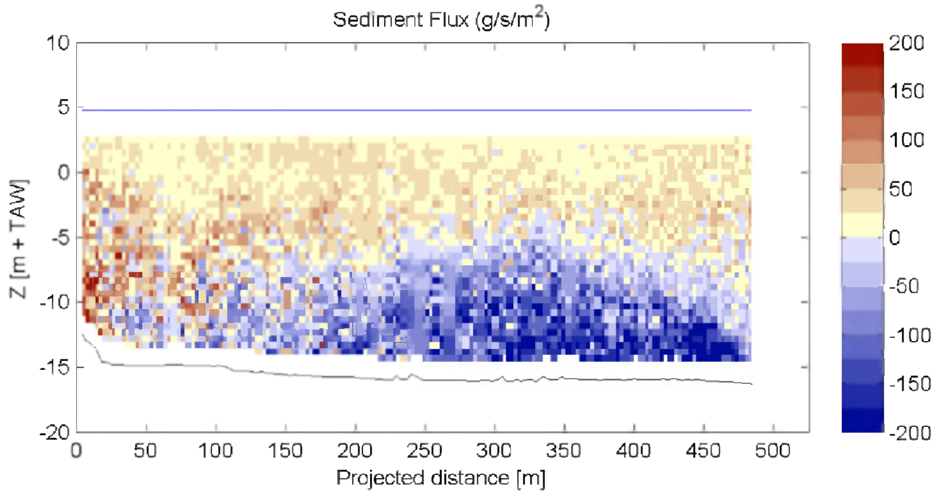
Time after HW [HH:MM]
0:35

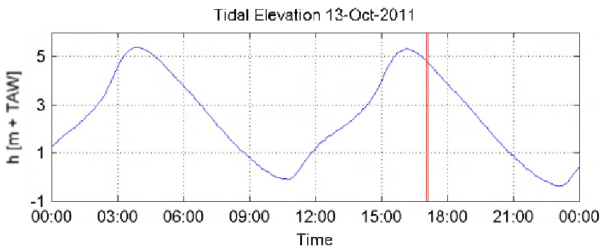
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6094DGDtrl_sub.csv	Location: Deurganckdok







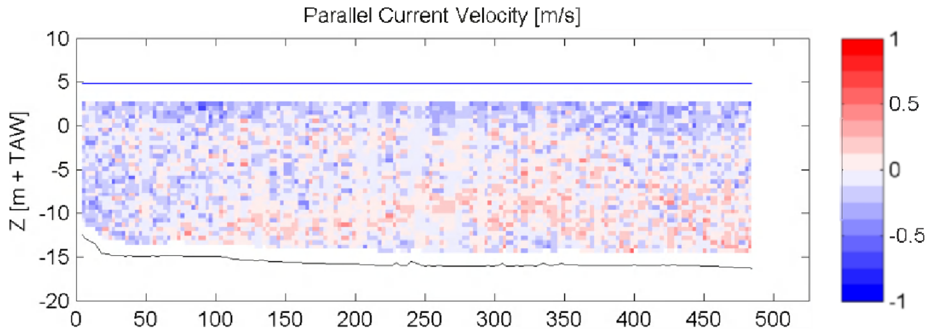
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

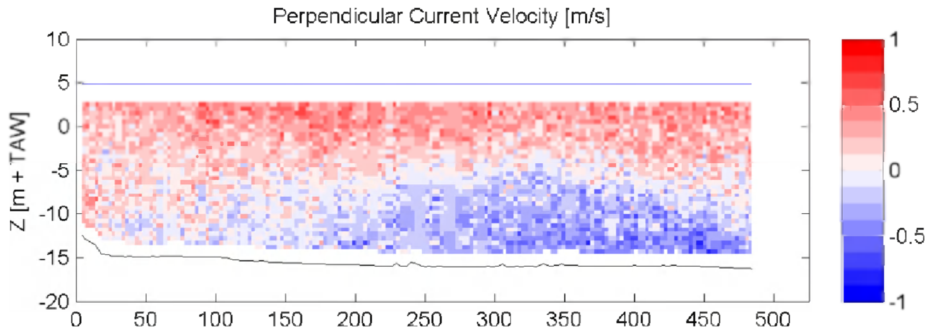
Date / Time [MET] :
13-Oct-2011
17:03 - 17:06

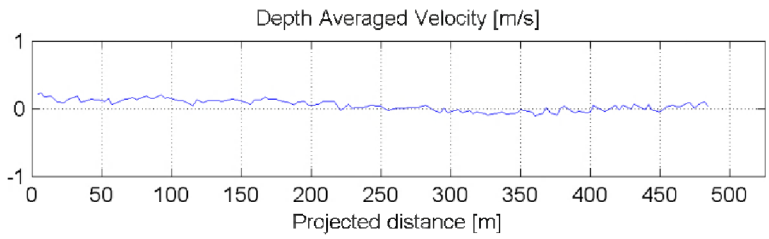
Time after HW [HH:MM]
0:50

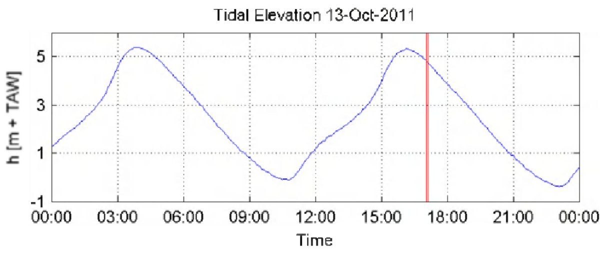
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6094DGDtrl_sub.csv	Location: Deurganckdok









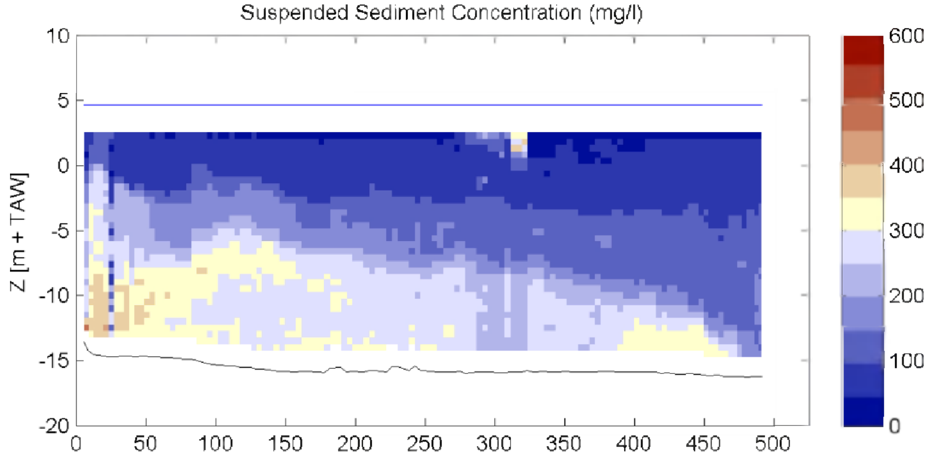
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

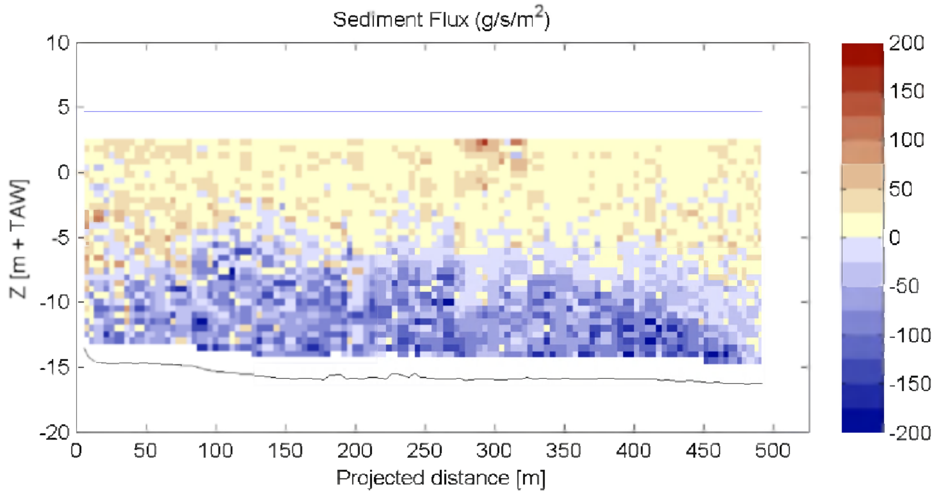
Date / Time [MET] :
13-Oct-2011
17:03 - 17:06

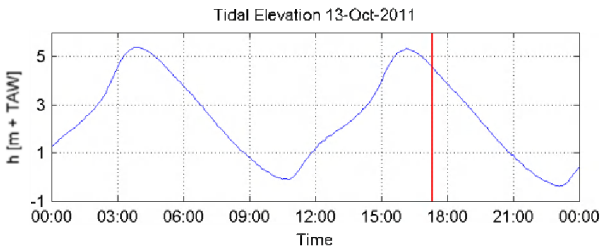
Time after HW [HH:MM]
0:50

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6096DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

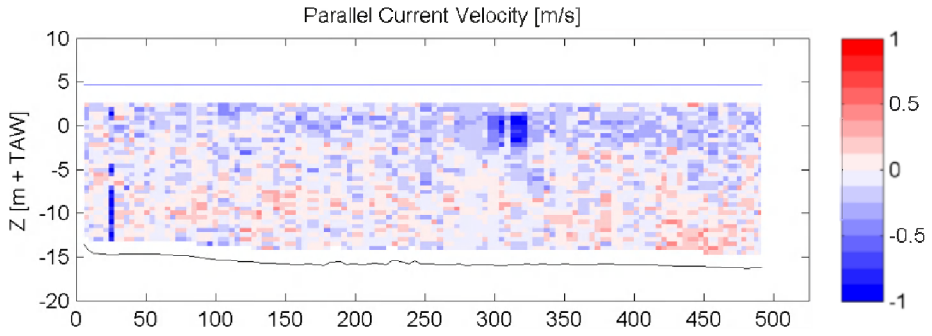
Date / Time [MET] :
13-Oct-2011
17:16 - 17:18

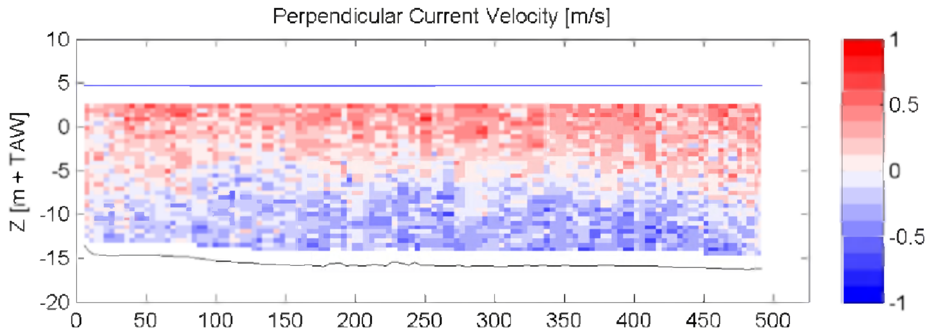
Time after HW [HH:MM]
1:02

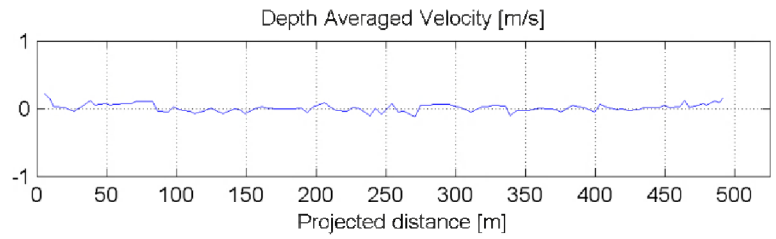
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

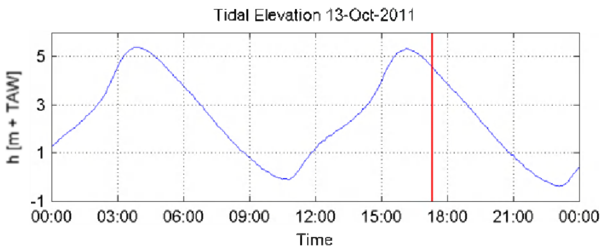
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6096DGDtrl_sub.csv	Location: Deurganckdok









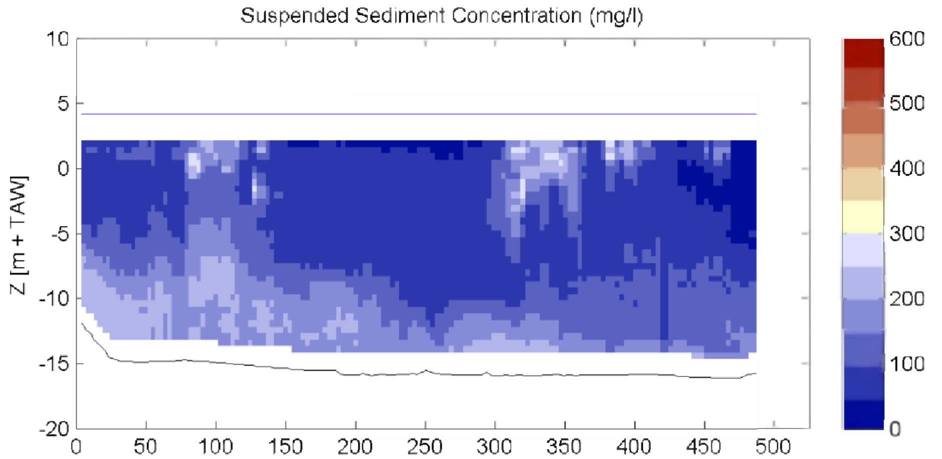
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

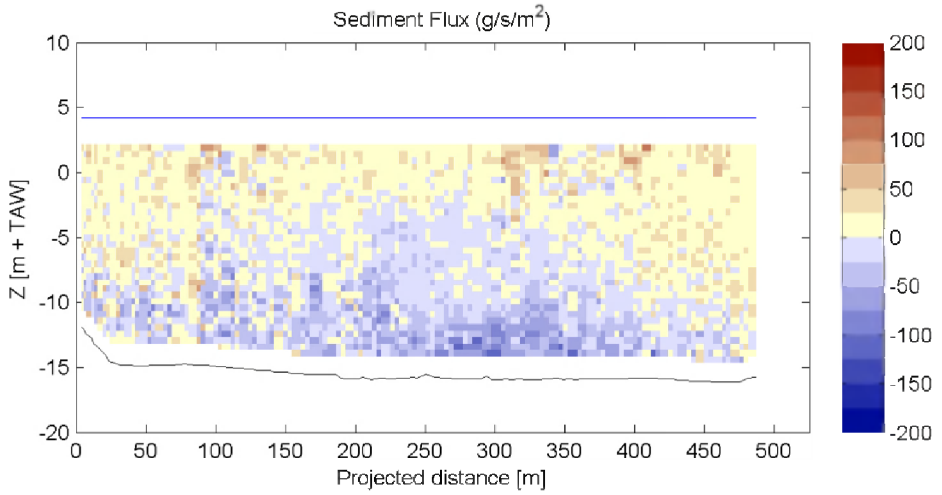
Date / Time [MET] :
13-Oct-2011
17:16 - 17:18

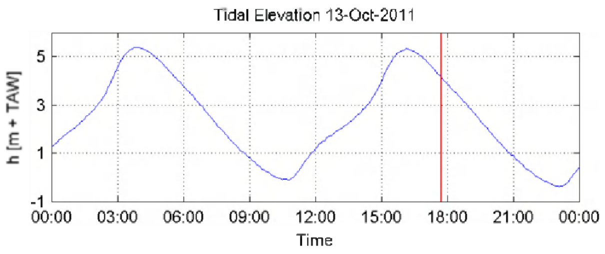
Time after HW [HH:MM]
1:02

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6098DGDtlr_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

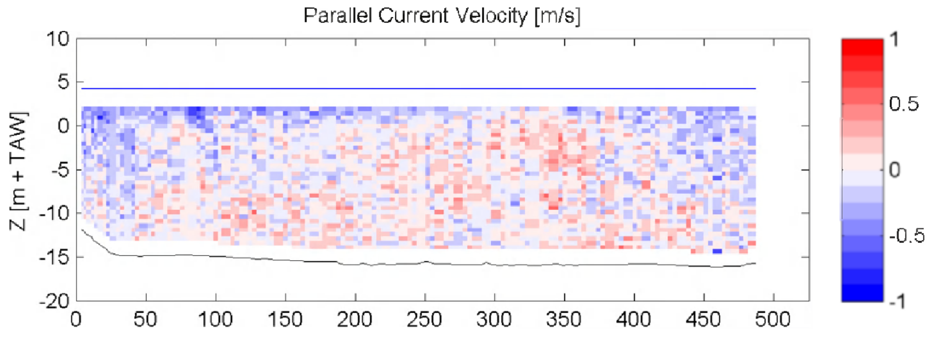
Date / Time [MET] :
13-Oct-2011
17:41 - 17:44

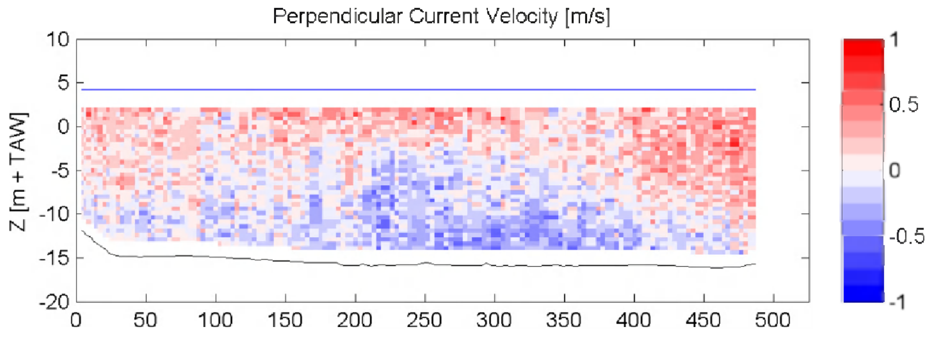
Time after HW [HH:MM]
1:28

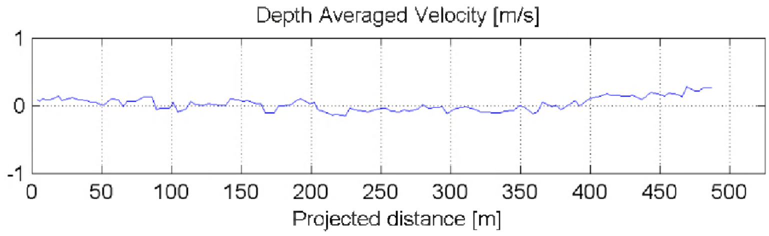
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

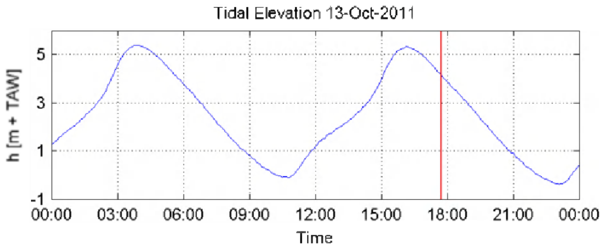
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6098DGDtlr_sub.csv	Location: Deurganckdok









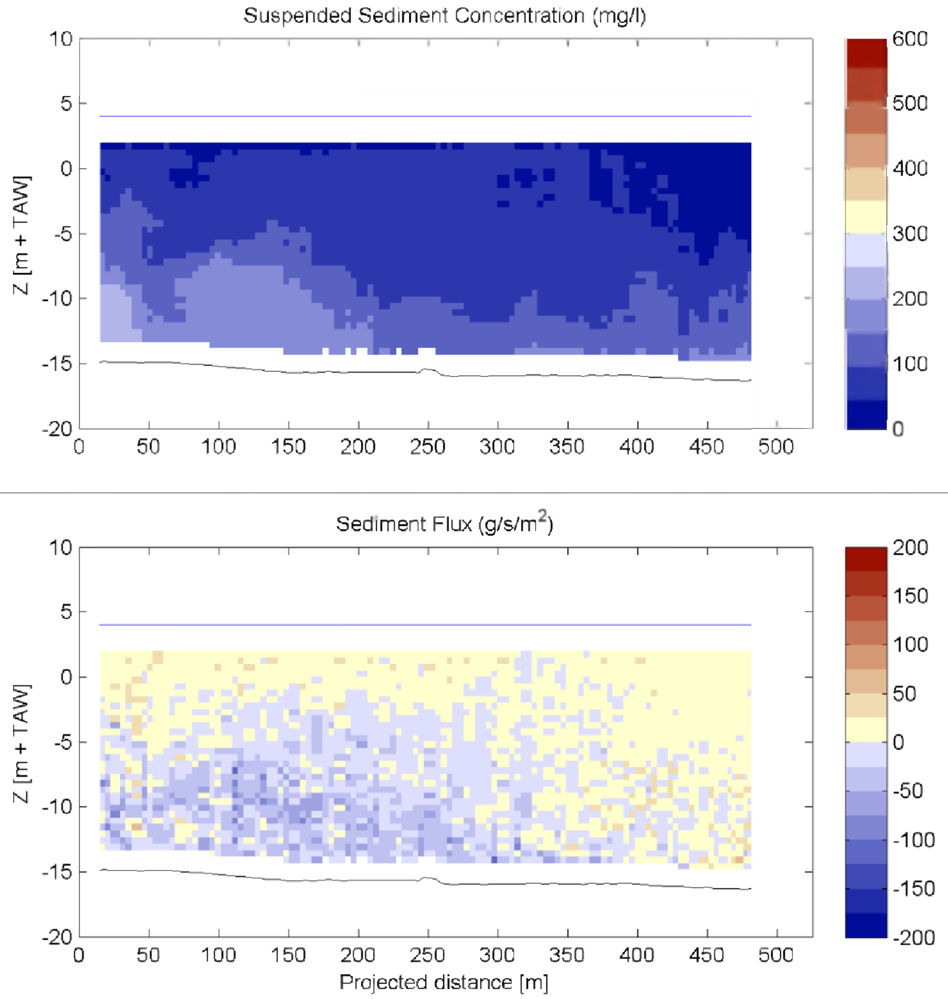
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

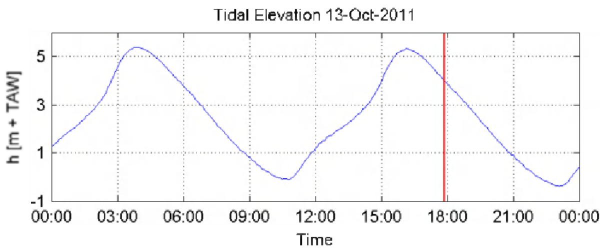
Date / Time [MET] :
13-Oct-2011
17:41 - 17:44

Time after HW [HH:MM]
1:28

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6100DGDtrl_sub.csv	Location: Deurganckdok





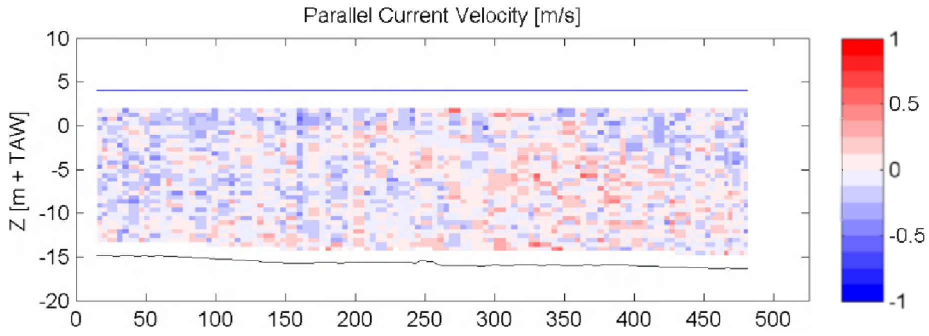
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

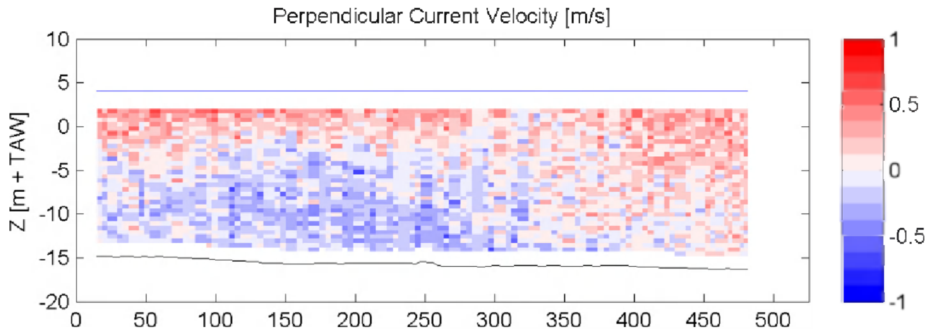
Date / Time [MET] :
13-Oct-2011
17:51 - 17:53

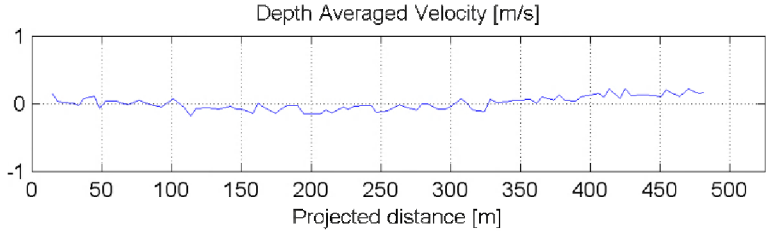
Time after HW [HH:MM]
1:37

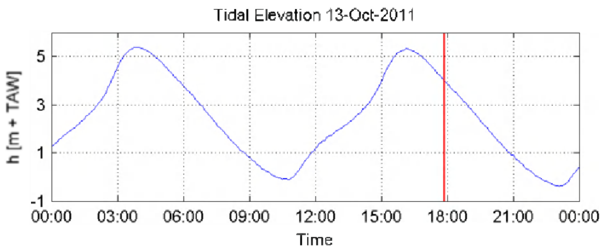
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6100DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011

17:51 - 17:53

Time after HW [HH:MM]

