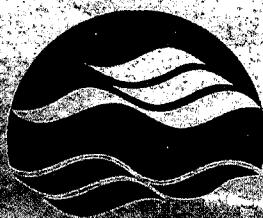


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Physical limnology and water quality during 2006 at the City of Hamilton drinking water intakes in Western Lake Ontario

BY:

R. Yerubandi, J. Milne, R. Powell,  
C. Marvin, S. Watson

NWRI Contribution No - 08-271

# **Physical limnology and water quality during 2006 at the City of Hamilton drinking water intakes in western Lake Ontario**

Ram Yerubandi, J. Milne, R.B. Rowsell, C. Marvin and S. Watson

## **NWRI RESEARCH SUMMARY**

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### **Plain language title**

Water Quality in western Lake Ontario

### **What is the problem and what do scientists already know about it?**

In Lake Ontario drinking water intakes are located in the nearshore zones. These intakes experience occasional taste and odour episodes in summer, and turbidity spikes during wind events. Local utilities spend millions of dollars on treatment systems to ameliorate the problem.

### **Why did NWRI do this study?**

To better understand the processes controlling the water quality issues, particularly, turbidity and taste and odour compounds at the intakes. Also to provide an up-to-date information about the physical and water quality conditions in Lake Ontario WSTD scientists conducted this study.

### **What were the results?**

The preliminary analysis revealed that in general the water quality parameters are in the expected limits near the existing City of Hamilton intakes; however, wind induced circulation played a significant role in modifying these conditions. Moderate to significant taste and odour near the intakes is due to transport of Geosmin from deeper regions of the lake to this area. We also observed improvement of water quality, especially turbidity due to resuspension and Geosmin in the offshore area (depth > 30m) at 5 km from the existing intakes.

### **How will these results be used?**

The results will assist the City of Hamilton in making their decision on installing new water intakes or extending the present intakes to deeper waters to avoid adverse water quality, especially taste and odour problems and high turbidity associated with nearshore waters of Lake Ontario.

### **Who were our main partners in the study?**

City of Hamilton and Ontario Water Works Research Consortium

### **Abstract**

This data report presents a preliminary analysis and a summary of the environmental data collected as part of the City of Hamilton water intakes project. The project is

designed to develop a field monitoring program, which will assist the city in making their decision on installing new water intakes or extending the present intakes to deeper waters to avoid adverse water quality, especially taste and odour problems and high turbidity associated with nearshore waters of Lake Ontario. The preliminary analysis revealed that in general the water quality parameters are in the expected limits near the existing intakes; however, it appears that the wind induced circulation played a significant role in modifying these conditions. Comparison of temperature and wind time series reveals that upwelling due to winds from the west (westerly) and downwelling due to winds from the east (easterly) determine the environmental conditions at the intakes during the summer. We have observed a moderate to significant taste and odour in raw water near the intakes due to a strong downwelling episode in late August to early September. However, in the offshore waters at around 30 m depth contour, the water quality conditions are slightly better. More accurate estimates are required for further assessing these aspects and we will be conducting thorough analysis and modeling in the near future.

# **Modélisation physique et qualité de l'eau en 2006 aux prises d'eau potable de la ville de Hamilton dans l'ouest du lac Ontario**

Ram Yerubandi, J. Milne, R.B. Rowsell, C. Marvin et S. Watson

## **Sommaire des recherches de l'INRE**

### **Titre en langage clair**

La qualité de l'eau dans la partie ouest du lac Ontario

### **Quel est le problème et que savent les chercheurs à ce sujet?**

Dans le lac Ontario, les prises d'eau potable sont situées dans la zone littorale et sont parfois exposées à des épisodes de goût et d'odeurs en été et à des pics de turbidité par temps venteux. Les services publics locaux consacrent des millions de dollars à l'achat et à l'exploitation de systèmes de traitement afin de régler ce problème.

### **Pourquoi l'INRE a-t-il effectué cette étude?**

Pour mieux comprendre les processus à l'origine des problèmes de qualité de l'eau, en particulier la turbidité et les composés responsables de goûts et d'odeurs désagréables à l'emplacement des prises d'eau. Aussi, pour fournir de l'information à jour sur les conditions physiques et la qualité de l'eau dans le lac Ontario. Étude faite par des scientifiques de la DSTE.

### **Quels sont les résultats?**

L'analyse préliminaire a révélé que les paramètres de la qualité de l'eau sont généralement inférieurs aux limites prévues à proximité des prises d'eau de la ville de Hamilton; toutefois, la circulation engendrée par le vent joue un rôle important dans la modification de ces conditions. Les problèmes de goût et d'odeurs modérés ou majeurs près des prises d'eau sont causés par le transport de la géosmine à partir des couches plus profondes du lac dans ce secteur. Nous avons également noté une amélioration de la qualité de l'eau, notamment en ce qui a trait à la turbidité provoquée par la remise en suspension et la présence de géosmine dans la zone pélagique (profondeur > 30 m), à 5 km des prises existantes.

### **Comment ces résultats seront-ils utilisés?**

Les résultats aideront la Ville de Hamilton à opter soit pour l'installation de nouvelles prises d'eau, soit pour la relocalisation des prises existantes en eau plus profonde afin de prévenir les problèmes de qualité de l'eau, notamment les problèmes de goût et d'odeurs et la forte turbidité associés aux eaux littorales du lac Ontario.

### **Quels étaient nos principaux partenaires dans cette étude?**

La Ville de Hamilton et l'Ontario Water Works Research Consortium.

## Résumé

Le présent rapport contient une analyse préliminaire et un sommaire des données environnementales recueillies dans le cadre du projet de prises d'eau de la Ville de Hamilton. Ce projet porte sur l'établissement d'un programme de suivi sur le terrain, qui aidera la Ville à opter soit pour l'installation de nouvelles prises d'eau, soit pour la relocalisation des prises existantes en eau plus profonde afin de prévenir les problèmes de qualité de l'eau, notamment les problèmes de goût et d'odeurs et la forte turbidité associés aux eaux littorales du lac Ontario. L'analyse préliminaire a révélé que les paramètres de la qualité de l'eau sont généralement inférieurs aux limites prévues à proximité des prises d'eau de la ville de Hamilton; toutefois, la circulation engendrée par le vent joue un rôle important dans la modification de ces conditions. L'étude comparative des séries chronologiques sur la température et le vent montre que la remontée et la plongée d'eau dues respectivement aux vents d'ouest et aux vents d'est déterminent les conditions environnementales aux prises d'eau en été. Nous avons observé des problèmes de goût et d'odeurs modérés ou majeurs dans l'eau brute à proximité des prises d'eau, problèmes causés par un important épisode de plongée d'eau de la fin août au début septembre. Toutefois, dans les eaux pélagiques près de l'isobathe de 30 mètres, la qualité de l'eau était un peu meilleure. Nous avons besoin d'estimations plus précises pour mieux évaluer ces aspects et nous réaliserons des analyses plus poussées et une modélisation dans un avenir rapproché.

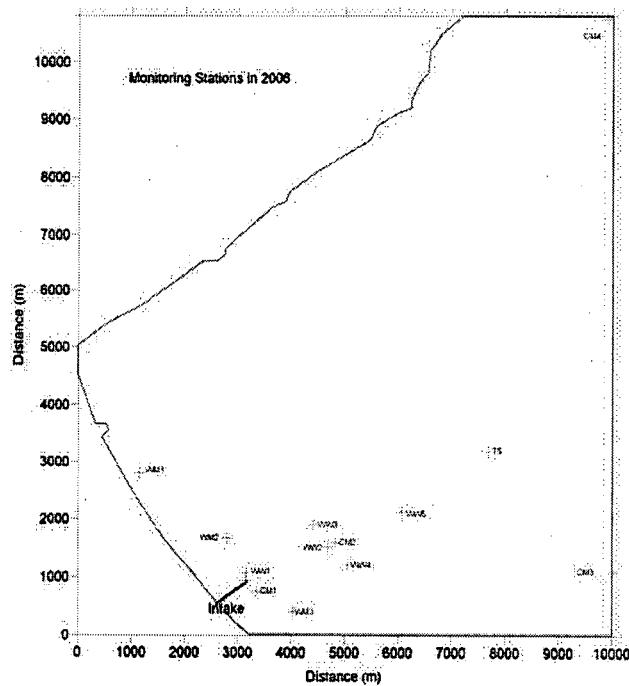
# Physical limnology and water quality during 2006 at the City of Hamilton drinking water intakes in western Lake Ontario

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## Abstract

This data report presents a preliminary analysis and a summary of the environmental data collected as part of the City of Hamilton water intakes project. The project is designed to develop a field monitoring program, which will assist the city in making their decision on installing new water intakes or extending the present intakes to deeper waters to avoid adverse water quality, especially taste and odour problems and high turbidity associated with nearshore waters of Lake Ontario. The preliminary analysis revealed that in general the water quality parameters are in the expected limits near the existing intakes; however, it appears that the wind induced circulation played a significant role in modifying these conditions. Comparison of temperature and wind time series reveals that upwelling due to winds from the west (westerly) and downwelling due to winds from the east (easterly) determine the environmental conditions at the intakes during the summer. We have observed a moderate to significant taste and odour in raw water near the intakes due to a strong downwelling episode in late August to early September. However, in the offshore waters at around 30 m depth contour, the water quality conditions are slightly better. More accurate estimates are required for further assessing these aspects and we will be conducting thorough analysis and modeling in the near future.

## Introduction

Each summer there are one or two episodes of earthy taste and odour in the drinking water that forces local utilities to spend millions of dollars on systems to ameliorate the problem. The earthy taste and odour is caused by *geosmin*, a secondary metabolite of Cyanobacteria. Recently extensive field studies were undertaken off the Region of Peel's Lakeview water treatment plant to document the lake physics, biology and chemistry before and during the taste and odour events to understand the processes controlling the delivery of *geosmin* to the water treatment plant intakes (Watson et al. 2006). The thermal structure and circulation in Lake Ontario generally depends on the season because of the large annual variation of surface heat fluxes. During the unstratified period (November-June), storm action is the most important forcing, as higher wind speeds and the absence of stratification allow the wind forcing to penetrate deeper into the water column. In summer there is a distinct thermocline in the upper 20-30 m in the lake which makes it stratified. During this period significant westerly (winds from the west) and easterly (winds from the east) wind events cause upwelling and downwelling of the thermocline along the shore. If the coast is on the left of the prevailing winds, the wind induced transport will be away from the coast in the surface layer and upwelling occurs near the coast. During this period an onshore and upslope transport occurs at some depth below the surface (Fig 1a). On the other hand, if the coast is on the right of the wind downwelling occurs. The transport in the surface layer is towards the coast, and offshore transport occurs below the surface layer (Fig. 1b).

In an earlier study by the project team they observed that the abrupt increase in *geosmin* levels coincided with increased temperatures due to downwelling forced by winds from the east (Rao et al., 2003). Based on this evidence, and similar observations at other water intakes along the north shore of Lake Ontario, it was hypothesized that strong downwelling and associated shoreward currents may favour the transport of *geosmin* produced at offshore locations to nearshore areas causing the T/O problem at the water intakes. Geosmin peaks occur every year between late August and mid September over a two week period, but show considerable variation in severity, with maximum levels remaining below the odour threshold concentration 4 -10 ng/L in some years, or reaching 25 ng/L in other years. Another important parameter affecting the treatment system is turbidity in lake waters. Excessive turbidity may interfere with disinfection and

reduce filter performance during the water treatment. The three primary particles that contribute to nearshore turbidity are inorganic materials (suspended solids), algae and organic matter. In western Lake Ontario higher turbidity levels are observed during spring and fall/winter. In addition, turbidity levels reduced in the offshore direction. Turbidity in the deep offshore waters is low and stable compared to the nearshore waters during most of the year. However, occasional easterly storm-induced waves and currents increase the suspended matter in this area.

The City of Hamilton draws raw water from the western Lake Ontario from a water intake that extends into the lake to about 945 m. The City's Plant Capital & Planning Section has been studying alternate strategies such as extending a second intake that is currently decommissioned to avoid adverse water quality, especially taste and odour problems and high turbidity associated with nearshore waters of Lake Ontario. In a report prepared by NWRI in response to a request from the City of Hamilton, it has been identified that typical downwelling events would likely deliver *geosmin* in the surface waters to the bottom and hence to possible water intakes out to a distance where the depths are less than 20 m or 2.5 km from the shore in the vicinity of the present Hamilton intakes, and greater offshore distances in stronger winds (Rao, 2006). This study used a simple hydrodynamic model for these calculations. The model has been calibrated with data from other locations due to lack of observations in this region. Development of a modeling framework to the point where it can be used confidently for supporting management decisions such as extending water intakes in western Lake Ontario would require field measurements of hydrodynamics and water quality. The purpose of this study is to develop a field monitoring program, which will assist the City in their decision on installing new water intakes or extending the present intakes to deeper waters. In 2006 field work of hydrodynamic and water quality monitoring was undertaken at the present locations of intakes and at a few stations in the offshore areas (Figure 2a &b). Specific objectives of this research will include:

- i) What are the water quality conditions at the intakes and future locations?
- ii) The response of thermocline to different meteorological conditions at these locations.

- iii) To study if we can we reduce (or avoid) taste and odour and turbidity in the drinking water by moving outfalls to offshore?

This report provides a preliminary analysis of some important aspects of water quality in relation to the development of the temperature and flow fields as they evolved during the period from early April to early October. Also, plots of all water quality and physical variables are provided.

## Experimental Program

The western Lake Ontario field study covered a seven-month period from April to late October 2006. The main objective of this field work is to monitor the water quality and hydrodynamic conditions at present intakes and at a few stations around the intakes. Bi-weekly sampling at WW1 to WW6 and monthly sampling at WM1 to WM3 was carried out during this field campaign. In addition weekly samples were also obtained for Taste and Odour period during August and September. Discrete water samples were collected using a 6 liter Van Dorn water sampler. Water samples were then prepared for Total Phosphorus (filtered and unfiltered), soluble reactive phosphorus, nitrate/nitrite and ammonia analyses by filtering through a 0.45 um cellulose acetate filter. Chlorophyll *a* samples were prepared by filtering 1 liter of sample water through a 42.5 mm glass fiber filter. The prepared samples were then analyzed by the National Laboratory for Environmental Testing (NLET) in Burlington, Ontario. 1 liter of sample water was filtered through a 47 mm glass fiber filter for analyses of % Loss on Ignition (LOI) by Environment Canada. % LOI gives a good indication of the organic vs inorganic component of the sample water. Geosmin/MIB samples were collected in 1 liter amber glass bottles. Analyses were completed by Environment Canada. Sample water for *E. coli*, total coliform and total suspended solids was collected for analyses by the City of Hamilton. The samples were kept cold and delivered on the day of collection. Bi-weekly sampling at WW1, WW2, WW3, WW4, WW5 and WW6 (same as T5) was completed in April, May, June and October. Weekly sampling at the same stations was completed July, August and September (Table 1). Monthly sampling was completed at WM1, WM2 and

WM3 between April and October (Table 1). Locations, total depths and sample depths of each station are located Table 2.

An YSI 6600 water quality profile was taken at each station. Parameters measured included depth, temperature, pH, conductivity, dissolved oxygen, Chlorophyll a, and turbidity. The profiler encountered operational difficulties with pH and turbidity on many occasions in the summer, however, the moored YSIs provided good quality data of these parameters (Table 1).

Table 1: Details sampling and availability of profiles

Date 2006	water samples collected	profile collected	pH available	turbidity available
April 11	Yes	Yes	Yes	Yes
April 24*	Yes	Yes	Yes	Yes
May 8	Yes	Yes	Yes	No
May 25*	Yes	Yes	Yes	No
June 6	Yes	Yes	Yes	Yes
June 21*	Yes	Yes	Yes	No
July 11	Yes	Yes	Yes	No
July 24 *	Yes	Yes	Yes	No
July 31	Yes	Yes	Yes	Yes
August 8	Yes	No	No	No
August 16	Yes	Yes	Yes	Yes
August 22*	Yes	Yes	Yes	Yes
September 5	Yes	Yes	Yes	Yes
September 14	Yes	Yes	Yes	Yes
September 21*	Yes	Yes	No	Yes
September 26	Yes	Yes	No	Yes
October 3	Yes	Yes	No	Yes
October 16*	Yes	Yes	No	Yes
October 26	Yes	Yes	No	Yes

\* Monthly samples collected at WM1, WM2 and WM3

Table 2: Water quality stations

Stn	Latitude	Longitude	Total Depth	Sample Depth
WW1	N43°15.891'	W79°45.465'	11	8.5
WW2	N43°16.565'	W79°44.130'	16	14
WW3	N43°16.788'	W79°44.325'	16	14
WW4	N43°16.342'	W79°43.922'	16	14
WW5	N43°17.020'	W79°43.195'	20	18
WW6	N43°17.738'	W79°41.797'	30	28
WM1	N43°17.559'	W79°47.118'	5	3
WM2	N43°16.656'	W79°46.228'	10.5	8.5
WM3	N43°15.314'	W79°44.863'	10.5	8.5

In order to provide continuous records of water temperature and currents within the nearshore zone, we have deployed 4 moorings at CM1, CM2, CM3 and CM4. At all these stations both water current profiles (by ADCPs) and temperature profiles (at every 1-2 m from surface to bottom) is recorded at every hour from April to October, 2006. At T5 temperature profiles were measured at every hour starting in May (Figure 2). Time series of turbidity, dissolved oxygen, conductivity, pH are measured by moored YSI 6600 EDS at 1 m above bottom at CM1 and CM2 at 1 hr interval. Time series of wave height, period and direction can also be computed at this location from Sontek Hydra measurements. Winds, air temperature and solar radiation are measured at Burlington Pier and CCIW Breakwall. Typical mooring diagrams were provided in a separate deployment report.

*The moorings at stations CM3 and CM4 are deployed for a different internal study, but the data at these stations were included in this report.*

Table 3: The details of moorings in western Lake Ontario during 2006.

<i>Mooring</i>	<i>Data Type</i>
06-00M-009A	Climate data from Burlington Pier - Wind Speed/Direction, Air Temperature/Relative Humidity, Water Temperature and Barometric Pressure.
06-59M-991A	Climate data from CCIW breakwall - Wind Speed/Direction, Air Temperature/Relative Humidity and Water Temperature.
<i>CM1</i>	
06-00C-019AB	Hydra moored at 10 m depth, 2 data sets (60, 1 Hz samples every hour, 1024, 4 Hz samples every 3 hours), Apr 27 - Oct 20, 2006.
06-00T-011A	Temperature mooring, 10 minute data at 1, 3, 5 and 7 metre depths, YSI 6600EDS recorded 30 minute data at 9.8 m depth, Apr 27 - Oct 30, 2006.
<i>CM2</i>	
06-00C-012ABC	ADCP moored at 16.2 m depth, data in 1 m bins, 30 minute data, Apr 12 - Oct 30, 2006.
06-00T-013A	Temperature mooring, 10 minute data at 1, 3, 5, 7, 9 11, 13 and 15 metre depths, pressure at 10 metre depth, YSI 6600EDS recorded 60 minute data at 16.1 m depth, Apr 12 - Nov 1, 2006.
<i>CM3</i>	
06-00C-014AB	ADCP moored at 20.0 m depth, data in 1 m bins, 30 minute data, Apr 12 - Jul 24, 2006, data from second deployment lost due to unit tilted < 30° to the vertical on deployment.
06-00T-015A	Temperature mooring, 10 minute data at 1, 3, 5, 7, 9 11, 13, 15, 17, 19 and 20 metre depths, pressure at 10 metre depth, Apr 12 - Nov 1, 2006.

<b><i>CM4</i></b>	
06-00C-016AB	ADCP moored at 30.0 m depth, data in 1 m bins, 30 minute data Apr 12 - Oct 30, 2006.
06-00T-017A	Temperature mooring, 10 minute data at 1, 5, 7, 9 11, 13, 15, 17, 19, 21, 23, 25, 27, 29 and 30 metre depths, pressure at 10 metre depth, Apr 12 - Oct 30, 2006.
<b><i>T5</i></b>	
06-00T-017A	Temperature mooring, 10 minute data at 1, 3, 5, 7, 9 11 13, 15, 17, 19, 21, 23, 25, 27 and 29 metre depths, Apr 27 - Nov 1, 2006.