1:37

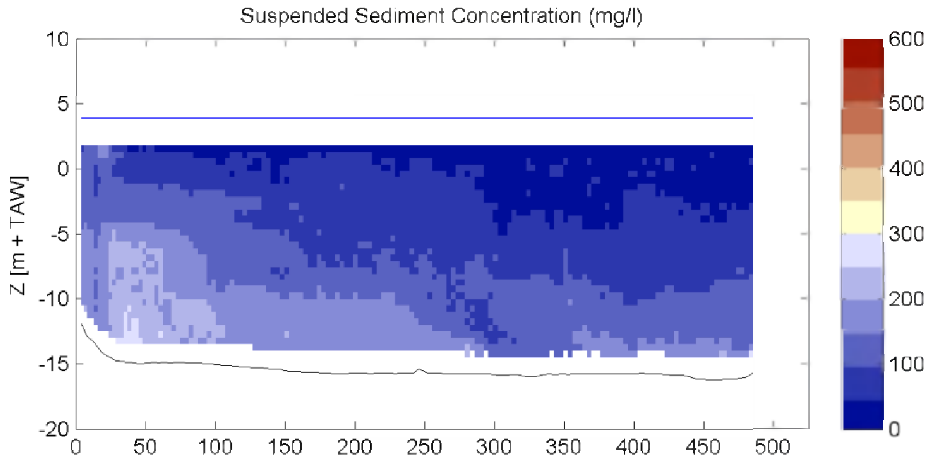
Data Processed by:

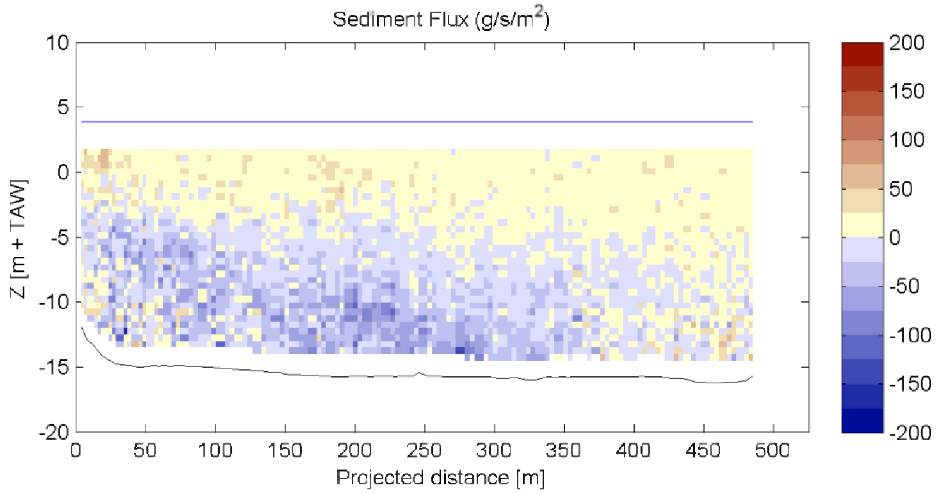
In association with :

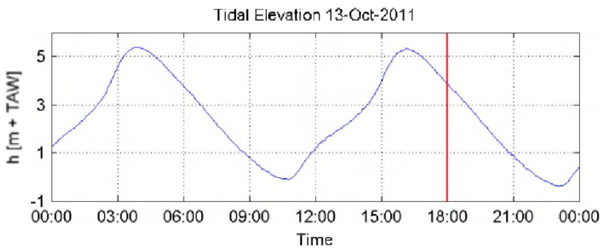
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6102DGDtlr_sub.csv	Location: Deurganckdok







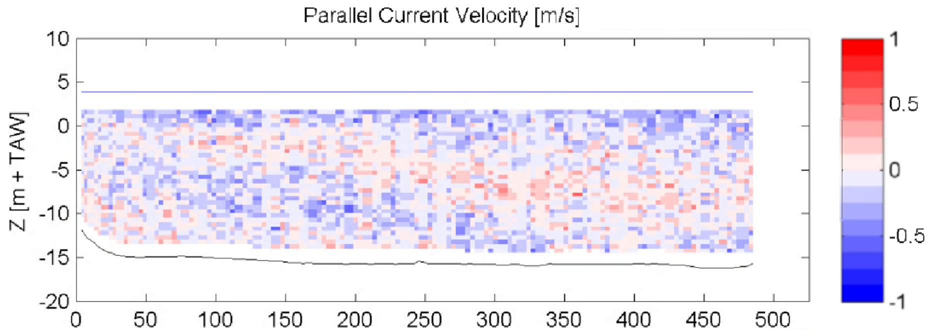
HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

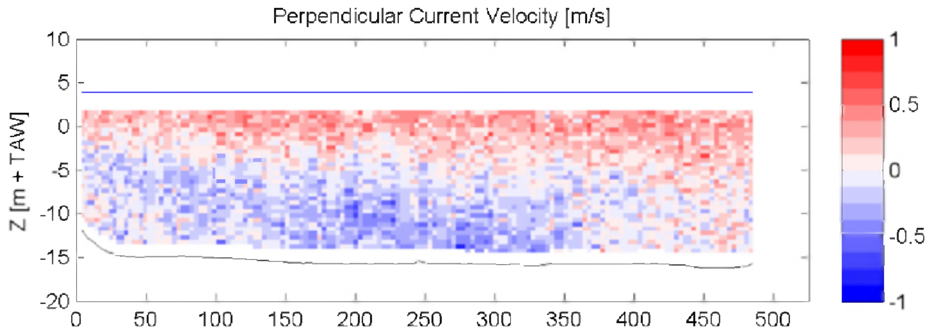
Date / Time [MET] :
13-Oct-2011
17:59 - 18:01

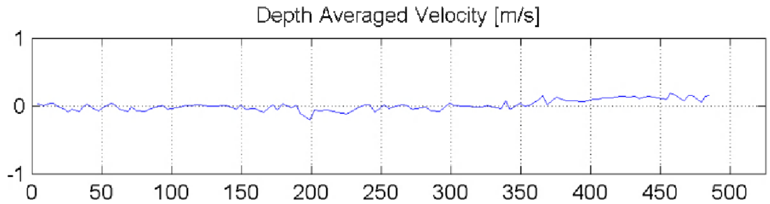
Time after HW [HH:MM]
1:45

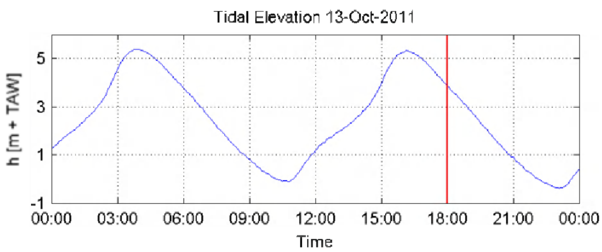
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6102DGDtlr_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

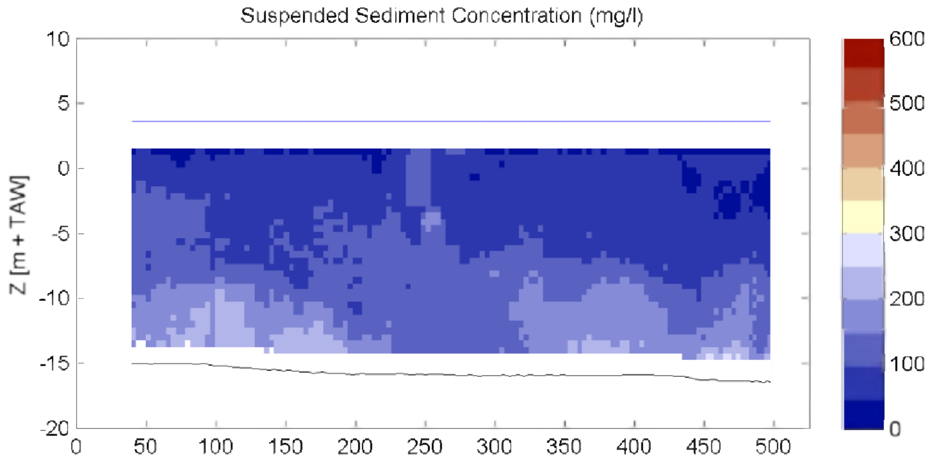
Date / Time [MET] :
13-Oct-2011
17:59 - 18:01

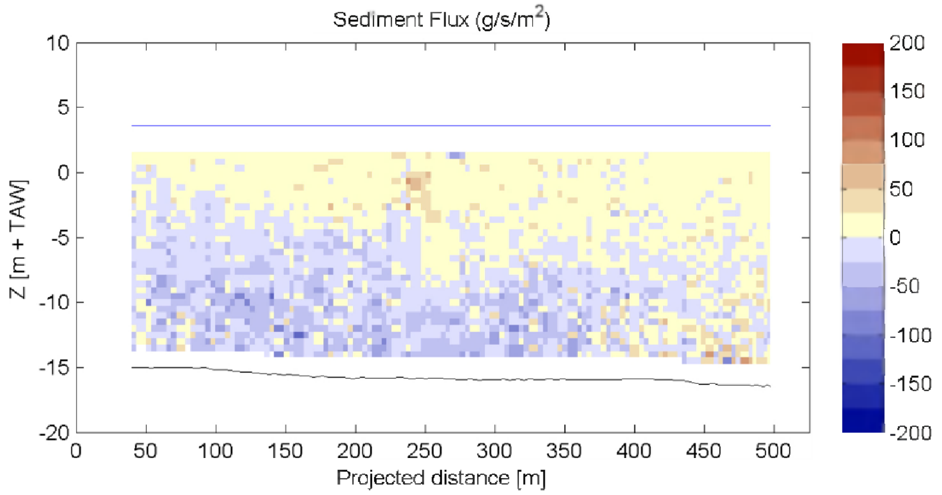
Time after HW [HH:MM]
1:45

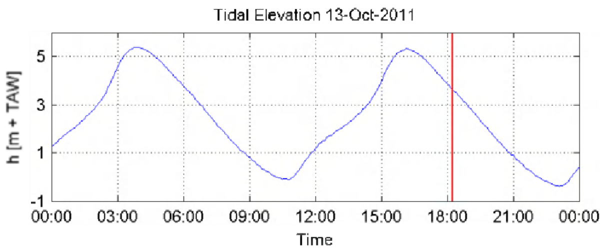
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6104DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

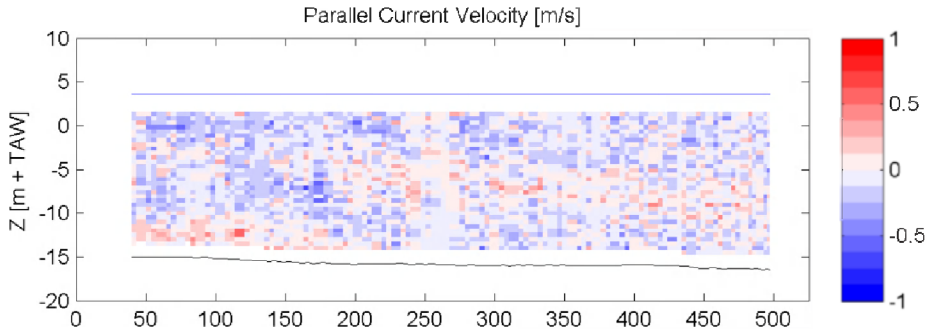
Date / Time [MET] :
13-Oct-2011
18:13 - 18:15

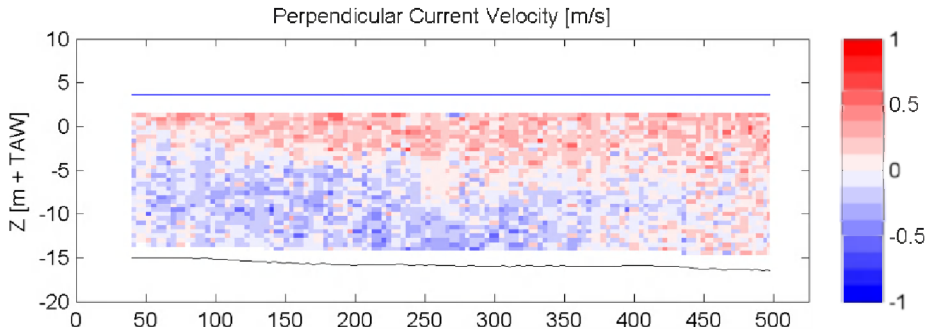
Time after HW [HH:MM]
1:59

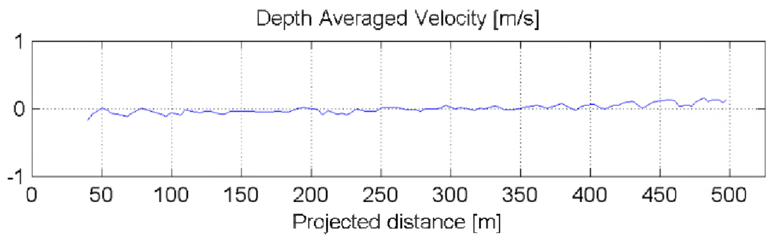
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

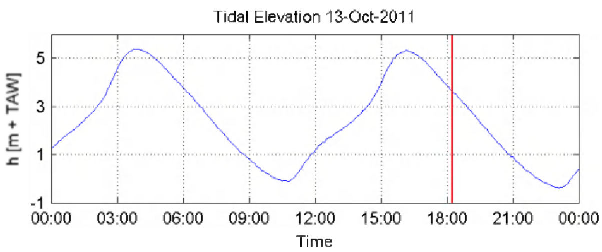
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6104DGDtrl_sub.csv	Location: Deurganckdok









HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

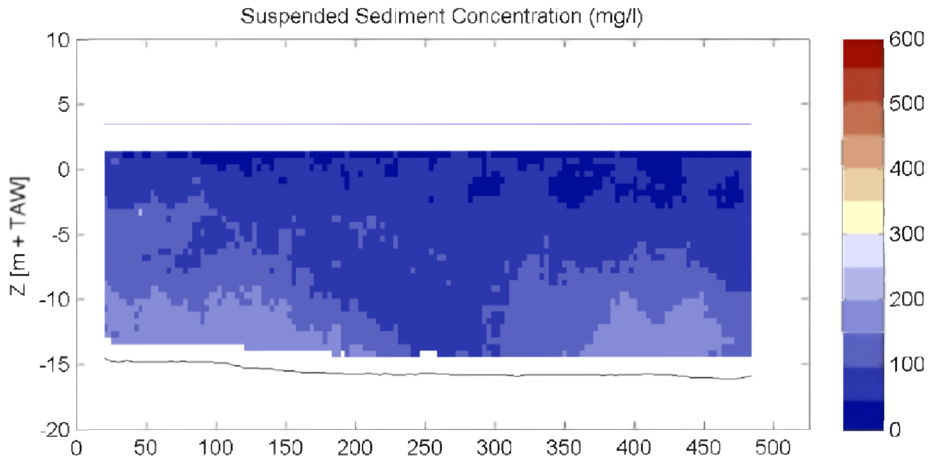
Date / Time [MET] :
13-Oct-2011
18:13 - 18:15

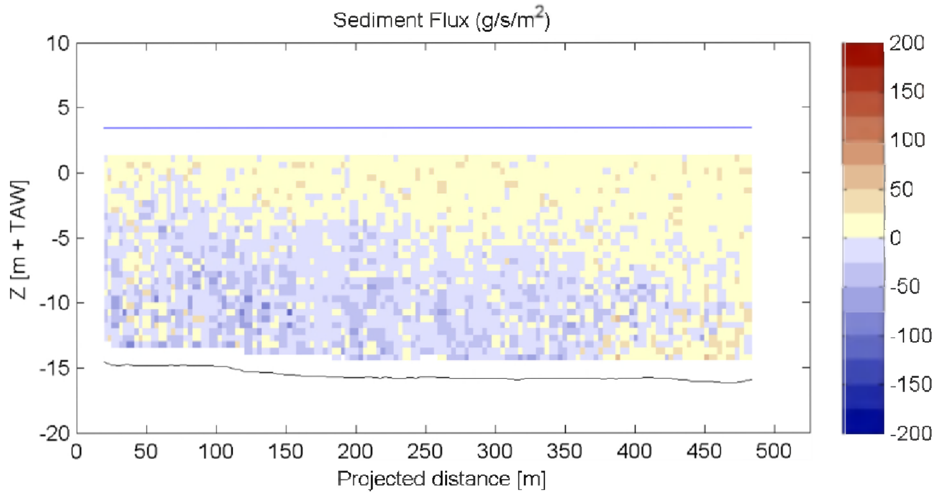
Time after HW [HH:MM]
1:59

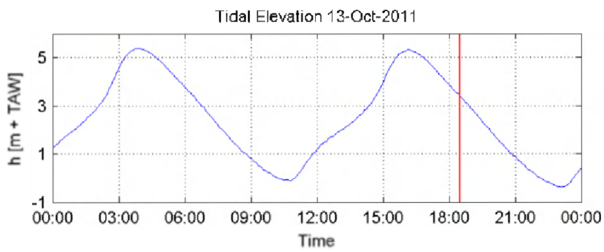
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6106DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :
13-Oct-2011
18:28 - 18:30

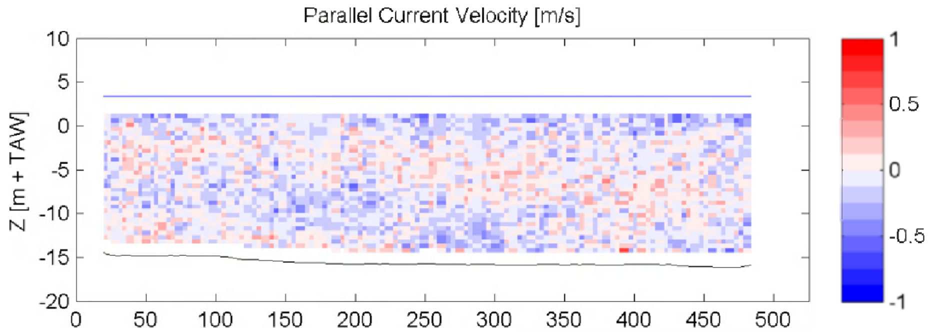
Time after HW [HH:MM]
2:14

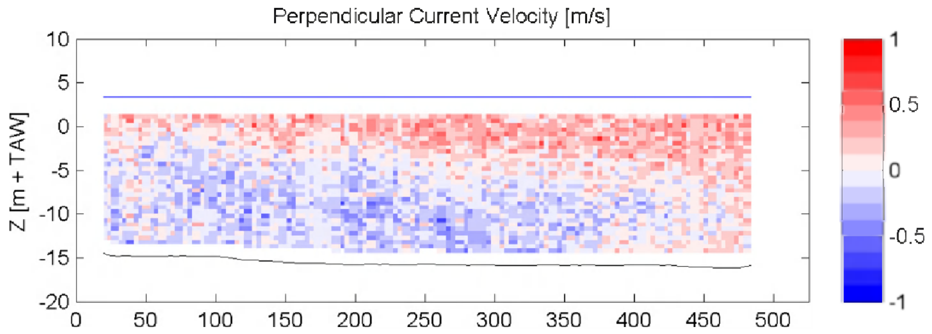
Data Processed by:

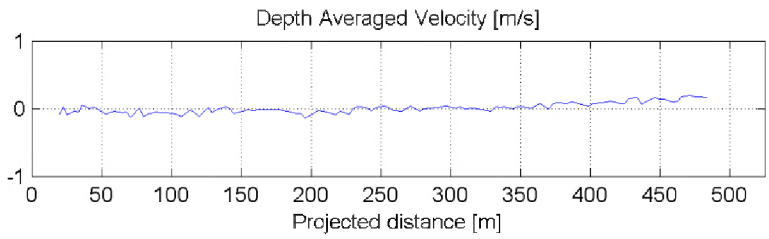
In association with :

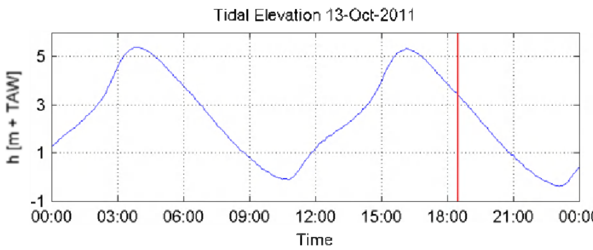
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6106DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011

18:28 - 18:30

Time after HW [HH:MM]

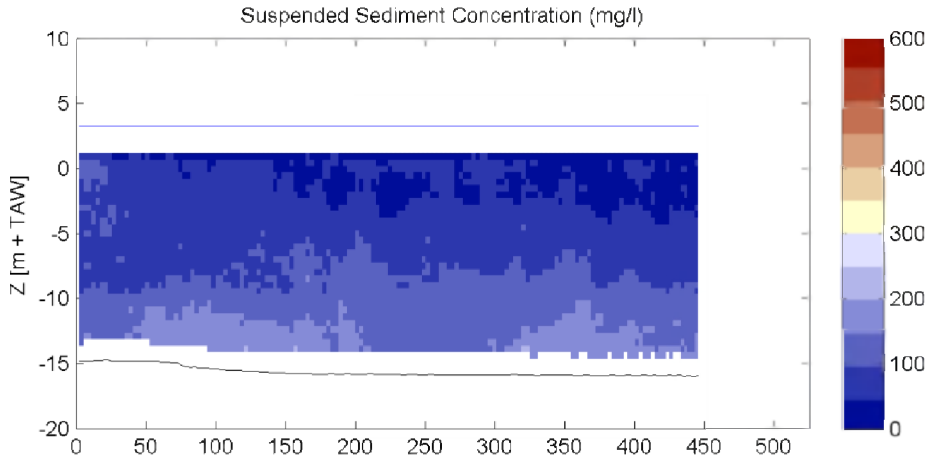
2:14

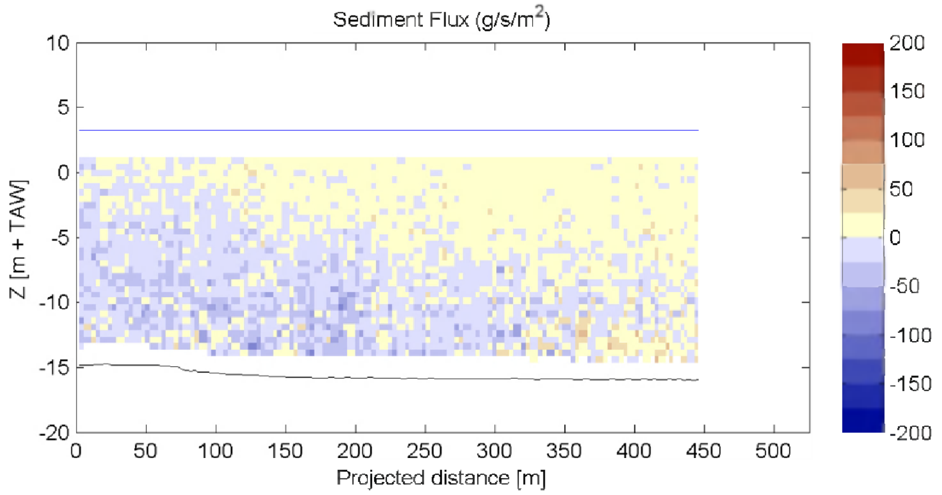
Data Processed by:

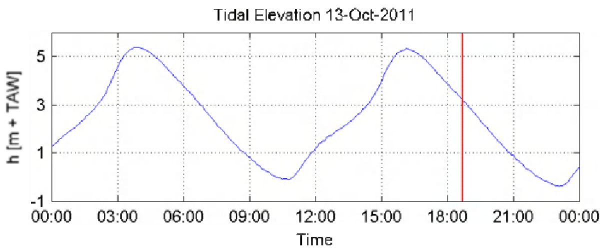
In association with :

I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6108DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

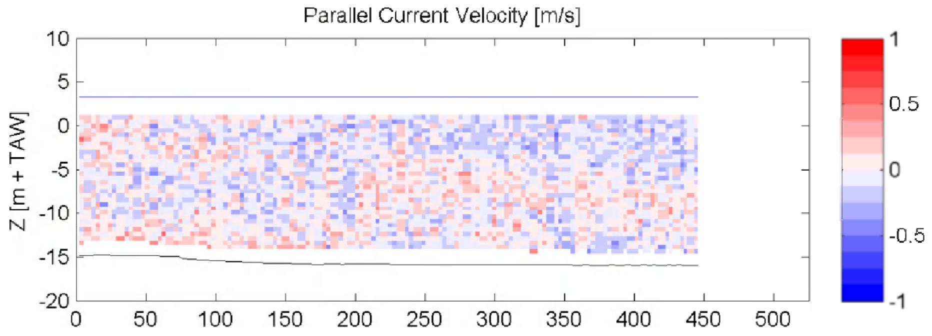
Date / Time [MET] :
13-Oct-2011
18:39 - 18:42

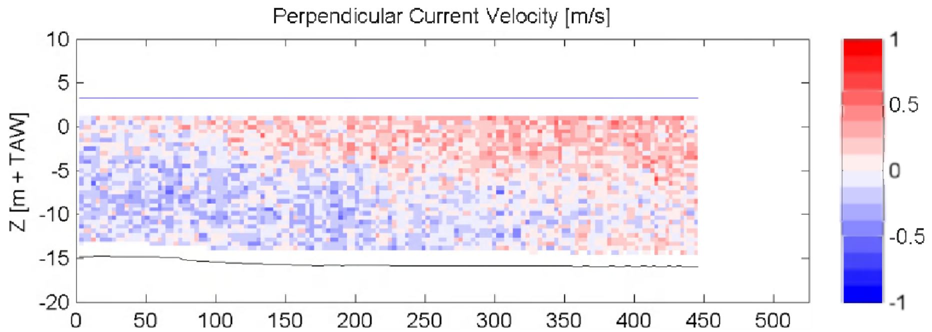
Time after HW [HH:MM]
2:25

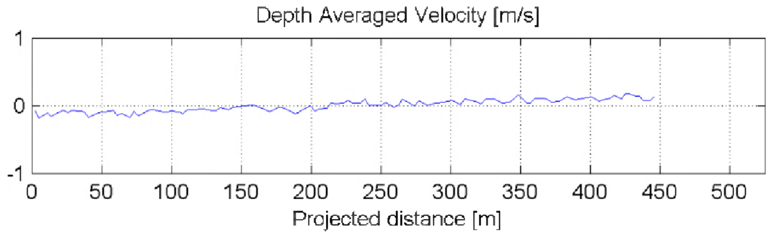
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

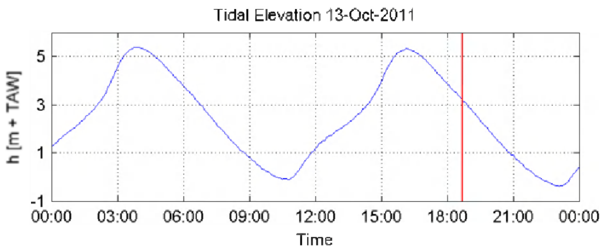
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6108DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

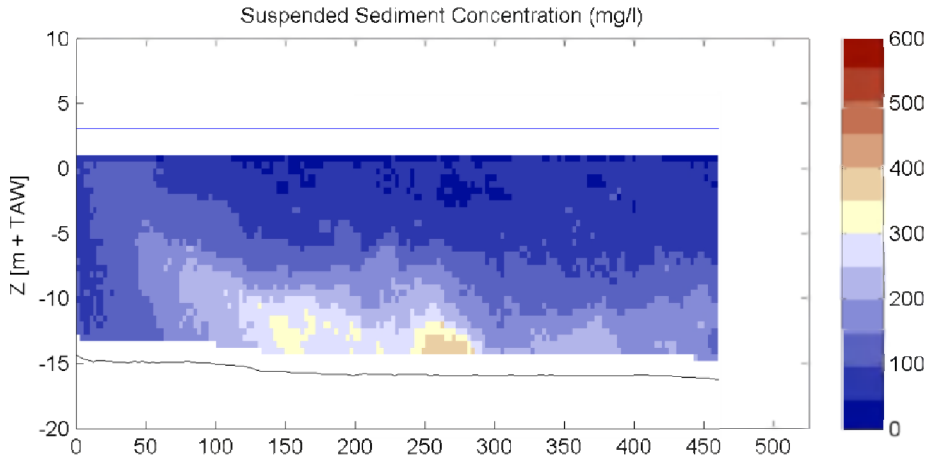
Date / Time [MET] :
13-Oct-2011
18:39 - 18:42

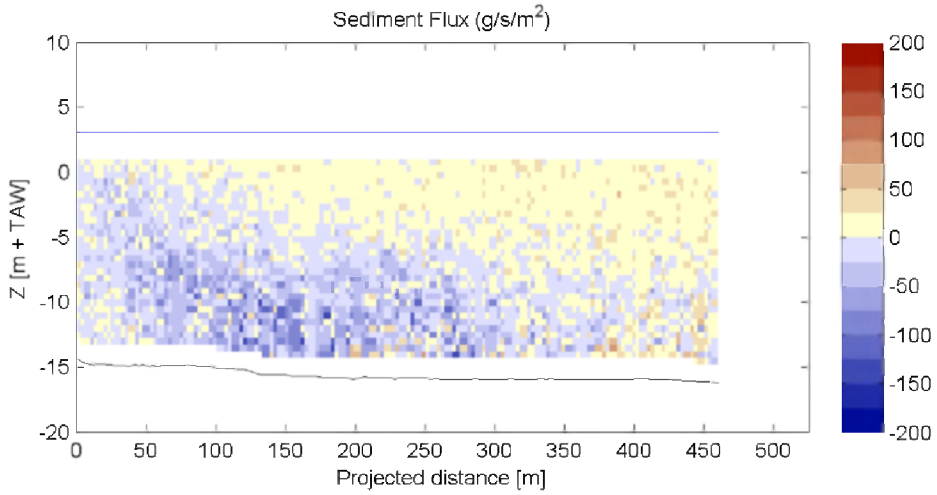
Time after HW [HH:MM]
2:25

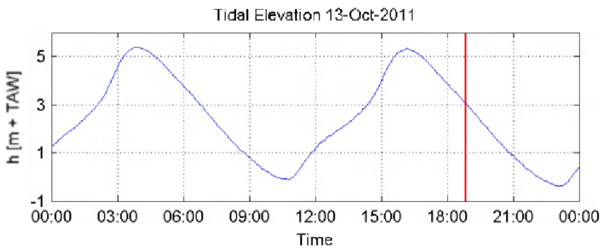
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6110DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

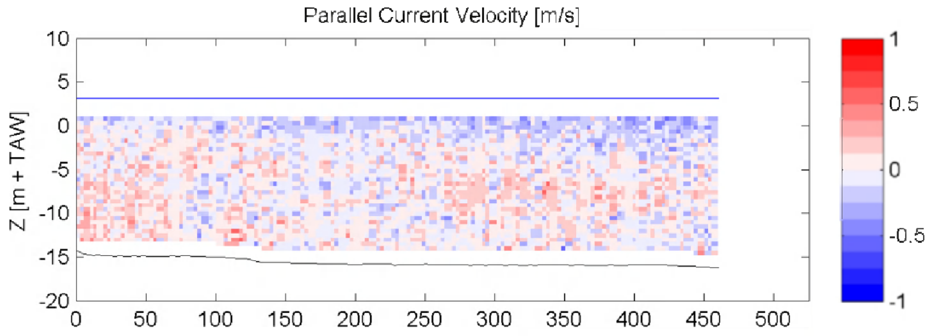
Date / Time [MET] :
13-Oct-2011
18:48 - 18:51

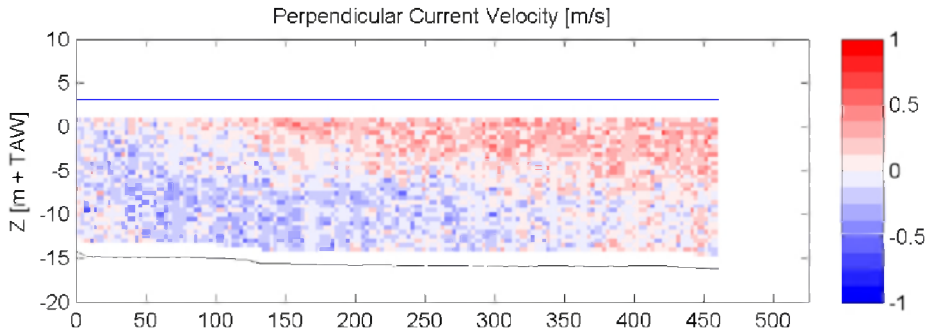
Time after HW [HH:MM]
2:34

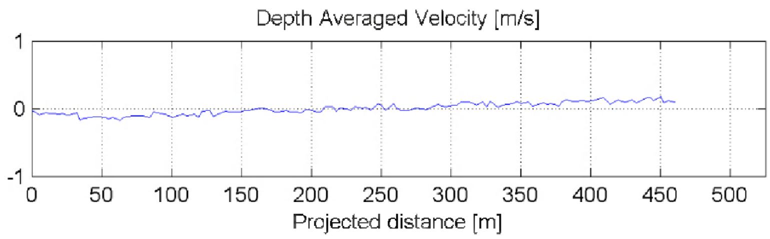
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

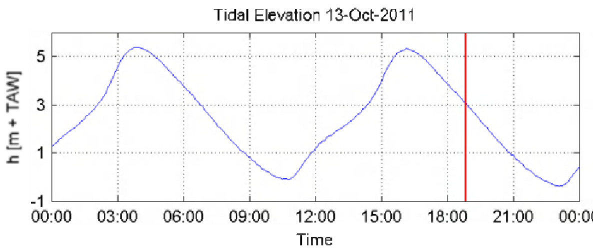
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6110DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:

03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :

13-Oct-2011
18:48 - 18:51

Time after HW [HH:MM]

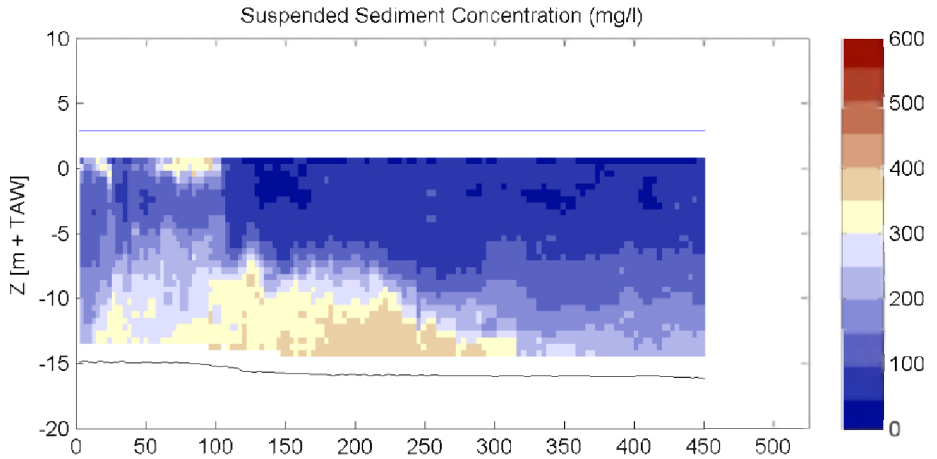
2:34

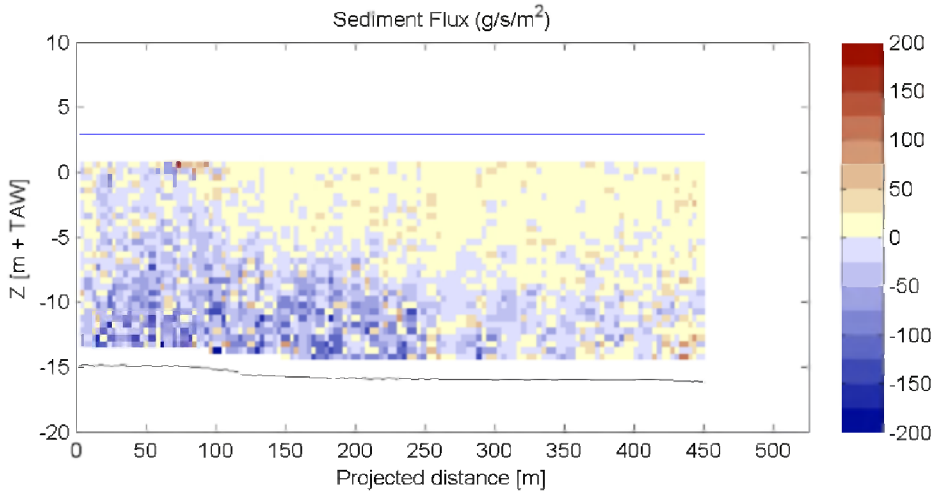
Data Processed by:

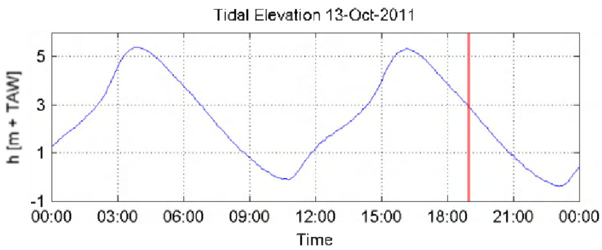
In association with :

I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6112DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

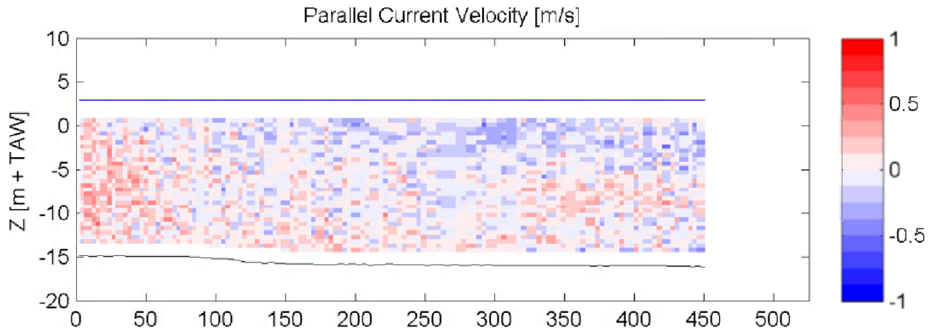
Date / Time [MET] :
13-Oct-2011
18:57 - 19:00

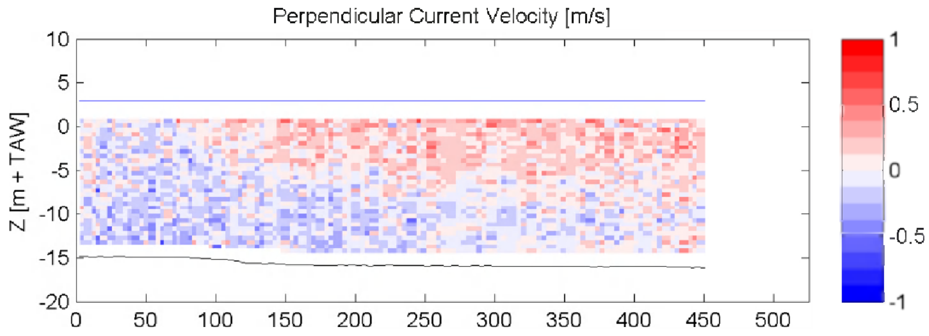
Time after HW [HH:MM]
2:44

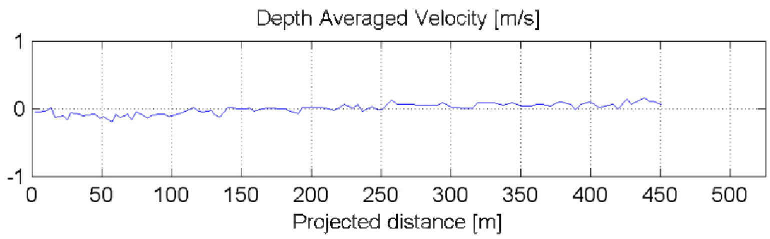
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

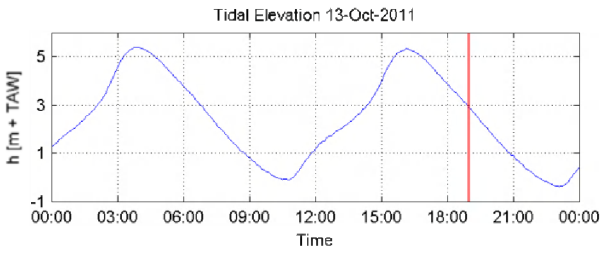
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6112DGDtrl_sub.csv	Location: Deurganckdok









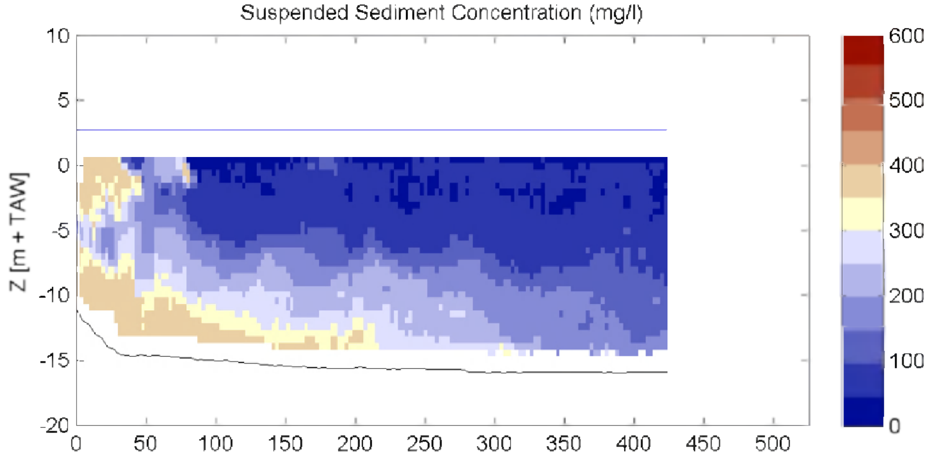
HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

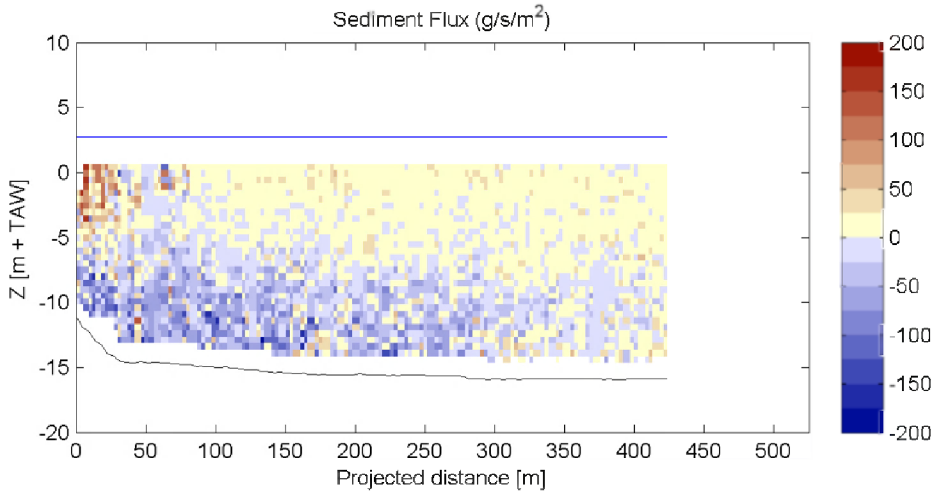
Date / Time [MET] :
13-Oct-2011
18:57 - 19:00

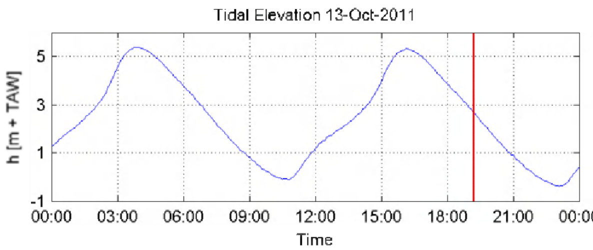
Time after HW [HH:MM]
2:44

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok	
11354	Equipment(s): ADCP
Sourcefile: 6114DGDtlr_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

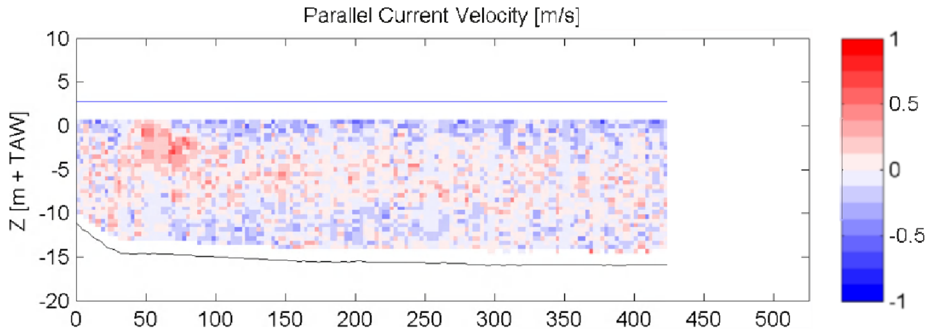
Date / Time [MET] :
13-Oct-2011
19:11 - 19:14

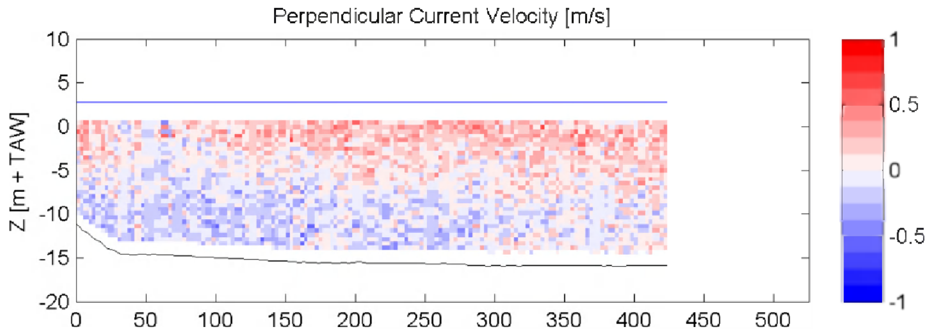
Time after HW [HH:MM]
2:57

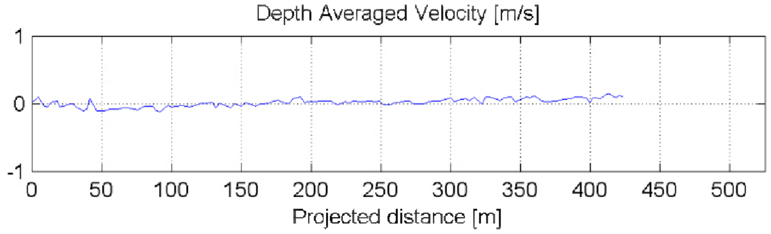
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

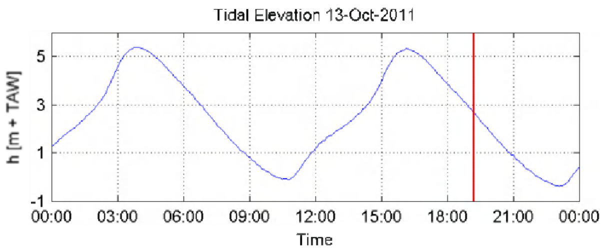
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6114DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

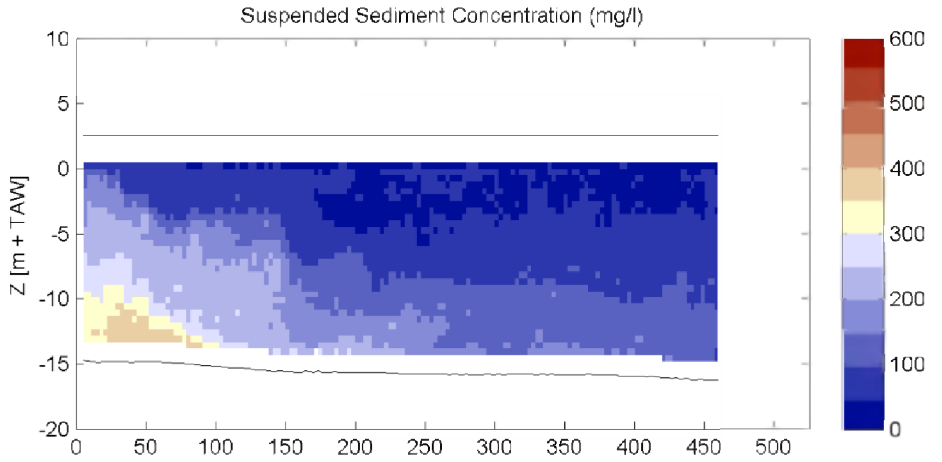
Date / Time [MET] :
13-Oct-2011
19:11 - 19:14

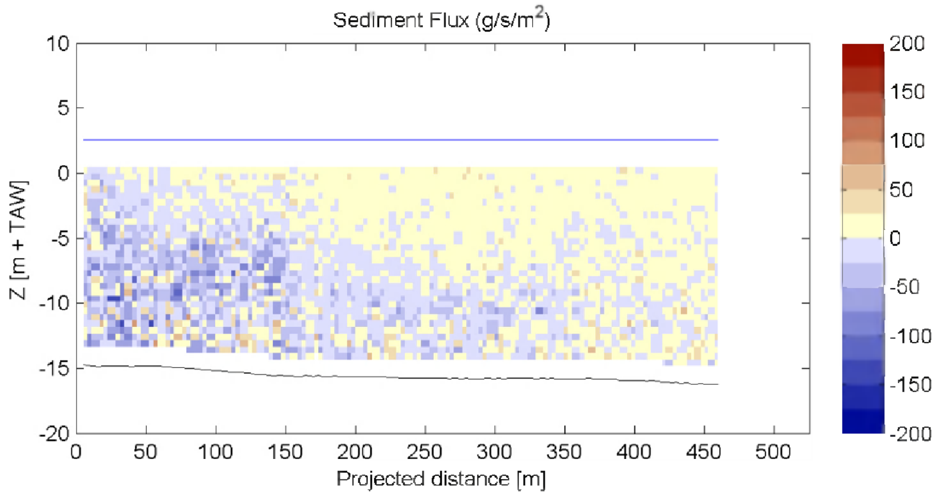
Time after HW [HH:MM]
2:57

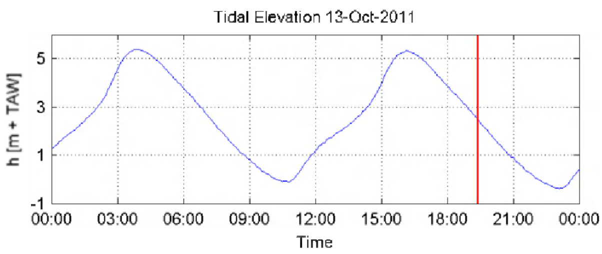
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6116DGDtrl_sub.csv	Location: Deurganckdok







HW/LW: 03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

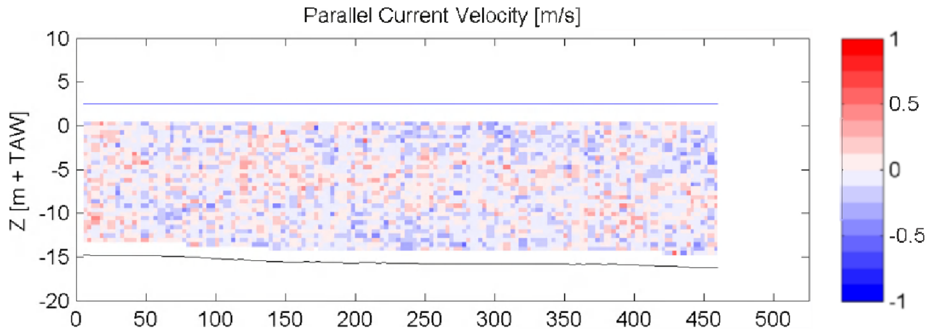
Date / Time [MET] :
13-Oct-2011
19:20 - 19:23

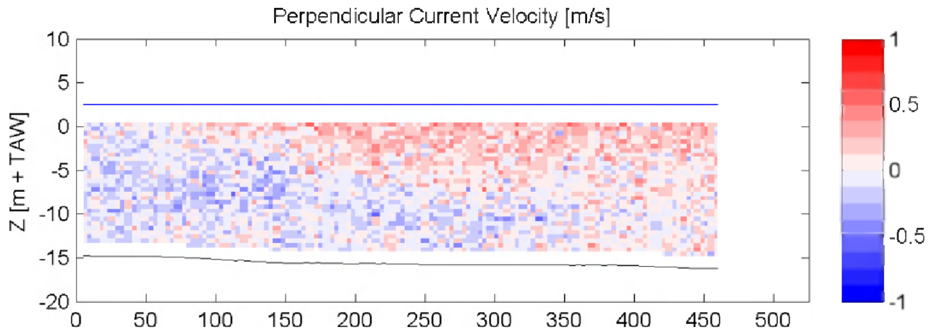
Time after HW [HH:MM]
3:07

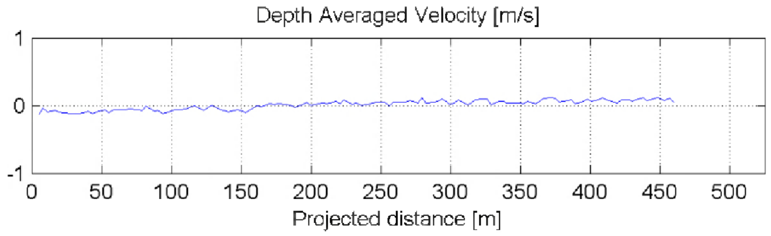
Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