## **Data Presentation and Analysis**

### **Water Quality**

Graphical representation of water quality data from weekly or bi-weekly surveys is shown in Figures 3 to 21. Figures 3 and 4 illustrate water quality data from 1m at each station for the entire study period. Figure 3 shows nitrate/nitrite, ammonia and Chlorophyll *a* and Figure 4 shows total phosphorus (filtered and unfiltered), and soluble reactive phosphorus. Figure 5 and 6 illustrate water quality data from bottom- 2 m. Figure 5 shows nitrate/nitrite, ammonia and Chlorophyll *a* and figure 6 shows total phosphorus (filtered and unfiltered), and soluble reactive phosphorus. Overall, integrity of data is very good. Chlorophyll *a* (Chla) as an indicator of algal populations has been measured with consistent methods for many years. Although changing species composition and physiological states of algal populations may not be well described by chlorophyll *a*, this measure is an economical way to derive some baseline information on the primary production potential of the water. Chla concentrations show strong variation from one location to the other with a maximum concentration of 4 mg/L after the September downwelling event. Nitrate and nitrite can come from agricultural sources, urban runoff, atmospheric deposition, and municipal sewage. Nitrate and nitrite showed slightly higher concentrations during the spring, otherwise like ammonia concentrations remained low and did not vary much throughout the experimental period. Total Phosphorus (unfiltered) concentrations varied significantly at both depths, mainly due to the influence of strong episodic events. The monthly average TP (uf) was around 8 ug/L in the surface layer and around 12 ug/L close to the bottom. Soluble reactive phosphorus (SRP) is generally thought to be an indicator of phosphorus forms available for algal uptake. In general its variability is consistent with TP concentrations in the water column, and the highest values occurred during the strong wind event.

Figures 7 and 8 illustrate *E. coli*, total coliform and total suspended solids at 1m and bottom-2m respectively. The City of Hamilton analyzed water samples for these variables. It should be noted the "0" as a data point on the graph is equal to <10 or <100 for both *E. coli* and total coliform (as confirmed by the City of Hamilton). Also noted the "0.8" as a data point is equal to <0.8. On July 24, 2006 at station WW5 1 m possible contamination of the sample water may have occurred. *E. coli* was 290 cfu/100ml and total coliforms reached 960 cfu/100ml. Figure 9 and 10 illustrates averages of all parameters for the entire study period with distance from shore for 1m and bottom-2m.

An YSI 6600 water quality profile was taken at each station. Parameters measured included depth, temperature, pH, conductivity, dissolved oxygen, and turbidity. The following operational difficulties were encountered: because of noise interruption with the data, all June 6 profiles were not included; WW6 April 11 no profile was recorded; pH was not included at all stations on September 14 and September 21; dissolved oxygen was not included from station WW6 on July 31. See table 1 for summary. Profiles illustrations are shown in Figures 11 to 19.

In the western basin of Lake Ontario, the timing and severity of the annual geosmin peaks in drinking water supplies is largely a function of the degree of synchrony between small and large scale processes. Geosmin is not carried in from rivers but produced within the lake by planktonic Cyanobacteria in the illuminated offshore surface layers. Production peaks briefly each year in late summer but offshore levels vary, and only reach nuisance levels in some years. Areal odour is usually low or undetectable across the lake, and cell disruption by heat or other forms of extraction (or water treatment processes) is needed to release cell bound geosmin. Importantly, it requires a climate driven event for this peak to be detected in drinking water supplies. Following the warm, calm period when offshore production increases, an onset of late-summer east winds causes the mass transport of offshore surface water and associated cells/geosmin towards the NW shore and downward to deep WTP intakes (Watson et al. 2006). The strength of the downwelling and associated T&O event varies among years with the duration and persistence of the east winds (Rao et al. 2003). Figures 20 and 21 show the concentrations of geosmin during 2006 season at all six bi-weekly and three monthly water quality stations. The samples from WW2, WW3 and WW4 on 28 August are not included because of some sampling issues at those locations on that day. The

downwelling event caused by easterly winds from August 27 to September 5 correlated with a rise in geosmin concentrations at all the stations. The stations closer to the shoreline experienced slightly higher concentrations (40-50 ng/L) compared to offshore station (24 ng/L at WW6) in the surface layer. The concentrations at 3 meter above bottom are much lower than the surface values.

### Measurements from moored instruments

Graphical and tabular reporting of the data collected in this experiment is generally consistent with previous NWRI limnological summaries (Miners et al. 2002). However, we have used updated methods to summarize and display the meteorological, temperature and radiation fields. The field observations were obtained from standard data logging equipment in a time series format (e.g. Campbell 21x data loggers). At each temperature mooring, the data from individual temperature loggers can be displayed as time-series to identify responses with depth. Further, the temperature observations for a site can be interpolated in the vertical (e.g. cubic-spline) with time to derive temperature isotherm plots. Data processing procedures adopted include quality control by checking instrumentation calibration and setup, associated documentation on mooring design and placement and by the general appearance of the time series data sets. MATLAB was used to produce the graphical and tabular results (see Appendix) and the summary was output to and text file using ActiveX features. Wind speed and direction are presented as time-series vector plots and rose histograms. Tabular summaries of hourly values of wind were also presented. The mean duration is defined as the average time a current direction remained in the sector. The mean excursion is the product of the mean duration and the mean current. The mean scalar speed, mean square speed, mean square E-W, N-S, U and V components, and U-V variance are summarized below the table.

The conditions at the lake side of the Burlington Pier are ideal for observing onshore winds, that is, wind out of the east and are the location of one of NWRI's meteorological stations. However it is a poor site for observing the prevailing westerly winds because of the three bridges, the large CCIW building complex, and numerous trees upwind during west winds. To overcome the problem, NWRI has installed a second meteorological station on the south end of the breakwater on the west side of the CCIW complex, open to the full fetch of Hamilton Harbour. The data used in this study are a

combination of the data sets from the two sites. When winds were from the lake side of the barrier beach the 'pier' station was used and when the winds were from the harbour side of the beach, the 'breakwater' site was used. Winds from meteorological observations located at CCIW sites (Burlington Pier and Breakwall) are summarized in the appendix, respectively. Derived statistics indicate that the mean scalar speed is marginally higher at the breakwall at 4.0 m/s compared to the Pier 3.5 m/s. The mean direction for winds at the pier is towards the south-east to the east as depicted in the wind rose diagrams, however, strong winds in a range of 15 m/s were observed blowing towards the west during some occasions. On one of these easterly (blowing towards east) during late August to early September caused significant downwelling and mainly responsible for the taste and odour episode.

Temperature recordings at five thermistor moorings are illustrated in Figures 22a to 22e. A general picture of the seasonal cycle of water temperature variations can be constructed from these figures. Close to the shoreline at CM1 in a water depth of 7 m, the waters warmed quicker and remained isothermal for most of the period. However, cooling and warming due to wind induced upwelling and downwelling can be clearly observed. At other stations also, the thermal stratification cycle and its variability is closely related to these upwelling and downwelling events caused by prevailing winds. The strong downwelling event due to easterly winds started on August 27 (day 239) can be clearly seen with increased temperatures. As discussed before the values of geosmin at all stations increased during this event. At a station located farthest from the shoreline (T5) it is observed that the downwelling front intersected the bottom only during this strong event, otherwise the waters were cooler due to thermal stratification.

In 2006, two YSI6600 EDS systems containing turbidity, oxygen and pH sensors were deployed at two stations (CM1 and CM2). The accuracy of turbidity sensors were verified with values from the profiles. Figures 23a and b show the 30 minute observations of turbidity during the whole period. The turbidity at CM1 reached a peak of 50 NTU on many occasions during April to May. The high values were also observed during the strong wind events, probably due to resuspension of bottom material. We can also deduce turbidity in the water column from the acoustic back scatter intensity obtained from ADCPs (Figures 24a to c). Clearly it appears that backscatter intensity can be used as a proxy variable for a qualitative understanding of the turbidity in the water column as it

correlated with the observed turbidity from the moorings. Figures 25a to 25c show the raw-water quality from plant measurements.

Tables in the Annexure summarize several statistical parameters based on data records from all the four current meters at all depths. Where gaps existed in the data, parameters have been determined only from values present, with no interpolation. While mean currents largely determine the transport characteristics, variations in currents due to turbulence and other high frequency perturbations can be very important in dispersing pollutants through mixing and diffusion. The variance in a data record is a measure of these variations. Extended periods of consistently low currents, referred to as stagnation currents, can lead to serious accumulation of these pollutants from shore based discharges. The rose histogram plots tabulate hourly wind and current data for 2006 into speed and direction ranges. Vector directions are sorted into eight 45 degree sectors (directions are "towards" for both wind and current in all types of vector plots). Speed ranges are defined in centimetres per second for current. For wind the numeric range limits are the same but units are metres per second. Different speed ranges are indicated in the drawings by the indicator's line width as shown in the key. The percentage of the total data record comprised of values of a given speed and direction is shown by the radial length of each segment of indicator line with respect to the radial percentage scale. At the bottom of the page wind and current vector stick plots were plotted to show the time series of current characteristics for the entire season.

As mentioned before upwelling and downwelling occur in the coastal zone as part of response to energy imparted to the water surface by wind drag modified by the complex geometry, and are easiest to observe in temperature data (see time series figures), under thermally stratified conditions. Time series of east-west and north-south currents show the flow reversals due to upwelling and downwelling events. During a full upwelling event from Julian Day (JD) 164 (June 13) to JD 169 (June 18), the strong north-eastward winds raised the thermocline to 5 m from the surface. The near surface temperatures dropped briefly by nearly 5 - 6°C from 19°C within a period of about 12 hours. During this period surface currents were predominantly eastward. The net along-shore currents were relatively small coinciding with weak stratification. The downwelling of the thermocline was mainly caused by the easterly winds. The thermocline intersected the bottom at the offshore station on one occasion (Aug 27 to Sep 7). The surface

temperatures increased considerably to 18 - 20°C because of the arrival of warm waters from the east. Although the cross-shore currents were towards the shore in surface layer they were somewhat in opposite direction in the lower levels during this episode. The duration of this downwelling event was slightly longer (8-10 days) and stronger than other events, causing significant production and delivery of geosmin to the intakes. Except for this event the rest of the downwelling events did not show any significant impact at deeper depths.

### Summary

Weekly to bi-weekly water quality sampling, and hourly temperature, currents and waves were measured at several stations off the water intakes of the City of Hamilton during April to October, 2006. The preliminary analysis revealed that in general the water quality parameters are in the expected limits near the existing intakes (WW1); however, it appears that the wind induced circulation modified by the complex geometry of this region played a significant role in varying these conditions. Comparison of temperature and wind time series reveals that upwelling and downwelling events correspond to westerly (winds from the west) and easterly (winds from the east) winds. Except during strong upwelling and downwelling episodes the temperature profiles show a stable stratification from 2.5 km (CM2) from the shoreline. The thermocline intersected the bottom at the station T5 (WW6) (~ 6 km from shoreline) on one occasion (days 239-254) and on several occasions on other stations. We also observed that near the present intakes (CM1), the water column is isothermal and responds rapidly to prevailing wind, thus impacting the water quality.

During this observational period a moderate to significant taste and odour episode occurred between August 27 and September 5 due to the strong downwelling in the lake. The observed geosmin concentrations were higher (48 ng/L) close to the present intakes than in the offshore (28 ng/L at WW6) during this episode. During this episode raw-water at the plant also showed a peak of 22 ng/L. We have also observed that the turbidity peaks due to resuspension of bottom sediments are more or less similar between stations CM1 (59 NTU) and CM2 (52 NTU) because of longer exposed fetch of Lake Ontario for the east winds. The observed turbidity from plant data was around 15 to 20 NTU during this episode, but higher values were more common in March. The backscatter data from

ADCPs at further offshore locations indicates improvement of turbidity due to resuspension. Based on this preliminary data analysis, we conclude that marginal to moderate improvement of water quality, especially turbidity due to resuspension and taste and odour in drinking water, is expected in the offshore area (depth > 30m & 5 km from the existing intakes). More accurate estimates are required for further assessing these aspects and EC will conduct further analysis using both 2006 and 2007 data and hydrodynamic modeling in the near future.

## References

- Rao, Y.R., M.G. Skafel, T. Howell and C.R. Murthy, Physical processes controlling taste and odour episodes in Lake Ontario drinking water, *Journal of Great Lakes Res.*, 29(1), 70-78.
- Rao, Y.R., Thermal structure off Hamilton water intakes in western Lake Ontario, NWRI technical note.
- Watson, S. et al. (2006) Off flavour issues in large water bodies: physics, chemistry and biology in concert, AWWA .
- Miners, K.C. et al. 2002, Physical processes in Western Lake Ontario for sustainable water use, *National Water Research Institute Scientific Report No.02-176*, pgs: 162.

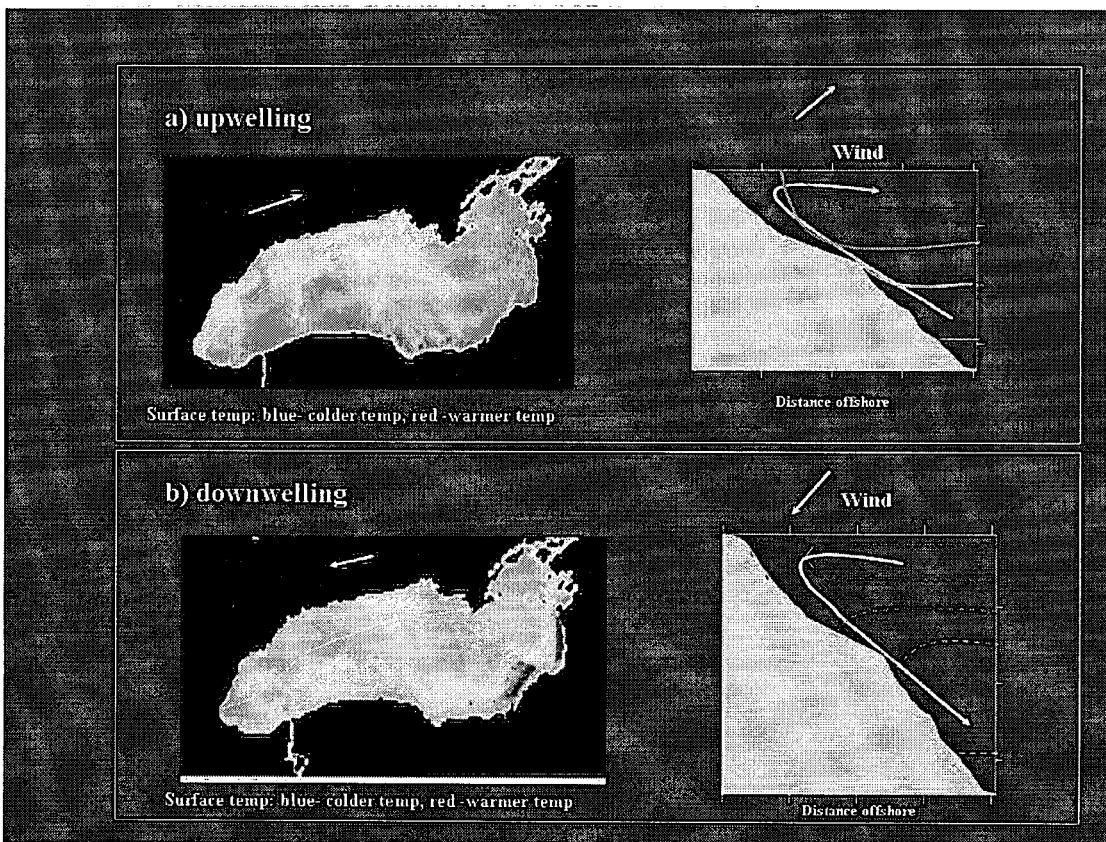


Figure 1: Conceptual picture of upwelling and downwelling in western Lake Ontario

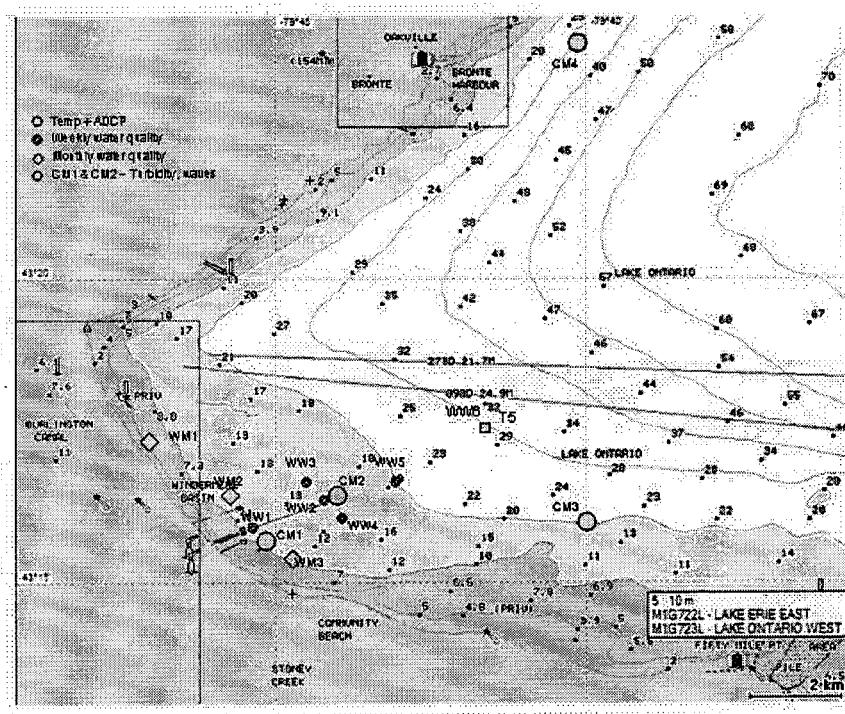


Figure 2a: Station locations in western Lake Ontario in 2006

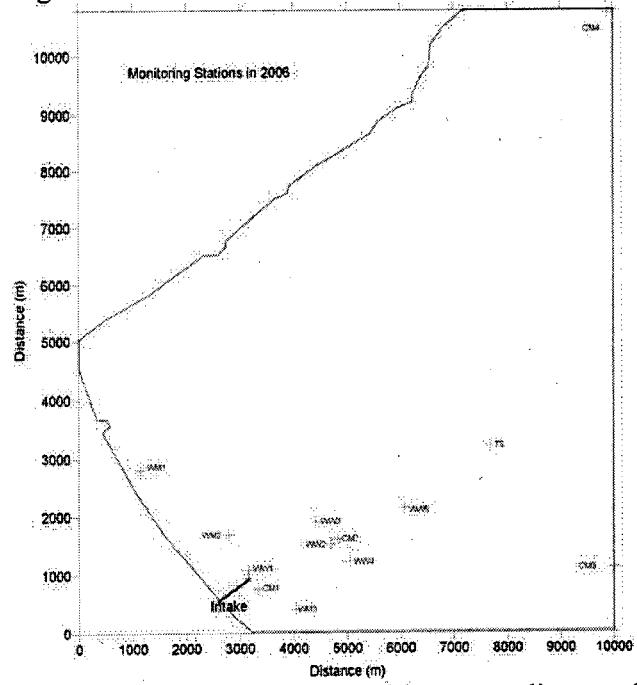


Figure 2b: Station locations with respect distance from shoreline

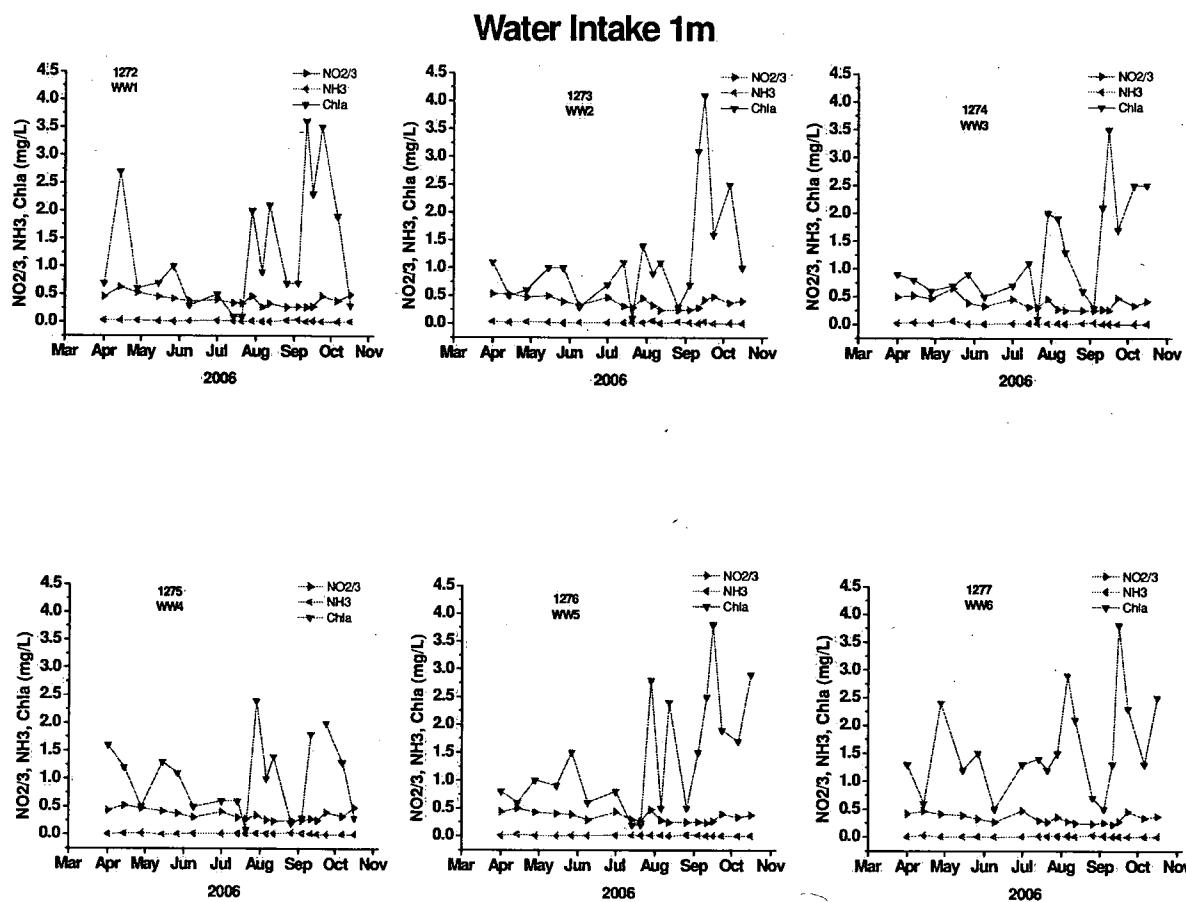


Fig. 3 : Observations of nitrate/nitrite, ammonia and chlorophyll-a at bi-weekly stations near 1m below the surface.