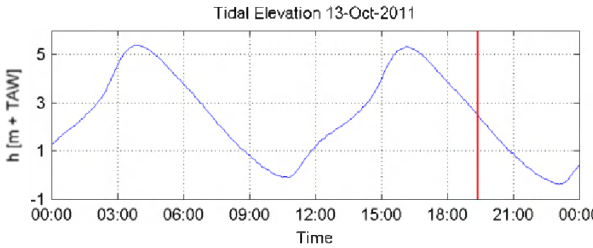
Evaluatie aanslibbing Deurganckdok

11354	Equipment(s): ADCP
Sourcefile: 6116DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
03:50: h = 5.38 m+TAW
10:20: h = -0.04 m+TAW
16:15: h = 5.28 m+TAW

Date / Time [MET] :
13-Oct-2011
19:20 - 19:23

Time after HW [HH:MM]
3:07

Data Processed by:
In association with :
I/RA/11354/10.108/MBO/ANF

Annex G Discharge, sediment flux and average sediment concentration for the total cross-section

G.1 Discharge distribution over the cross section: positive is from dock to river

Filename	Time after HW [hh:mm]	Time [hh:mm MET]	Qmid [m3/s]	Qtop [m3/s]	Qbot [m3/s]	Qleft [m3/s]	Qright [m3/s]	Qtot [m3/s]	QVolBal [m3/s]
6002DGDtrl_sub.csv	2:59	06:49	167	189	-37	-13	41	347	256
6004DGDtlr_sub.csv	3:12	07:02	243	167	11	-8	49	410	339
6006DGDtrl_sub.csv	3:25	07:15	73	173	-23	-23	67	332	306
6008DGDtlr_sub.csv	3:35	07:25	248	171	-13	-2	51	392	302
6010DGDtrl_sub.csv	3:49	07:39	107	136	-3	-1	22	303	248
6012DGDtlr_sub.csv	4:02	07:52	199	133	-3	-40	27	306	371
6014DGDtrl_sub.csv	4:17	08:07	177	104	100	-123	45	302	272
6016DGDtlr_sub.csv	4:31	08:21	151	47	17	-14	82	271	262
6018DGDtrl_sub.csv	4:45	08:35	122	28	51	-44	34	248	249
6020DGDtlr_sub.csv	4:57	08:47	309	31	59	-9	50	369	327
6022DGDtrl_sub.csv	5:10	09:00	137	-1	69	-3	61	304	203
6024DGDtlr_sub.csv	5:20	09:10	206	-18	79	-1	69	301	204
6026DGDtrl_sub.csv	5:32	09:22	120	-26	97	-2	16	232	172
6028DGDtlr_sub.csv	5:45	09:35	167	-58	94	-2	38	205	200
6030DGDtrl_sub.csv	5:57	09:47	19	-83	100	-3	33	113	170
6032DGDtlr_sub.csv	6:07	09:57	140	-93	98	-1	30	135	175
6034DGDtrl_sub.csv	6:26	10:16	39	-80	84	-41	39	37	74
6036DGDtlr_sub.csv	6:38	10:28	-49	-141	32	-34	76	-47	112
6038DGDtlr_sub.csv	6:50	10:40	86	-98	123	-29	56	105	30
6039DGDtlr_sub.csv	-5:19	10:50	182	-138	122	-21	50	101	-86
6041DGDtrl_sub.csv	-5:02	11:07	-126	-190	85	-125	40	-268	-307
6043DGDtlr_sub.csv	-4:43	11:26	-434	-211	100	-6	14	-485	-337

Filename	Time after HW [hh:mm]	Time [hh:mm MET]	Qmid [m3/s]	Qtop [m3/s]	Qbot [m3/s]	Qleft [m3/s]	Qright [m3/s]	Qtot [m3/s]	QVolBal [m3/s]
6045DGDtrl_sub.csv	-4:33	11:36	-375	-180	125	-16	-1	-440	-340
6047DGDtlr_sub.csv	-4:22	11:47	-238	-165	126	0	-32	-338	-429
6049DGDtrl_sub.csv	-4:07	12:02	-257	-173	115	0	-28	-346	-244
6050DGDtlr_sub.csv	-3:59	12:10	-306	-125	90	0	-53	-350	-278
6052DGDtrl_sub.csv	-3:36	12:33	-109	-80	38	13	-42	-240	-161
6054DGDtlr_sub.csv	-3:25	12:44	-209	-92	76	7	-114	-313	-134
6056DGDtrl_sub.csv	-3:10	12:59	-315	-102	73	2	-22	-353	-204
6058DGDtlr_sub.csv	-2:59	13:10	-291	-105	79	7	-15	-324	-160
6060DGDtrl_sub.csv	-2:48	13:21	-283	-91	80	25	-9	-261	-151
6062DGDtlr_sub.csv	-2:35	13:34	-121	-42	78	1	-43	-210	-215
6064DGDtrl_sub.csv	-2:18	13:51	-343	-108	19	9	-50	-372	-242
6066DGDtlr_sub.csv	-2:01	14:08	-164	-12	56	5	-101	-291	-293
6068DGDtrl_sub.csv	-1:48	14:21	-377	1	14	20	-70	-334	-354
6070DGDtlr_sub.csv	-1:37	14:32	-117	31	6	3	-58	-267	-406
6072DGDtrl_sub.csv	-1:26	14:43	-531	-31	-28	1	-60	-539	-441
6074DGDtlr_sub.csv	-1:10	14:59	-392	-25	-12	0	-78	-546	-527
6076DGDtlr_subv2.csv	-0:58	15:11	-457	-28	-22	3	-99	-569	-537
6078DGDtlr_subv2.csv	-0:48	15:21	-359	44	-89	1	-93	-441	-495
6080DGDtrl_subv2.csv	-0:37	15:32	-19	187	-160	9	-75	-125	-306
6082DGDtlr_subv2.csv	-0:25	15:44	-31	242	-137	0	-94	3	-230
6086DGDtlr_sub.csv	0:07	16:17	97	253	-145	2	-59	136	14
6088DGDtlr_sub.csv	0:18	16:28	108	247	-74	2	-42	250	96
6090DGDtlr_sub.csv	0:29	16:39	224	268	-120	2	15	371	170

Filename	Time after HW [hh:mm]	Time [hh:mm MET]	Qmid [m3/s]	Qtop [m3/s]	Qbot [m3/s]	Qleft [m3/s]	Qright [m3/s]	Qtot [m3/s]	QVolBal [m3/s]
6092DGDtrl_sub.csv	0:40	16:50	253	287	-132	12	10	449	204
6094DGDtrl_sub.csv	0:55	17:05	386	357	-184	5	18	520	273
6096DGDtrl_sub.csv	1:07	17:17	80	355	-143	9	57	406	306
6098DGDtlr_sub.csv	1:33	17:43	190	234	-152	6	146	404	280
6100DGDtrl_sub.csv	1:42	17:52	55	258	-47	17	92	372	278
6102DGDtlr_sub.csv	1:50	18:00	71	293	-120	1	66	288	272
6104DGDtrl_sub.csv	2:04	18:14	-19	205	-66	-49	39	181	278
6106DGDtlr_sub.csv	2:19	18:29	74	233	-67	-16	116	277	253
6108DGDtrl_sub.csv	2:30	18:40	13	156	-49	-2	79	224	306
6110DGDtlr_sub.csv	2:39	18:49	29	162	-65	-1	88	211	266
6112DGDtrl_sub.csv	2:49	18:59	16	143	-37	-2	96	241	295
6114DGDtlr_sub.csv	3:02	19:12	94	158	-59	0	178	326	338
6116DGDtrl_sub.csv	3:12	19:22	81	150	-12	-22	60	257	306

G.2 Sediment flux distribution over the cross section: positive is from dock to river

Filename	Time after HW [hh:mm]	Time [hh:mm MET]	Fmid [kg/s]	Ftop [kg/s]	Fbot [kg/s]	Fleft [kg/s]	Fright [kg/s]	Ftot [kg/s]
6002DGDtrl_sub.csv	2:59	06:49	-40.9	9.1	-18.9	-4.3	2.8	-52.2
6004DGDtlr_sub.csv	3:12	07:02	-24.5	7.7	-4.6	-2.1	3.6	-29.1
6006DGDtrl_sub.csv	3:25	07:15	-41.5	10.0	-9.5	-5.4	4.1	-34.7
6008DGDtlr_sub.csv	3:35	07:25	-19.4	10.9	-13.1	-0.5	2.5	-21.4
6010DGDtrl_sub.csv	3:49	07:39	-9.1	3.7	-3.6	-0.1	1.0	-9.1
6012DGDtlr_sub.csv	4:02	07:52	-2.7	5.4	-2.8	-3.7	0.8	-4.0
6014DGDtrl_sub.csv	4:17	08:07	-0.5	1.8	6.3	-13.2	1.5	-3.3
6016DGDtlr_sub.csv	4:31	08:21	-1.3	-0.3	0.1	-1.2	2.6	-0.6
6018DGDtrl_sub.csv	4:45	08:35	1.9	0.1	2.8	-4.5	1.0	0.4
6020DGDtlr_sub.csv	4:57	08:47	-1.9	-3.1	3.0	-1.7	1.4	-2.1
6022DGDtrl_sub.csv	5:10	09:00	-6.2	-4.4	4.7	-0.5	1.6	-1.5
6024DGDtlr_sub.csv	5:20	09:10	7.1	-1.3	5.2	0.0	1.5	8.6
6026DGDtrl_sub.csv	5:32	09:22	2.5	-0.9	5.0	-0.2	0.3	7.6
6028DGDtlr_sub.csv	5:45	09:35	2.5	-3.1	5.5	-0.2	0.9	5.1
6030DGDtrl_sub.csv	5:57	09:47	-7.4	-5.2	12.8	-0.4	1.3	2.0
6032DGDtlr_sub.csv	6:07	09:57	-1.7	-23.9	25.8	-0.2	1.8	-6.4
6034DGDtrl_sub.csv	6:26	10:16	-34.3	-38.0	33.4	-10.2	2.3	-49.9
6036DGDtlr_sub.csv	6:38	10:28	-48.4	-54.3	-6.5	-9.3	4.9	-86.3
6038DGDtlr_sub.csv	6:50	10:40	-12.7	-23.7	20.5	-3.6	3.1	-29.5
6039DGDtlr_sub.csv	-5:19	10:50	11.0	-23.4	17.7	-6.4	3.5	-6.7
6041DGDtrl_sub.csv	-5:02	11:07	-10.3	-27.0	13.8	-13.1	3.0	-39.7
6043DGDtlr_sub.csv	-4:43	11:26	-85.0	-42.2	20.6	-0.7	1.1	-106.0
6045DGDtrl_sub.csv	-4:33	11:36	-141.1	-60.6	33.6	-6.5	-3.0	-155.1
6047DGDtlr_sub.csv	-4:22	11:47	-86.8	-49.4	36.4	0.0	-13.5	-120.0
6049DGDtrl_sub.csv	-4:07	12:02	-64.1	-43.2	29.4	0.2	-11.3	-91.6
6050DGDtlr_sub.csv	-3:59	12:10	-63.6	-26.2	24.4	0.0	-15.0	-80.2
6052DGDtrl_sub.csv	-3:36	12:33	-42.8	-27.3	6.3	3.9	-11.3	-71.3
6054DGDtlr_sub.csv	-3:25	12:44	-42.0	-17.3	23.0	2.3	-28.6	-62.7
6056DGDtrl_sub.csv	-3:10	12:59	-52.4	-22.0	25.3	0.6	-6.0	-62.5
6058DGDtlr_sub.csv	-2:59	13:10	-83.8	-37.7	29.4	2.1	-4.8	-87.2
6060DGDtrl_sub.csv	-2:48	13:21	-89.3	-23.3	19.7	5.9	-2.3	-83.7
6062DGDtlr_sub.csv	-2:35	13:34	-47.8	-11.6	22.8	0.1	-13.6	-64.4
6064DGDtrl_sub.csv	-2:18	13:51	-72.8	-17.6	3.2	1.7	-11.2	-78.2
6066DGDtlr_sub.csv	-2:01	14:08	-28.0	-4.4	13.7	0.7	-14.3	-52.1

Filename	Time after HW [hh:mm]	Time [hh:mm MET]	Fmid [kg/s]	Ftop [kg/s]	Fbot [kg/s]	Fleft [kg/s]	Fright [kg/s]	Ftot [kg/s]
6068DGDtrl_sub.csv	-1:48	14:21	-81.8	-4.2	5.1	3.7	-9.0	-69.9
6070DGDtlr_sub.csv	-1:37	14:32	-34.6	2.2	1.1	0.6	-11.4	-59.8
6072DGDtrl_sub.csv	-1:26	14:43	-85.5	-2.9	-7.2	0.6	-9.2	-89.2
6074DGDtlr_sub.csv	-1:10	14:59	-60.7	-1.1	-2.2	0.0	-12.6	-90.2
6076DGDtlr_subv2.csv	-0:58	15:11	-102.3	-3.7	-8.2	0.7	-17.4	-130.1
6078DGDtlr_subv2.csv	-0:48	15:21	-126.8	14.8	-44.6	0.3	-24.4	-164.5
6080DGDtrl_subv2.csv	-0:37	15:32	-70.4	33.8	-85.2	3.1	-14.7	-154.2
6082DGDtlr_subv2.csv	-0:25	15:44	-136.0	34.4	-76.0	0.1	-33.6	-195.1
6086DGDtlr_sub.csv	0:07	16:17	-101.8	29.9	-83.1	0.6	-38.0	-199.2
6088DGDtlr_sub.csv	0:18	16:28	-136.4	29.9	-82.0	0.6	-26.1	-199.3
6090DGDtlr_sub.csv	0:29	16:39	-101.4	20.9	-67.4	0.7	0.1	-163.1
6092DGDtrl_sub.csv	0:40	16:50	-107.8	21.1	-93.4	4.2	-0.4	-169.4
6094DGDtrl_sub.csv	0:55	17:05	-96.6	21.8	-91.1	1.7	0.3	-169.1
6096DGDtrl_sub.csv	1:07	17:17	-130.1	22.1	-78.3	1.1	2.4	-151.8
6098DGDtlr_sub.csv	1:33	17:43	-10.2	20.7	-34.3	0.3	7.5	-46.3
6100DGDtrl_sub.csv	1:42	17:52	-33.5	12.5	-13.1	-2.2	5.3	-32.1
6102DGDtlr_sub.csv	1:50	18:00	-45.5	14.1	-24.9	0.0	4.0	-47.0
6104DGDtrl_sub.csv	2:04	18:14	-32.9	12.2	-16.3	-7.4	2.5	-38.9
6106DGDtlr_sub.csv	2:19	18:29	-20.3	11.8	-10.3	-2.9	8.2	-19.1
6108DGDtrl_sub.csv	2:30	18:40	-22.2	7.3	-9.2	-0.2	5.5	-23.1
6110DGDtlr_sub.csv	2:39	18:49	-45.9	9.0	-19.9	-0.1	6.4	-48.8
6112DGDtrl_sub.csv	2:49	18:59	-61.9	9.0	-27.5	-0.5	8.8	-64.0
6114DGDtlr_sub.csv	3:02	19:12	-43.1	11.4	-25.6	0.0	12.4	-47.0
6116DGDtrl_sub.csv	3:12	19:22	-31.1	7.3	-6.1	-5.2	4.4	-30.7

G.3 Sediment concentration distribution over the cross section

Transect name	*Time [hh:mm MET]*	*Time after HW [hh:mm]*	*Average measured SS Concentration [mg/l]*	*Average measured incoming SS Concentration [mg/l]*	*Average measured outgoing SS Concentration [mg/l]*
6002DGDtrl_sub.csv	2:59	6:49	149	256	87
6004DGDtlr_sub.csv	3:12	7:02	131	220	84
6006DGDtrl_sub.csv	3:25	7:15	129	211	81
6008DGDtlr_sub.csv	3:35	7:25	113	186	74
6010DGDtrl_sub.csv	3:49	7:39	78	114	56
6012DGDtlr_sub.csv	4:02	7:52	67	95	51
6014DGDtrl_sub.csv	4:17	8:07	60	86	45
6016DGDtlr_sub.csv	4:31	8:21	51	71	40
6018DGDtrl_sub.csv	4:45	8:35	52	70	42
6020DGDtlr_sub.csv	4:57	8:47	59	96	41
6022DGDtrl_sub.csv	5:10	9:00	65	95	49
6024DGDtlr_sub.csv	5:20	9:10	54	65	48
6026DGDtrl_sub.csv	5:32	9:22	44	48	42
6028DGDtlr_sub.csv	5:45	9:35	55	63	50
6030DGDtrl_sub.csv	5:57	9:47	96	105	88
6032DGDtlr_sub.csv	6:07	9:57	180	210	156
6034DGDtrl_sub.csv	6:26	10:16	265	315	217
6036DGDtlr_sub.csv	6:38	10:28	259	311	202
6038DGDtlr_sub.csv	6:50	10:40	188	228	154
6039DGDtlr_sub.csv	-5:19	10:50	154	172	139
6041DGDtrl_sub.csv	-5:02	11:07	148	148	148
6043DGDtlr_sub.csv	-4:43	11:26	194	200	182
6045DGDtrl_sub.csv	-4:33	11:36	266	287	226
6047DGDtlr_sub.csv	-4:22	11:47	269	286	240
6049DGDtrl_sub.csv	-4:07	12:02	238	243	229
6050DGDtlr_sub.csv	-3:59	12:10	231	230	231
6052DGDtrl_sub.csv	-3:36	12:33	241	250	227
6054DGDtlr_sub.csv	-3:25	12:44	243	234	257
6056DGDtrl_sub.csv	-3:10	12:59	256	239	286
6058DGDtlr_sub.csv	-2:59	13:10	287	283	293
6060DGDtrl_sub.csv	-2:48	13:21	264	274	250
6062DGDtlr_sub.csv	-2:35	13:34	255	263	244
6064DGDtrl_sub.csv	-2:18	13:51	210	210	210

Transect name	***Time [hh:mm MET]***	***Time after HW [hh:mm]***	***Average measured SS Concentration [mg/l]***	***Average measured incoming SS Concentration [mg/l]***	***Average measured outgoing SS Concentration [mg/l]***
6066DGDtlr_sub.csv	-2:01	14:08	175	176	174
6068DGDtrl_sub.csv	-1:48	14:21	191	195	184
6070DGDtlr_sub.csv	-1:37	14:32	188	194	177
6072DGDtrl_sub.csv	-1:26	14:43	172	170	178
6074DGDtlr_sub.csv	-1:10	14:59	183	178	199
6076DGDtlr_subv2.csv	-0:58	15:11	232	231	234
6078DGDtlr_subv2.csv	-0:48	15:21	294	312	260
6080DGDtrl_subv2.csv	-0:37	15:32	315	373	249
6082DGDtlr_subv2.csv	-0:25	15:44	323	416	231
6086DGDtlr_sub.csv	0:07	16:17	328	442	226
6088DGDtlr_sub.csv	0:18	16:28	329	467	218
6090DGDtlr_sub.csv	0:29	16:39	273	416	170
6092DGDtrl_sub.csv	0:40	16:50	250	403	147
6094DGDtrl_sub.csv	0:55	17:05	215	361	121
6096DGDtrl_sub.csv	1:07	17:17	167	274	91
6098DGDtlr_sub.csv	1:33	17:43	121	178	82
6100DGDtrl_sub.csv	1:42	17:52	96	139	66
6102DGDtlr_sub.csv	1:50	18:00	99	146	64
6104DGDtrl_sub.csv	2:04	18:14	102	140	72
6106DGDtlr_sub.csv	2:19	18:29	91	124	68
6108DGDtrl_sub.csv	2:30	18:40	96	132	70
6110DGDtlr_sub.csv	2:39	18:49	126	187	80
6112DGDtrl_sub.csv	2:49	18:59	152	239	91
6114DGDtlr_sub.csv	3:02	19:12	147	239	90
6116DGDtrl_sub.csv	3:12	19:22	117	178	76

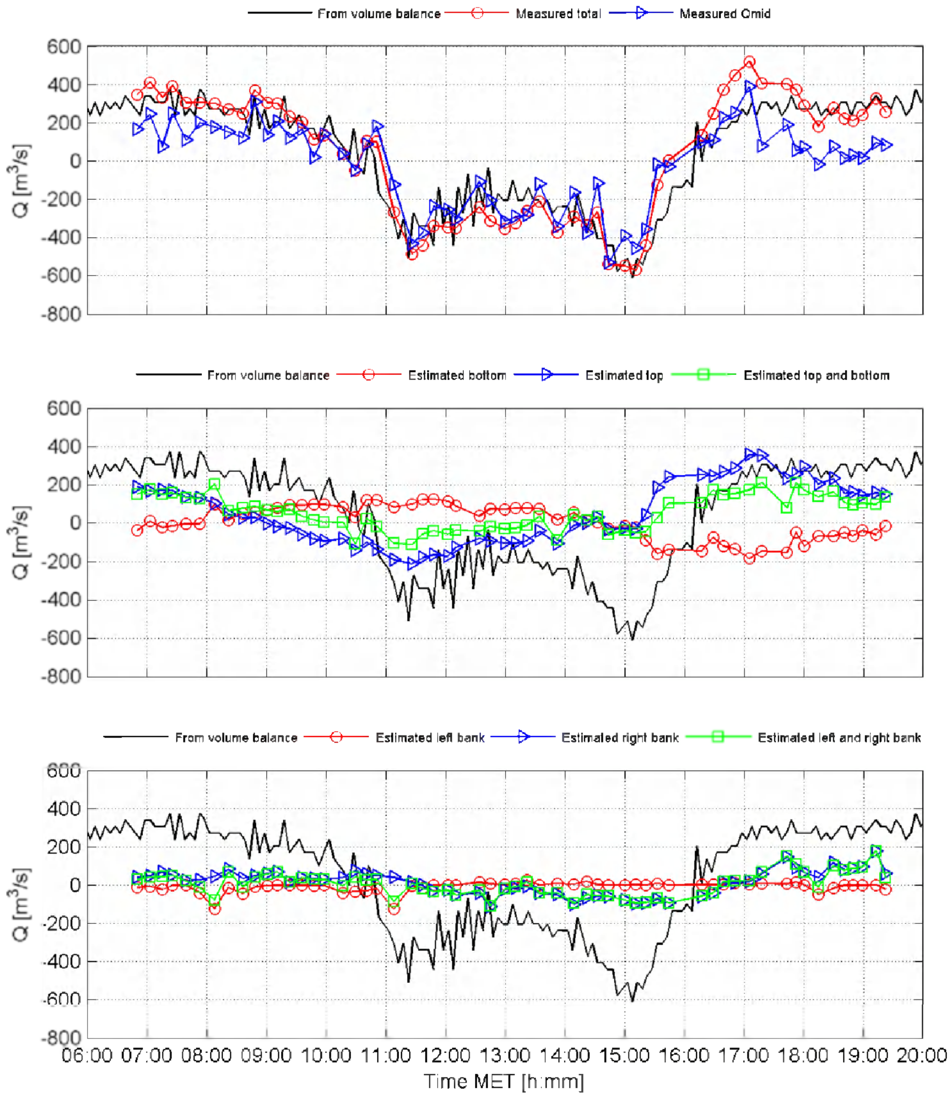
Tide	Concentration [mg/l]								
	overall SSC			incoming SSC			outgoing SSC		
	min	average	max	min	average	max	min	average	max
Eb	44	137	329	48	197	467	40	92	218
Flood	148	232	323	148	242	416	139	220	293

Annex H Temporal variation of total flux, total discharge and suspended sediment concentration (SSC)

H.1 Total discharge through the measured cross section, positive is from dock to river

Evaluatie aanslibbing Deurganckdok

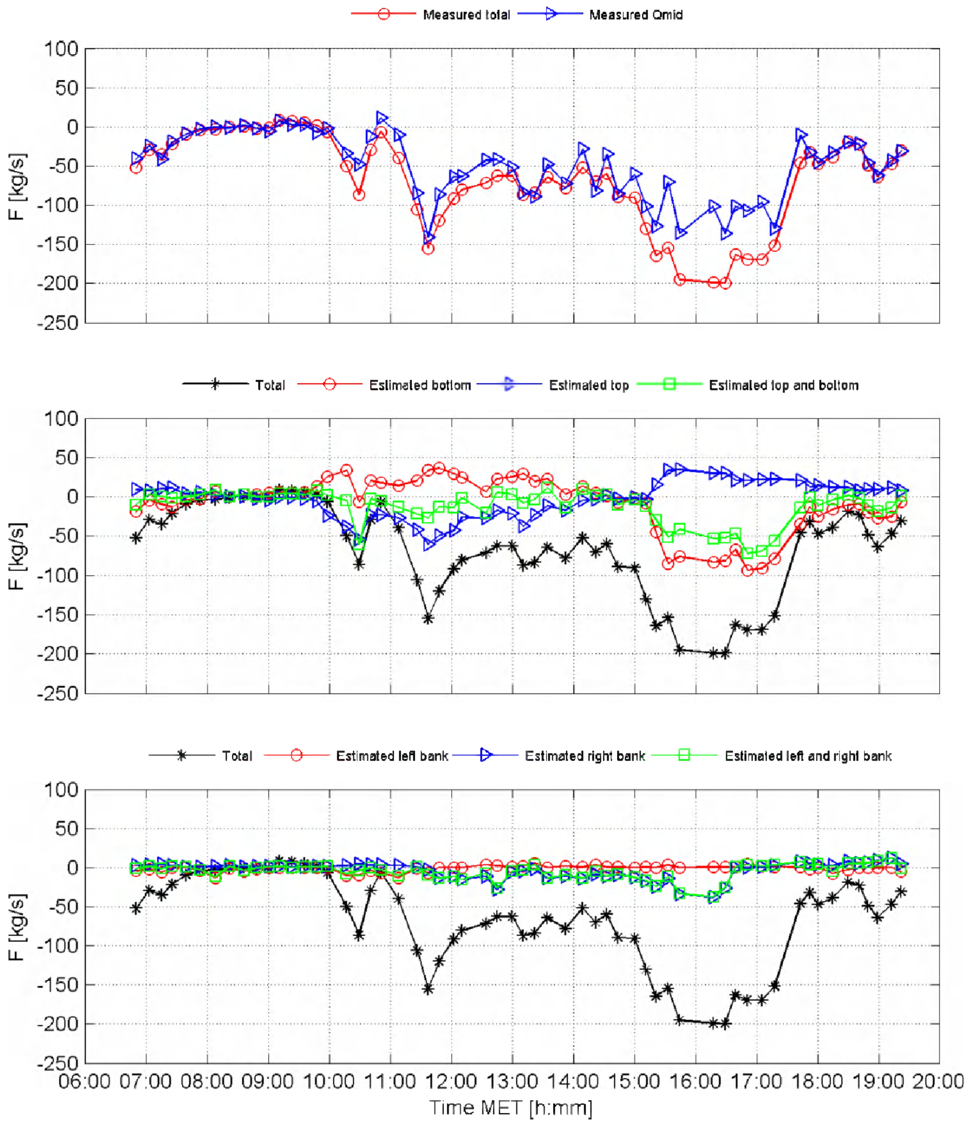
	Equipment(s): ADCP
Sourcefile(s): 6002DGDtrl_sub.csv 6116DGDtrl_sub.csv	Location: Deurganckdok



Date : 13-Oct-2011	Data Processed by: In association with : I/RA/11354/10.106/MBO/ANF

H.2 Total flux through the measured cross section, positive is from dock to river

Evaluatie aanslibbing Deurganckdok	
	Equipment(s): ADCP
Sourcefile(s): 6002DGDtrl_sub.csv 6116DGDtrl_sub.csv	Location: Deurganckdok

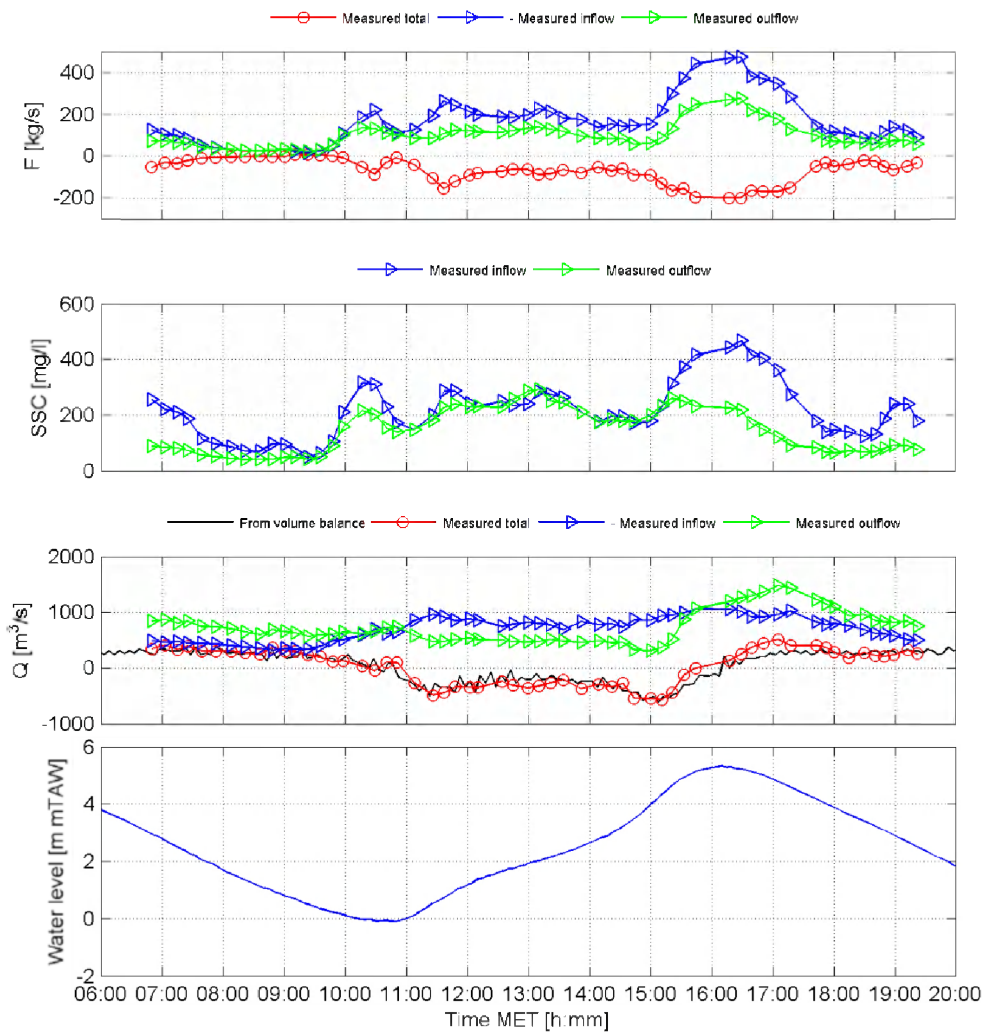


Date : 13-Oct-2011	Data Processed by: In association with : I/RA/11354/10.108/MBO/ANF

H.3 Suspended sediment concentration through the measured cross section

Evaluatie aanslibbing Deurganckdok

	Equipment(s): ADCP
Sourcefile(s): 6002DGDtrl_sub.csv 6116DGDtrl_sub.csv	Location: Deurganckdok



Date : 13-Oct-2011

Data Processed by:

In association with :

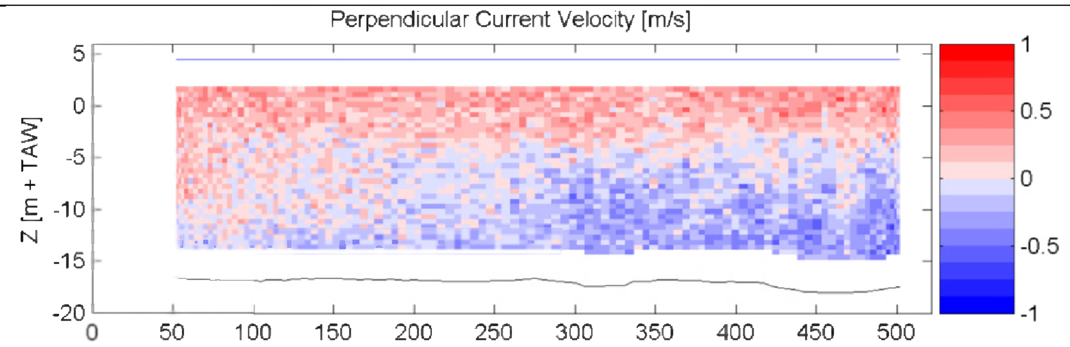
I/RA/11354/10.108/MBO/ANF

Annex I Current and SSC patterns - intercomparison with earlier measurement campaigns at Deurganckdok

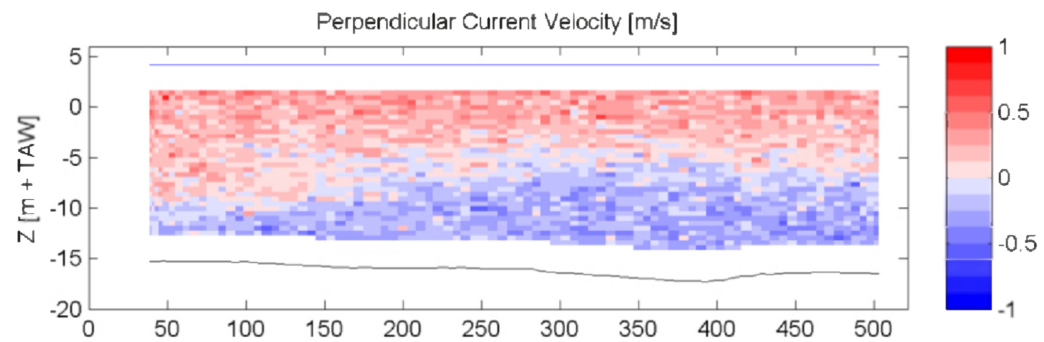
I.1 Overview of the different campaigns

Tidal Coefficient at tidal gauge: Liefkenshoek				
PROJECT (DESCRIPTION)	***Date***	***Tidal coefficient***	***Tidal phase***	***Fresh water discharge at Schelle [m³/s]***
HCBS 1 (IMDC, 2006m)	17/11/2005	1.10	Spring	91*
HCBS 2 (IMDC, 2006c)	22/03/2006	0.97	Average	94*
HCBS 2 (IMDC, 2007o)	27/09/2006	1.03	Average	33*
DGD 1 (IMDC, 2008a)	24/10/2007	1.02	Average	46*
DGD 2 (IMDC, 2008k)	11/03/2008	1.17	Spring	286*
DGD 3 (IMDC, 2008u)	19/06/2008	1.15	Spring	93*
DGD 3 (IMDC, 2008v)	26/06/2008	0.97	Average	69*
DGD3 (IMDC 2008x)	24/09/2008	0.81	Neap	75*
DGD 3 (IMDC, 2009a)	30/09/2008	1.08	Spring	82*
DGD 3 (IMDC, 2009e)	02/12/2008	0.98	Average	154*
DGD 3(IMDC,2009f)	10/12/2008	0.97	Average	222*
DGD 3(IMDC,2009i)	06/03/2009	0.82	Neap	99*
DGD 3(IMDC,2009n)	12/03/2009	1.24	Spring	129*
Eff DGD (IMDC, 2012a)	28/09/2011	1.06	Avg/Spring	40**
Eff DGD (IMDC, 2012b)	06/10/2011	0.83	Neap	55**
Eff DGD (IMDC, 2012a)	13/10/2011	1.17	Spring	60**

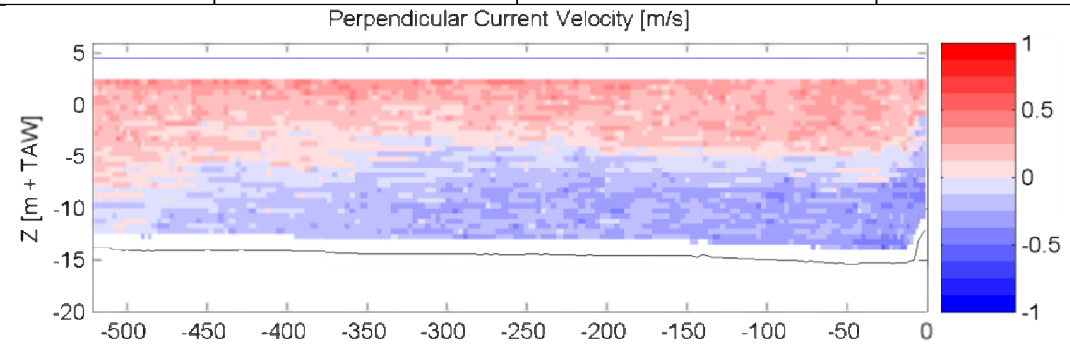
I.2 1 hour after HW (density currents)



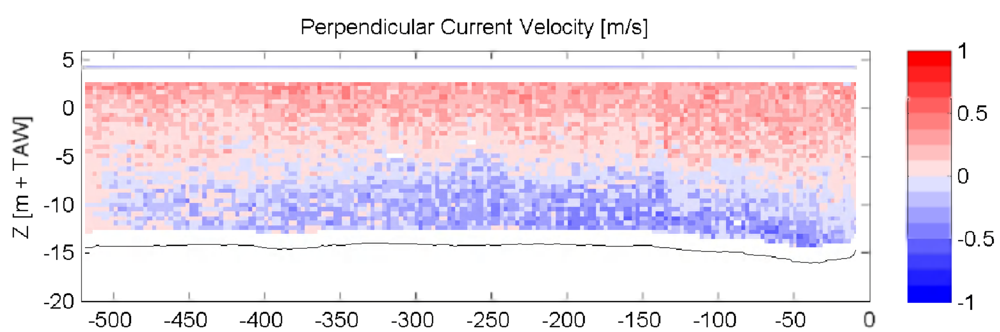
a)	17/11/2005	1 hr after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s



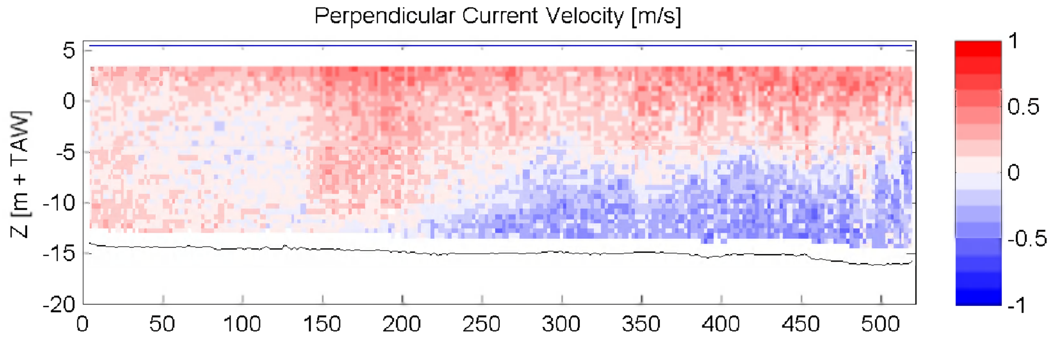
b)	22/03/2006	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s



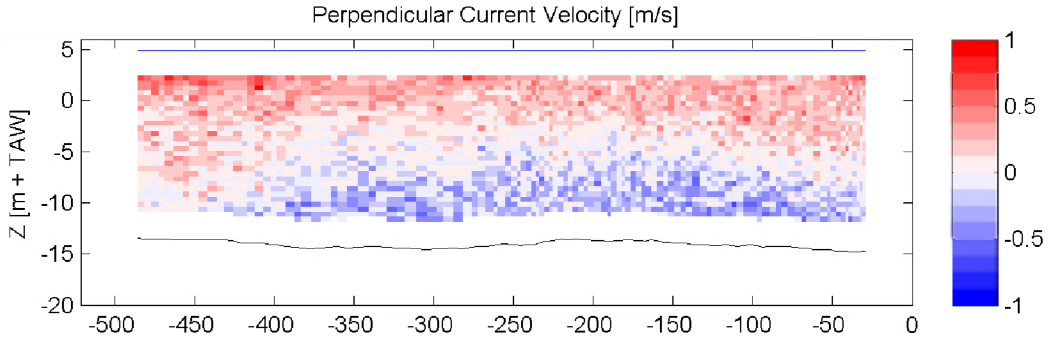
c)	27/09/2006	1 hr after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s



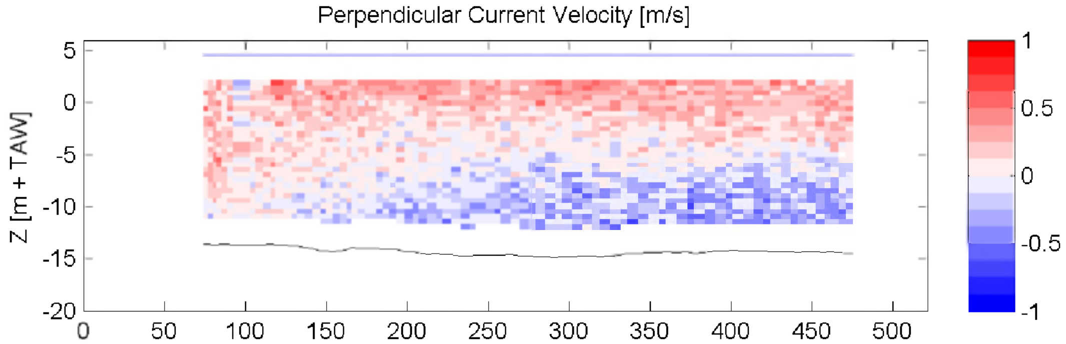
d)	24/10/2007	1 hr after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s



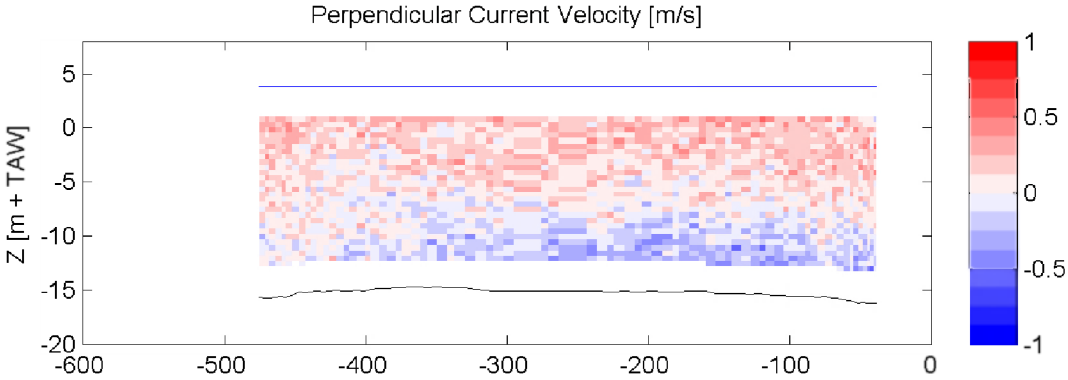
e)	11/03/2008	1 hr after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s

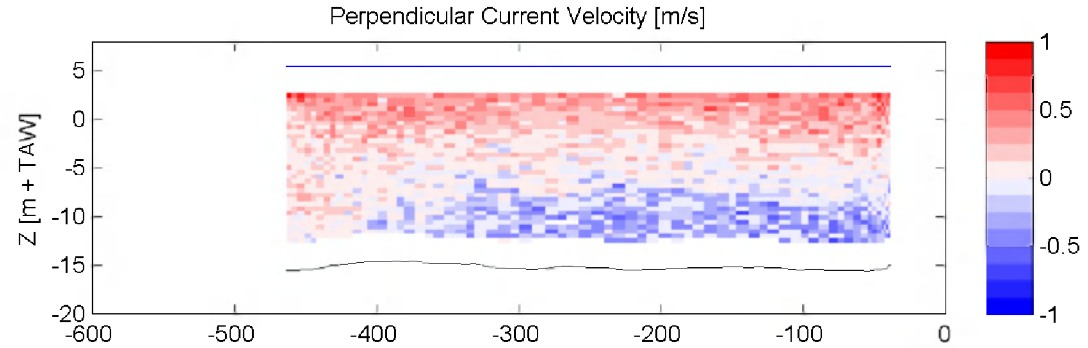
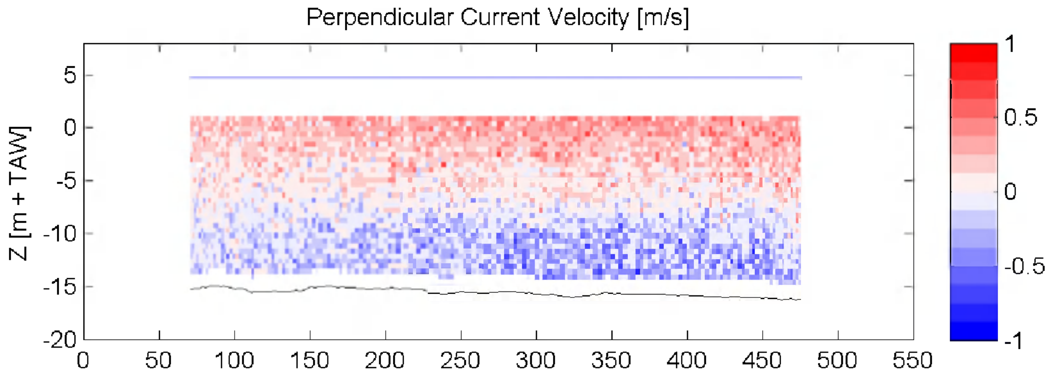
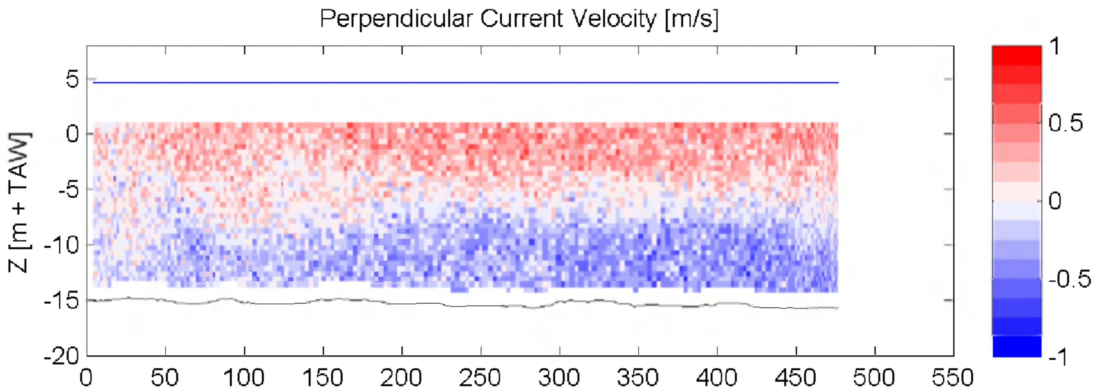


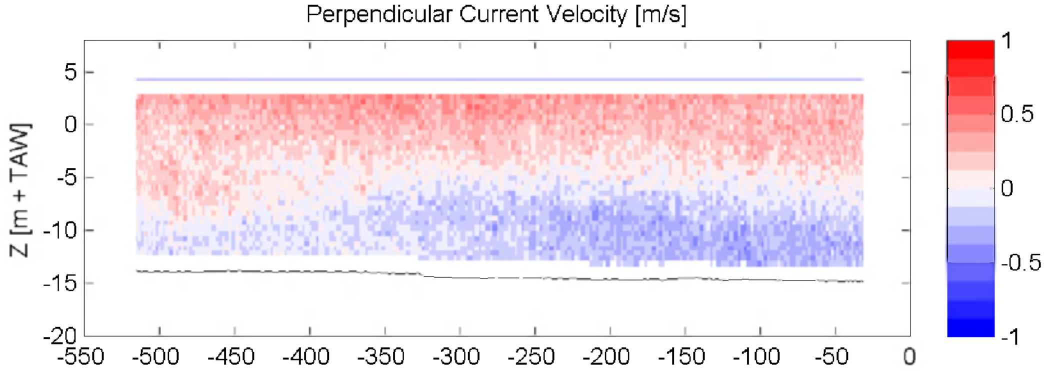
f)	19/06/2008	1 hr after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s



g)	26/06/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s



h)	24/09/2008	1 hr after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s
				
i)	30/09/2008	1 hr after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s
				
j)	02/12/2008	1 hr after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s
				
k)	10/12/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 222 m³/s

<table>
<tr><td></td><td colspan="4">
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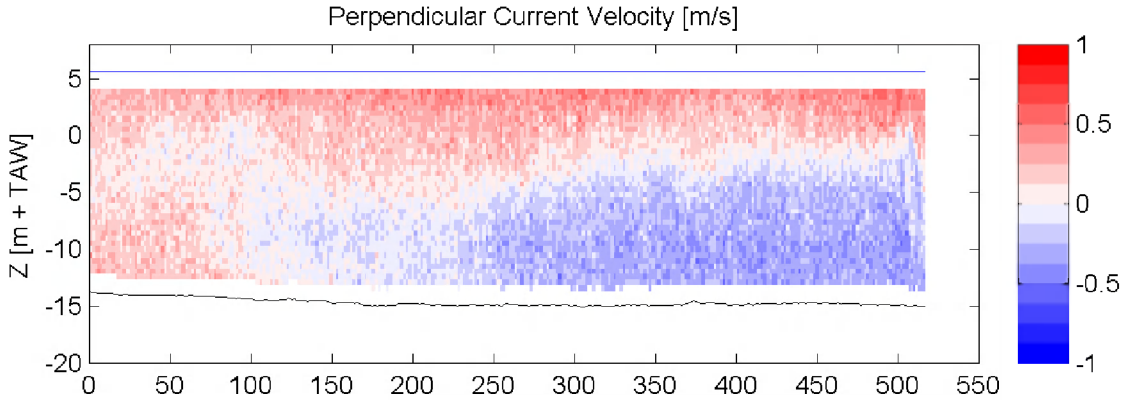
<tr><td>l)</td><td>06/03/2009</td><td>1 hr after HW</td><td>Tidal coefficient: 0.82</td><td>Fresh water: 99m^3/s</td></tr>
<tr><td></td><td colspan="4">
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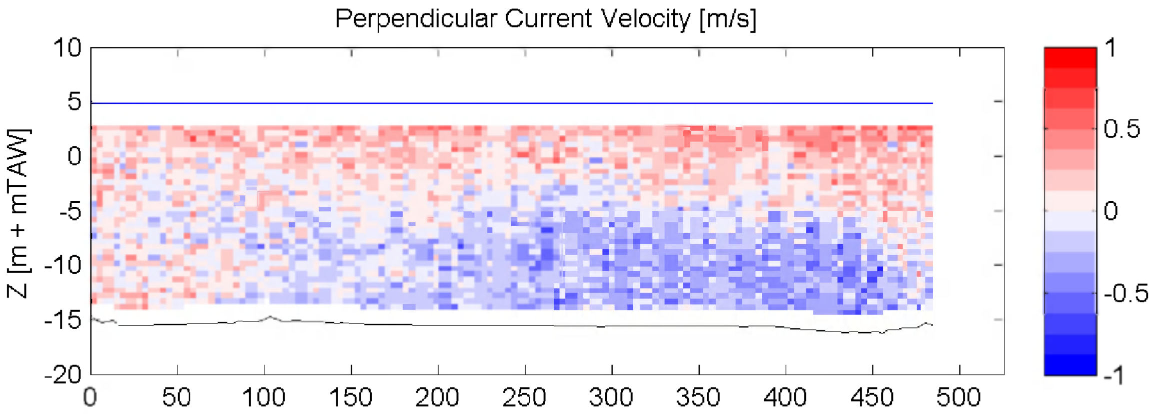
<tr><td>m)</td><td>12/03/2009</td><td>1 hr after HW</td><td>Tidal coefficient: 1.24</td><td>Fresh water: 129m^3/s</td></tr>
<tr><td></td><td colspan="4">No velocity data available</td></tr>
<tr><td>n)</td><td>28/09/2011</td><td>1 hr after HW</td><td>Tidal coefficient: 1.17</td><td>Fresh water: 40 m^3/s</td></tr>
<tr><td></td><td colspan="4">
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<tr><td>o)</td><td>06/10/2011</td><td>1 hr after HW</td><td>Tidal coefficient: 0.83</td><td>Fresh water: 55 m^3/s</td></tr>
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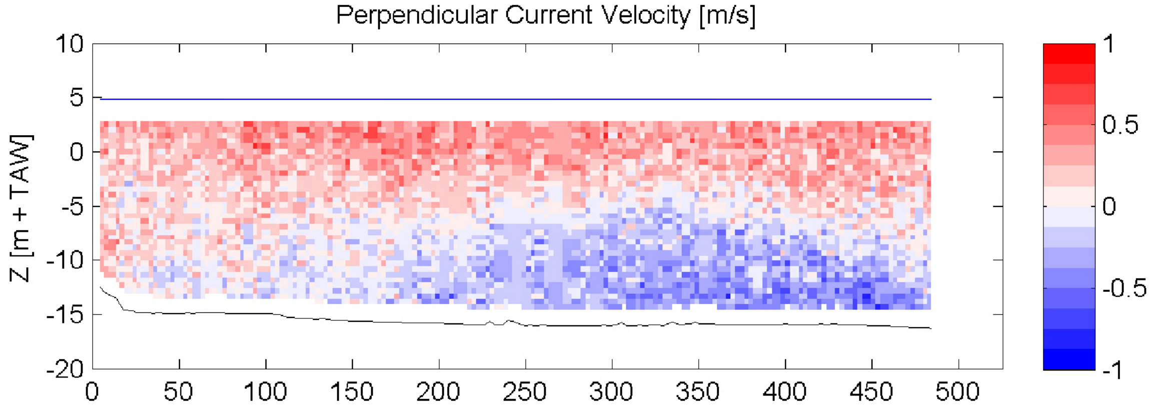
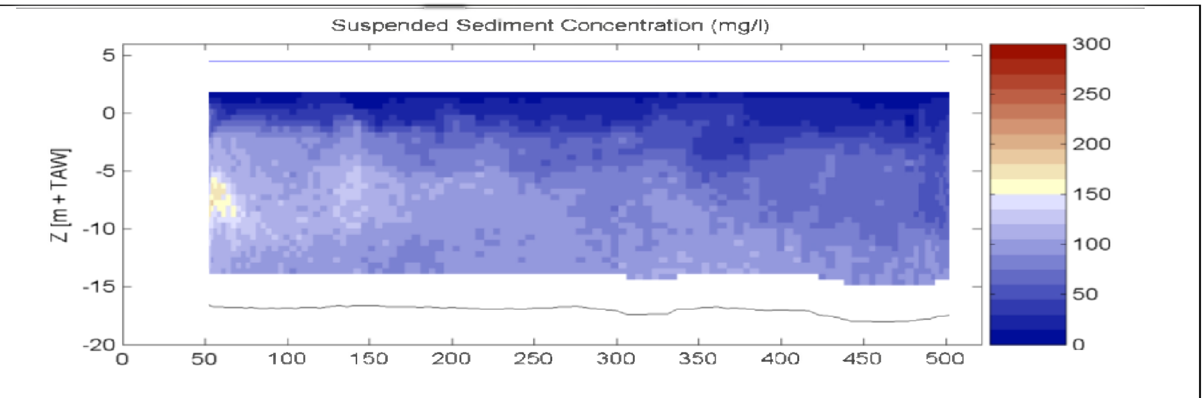
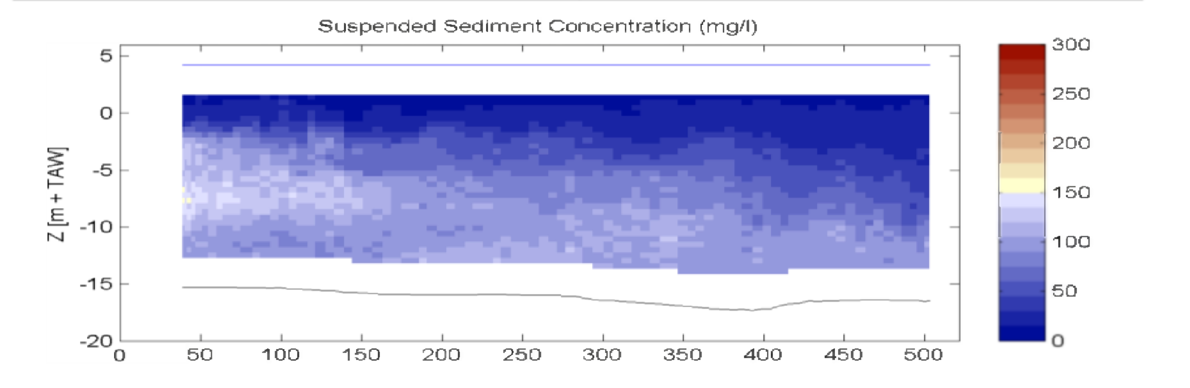