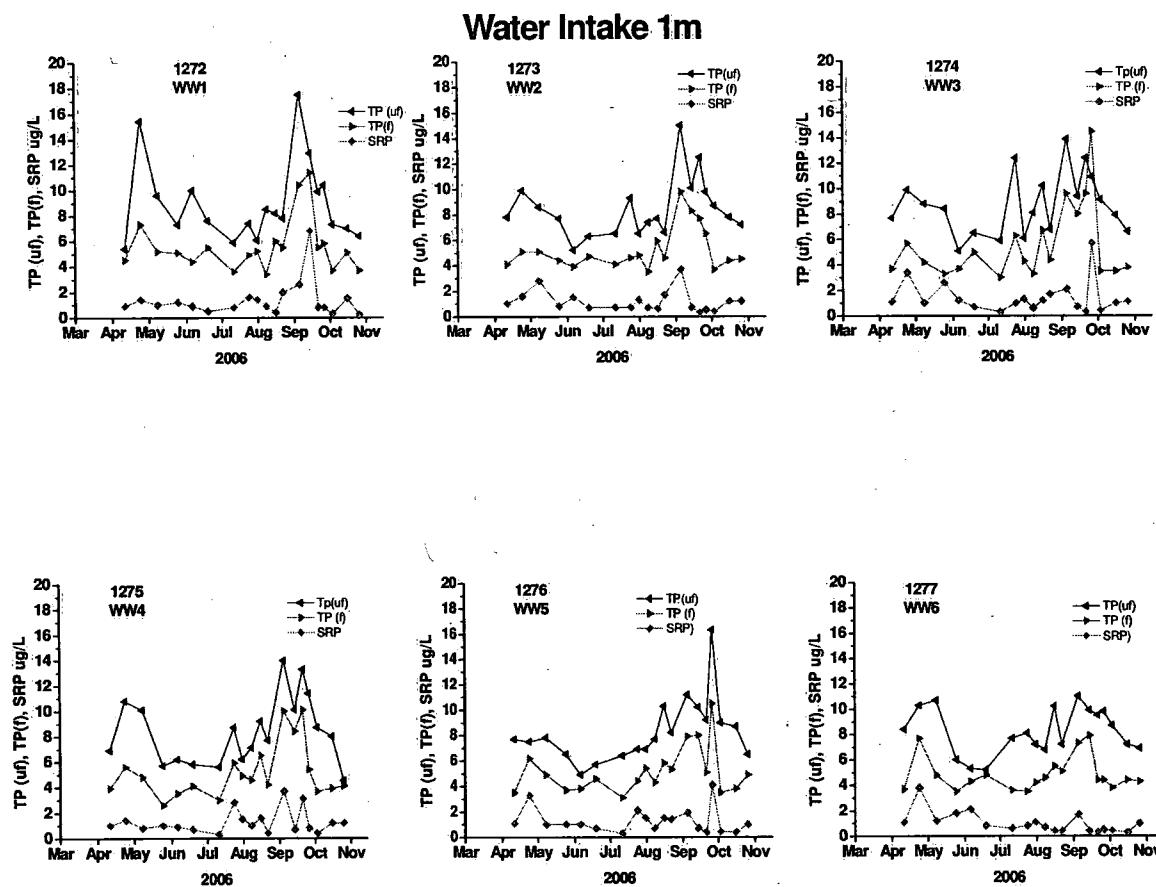


Fig. 4: Observations of TP (filtered and unfiltered) and SRP at bi-weekly stations near 1m below the surface.

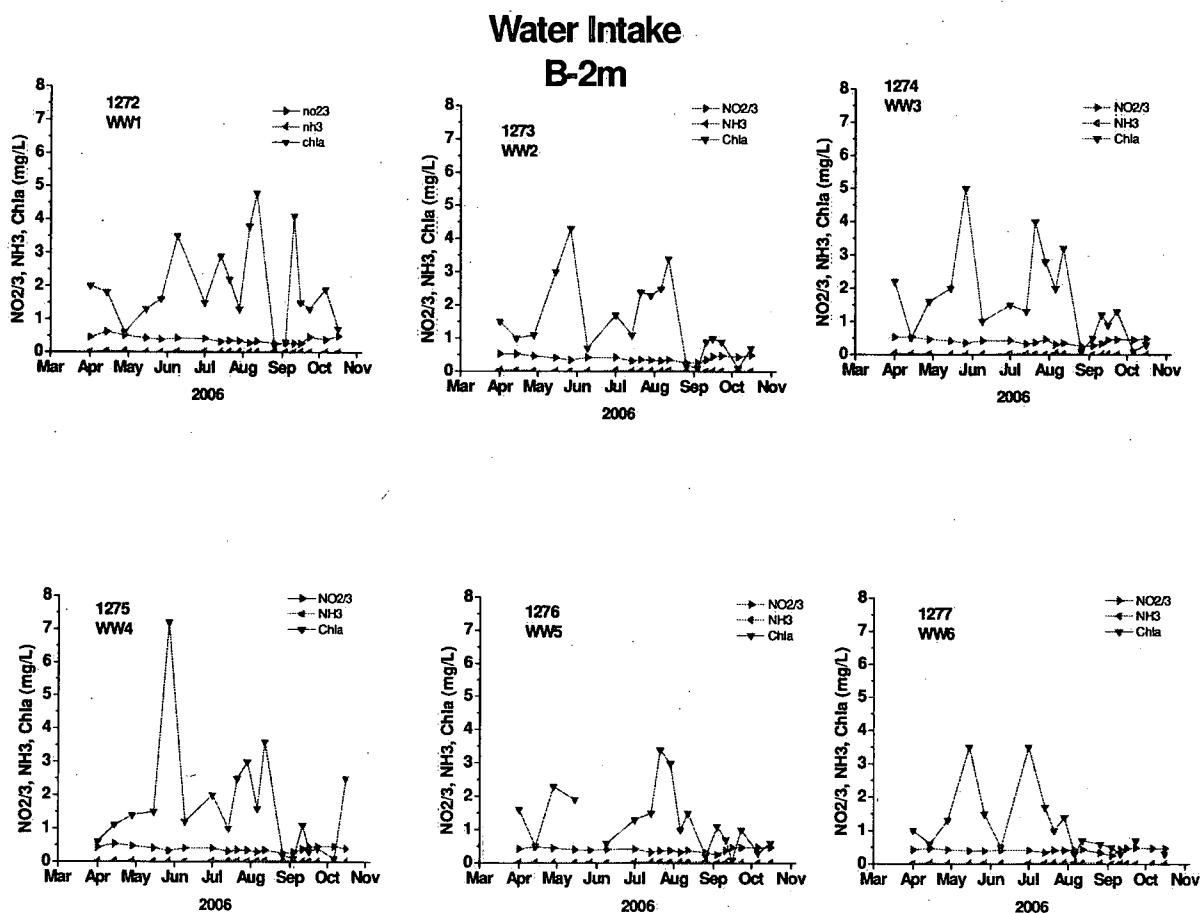


Fig. 5: Observations of nitrate/nitrite, ammonia and chlorophyll-a at bi-weekly stations near 2 m above the bottom.

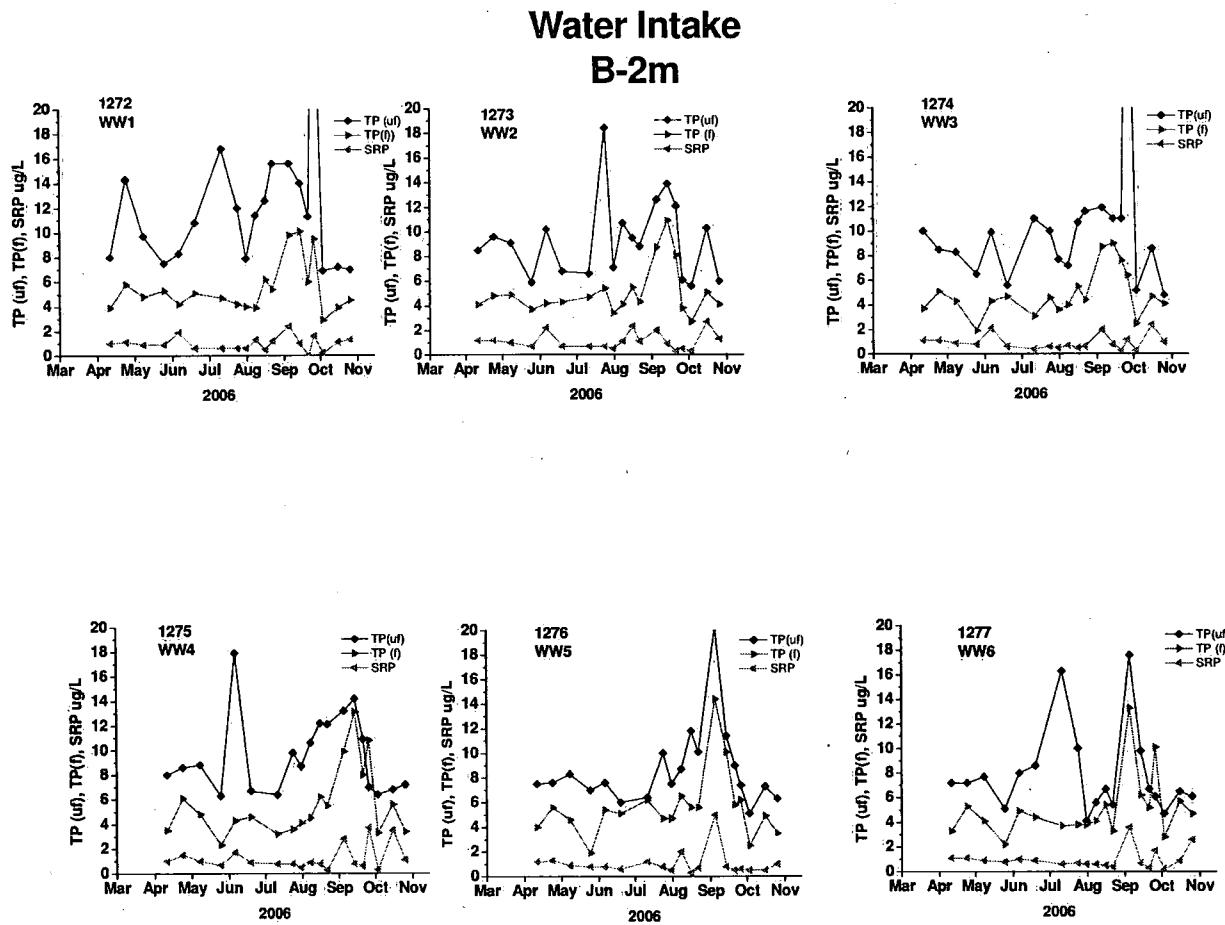


Fig. 6. Observations of TP (filtered and unfiltered) and SRP at bi-weekly stations near 2m above the bottom.

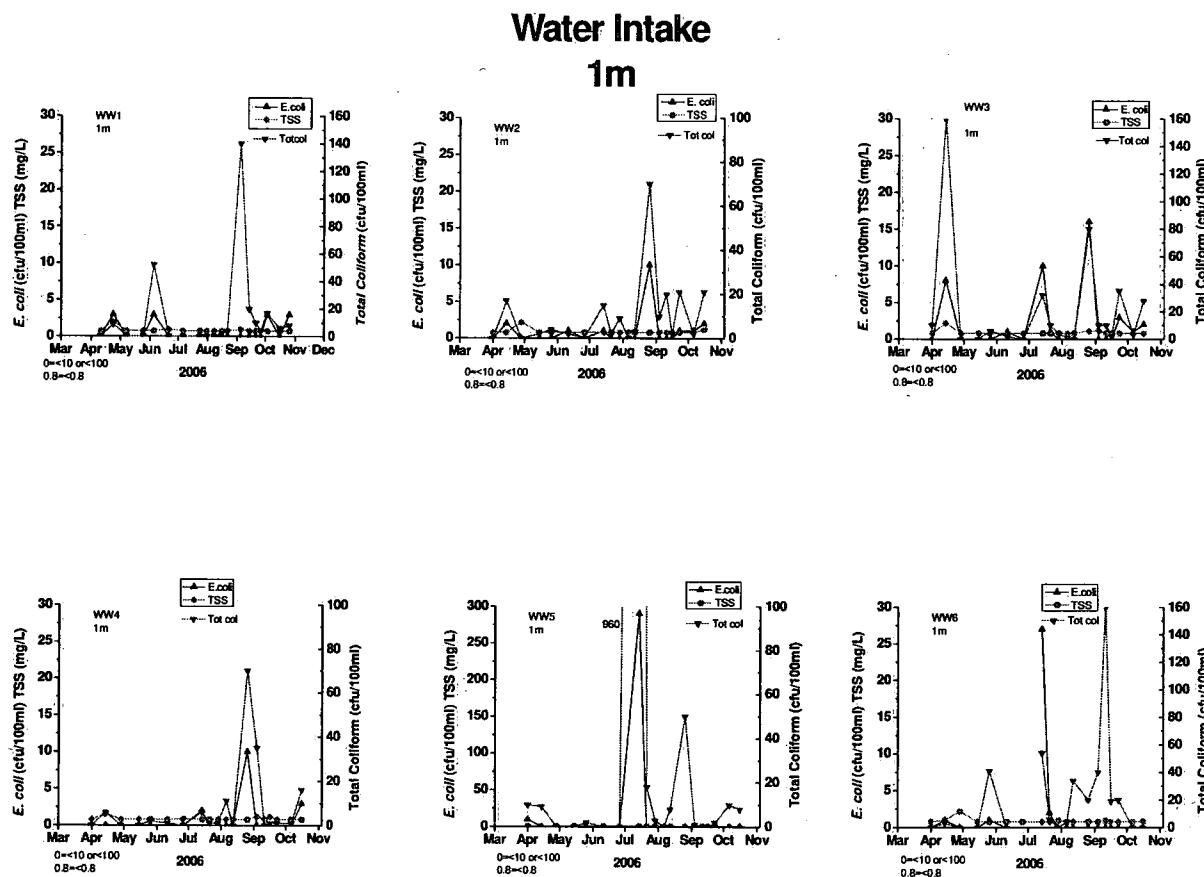


Fig. 7: Observations Ecoli, TC and TSS 1m below the surface

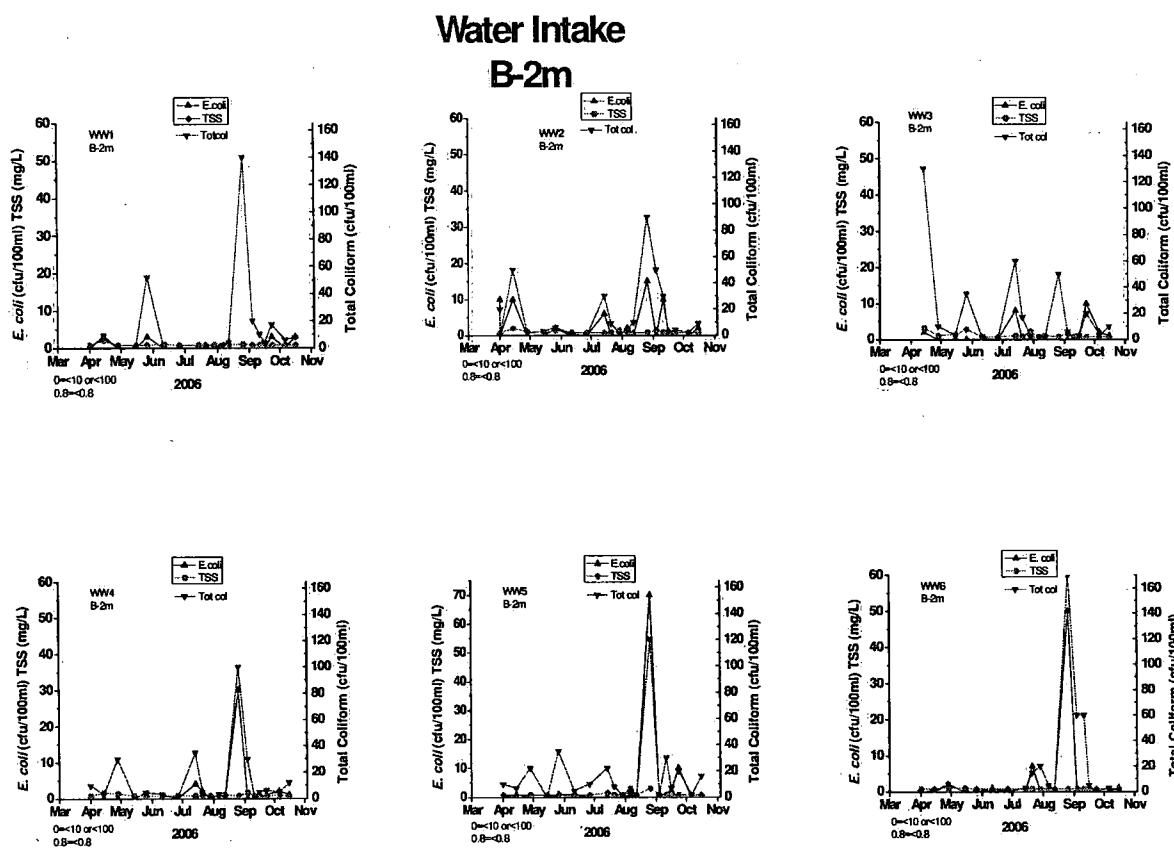


Fig. 8 Observations Ecoli, TC and TSS 2m above the bottom.