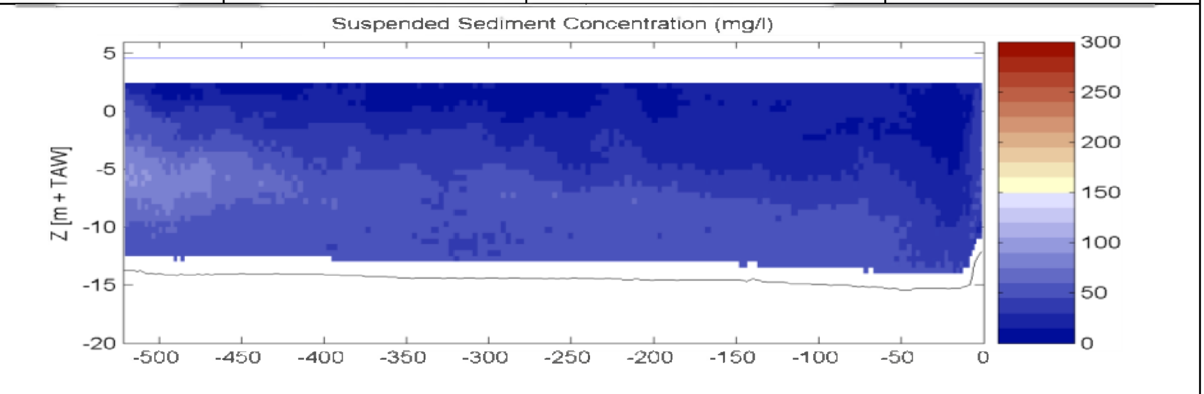
p)	13/10/2011	1 hr after HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s



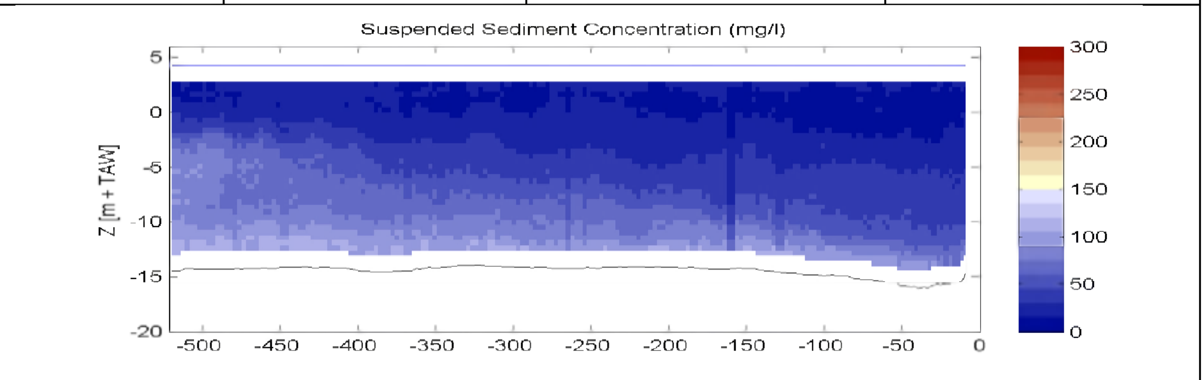
a)	17/11/2005	1 hr after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s



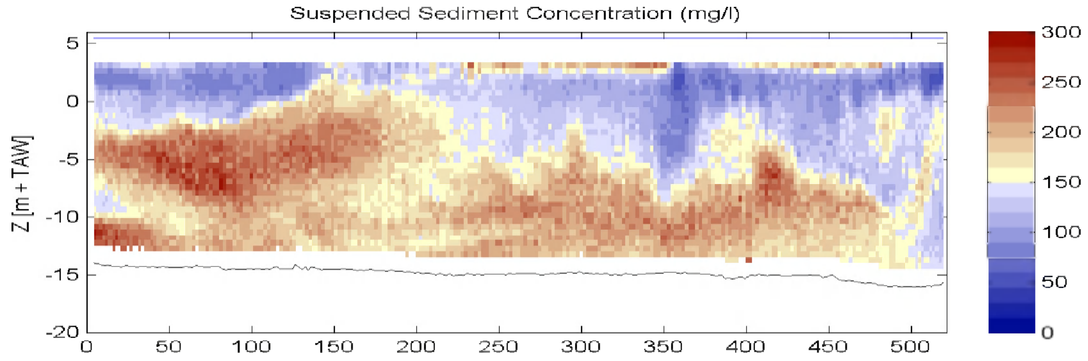
b)	22/03/2006	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s



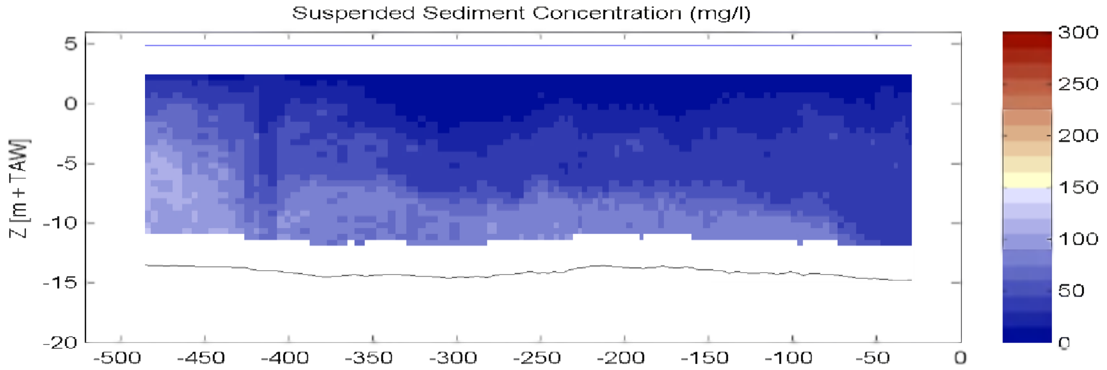
c)	27/09/2006	1 hr after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s



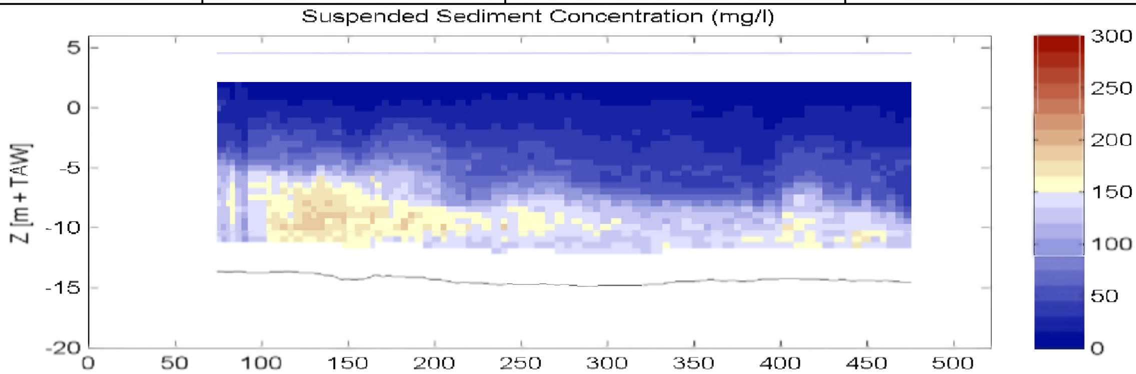
d)	24/10/2007	1 hr after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s



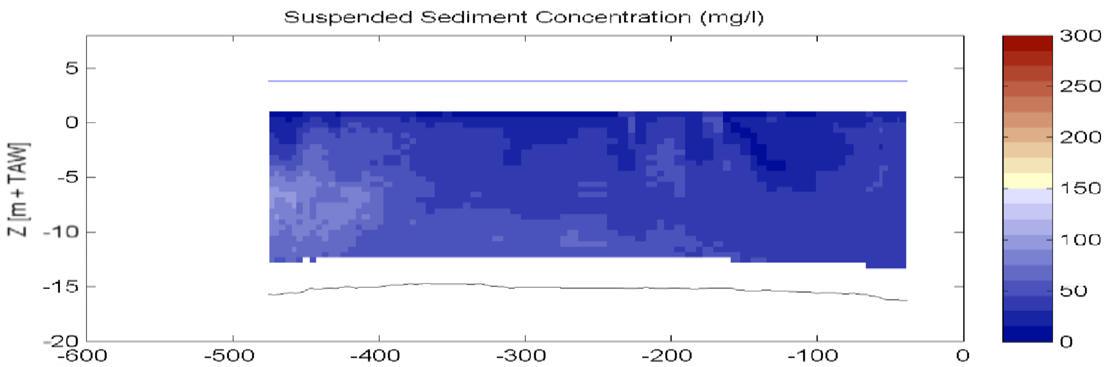
e)	11/03/2008	1 hr after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s



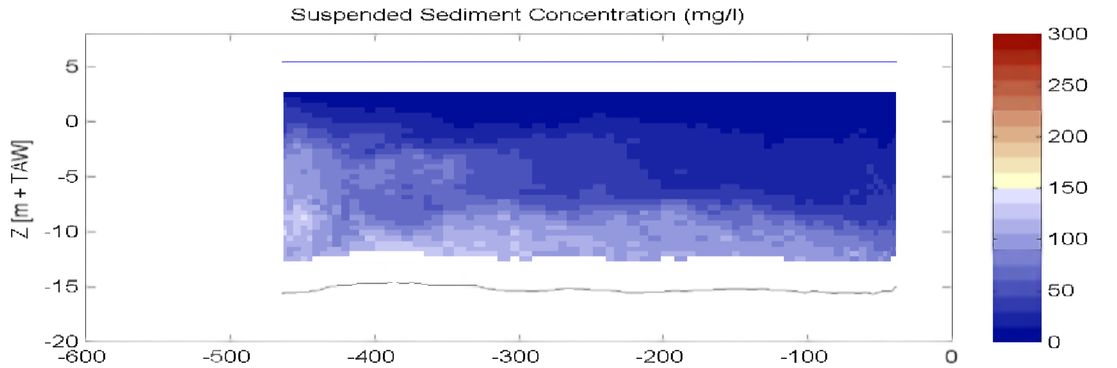
f)	19/06/2008	1 hr after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s



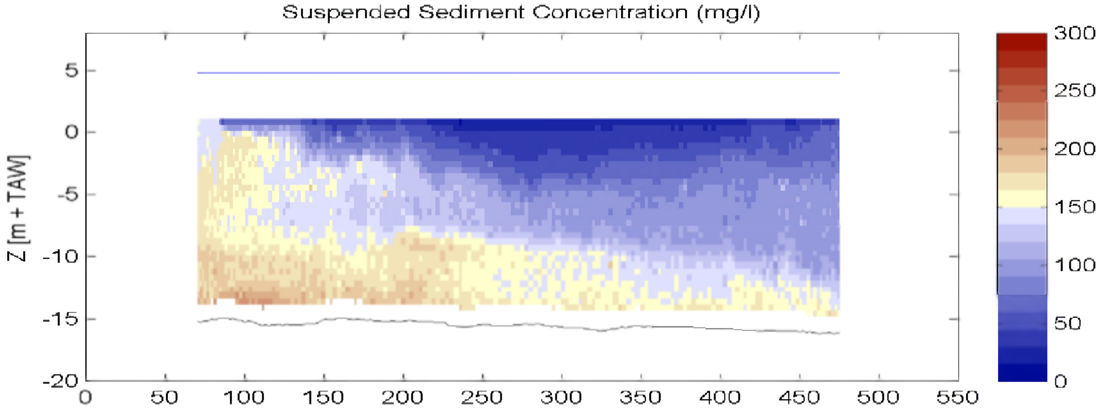
g)	26/06/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s



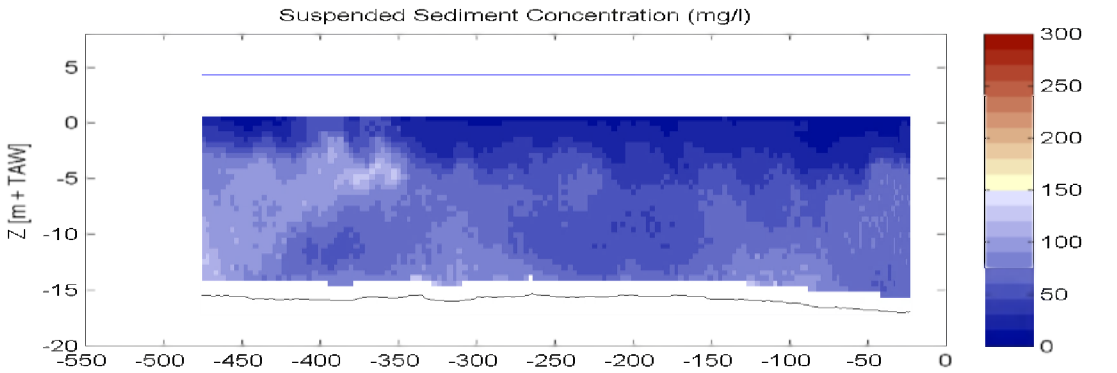
h)	24/09/2008	1 hr after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s



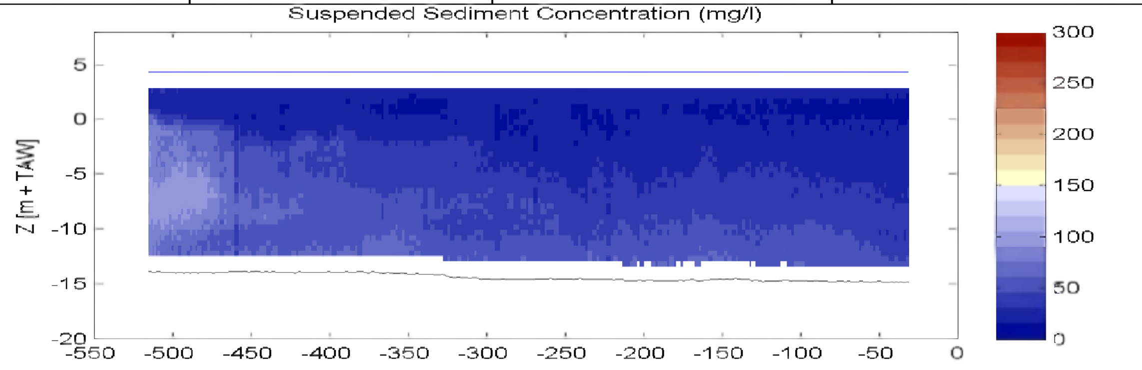
i)	30/09/2008	1 hr after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s

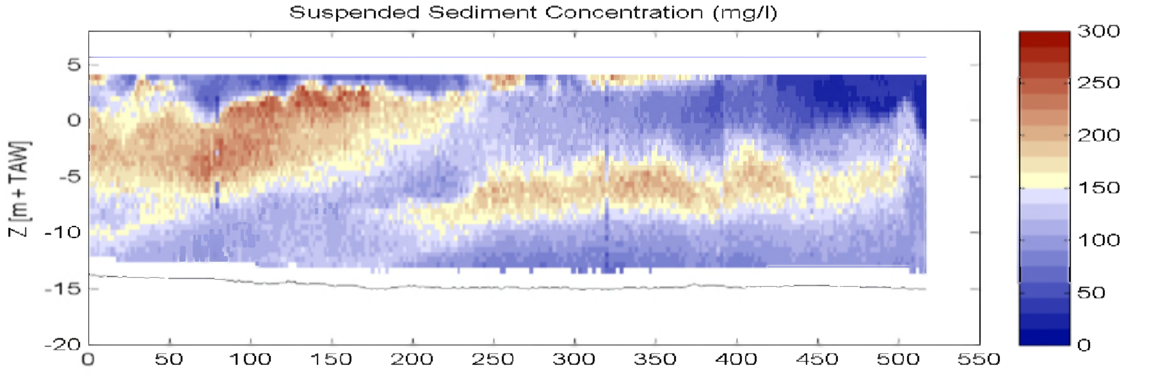
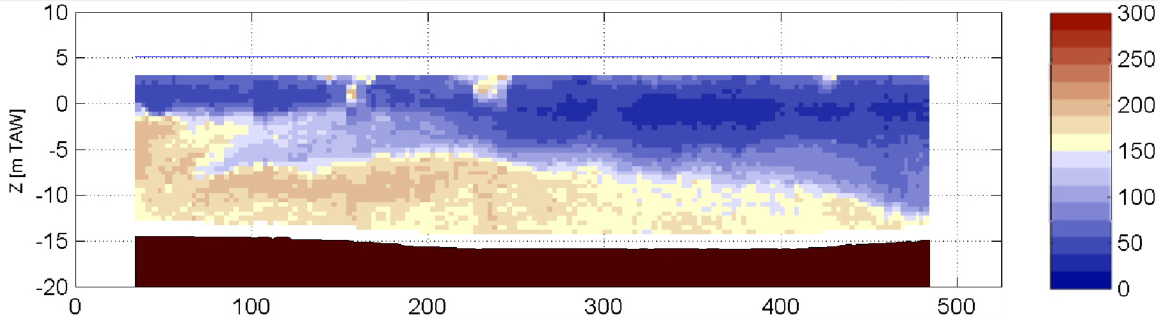
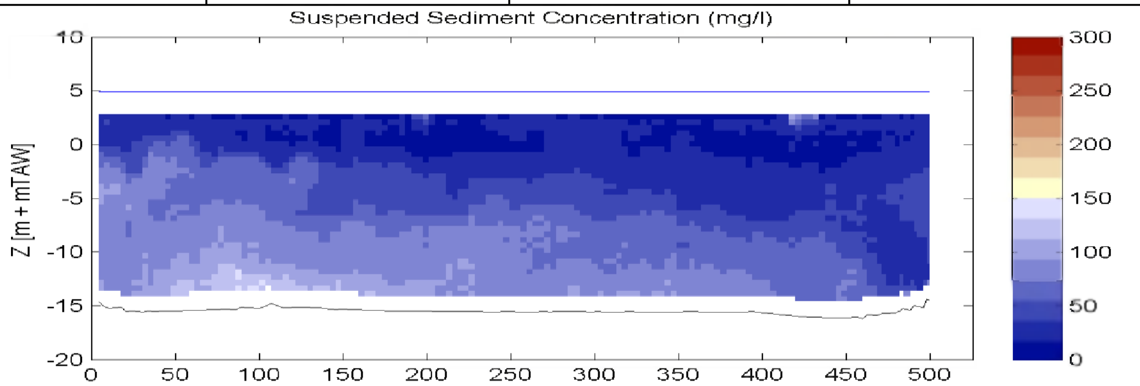
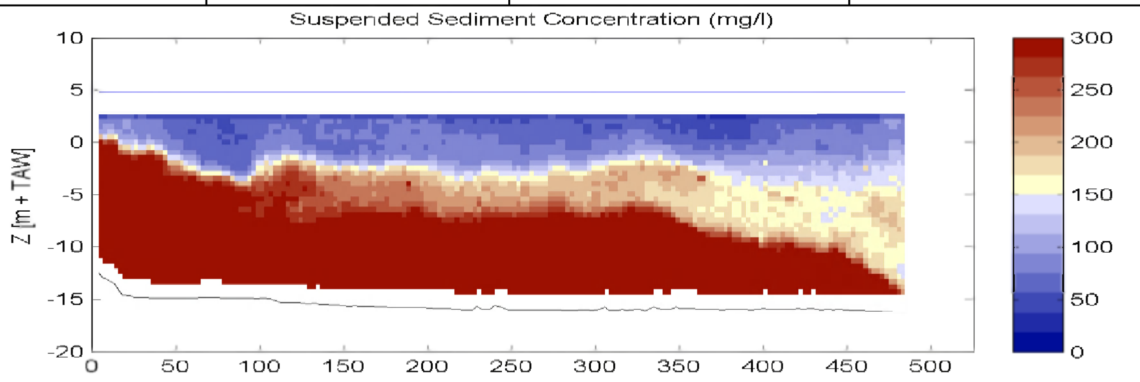


j)	02/12/2008	1 hr after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s

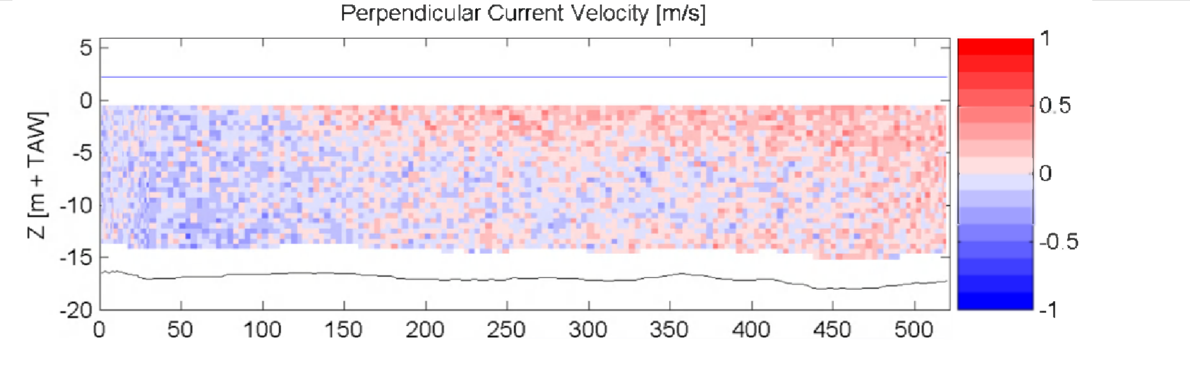


k)	10/12/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 222 m³/s

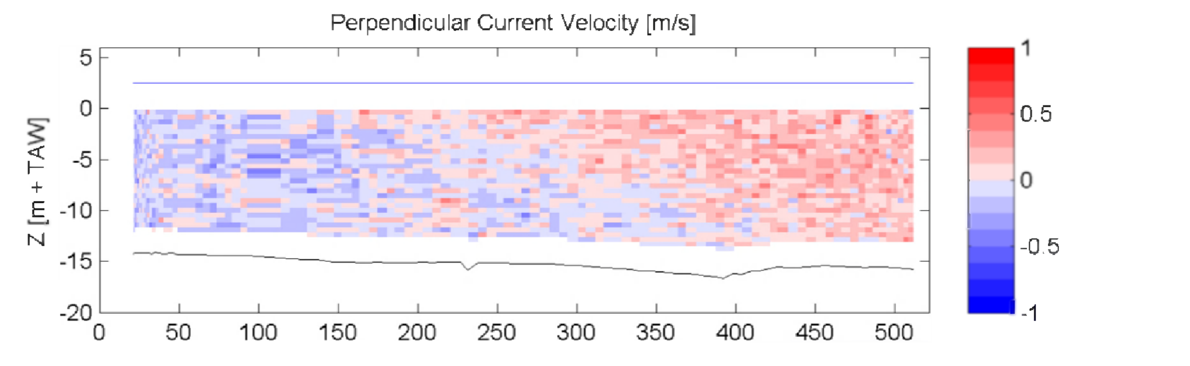


l)	06/03/2009	1 hr after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s
				
m)	12/03/2009	1 hr after HW	Tidal coefficient: 1.24	Fresh water: 129m³/s
				
n)	28/09/2011	1 hr after HW	Tidal coefficient: 1.17	Fresh water: 40 m³/s
				
o)	06/10/2011	1 hr after HW	Tidal coefficient: 0.83	Fresh water: 55 m³/s
				
p)	13/10/2011	1 hr after HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s

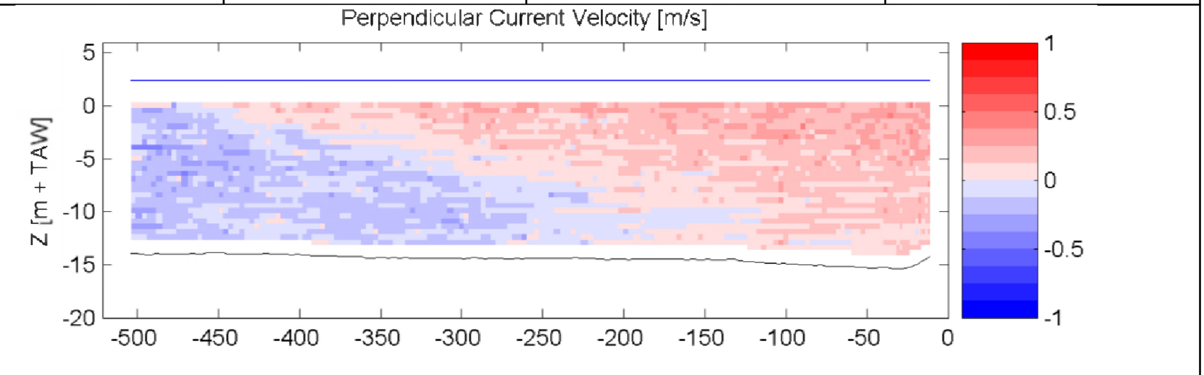
I.3 3 hours after HW (horizontal eddy currents)