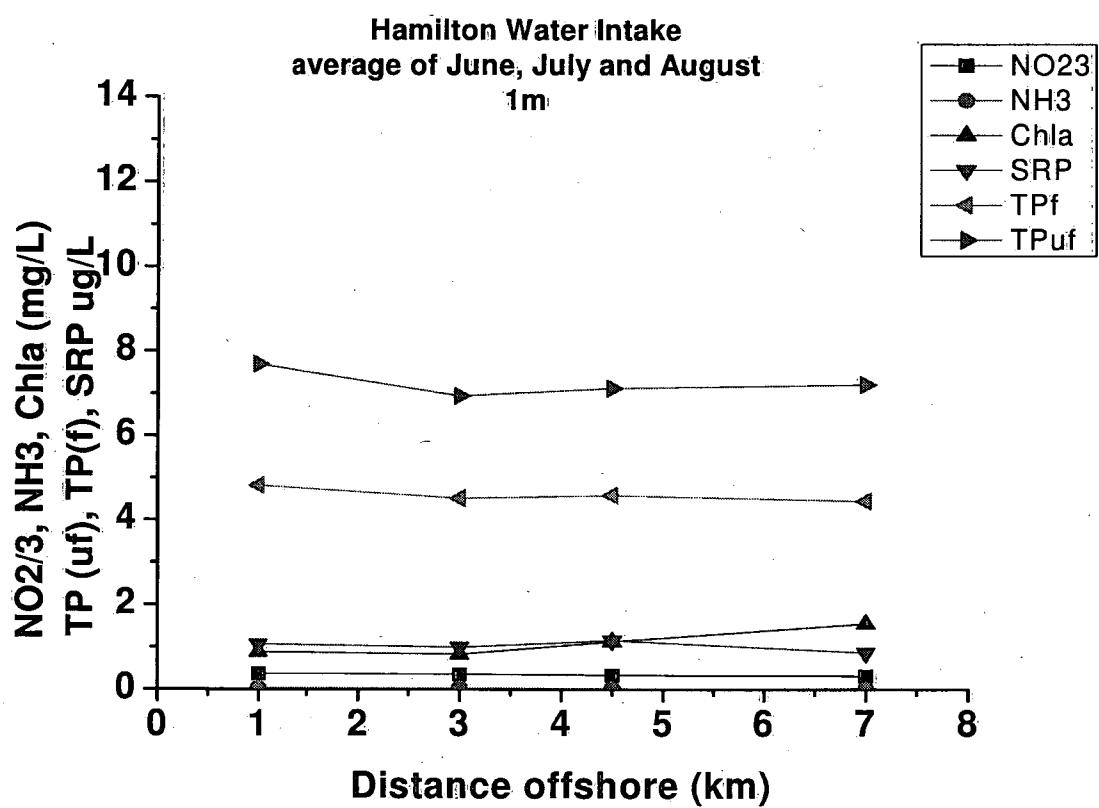


Fig 9: Mean values of water quality parameters at 1m below the surface from the shoreline

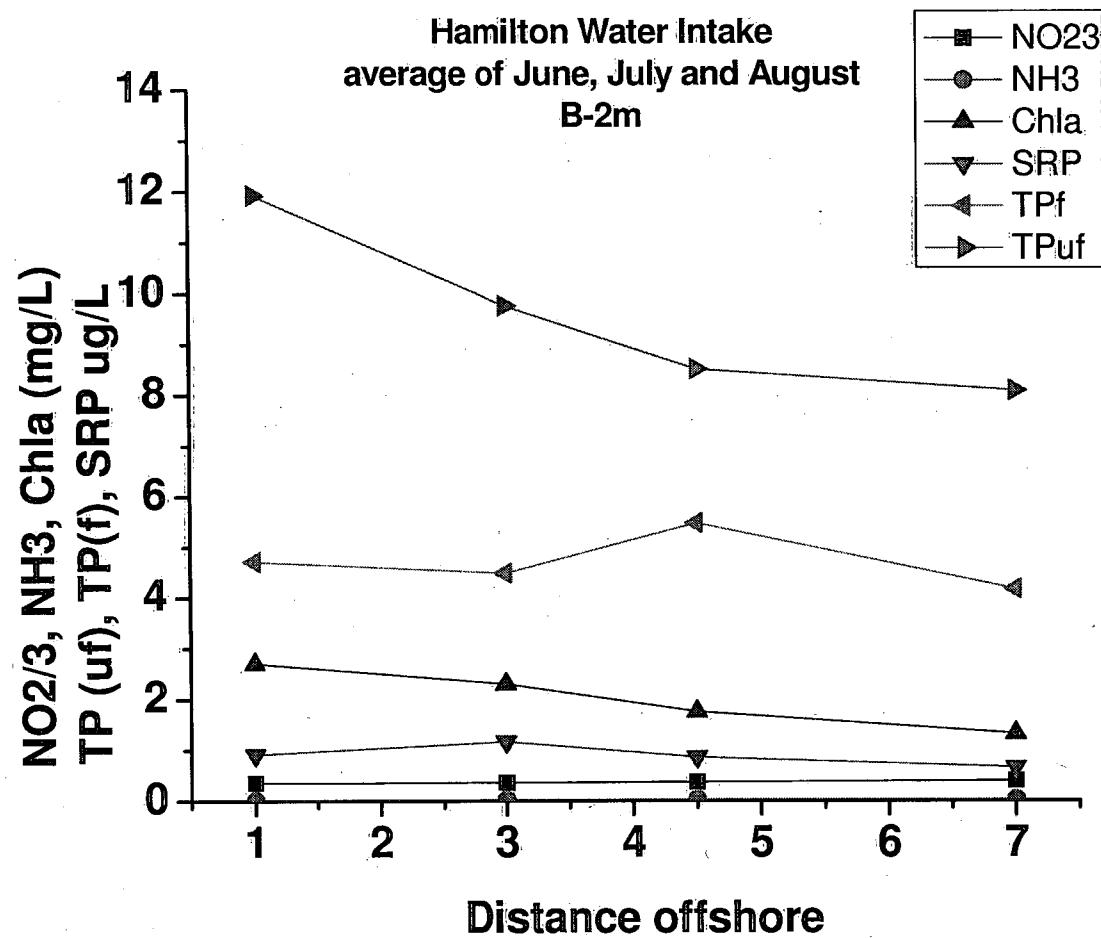


Fig. 10: Mean values of water quality parameters at 2m above the bottom from the shoreline