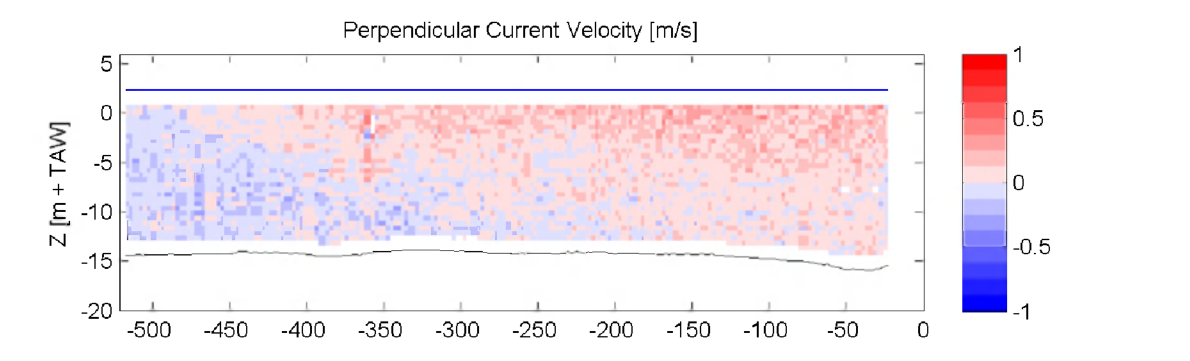
a)	17/11/2005	3 hrs after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s



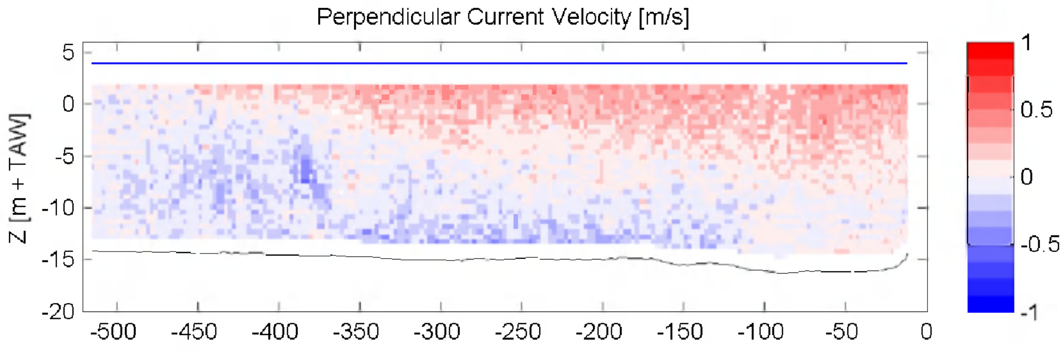
b)	22/03/2006	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s



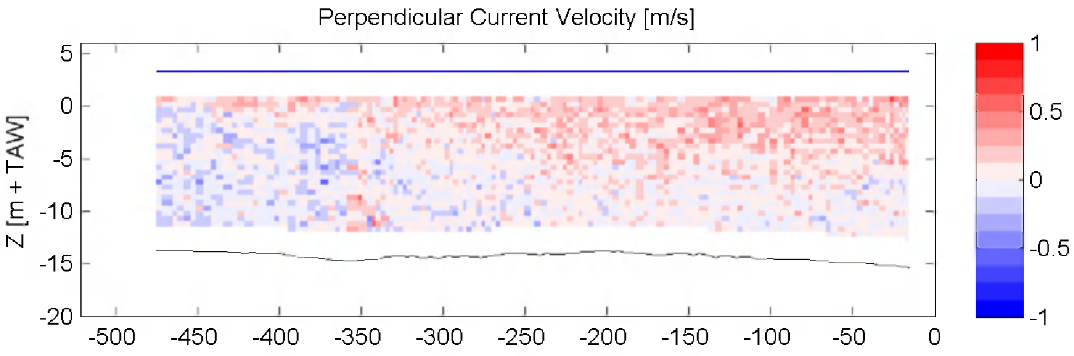
c)	27/09/2006	3 hrs after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s



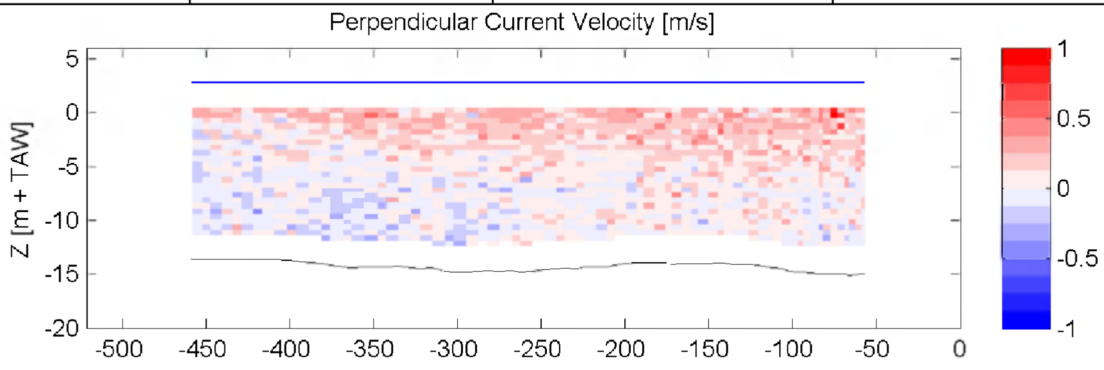
d)	24/10/2007	3 hrs after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s



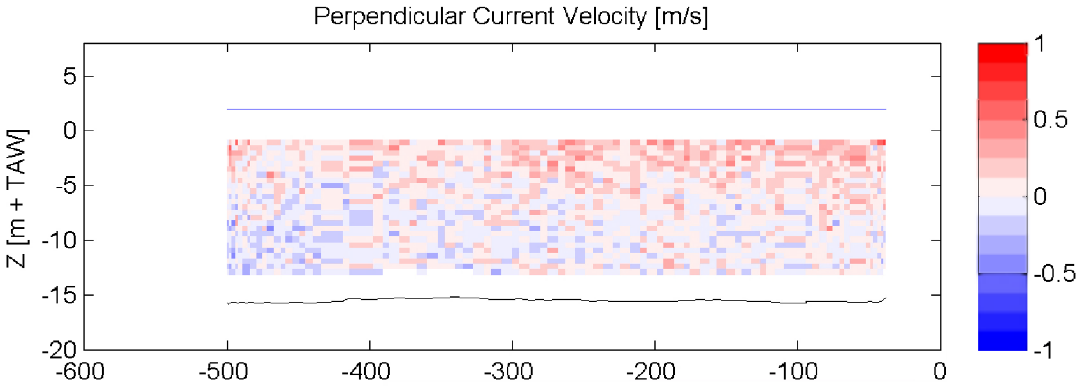
e)	11/03/2008	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s



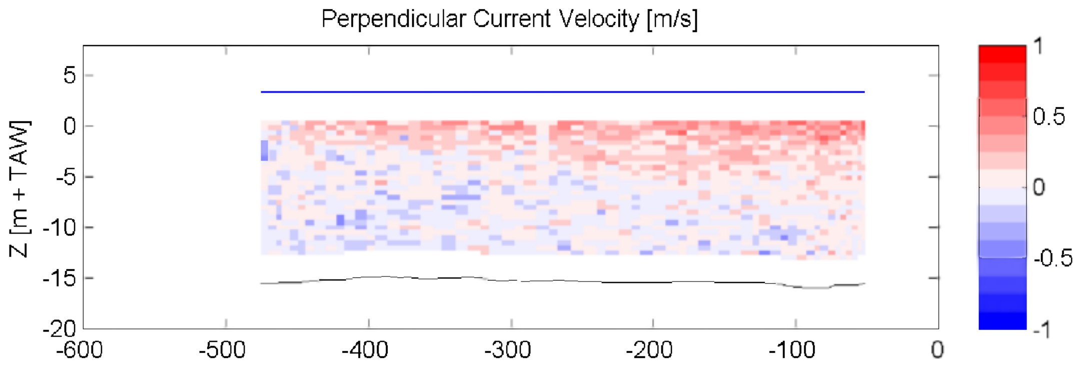
f)	19/06/2008	3 hrs after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s



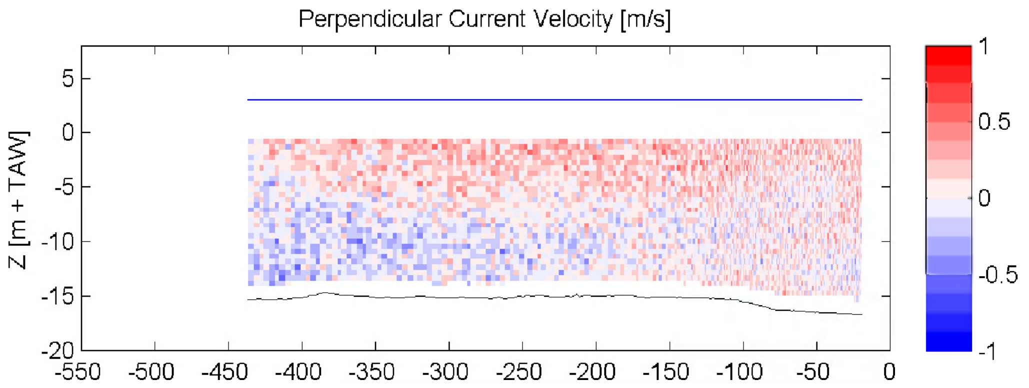
g)	26/06/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s



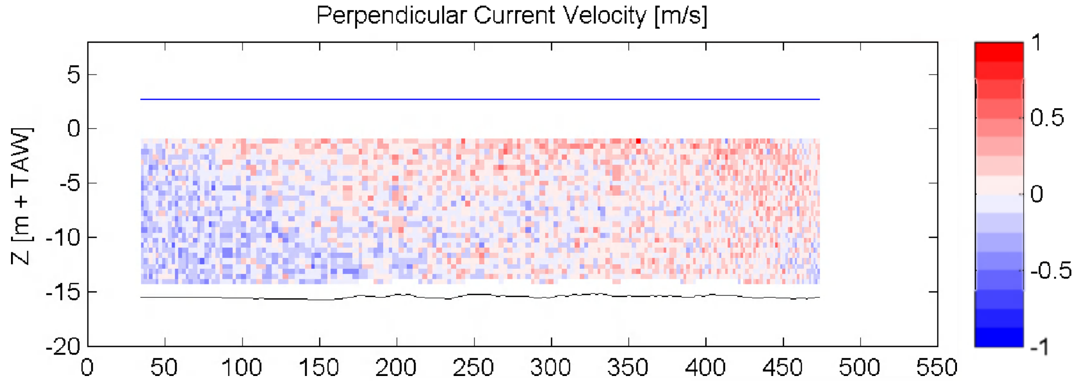
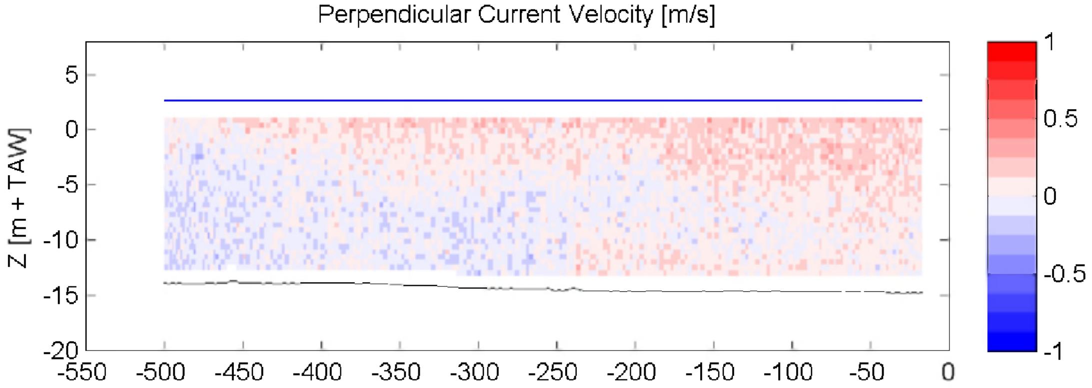
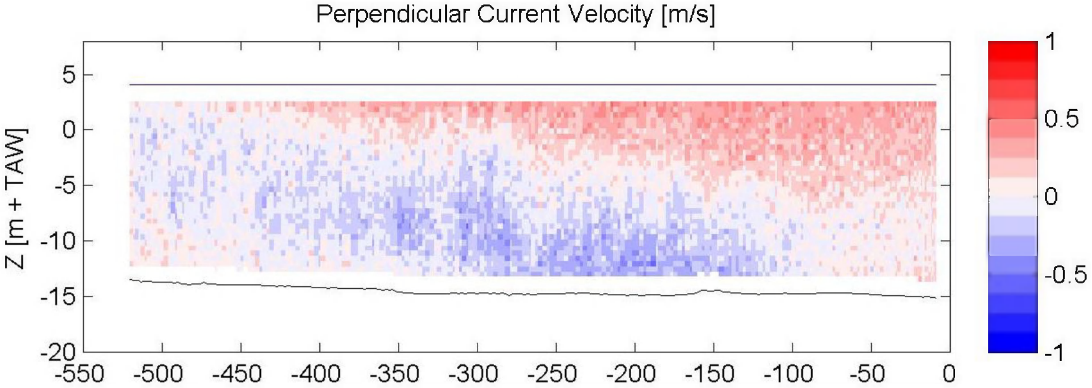
h)	24/09/2008	3 hrs after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s

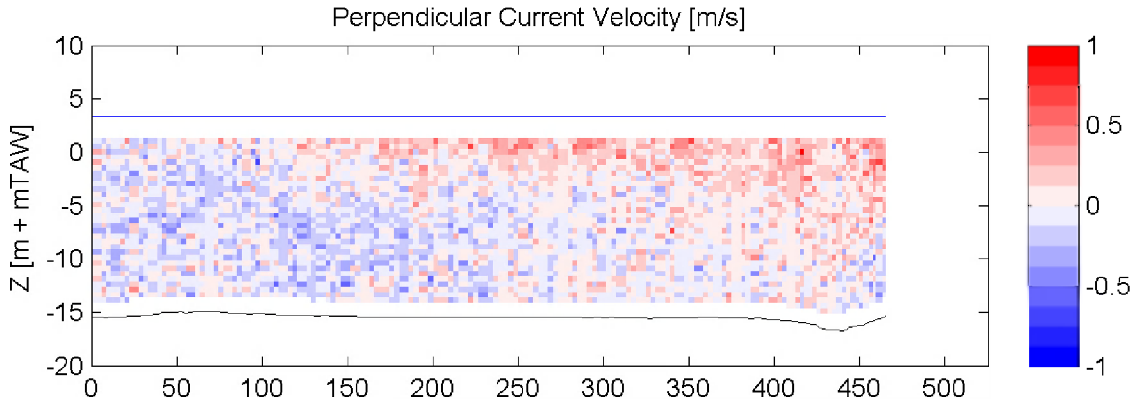


i)	30/09/2008	3 hrs after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s

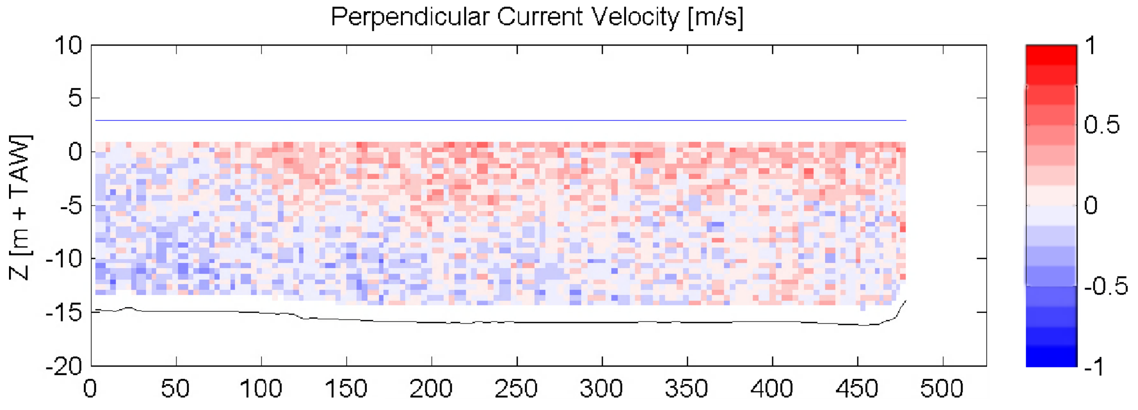


j)	02/12/2008	3 hrs after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s

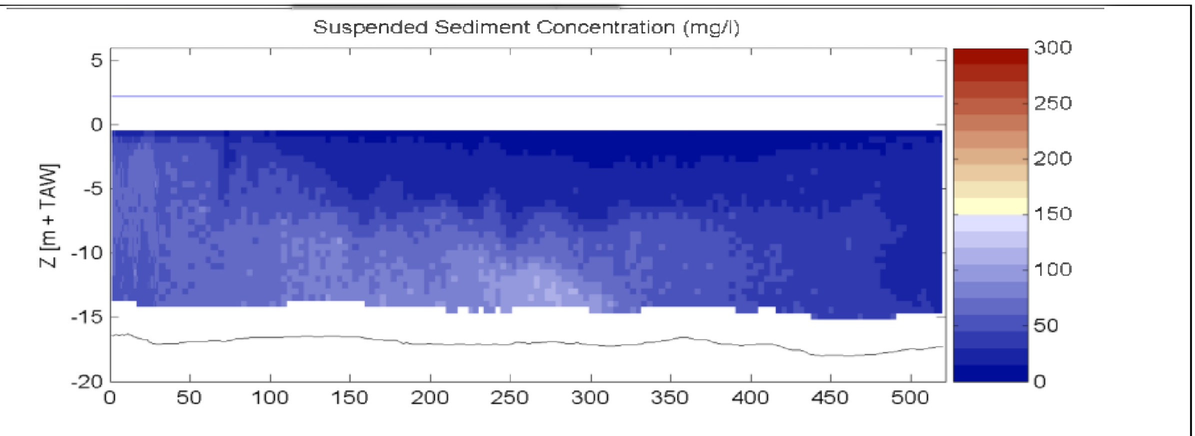
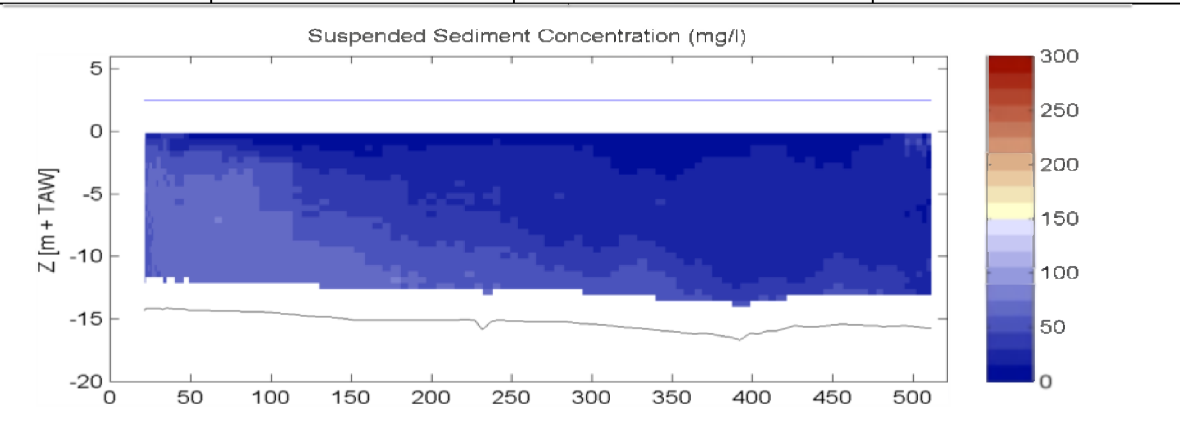
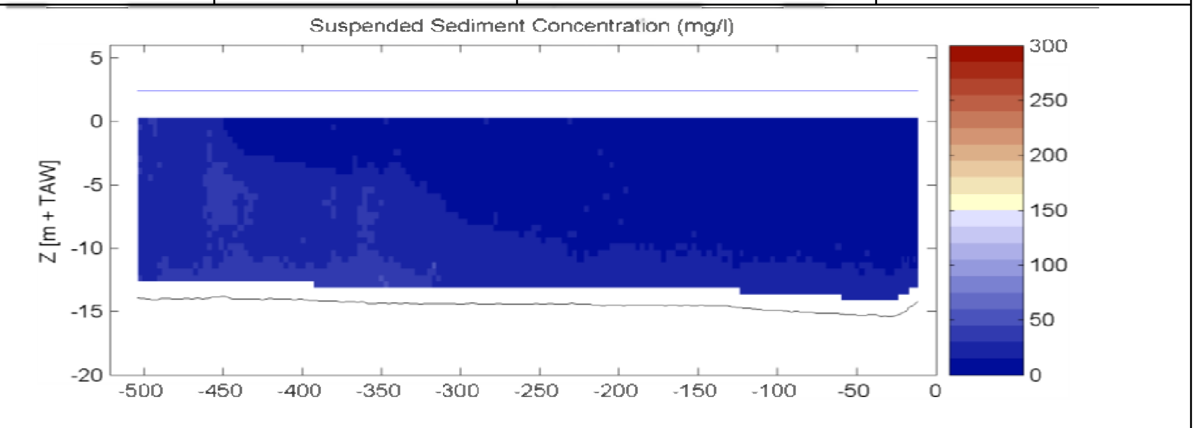
				
k)	10/12/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 222m³/s
				
l)	06/03/2009	3 hrs after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s
				
m)	12/03/2009	3 hrs after HW	Tidal coefficient: 1.24	Fresh water: 129m³/s
	No velocity data available			
n)	28/09/2011	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 40 m³/s

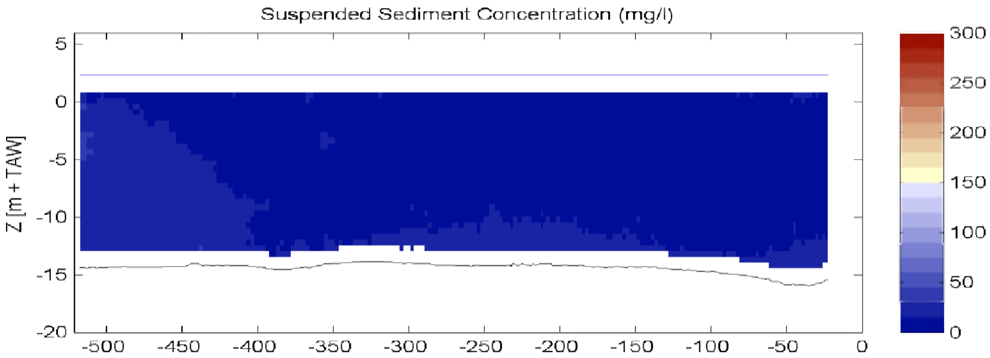


o)	06/10/2011	3 hrs after HW	Tidal coefficient: 0.83	Fresh water: 55 m³/s

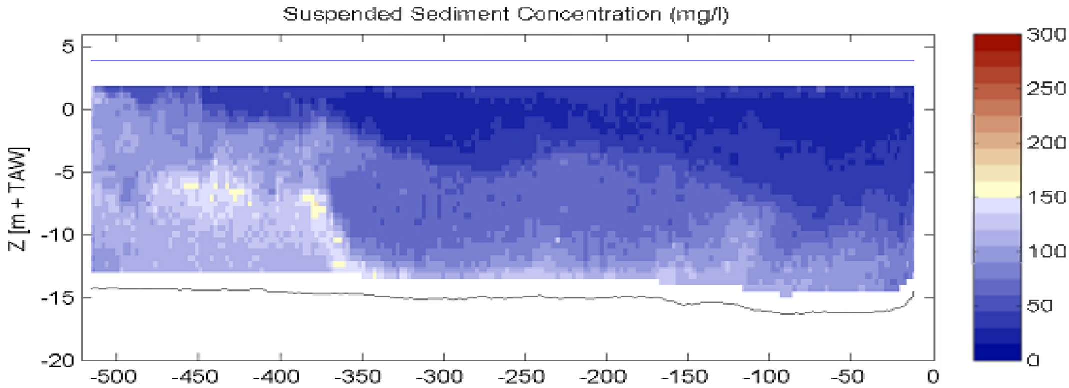


p)	13/10/2011	3 hrs after HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s