**Water Intake Lake Ontario  
WW1**

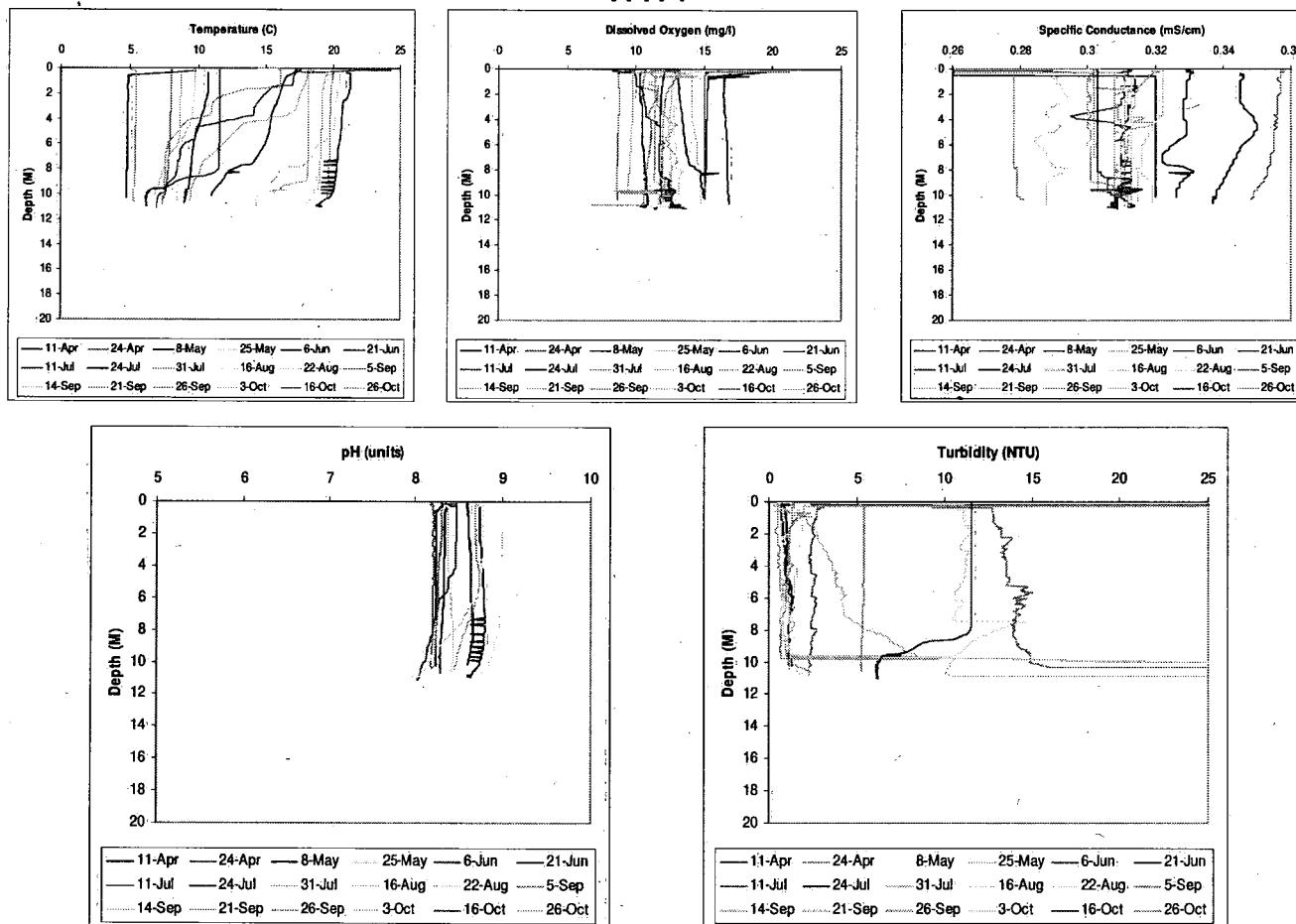


Fig. 11: YSI profiles during the water quality surveys at WW1

Water Intake Lake Ontario  
WW2

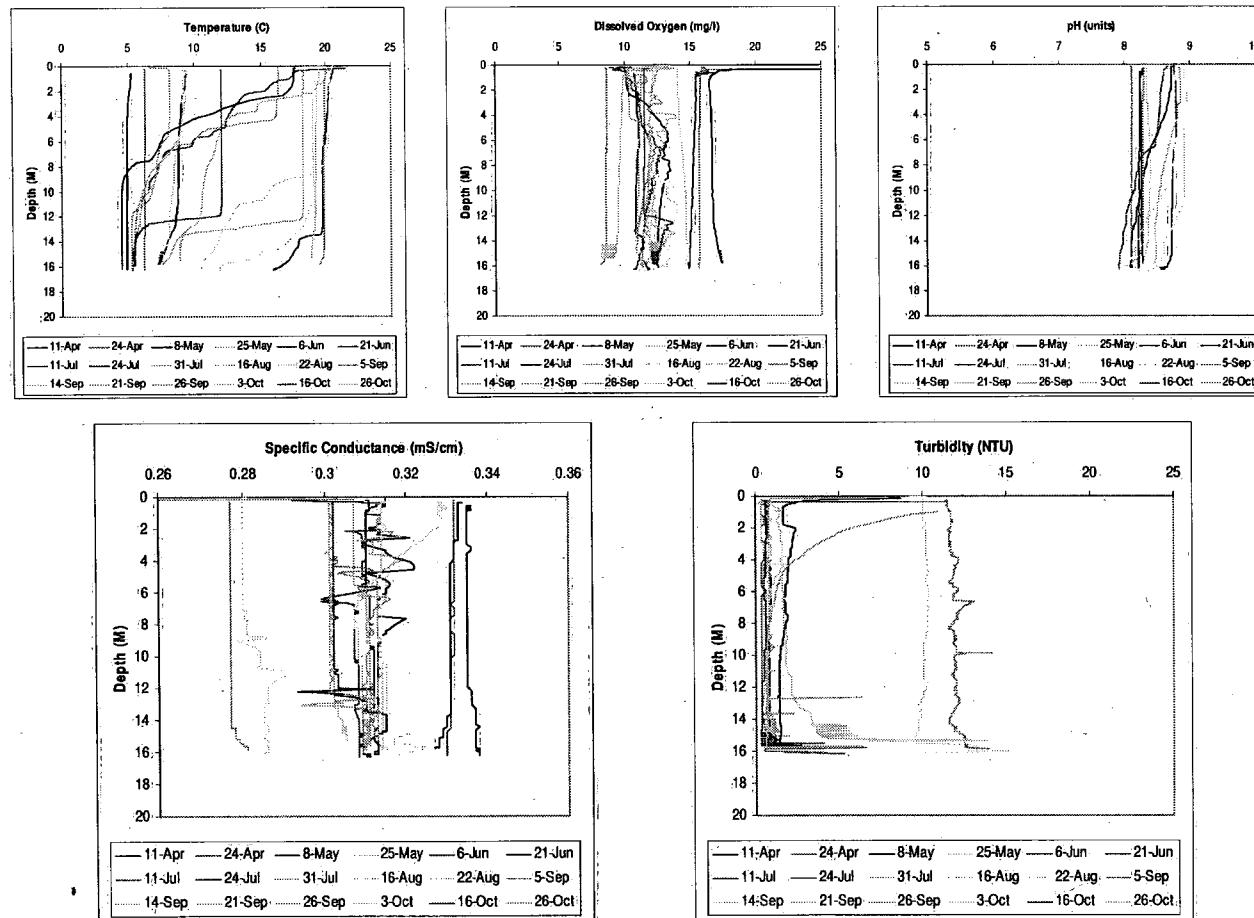


Fig. 12: YSI profiles during the water quality surveys at WW2

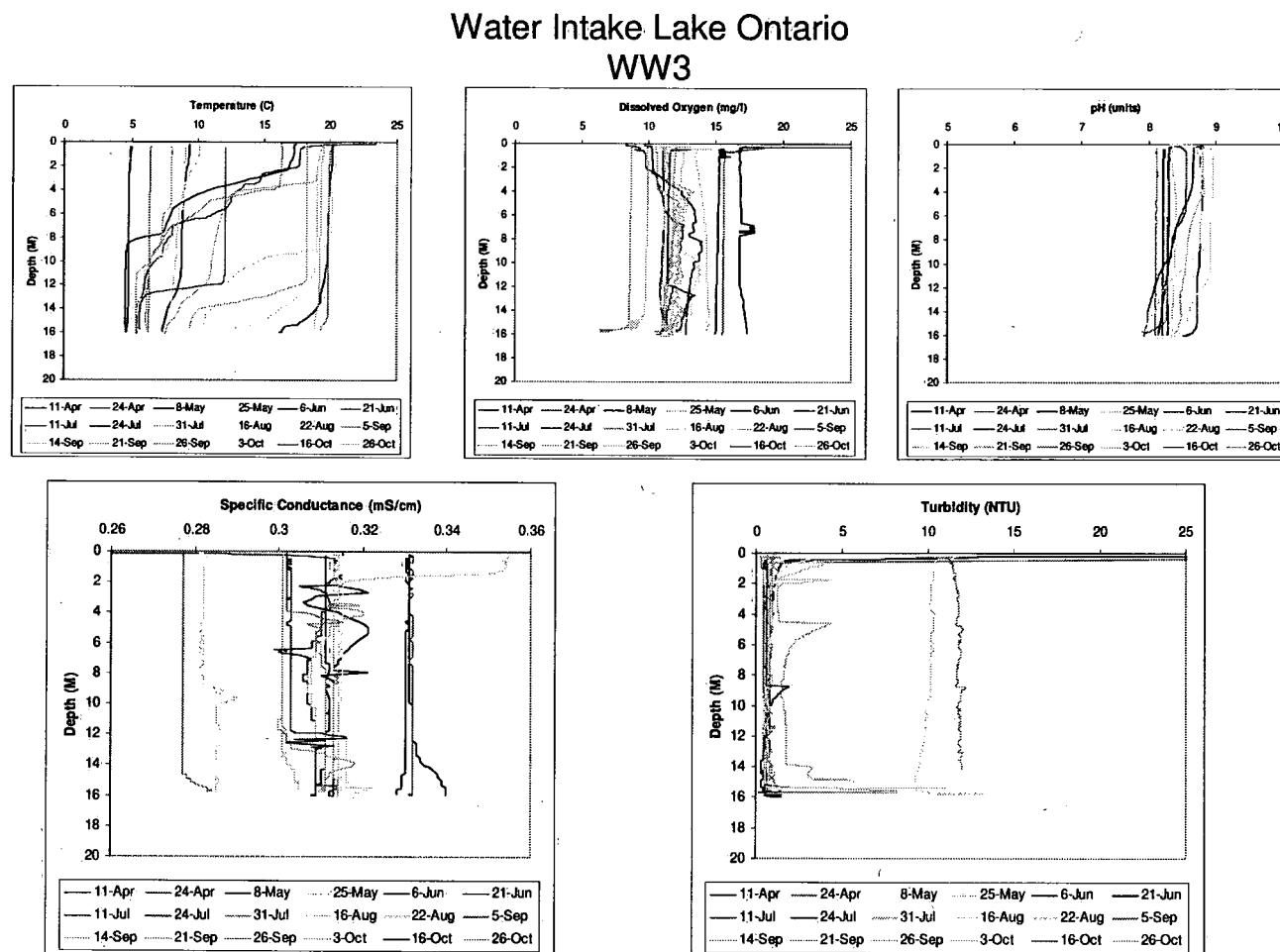


Fig. 13. YSI profiles during the water quality surveys at WW3

Water Intake Lake Ontario  
WW4

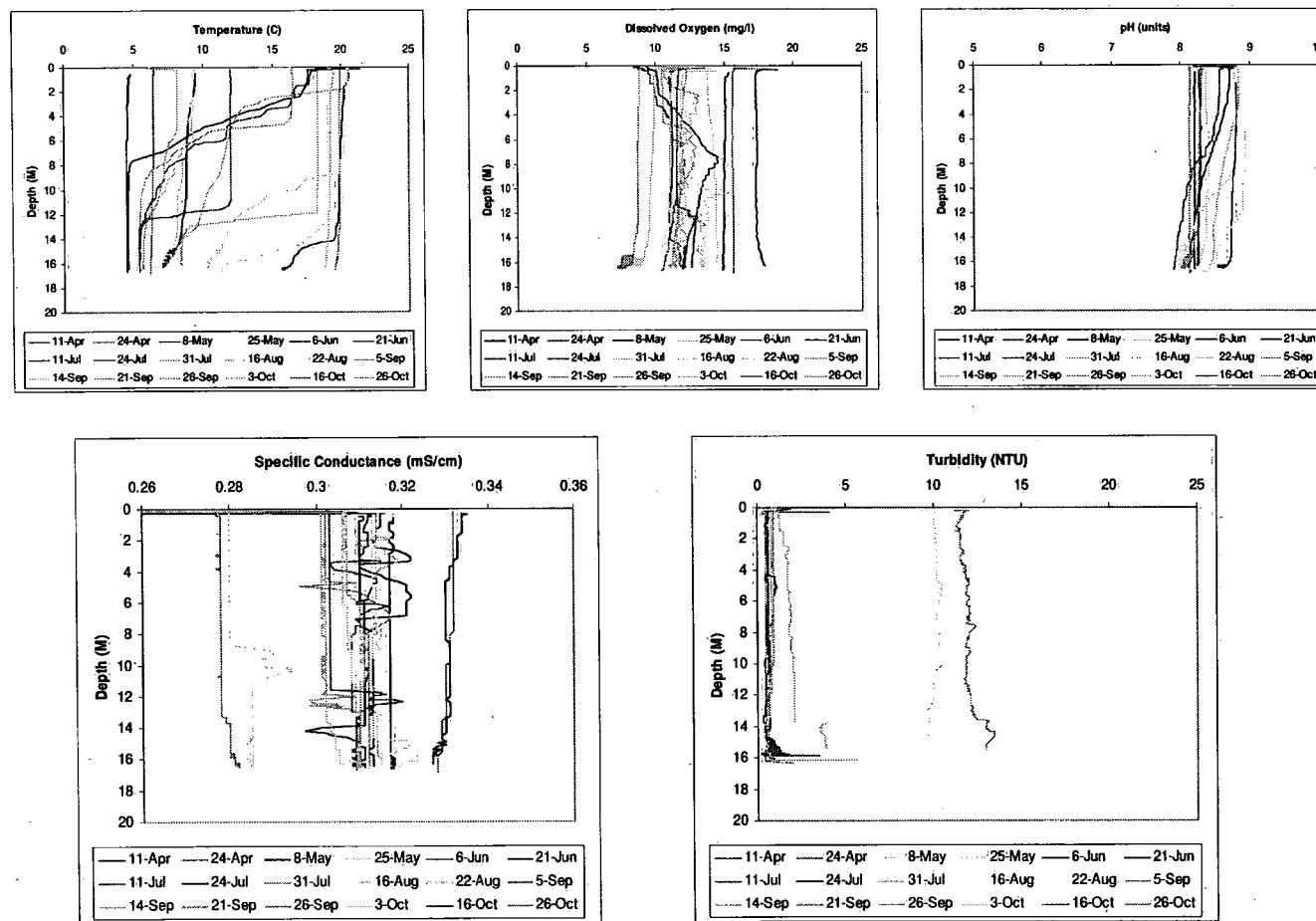


Fig. 14. YSI profiles during the water quality surveys at WW4

## Water Intake Lake Ontario WW5

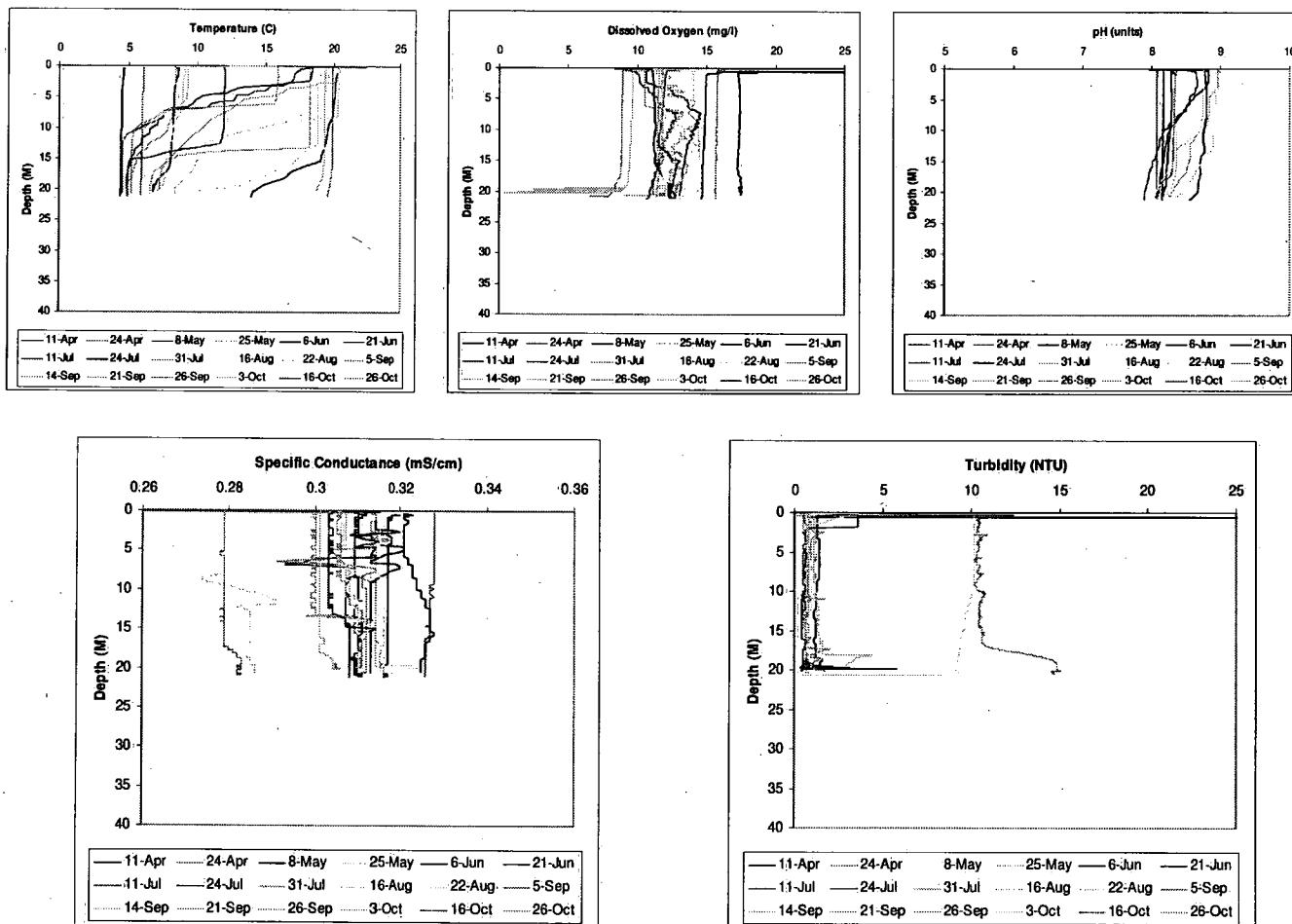


Fig. 15. YSI profiles during the water quality surveys at WW5

Water Intake Lake Ontario  
WW6

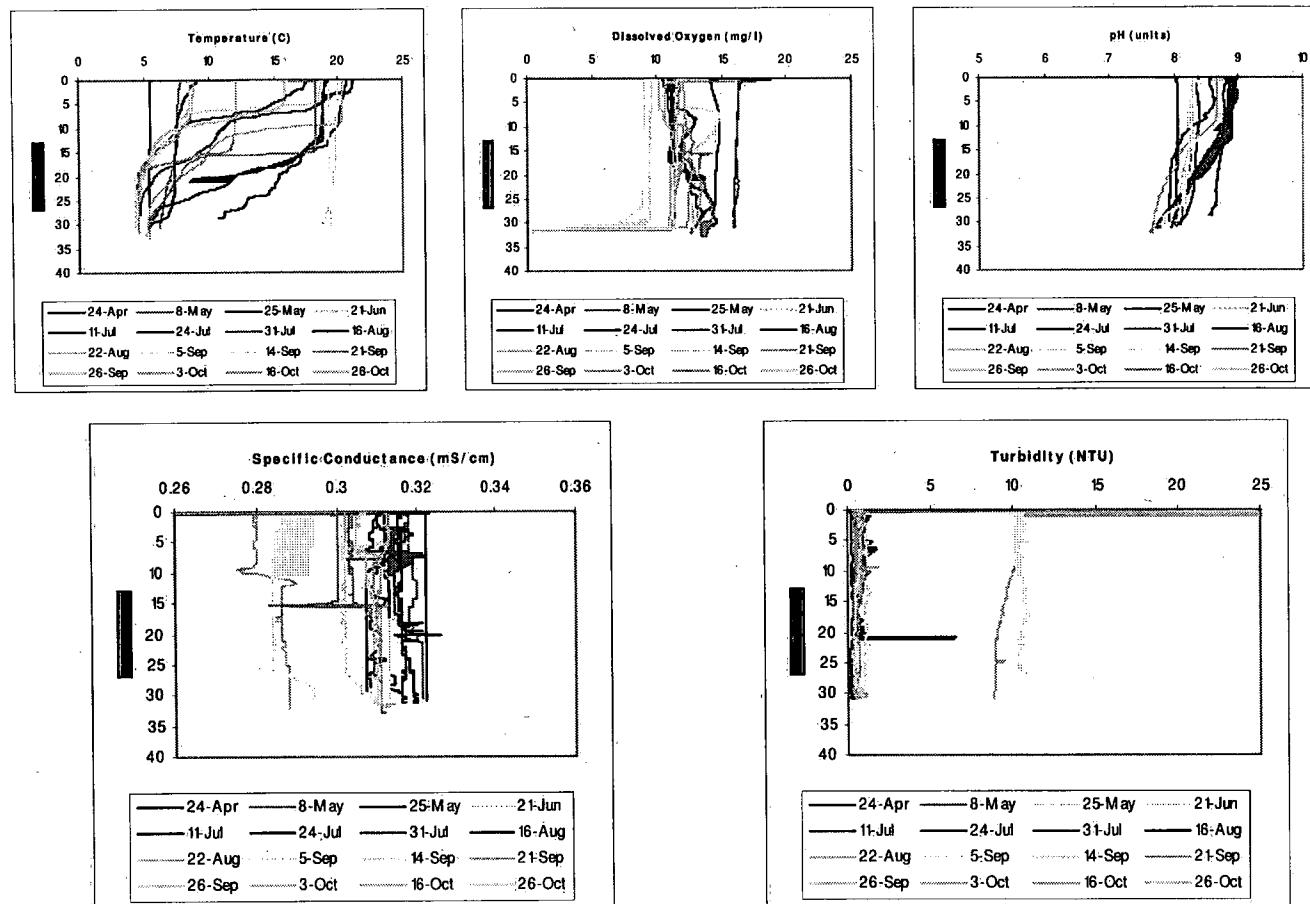


Fig. 16. YSI profiles during the water quality surveys at WW6

**Water Intake Lake Ontario  
WM1**

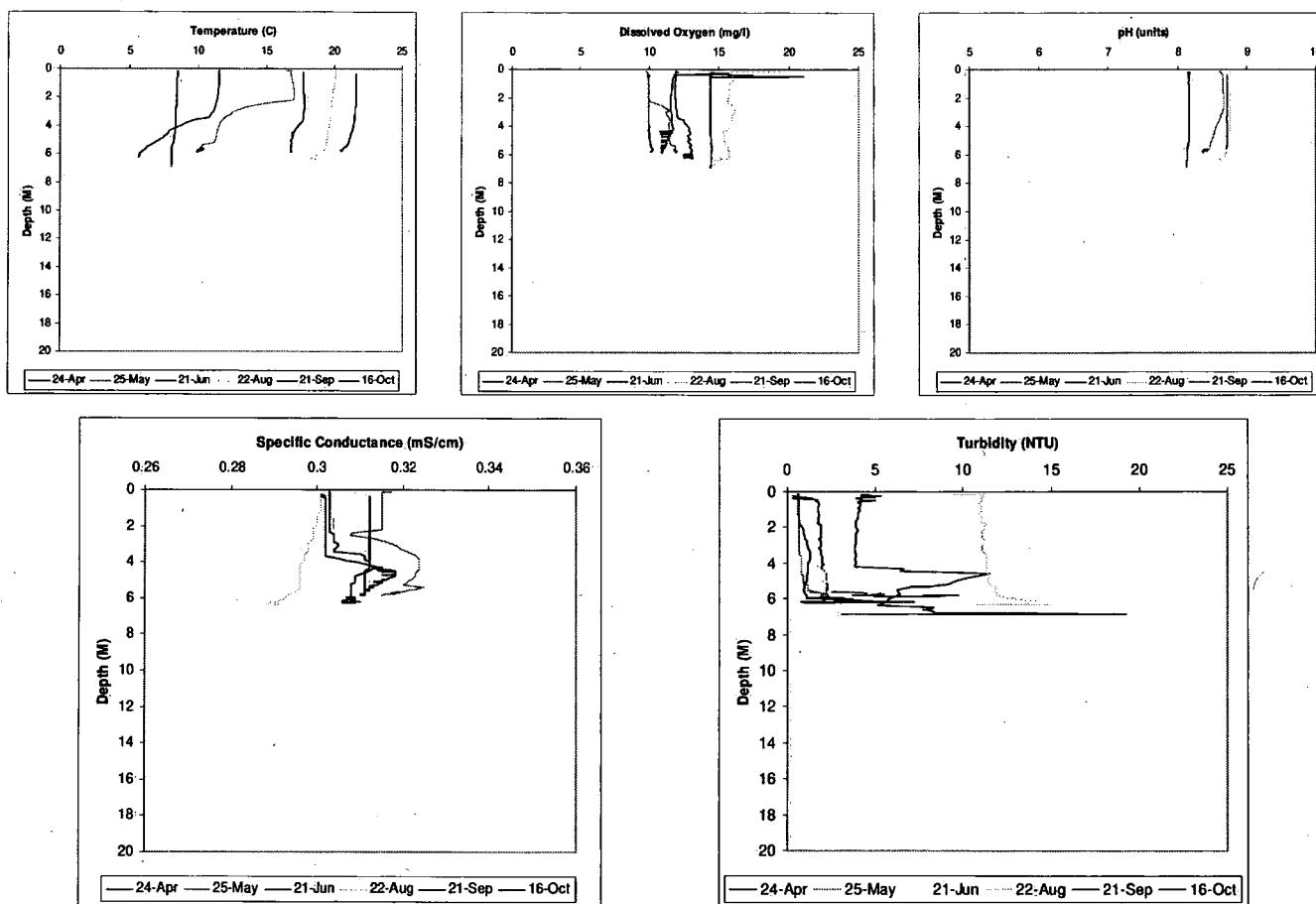


Fig. 17 YSI profiles during the water quality surveys at WM1

Water Intake Lake Ontario  
WM2

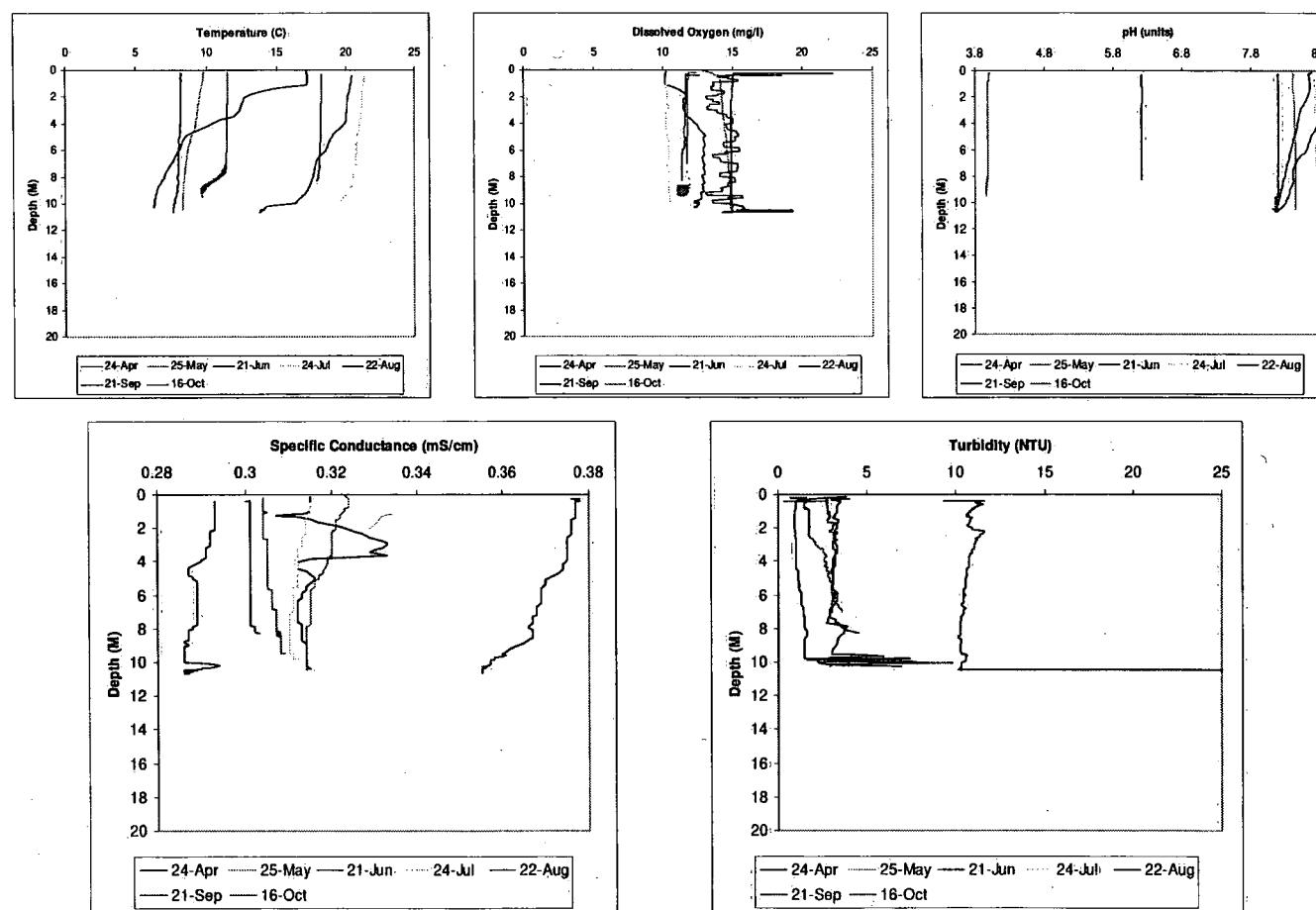


Fig. 18. YSI profiles during the water quality surveys at WM2

Water Intake Lake Ontario  
WM3

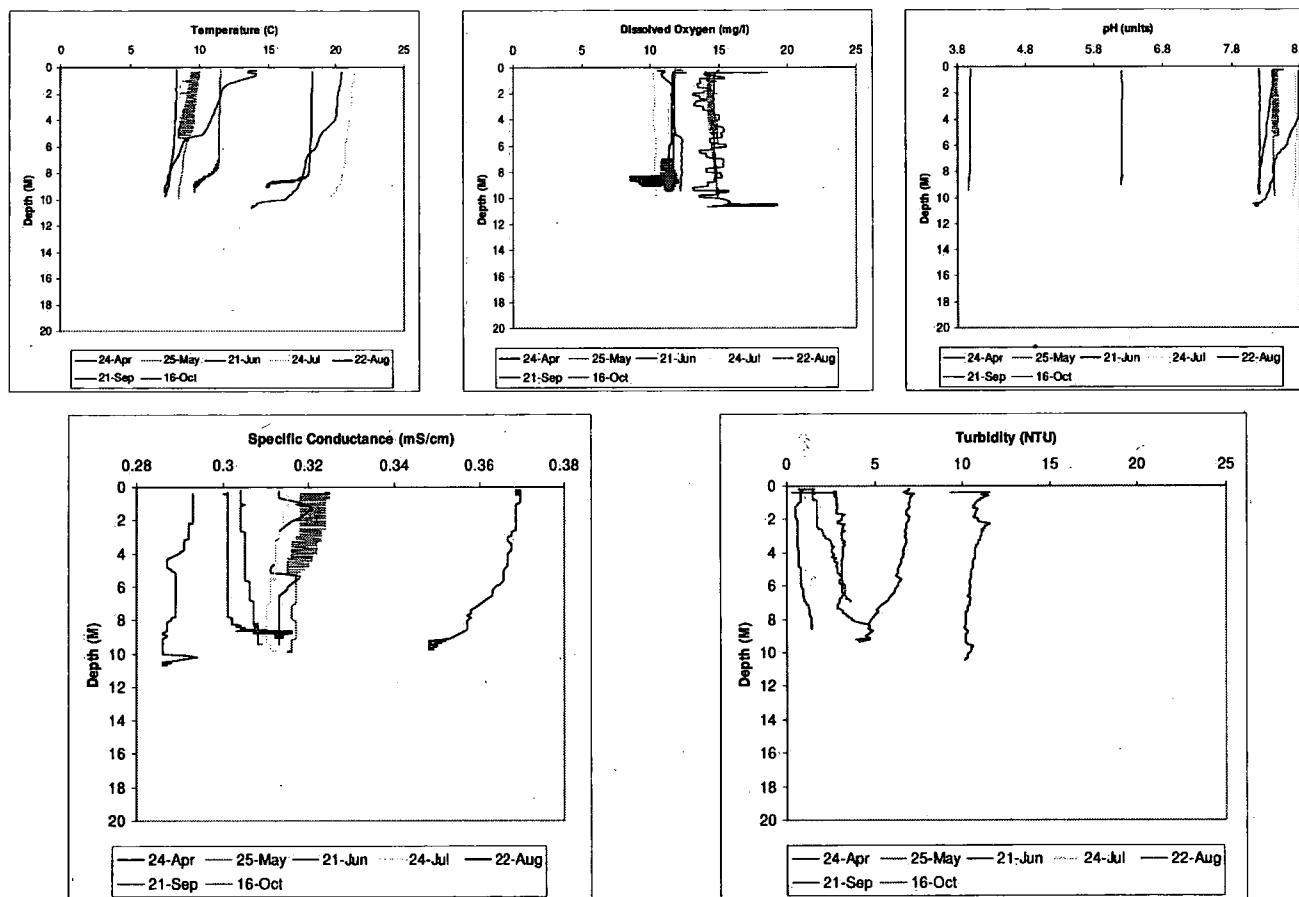


Fig 19. YSI profiles during the water quality surveys at WM3

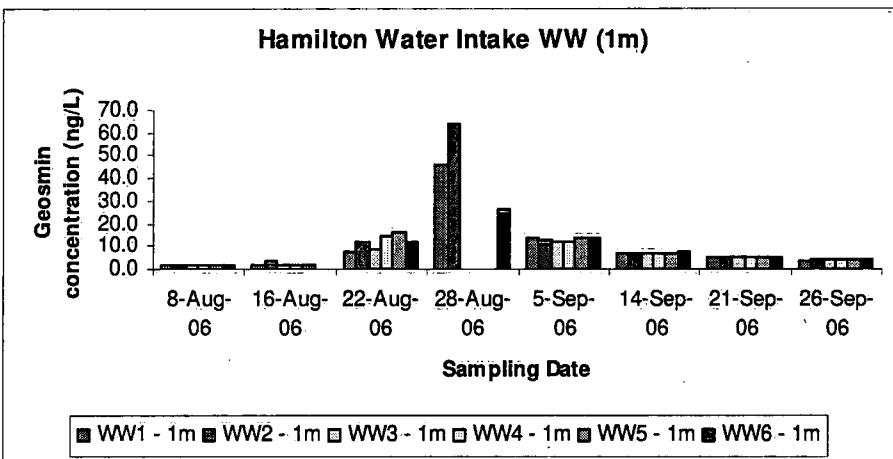


Figure 20a: Geosmin concentrations 1 m below the surface August and September.

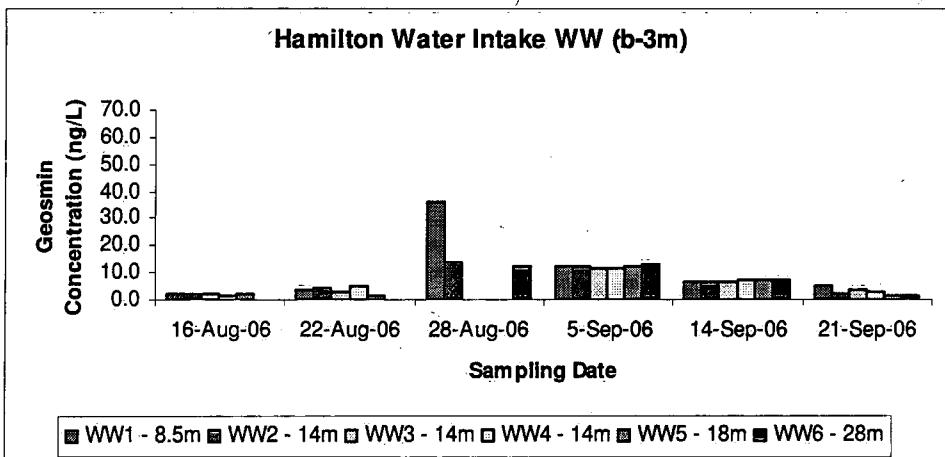


Figure 20b: Geosmin concentrations at 3 m above the bottom during August and September.

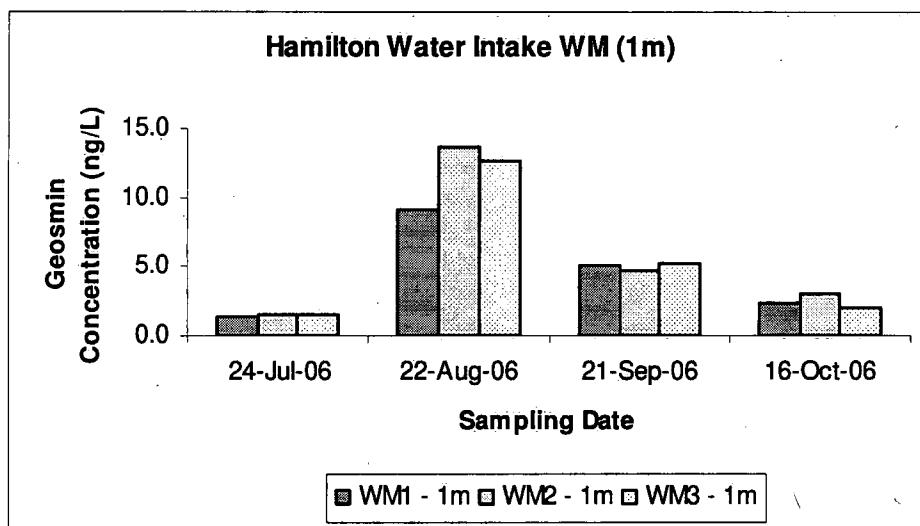


Figure 21a: Geosmin concentrations 1 m below the surface from monthly stations.

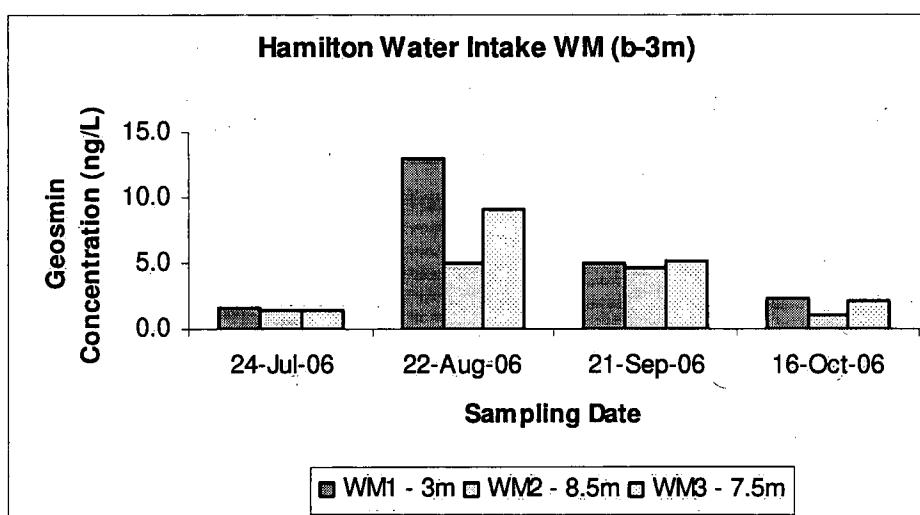


Figure 21b: Geosmin concentrations at 3 m above the bottom from monthly stations.