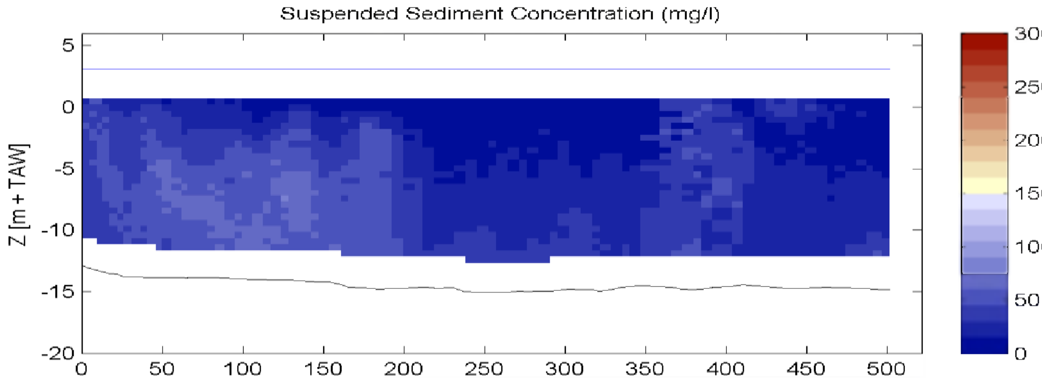
				
a)	17/11/2005	3 hrs after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s
				
b)	22/03/2006	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s
				
c)	27/09/2006	3 hrs after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s



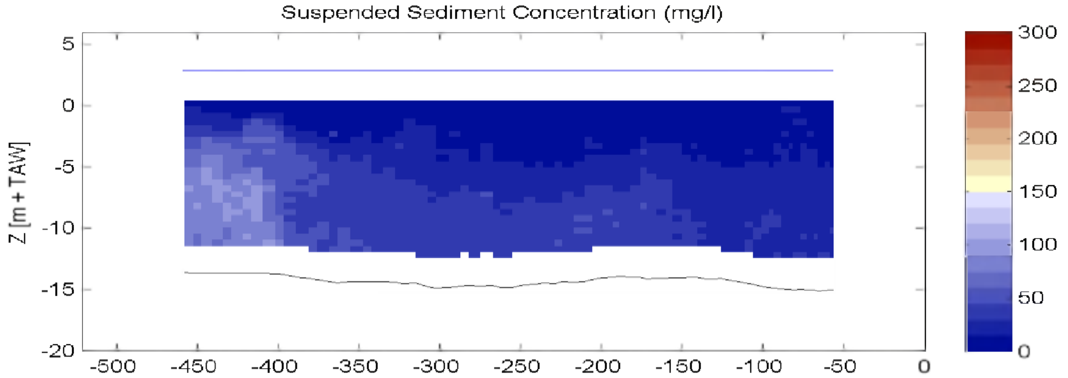
d)	24/10/2007	3 hrs after HW	Tidal coefficient: 1.02	Fresh water: 46 m^3/s



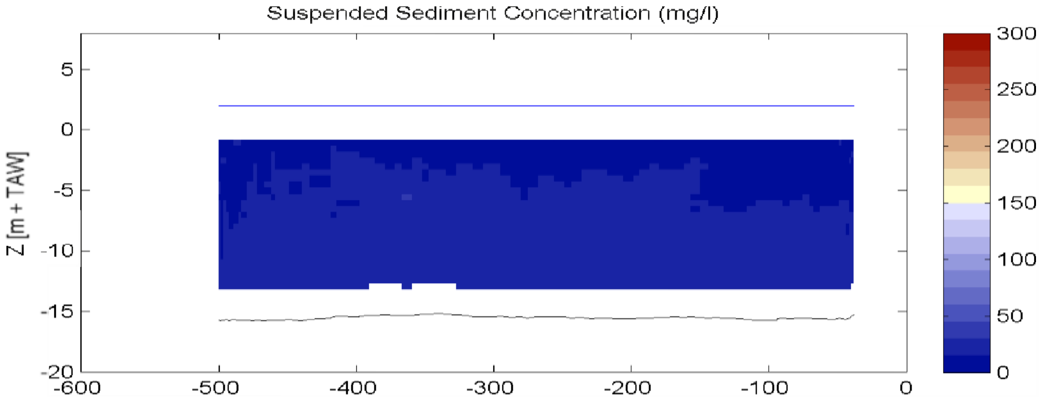
e)	11/03/2008	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 286 m^3/s



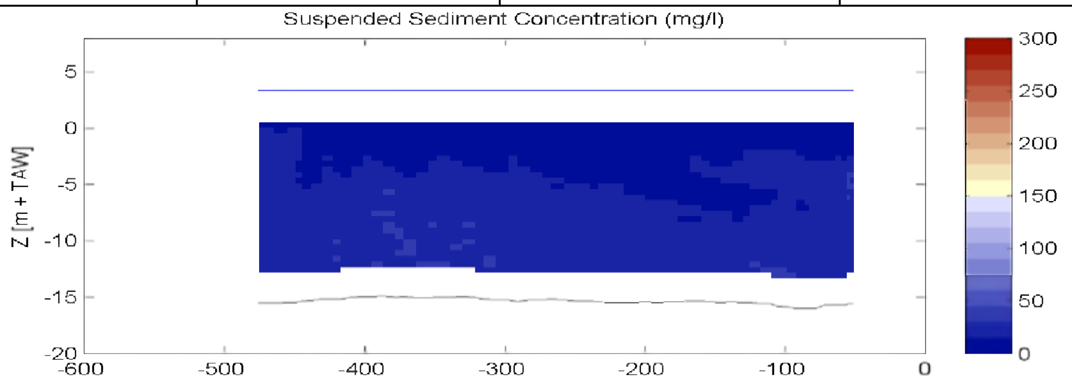
f)	19/06/2008	3 hrs after HW	Tidal coefficient: 1.15	Fresh water: 93 m^3/s



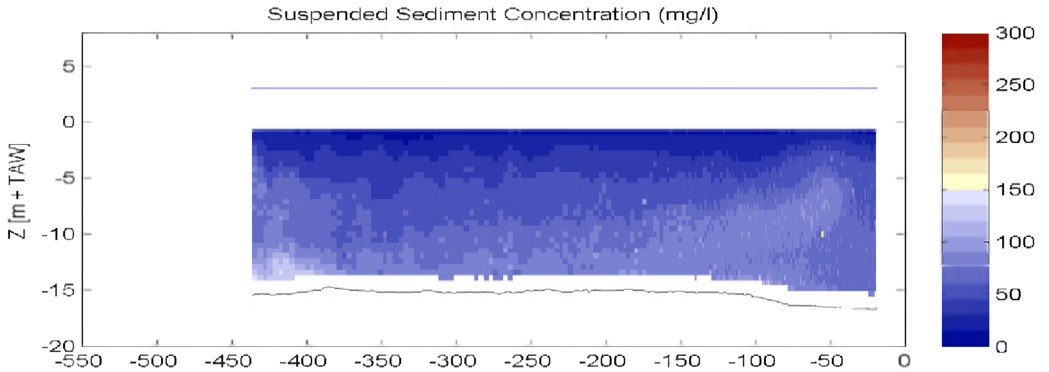
g)	26/06/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s



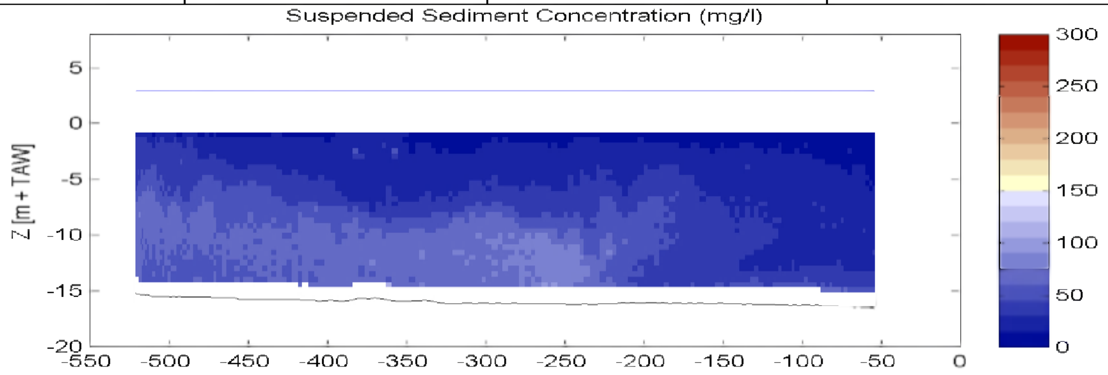
h)	24/09/2008	3 hrs after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s



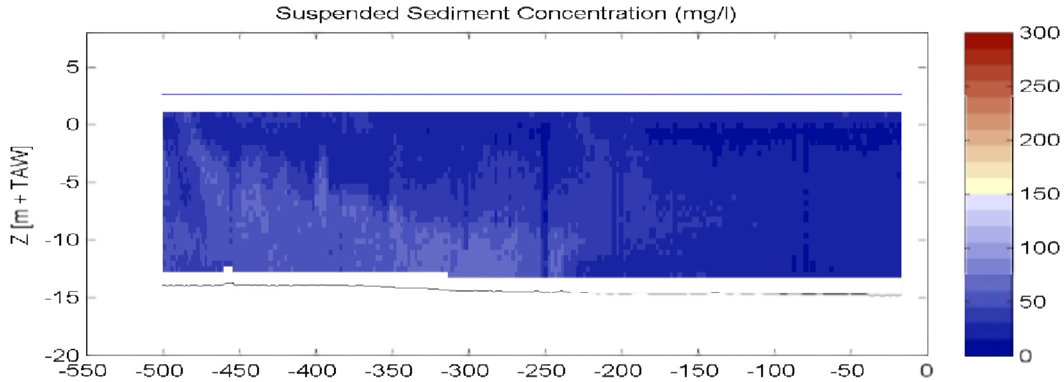
i)	30/09/2008	3 hrs after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s



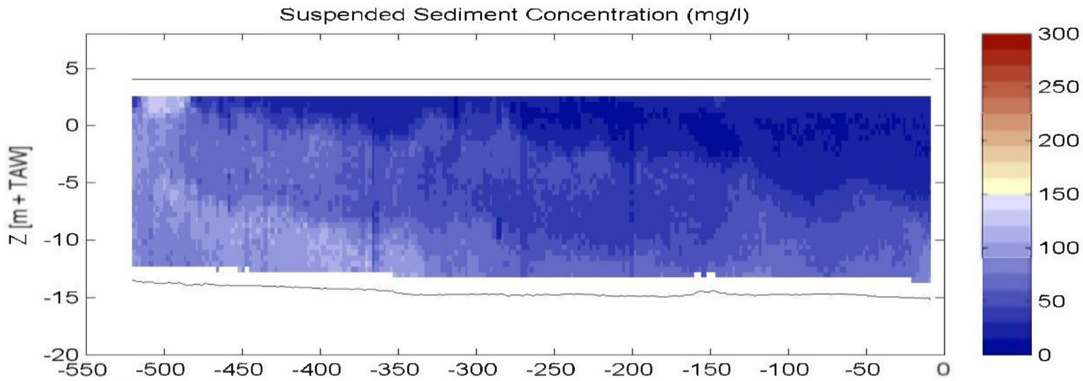
j)	02/12/2008	3 hrs after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s



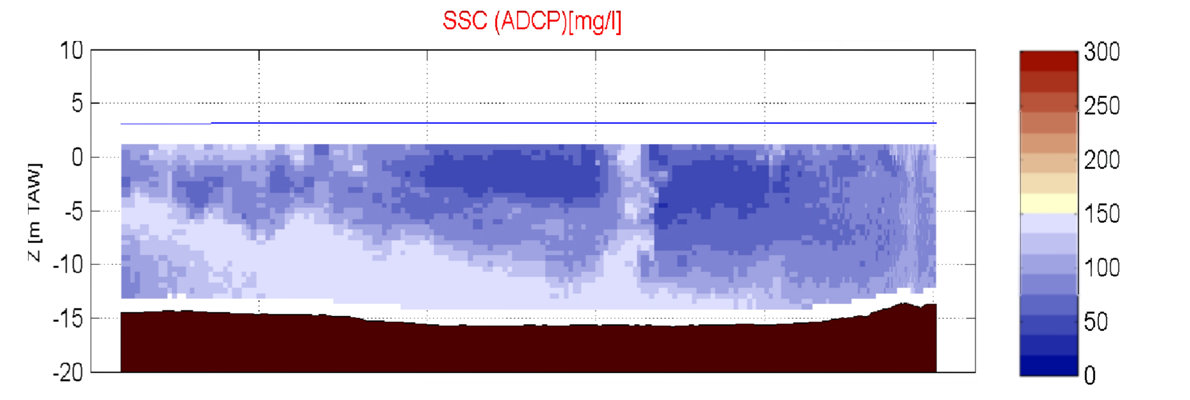
k)	10/12/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 222m³/s



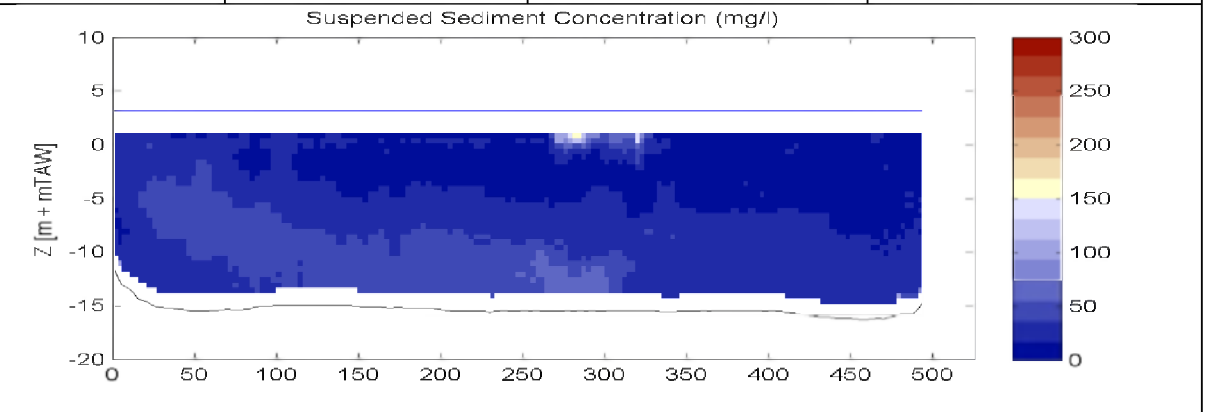
l)	06/03/2009	3 hrs after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s



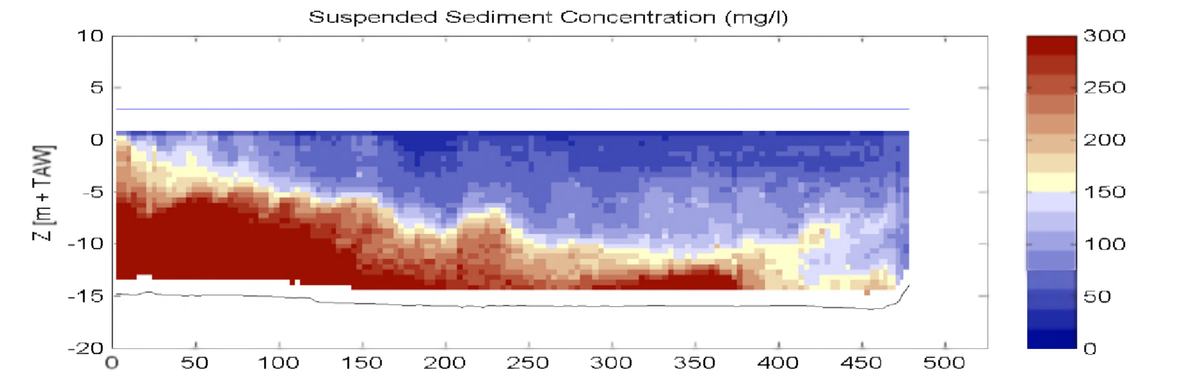
m)	12/03/2009	3 hrs after HW	Tidal coefficient: 1.24	Fresh water: 129m³/s



n)	28/09/2011	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 40 m³/s



o)	06/10/2011	3 hrs after HW	Tidal coefficient: 0.83	Fresh water: 55 m³/s



p)	13/10/2011	3 hrs after HW	Tidal coefficient: 1.06	Fresh water: 60 m³/s

Annex J Overview of HCBS2 and aanslibbing Deurganckdok reports

Report	Description of HCBS2
Ambient Conditions Lower Sea Scheldt	
5.3	Overview of ambient conditions in the river Scheldt – January-June 2006 (I/RA/11291/06.088/MSA)
5.4	Overview of ambient conditions in the river Scheldt – July-December 2006 (I/RA/11291/06.089/MSA)
5.5	Overview of ambient conditions in the river Scheldt : RCM-9 buoy 84 & 97 (1/1/2007 - 31/3/2007) (I/RA/11291/06.090/MSA)
5.6	Analysis of ambient conditions during 2006 (I/RA/11291/06.091/MSA)
Calibration	
6.1	Winter Calibration (I/RA/11291/06.092/MSA)
6.2	Summer Calibration and Final Report (I/RA/11291/06.093/MSA)
Through tide Measurements Winter 2006	
7.1	21/3 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.094/MSA)
7.2	22/3 Parel 2 – Deurganckdok (I/RA/11291/06.095/MSA)
7.3	22/3 Laure Marie – Liefkenshoek (I/RA/11291/06.096/MSA)
7.4	23/3 Parel 2 – Schelle (I/RA/11291/06.097/MSA)
7.5	23/3 Laure Marie – Deurganckdok (I/RA/11291/06.098/MSA)
7.6	23/3 Veremans Waarde (I/RA/11291/06.099/MSA)
HCBS Near bed continuous monitoring (Frames)	
8.1	Near bed continuous monitoring winter 2006 (I/RA/11291/06.100/MSA)
INSSEV	
9	Settling Velocity - INSSEV summer 2006 (I/RA/11291/06.102/MSA)
Cohesive Sediment	
10	Cohesive sediment properties summer 2006 (I/RA/11291/06.103/MSA)
Through tide Measurements Summer 2006	
11.1	Through Tide Measurement Sediview and Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA)
11.2	Through Tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA)
11.3	Through Tide Measurement Sediview and Siltprofiler 28/9 Stream - Raai K (I/RA/11291/06.106/MSA)
11.4	Through Tide Measurement Sediview 28/9 Veremans - Waarde(I/RA/11291/06.107/MSA)
11.5	Through Tide Measurements Sediview 28/9 Parel 2 - Schelle (I/RA/11291/06.108/MSA)
11.6	Through Tide measurement 26/9 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.161/MSA)
Analysis	
12	Report concerning the presence of HCBS layers in the Scheldt river (I/RA/11291/06.109/MSA)

Report	Description of Opvolging aanslibbing Deurganckdok between April 2006 till March 2008
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.1	Sediment Balance: Three monthly report 1/4/2006 – 30/06/2006 (I/RA/11283/06.113/MSA)
1.2	Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA)
1.3	Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA)
1.4	Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA)
1.5	Annual Sediment Balance (I/RA/11283/06.117/MSA)
1.6	Sediment balance Bathymetry: 2005 – 3/2006 (I/RA/11283/06.118/MSA)
1.10	Sediment Balance: Three monthly report 1/4/2007 - 30/06/2007 (I/RA/11283/07.081/MSA)
1.11	Sediment Balance: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.082/MSA)
1.12	Sediment Balance: Three monthly report 1/10/2007 – 31/12/2007 (I/RA/11283/07.083/MSA)
1.13	Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/07.084/MSA)
1.14	Annual Sediment Balance (I/RA/11283/07.085/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP)	
2.1	Through tide measurement Siltprofiler 21/03/2006 Laure Marie (I/RA/11283/06.087/WGO)
2.2	Through tide measurement Siltprofiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)
2.3	Through tide measurement Sediview spring tide 22/03/2006 Veremans (I/RA/11283/06.110/BDC)
2.4	Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA)
2.5	Through tide measurement Sediview average tide 24/10/2007 Parel 2 (I/RA/11283/06.120/MSA)
2.6	Salinity-Silt distribution & Frame Measurements Deurganckdok 13/3/2006 – 31/05/2006 (I/RA/11283/06.121/MSA)
2.7	Salinity -Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)
2.8	Salinity-Silt distribution & Frame Measurements Deurganckdok 12/02/2007 – 18/04/2007 (I/RA/11283/06.123/MSA)
2.9	Calibration stationary equipment autumn (I/RA/11283/07.095/MSA)
2.10	Through tide measurement Siltprofiler 23 October 2007 (I/RA/11283/07.086/MSA)
2.11	Through tide measurement Salinity Profiling winter (I/RA/11283/07.087/MSA)
2.12	Through tide measurement Sediview winter 11 March 2008 Transect I (I/RA/11283/07.088/MSA)
2.13	Through tide measurement Sediview winter 11 March 2008 Transect K (I/RA/11283/07.089/MSA)
2.14	Through tide measurement Sediview winter 11 March 2008 Transect DGD (I/RA/11283/07.090/MSA)
2.15	Through tide measurement Siltprofiler 12 March 2008 (I/RA/11283/07.091/MSA)
2.16	Salinity-Silt distribution Deurganckdok summer (21/6/2007 – 30/07/2007) (I/RA/11283/07.092/MSA)
2.17	Salinity-Silt distribution & Frame Measurements Deurganckdok autumn (17/09/2007 - 10/12/2007) (I/RA/11283/07.093/MSA)
2.18	Salinity-Silt distribution & Frame Measurements Deurganckdok winter (18/02/2008 - 31/3/2008) (I/RA/11283/07.094/MSA)

Report	Description of Opvolging aanslibbing Deurganckdok between April 2006 till March 2008
2.19	Calibration stationary & mobile equipment winter (I/RA/11283/07.096/MSA)
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.1	Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) including HCBS 2 report 5.5
~~3.2~~	~~Boundary condtions: Annual report (I/RA/11283/06.128/MSA)~~[1]
3.10	Boundary conditions: Three monthly report 1/4/2007 – 30/06/2007 (I/RA/11283/07.097/MSA)
3.11	Boundary conditions: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.098/MSA)
3.12	Boundary conditions: Three monthly report 1/10/2007 – 31/12/2007 (I/RA/11283/07.099/MSA)
3.13	Boundary conditions: Three monthly report 1/1/2008 – 31/03/2008 (I/RA/11283/07.100/MSA)
3.14	Boundary conditions: Annual report (I/RA/11283/07.101/MSA)
Analysis	
4.1	Analysis of Siltation Processes and Factors, 4/'06 – 3/'07 (I/RA/11283/06.129/MSA)
4.10	Analysis of Siltation Processes and Factors, 4/'07 – 3/'08 (I/RA/11283/07.102/MSA)

Report	Description of Opvolging aanslibbing Deurganckdok between April 2008 till March 2010
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.20	Sediment Balance: Three monthly report 1/4/2008 - 30/6/2008 (I/RA/11283/08.076/MSA)
1.21	Sediment Balance: Three monthly report 1/7/2008 – 30/9/2008 (I/RA/11283/08.077/MSA)
1.22	Sediment Balance: Three monthly report 1/10/2008 – 31/12/2008 (I/RA/11283/08.078/MSA)
1.23	Sediment Balance: Three monthly report 1/1/2009 – 31/03/2009 (I/RA/11283/08.079/MSA)
1.24	Annual Sediment Balance (I/RA/11283/08.080/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP) & Calibrations	
2.20	Through tide measurement Sediview DGD during average tide Spring 2008 – 19 June 2008 (I/RA/11283/08.081/MSA)
2.21	Through tide measurement Sediview DGD during average tide Spring 2008 –26 June 2008 (I/RA/11283/08.082/MSA)
2.22	Through tide measurement Sediview DGD during neap tide Summer 2008 – 24 September 2008 (I/RA/11283/08.083/MSA)
2.23	Through tide measurement Sediview DGD during spring tide Summer 2008 – 30 September 2008 (I/RA/11283/08.084/MSA)
2.24	Through tide measurement Sediview DGD during neap tide Autumn 2008 – 02 December 2008 (I/RA/11283/08.085/MSA)

[1] considered in report 5.6 'Analysis of ambient conditions during 2006' (I/RA/11291/06.091/MSA) in the framework of the study 'Extension of the study about density currents in the Beneden Zeeschelde'

Report	Description of Opvolging aanslibbing Deurganckdok between April 2008 till March 2010
2.25	Through tide measurement Sediview DGD during spring tide Autumn 2008 – 10 December 2008 (I/RA/11283/08.086/MSA)
2.26	Through tide measurement Sediview DGD during neap tide Winter 2009 – 06 March 2009 (I/RA/11283/08.087/MSA)
2.27	Through tide measurement Sediview DGD during spring tide Winter 2009 – 12 March 2009 (I/RA/11283/08.088/MSA)
2.28	Through tide measurement ADCP eddy DGD Summer 2008 – 1 October 2008 (I/RA/11283/08.089/MSA)
2.29	Through tide measurement Siltprofiler DGD Summer 2008 – 29 September 2008 (I/RA/11283/08.090/MSA)
2.30	Through tide measurement Siltprofiler DGD Winter 2009 – 13 March 2009 (I/RA/11283/08.091/MSA)
2.31	Through tide measurement Salinity Profiling DGD Winter 2009 – 11 March 2009 (I/RA/11283/08.092/MSA)
2.32	Salt-Silt distribution Deurganckdok: Six monthly report 1/4/2008 - 30/9/2008 (I/RA/11283/08.093/MSA)
2.33	Salt-Silt distribution Deurganckdok: Six monthly report 1/10/2008 – 31/3/2009 (I/RA/11283/08.094/MSA)
2.34	Calibration stationary & mobile equipment Autumn 2008 – 27 & 28 October 2008 (I/RA/11283/08.095/MSA)
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.20	Boundary conditions: Six monthly report 1/4/2008 – 30/09/2008 (I/RA/11283/08.097/MSA)
3.21	Boundary conditions: Six monthly report 1/10/2008 – 31/03/2009 (I/RA/11283/08.097/MSA)
Analysis	
4.20	Analysis of Siltation Processes and Factors (I/RA/11283/08.098/MSA)