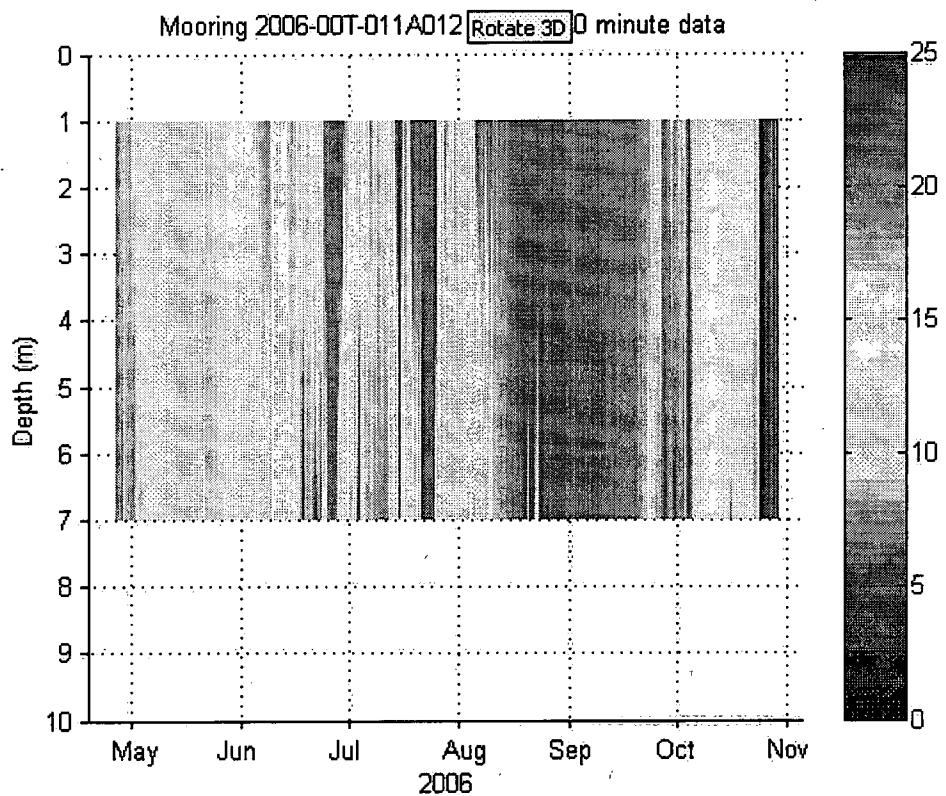


Fig 22a: Time series of temperature over the depth at CM1

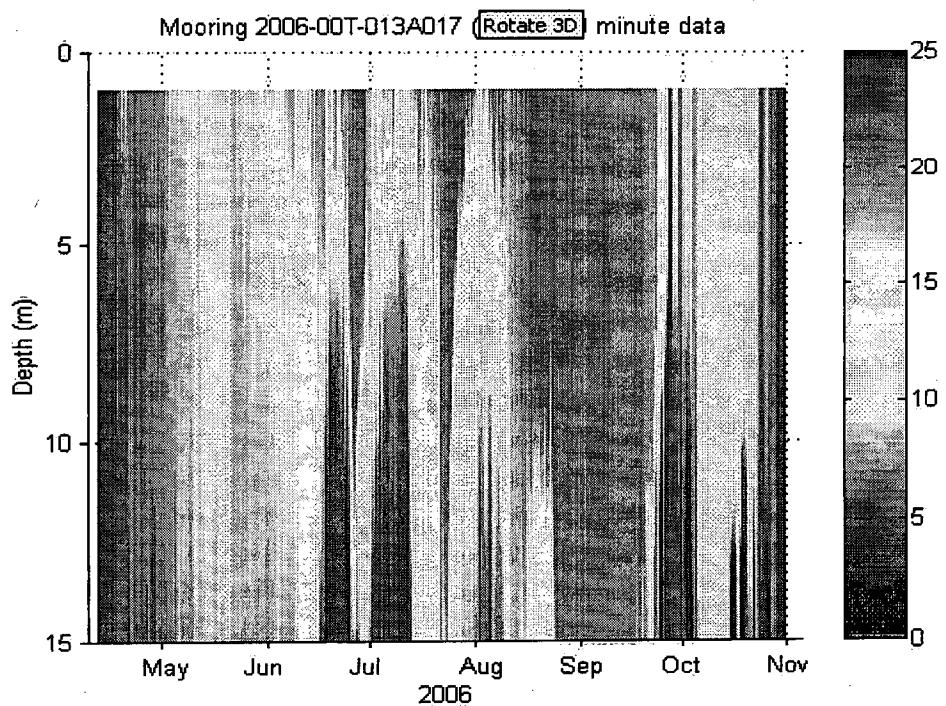


Fig 22b: Time series of temperature over the depth at CM2

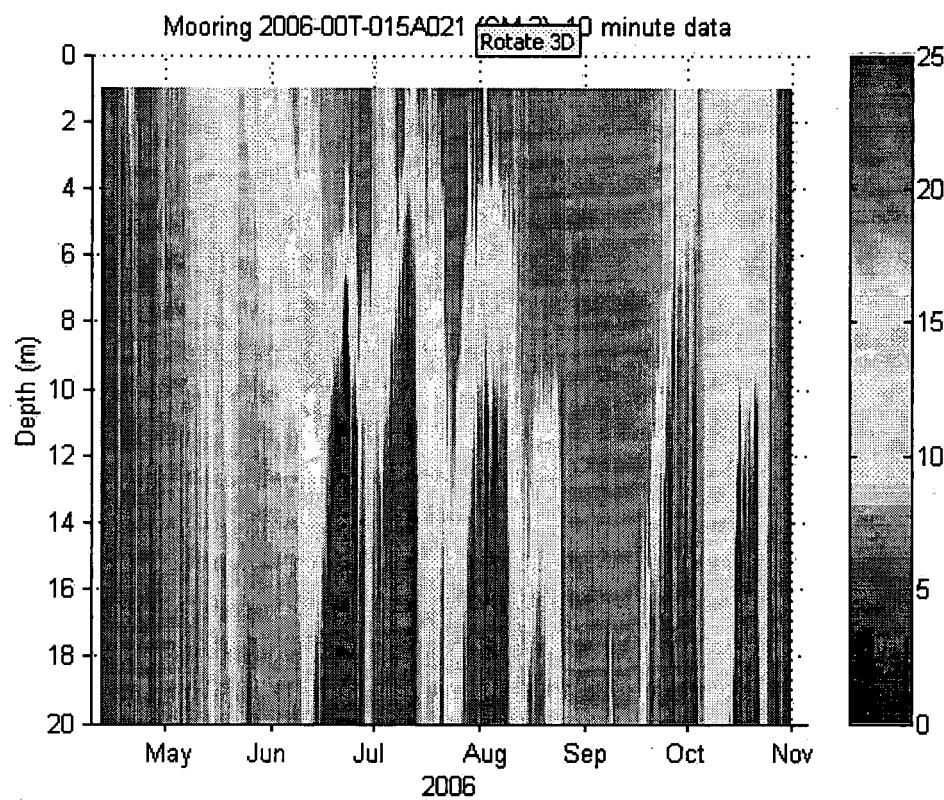


Fig 22c: Time series of temperature over the depth at CM3

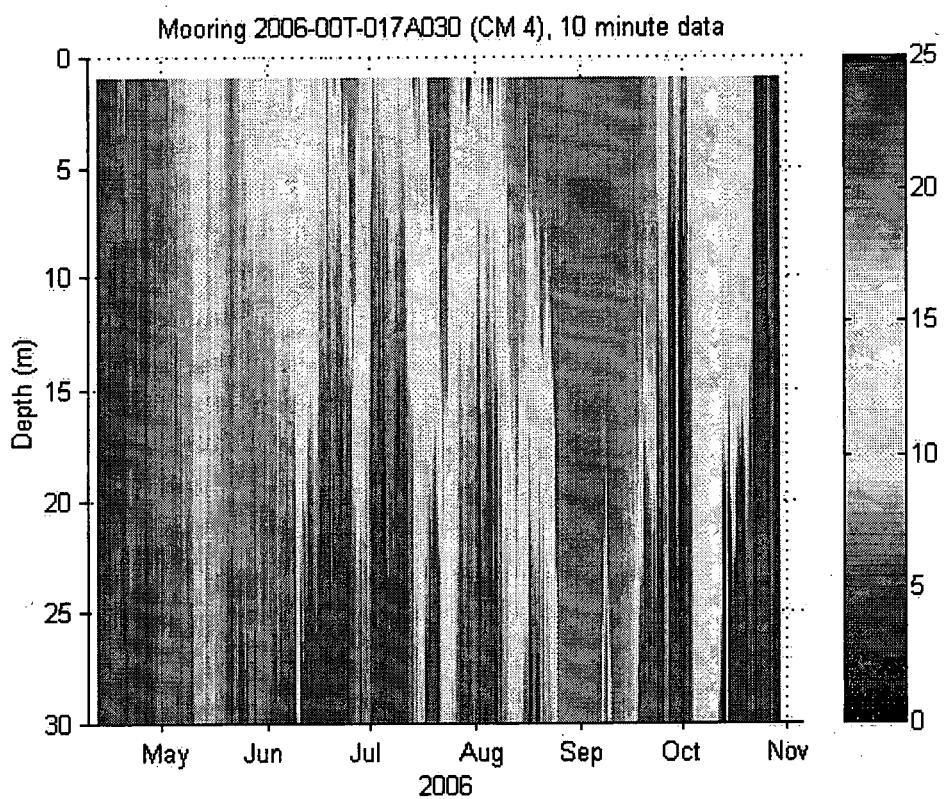


Fig 22d: Time series of temperature over the depth at CM4

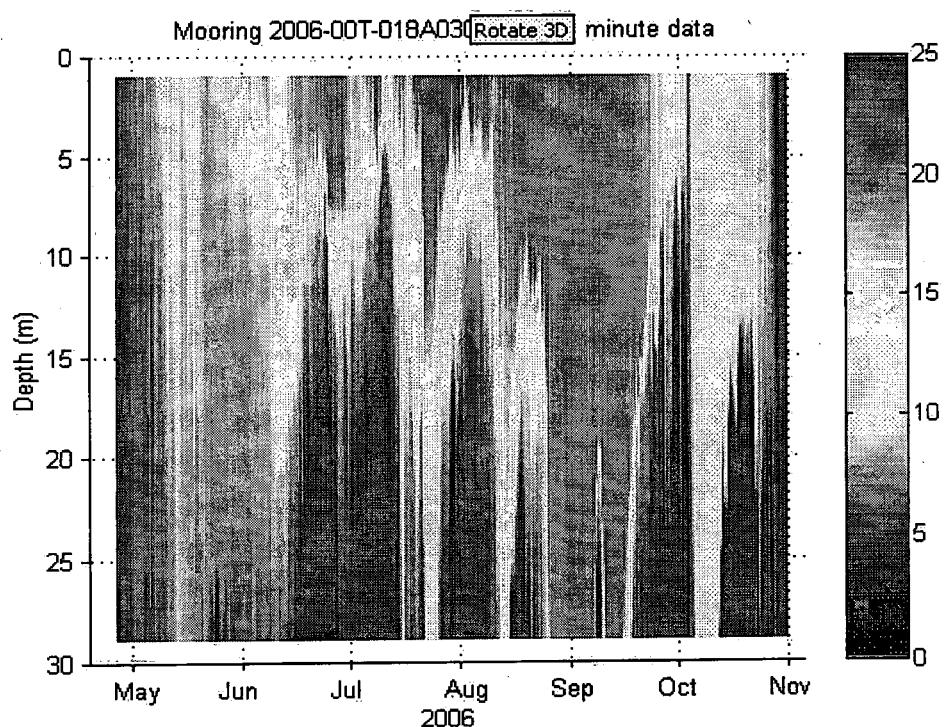


Fig 22e: Time series of temperature over the depth at T5

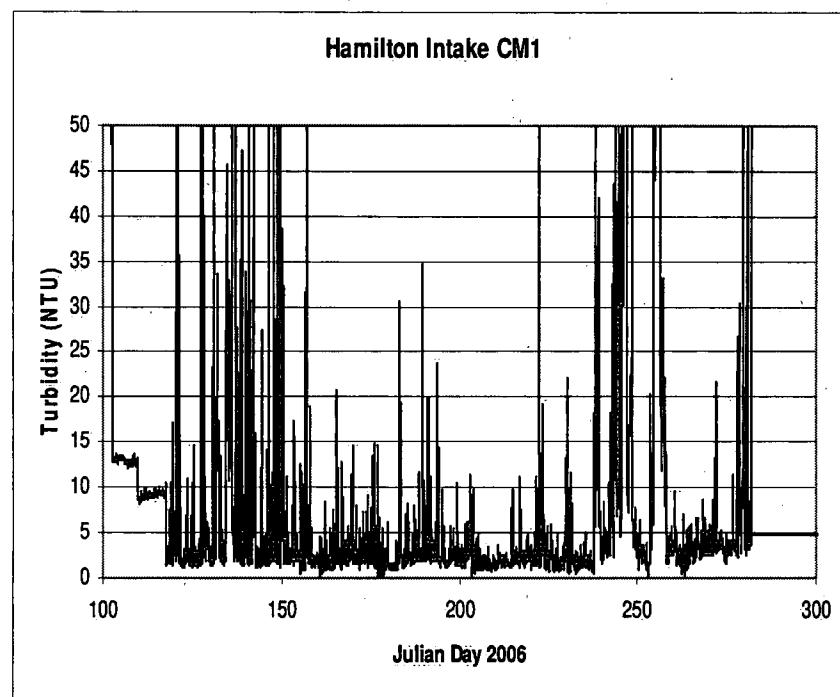


Fig 23a : Time series of turbidity measurements at 1m above bottom at CM1

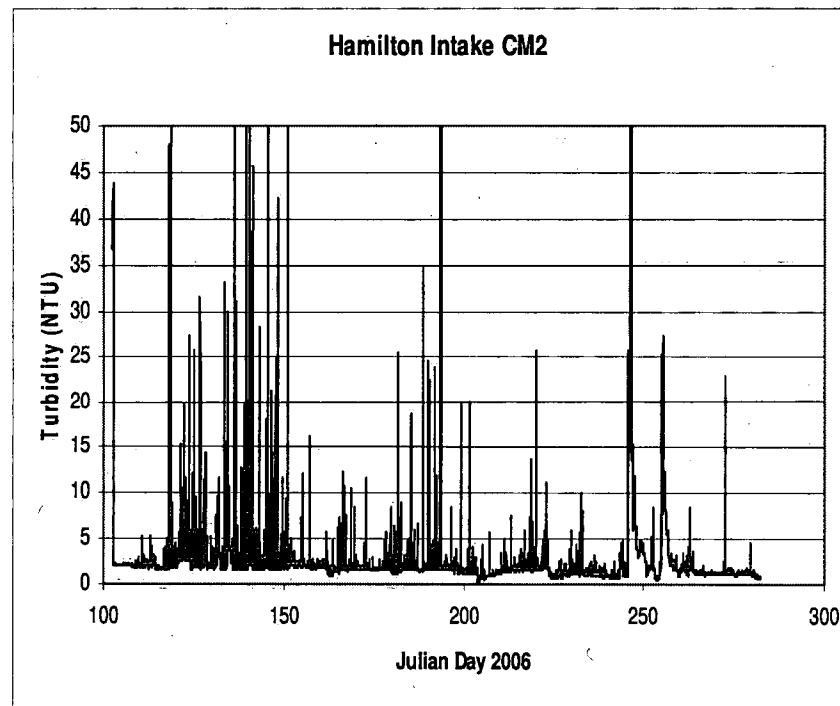


Fig 23b : Time series of turbidity measurements at 1m above bottom at CM2

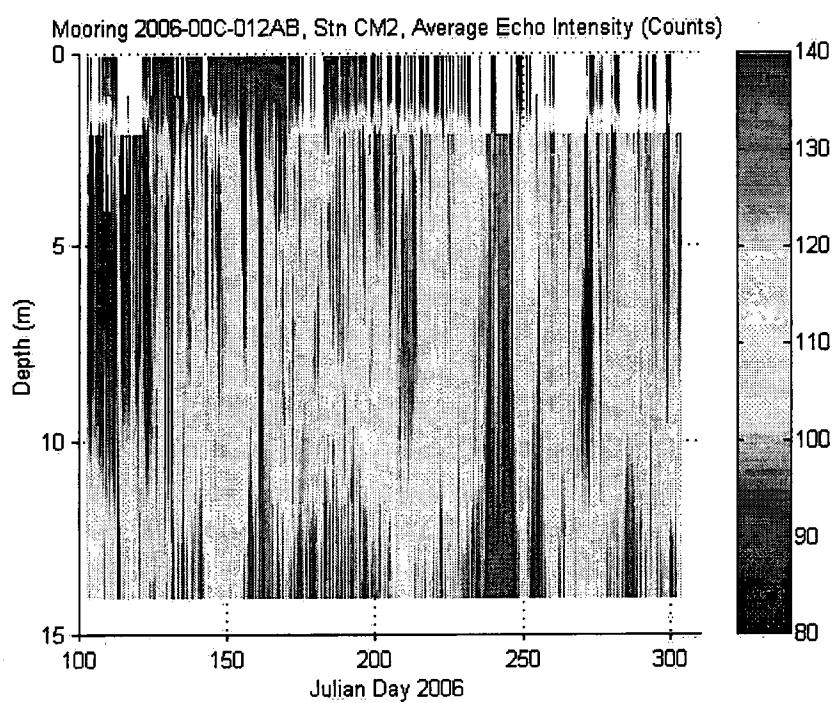
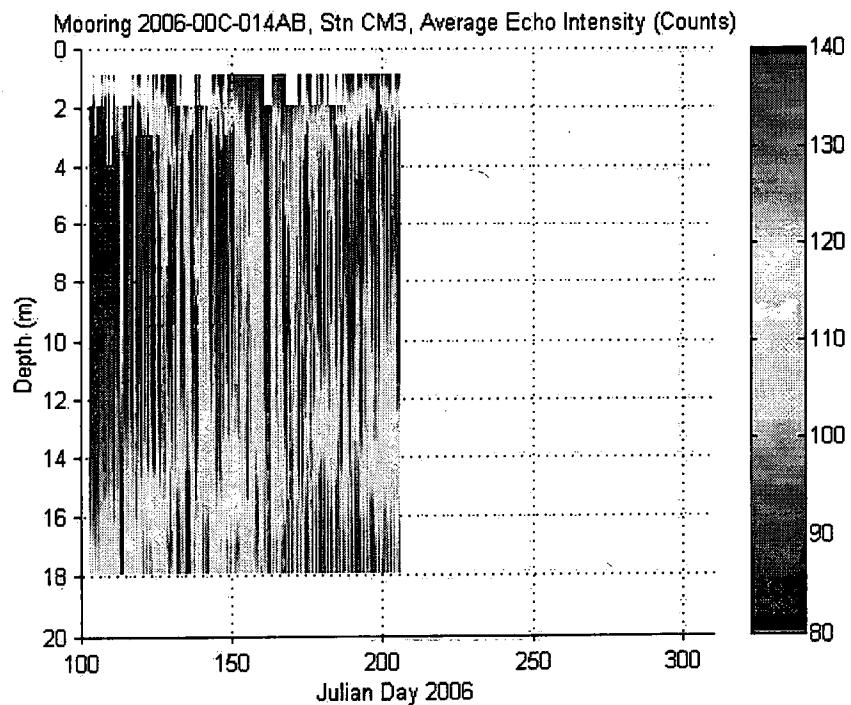
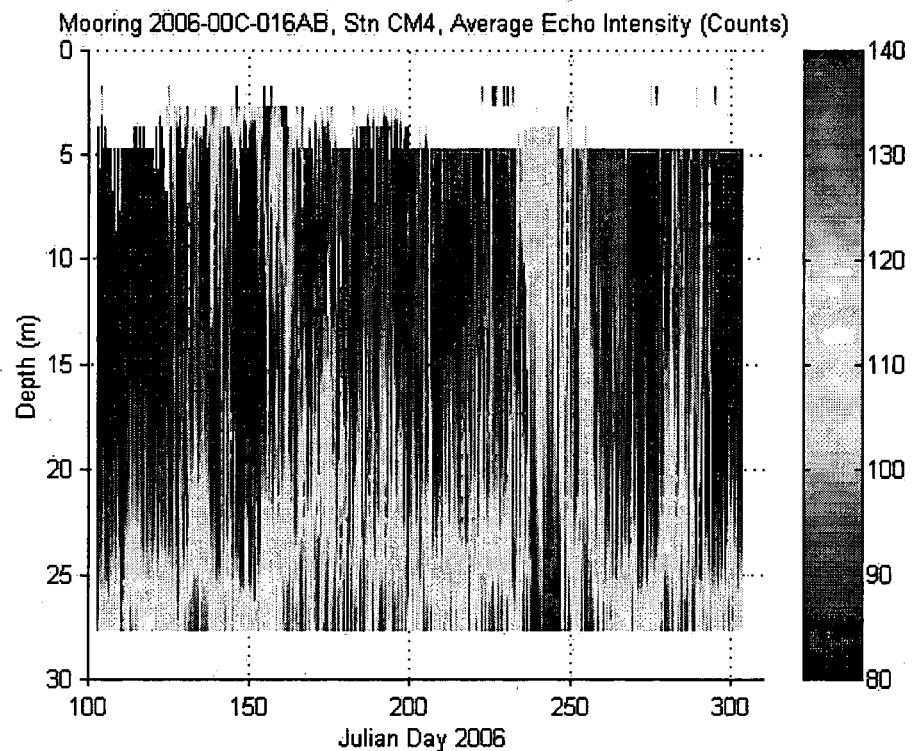


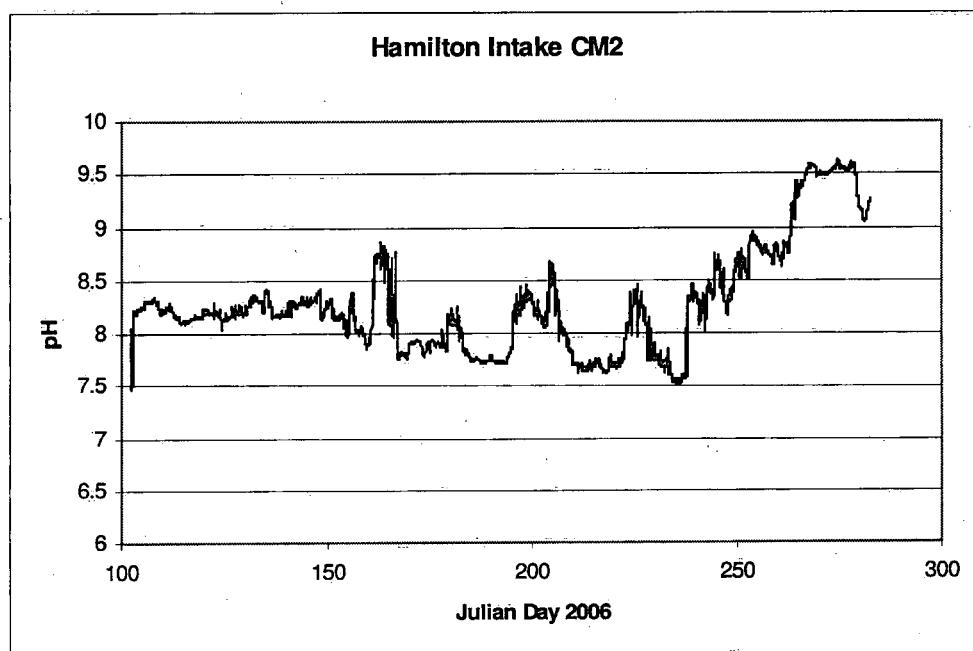
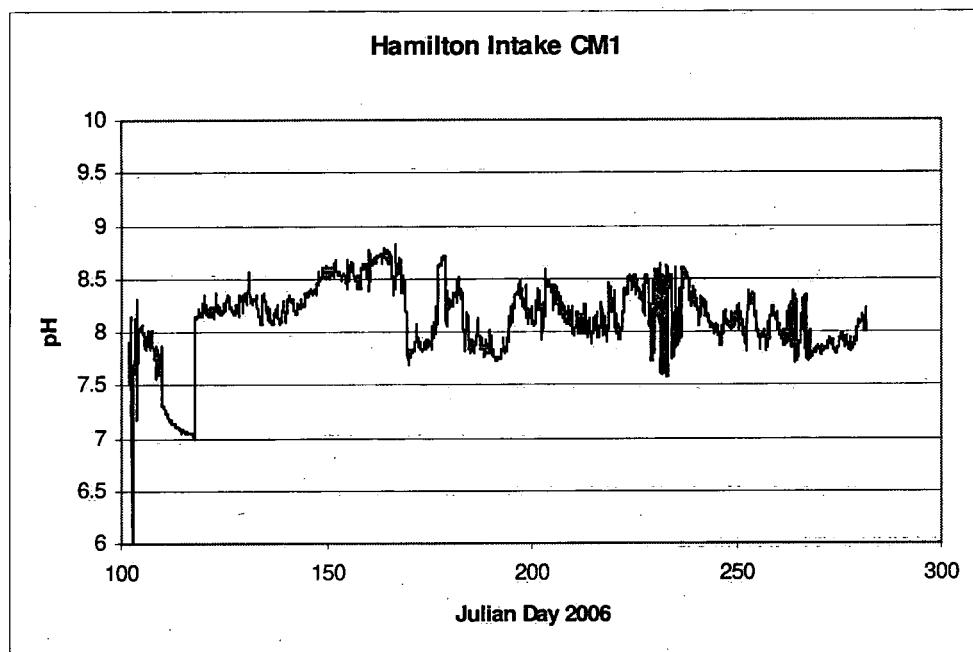
Fig 24a : Time series of acoustic backscatter over the depth from ADCP at CM2



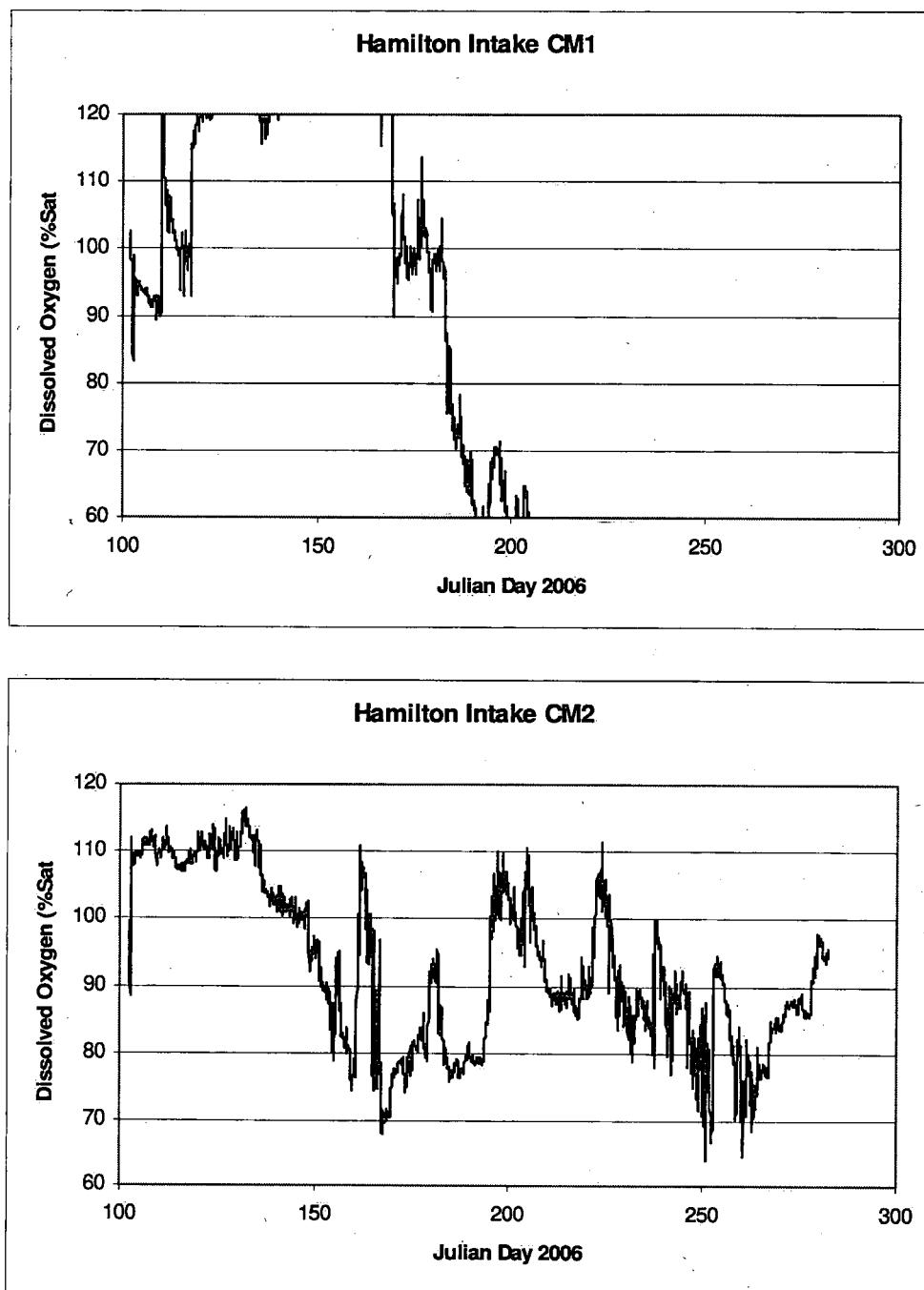
24b : Time series of acoustic backscatter over the depth from ADCP at CM3



24c : Time series of acoustic backscatter over the depth from ADCP at CM1



25a : Time series of pH at CM1 and CM2



25b : Time series of DO at CM1 and CM2

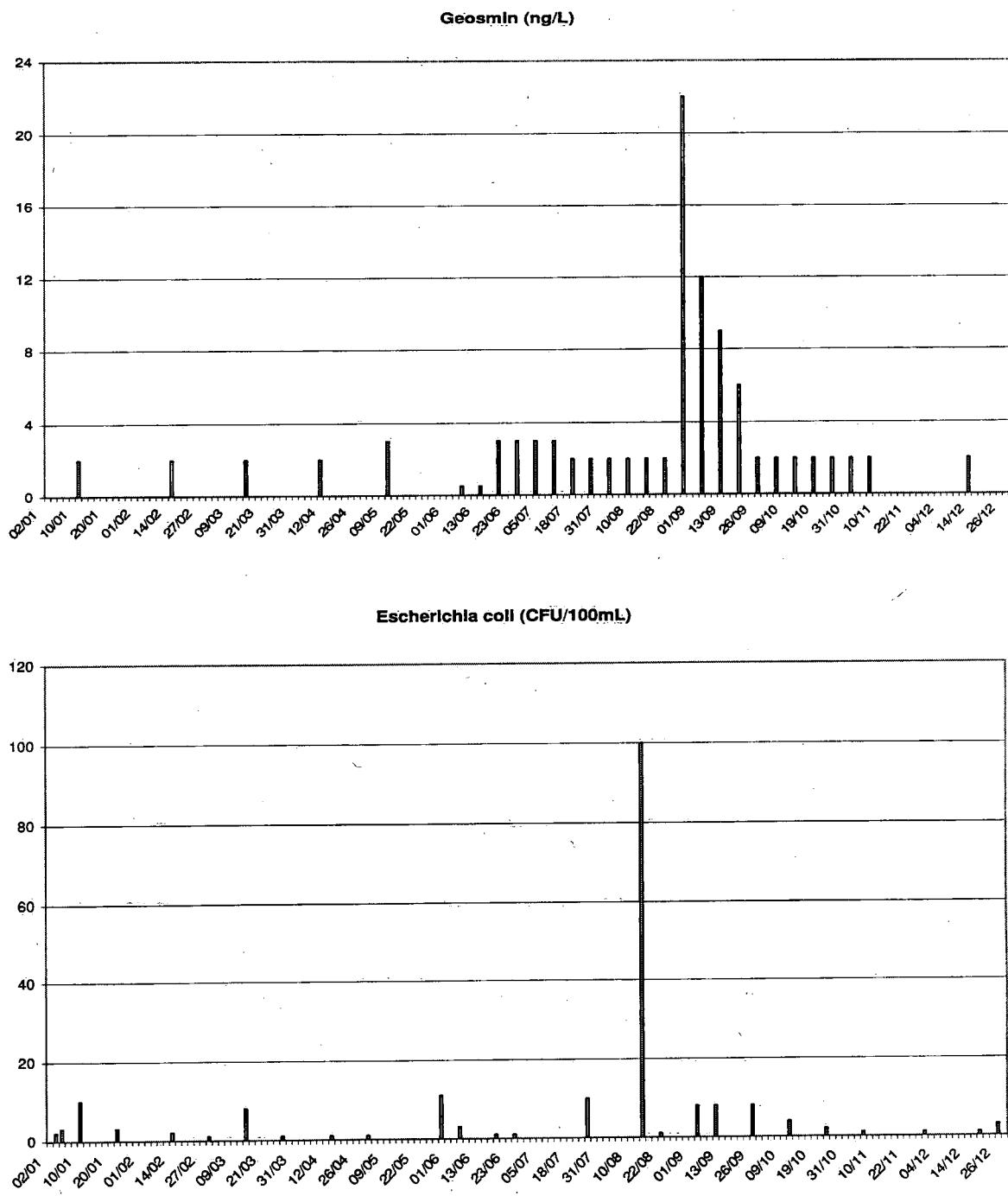


Fig 25c: Plant raw water quality (Geosmin & E coli) at existing intake

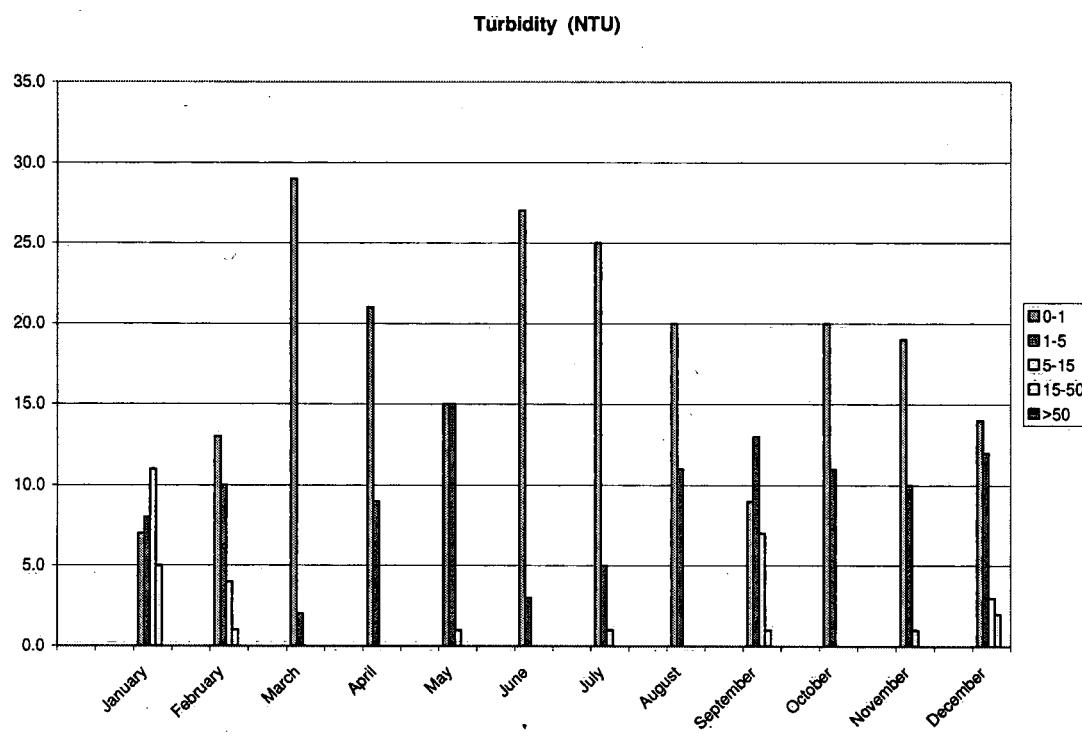
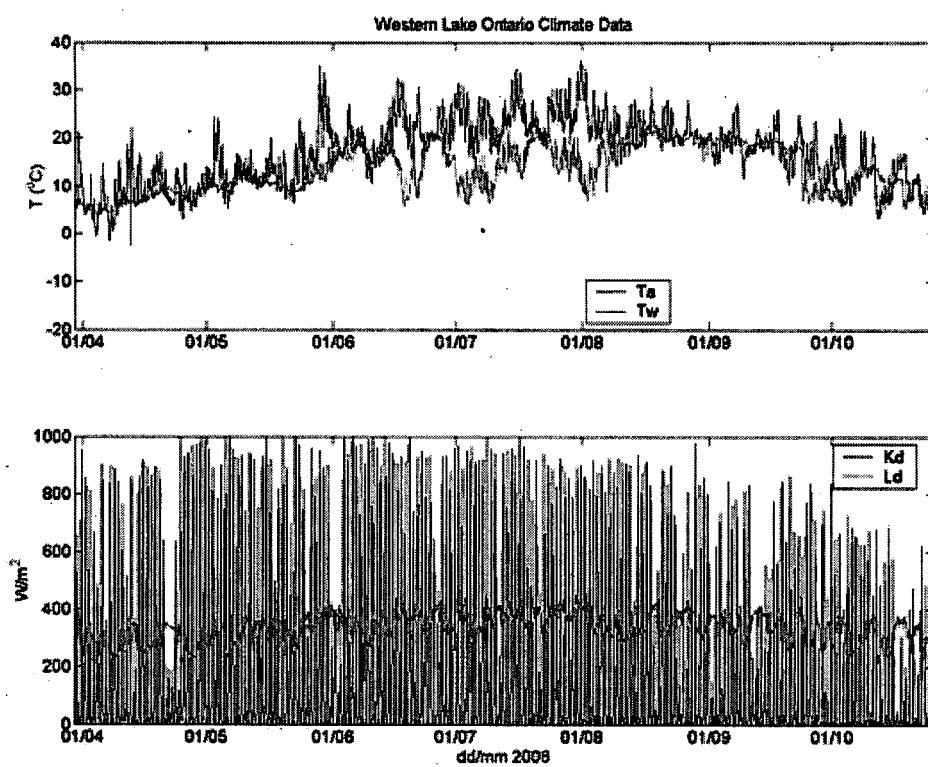


Fig 25d: Plant turbidity (NTU) at the existing intakes

**Annexure (Statistics of winds and currents)**



Air temperature, water temperature and Solar Radiation (short and longwave) at CCIW.

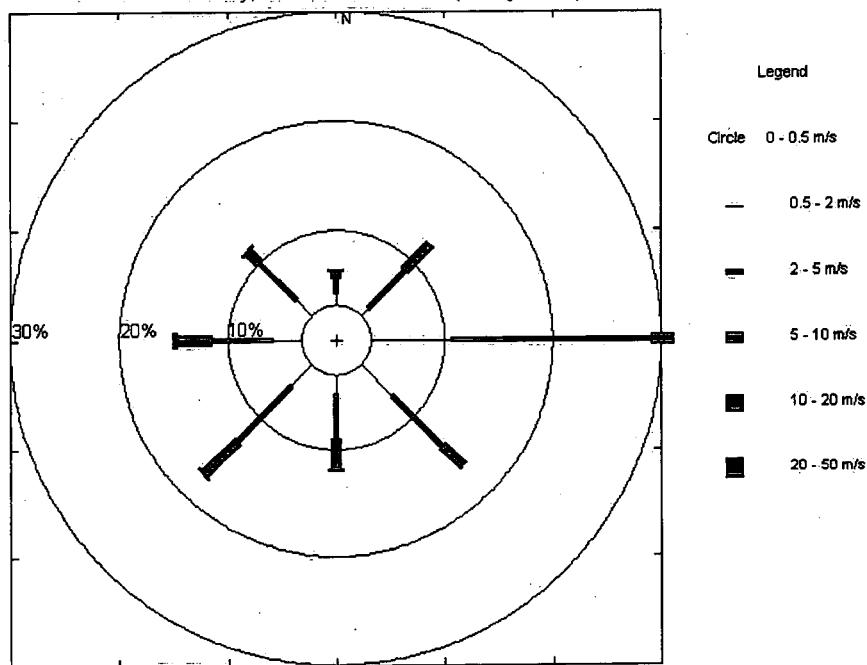
Wind Data, Station 2006-00M-009A (Burlington Pier).  
 First Day 2006/04/01/100  
 Final Day 2006/10/31/2400  
 There are 5136 readings out of a possible 5136.

Direction Deg True	Percent Observed (unit of Speed Category, m/s)					Maximum Speed m/s	Mean Duration hours	Mean Speed m/s
	2	5	10	20	50	Total		
Towards	2	5	10	20	50	Total	m/s	m/s
0.0	1.1	1.4	0.6	0.1	0.0	3.2	12.3	1.4
45.0	0.9	4.9	3.2	0.0	0.0	9.0	9.3	2.5
90.0	7.4	18.6	2.0	0.0	0.0	28.0	8.7	4.0
135.0	4.1	6.5	2.7	0.0	0.0	13.3	10.2	2.3
180.0	1.8	4.0	3.0	0.1	0.0	8.8	10.3	2.2
225.0	2.7	7.1	4.3	0.2	0.0	14.2	12.2	2.7
270.0	2.7	5.6	3.2	0.4	0.0	11.9	15.1	2.5
315.0	2.1	4.8	1.5	0.1	0.0	8.4	13.8	3.4

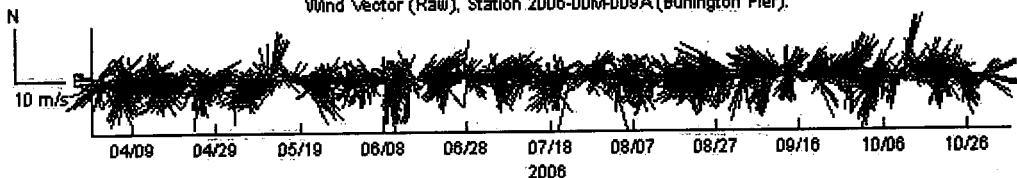
Mean Scalar Speed = 3.5 m/s  
 Mean East Speed = 0.2 m/s, Mean North Speed = -0.6 m/s  
 Mean Velocity = 0.6 m/s, 157 deg true  
 Variance = 8.2 m^2/s^2

Total Percent Observed for each Speed Category (m/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50  
 3.2 22.7 52.9 20.4 0.9 0.0

Wind Rose Summary, Station 2006-00M-009A (Burlington Pier).



Wind Vector (Raw), Station 2006-00M-009A (Burlington Pier).



Wind Data, Station 2006-00M-991A (CCIW Breakwall).  
 First Day 2006/04/01/100  
 Final Day 2006/10/31/2400  
 There are 5136 readings out of a possible 5136.

Direction Deg True	Percent Observed (unit of Speed Category, m/s)						Maximum Speed m/s	Mean Duration hours	Mean Speed m/s
	2	5	10	20	50	Total			
Towards	2	5	10	20	50	Total	m/s	hours	m/s
0.0	0.4	0.6	0.1	0.0	0.0	1.1	7.9	1.1	2.6
45.0	0.3	0.5	1.5	0.1	0.0	2.4	12.5	1.7	5.8
90.0	0.9	8.6	9.4	0.6	0.0	19.5	12.3	2.8	5.3
135.0	3.8	15.4	8.9	0.7	0.0	28.8	13.9	3.5	4.4
180.0	1.8	2.8	1.9	0.0	0.0	6.5	9.7	1.9	3.6
225.0	3.1	7.0	0.7	0.0	0.0	10.7	9.4	2.8	2.8
270.0	4.7	13.7	1.9	0.0	0.0	20.2	10.0	3.6	3.0
315.0	1.8	6.6	0.7	0.1	0.0	9.3	10.2	2.4	3.0

Mean Scalar Speed = 4.0 m/s

Mean East Speed = 1.1 m/s, Mean North Speed = -1.0 m/s

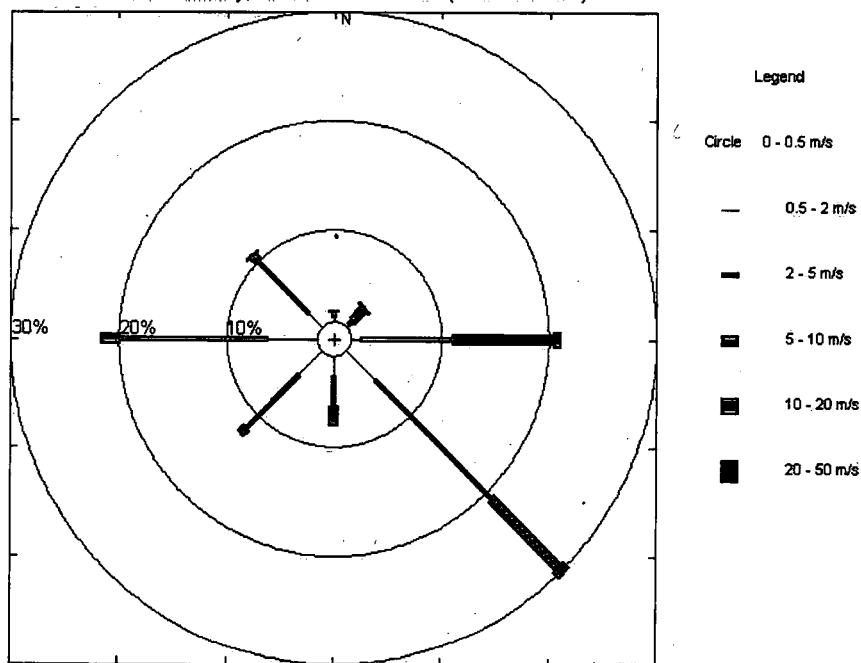
Mean Velocity = 1.5 m/s, 133 deg true

Variance = 9.3 m^2/s^2

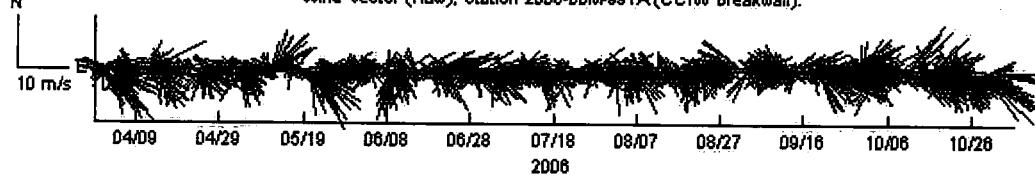
Total Percent Observed for each Speed Category (m/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50
1.6	16.7	55.1	25.1	1.5	0.0

Wind Rose Summary, Station 2006-00M-991A (CCIW Breakwall).



Wind Vector (Raw), Station 2006-00M-991A (CCIW Breakwall).



Mooring 2006-00C-019AB (Stn CM1), Hydra depth: 10 m.

First Day 2006/04/27/1600

Final Day 2006/10/30/1500

There are 4447 readings out of a possible 4471.

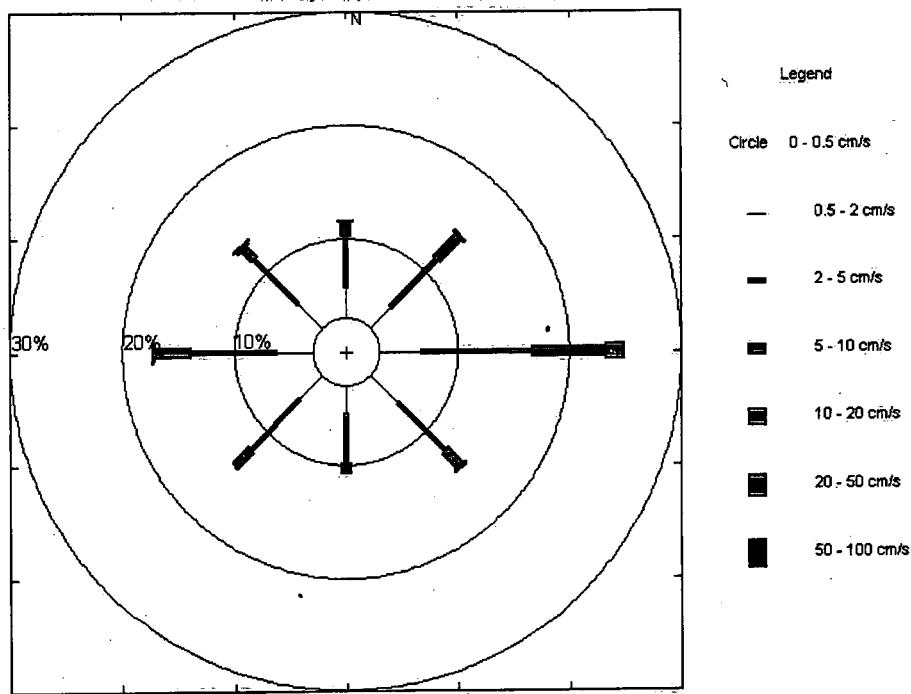
Direction Deg True	Observed (unit of Current Category, cm/s)	Percent	Maximum Current	Mean Dura- tion	Mean Excur- sion	Mean Current
-----------------------	---	---------	--------------------	-----------------------	------------------------	-----------------

Towards	2	5	10	20	50	100	Total	cm/s	hours	km	cm/s
0.0	2.7	4.6	1.2	0.1	0.0	0.0	8.7	29.4	1.3	0.2	3.2
45.0	2.5	6.0	2.8	0.2	0.0	0.0	11.5	16.7	1.9	0.3	3.7
90.0	3.7	10.0	6.5	1.7	0.0	0.0	21.9	24.4	2.8	0.5	4.8
135.0	3.5	5.9	1.9	0.1	0.0	0.0	11.5	12.8	1.8	0.2	3.2
180.0	2.5	4.3	0.9	0.0	0.0	0.0	7.7	9.4	1.5	0.1	2.8
225.0	2.9	6.3	2.0	0.0	0.0	0.0	11.1	8.7	1.8	0.2	3.2
270.0	3.3	7.6	3.2	0.2	0.0	0.0	14.3	20.3	2.1	0.3	3.7
315.0	3.1	5.6	1.3	0.2	0.1	0.0	10.3	22.4	2.0	0.2	3.3

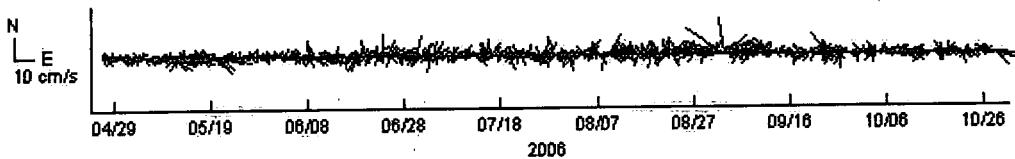
Mean Scalar Speed = 3.7 cm/s  
 Mean East Speed = 0.6 cm/s, Mean North Speed = 0.1 cm/s  
 Mean Velocity = 0.6 cm/s, 84 deg true  
 Variance = 10.0 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 3.0 24.2 50.3 19.8 2.6 0.2 0.0

Current Rose Summary, 2006-00C-019AB (Stn CM1)



Current Vector (Raw), 2006-00C-019AB (Stn CM1)



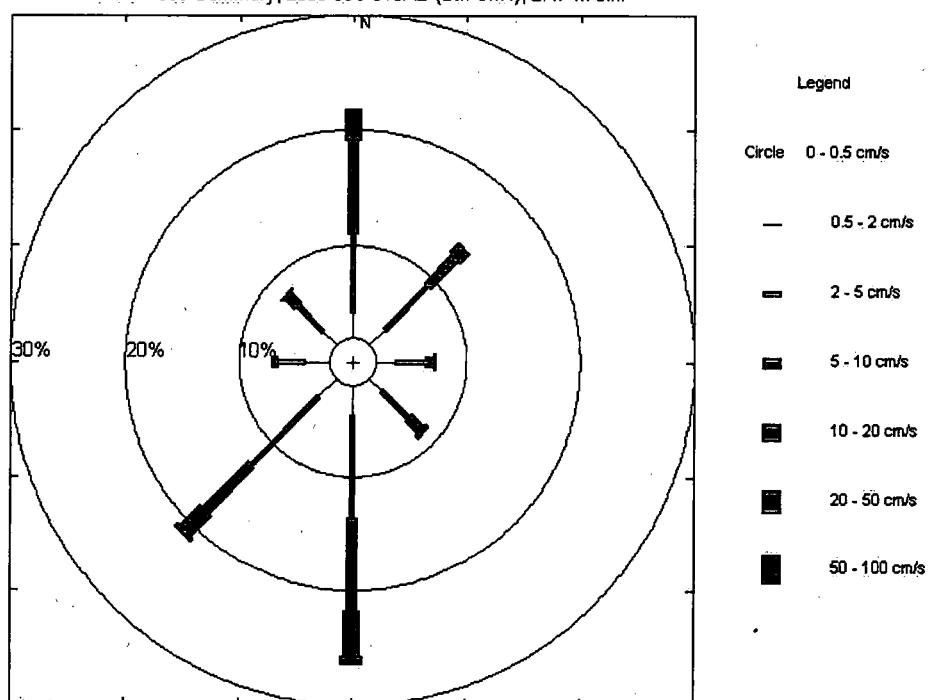
Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 27.7 metres.  
 First Day 2006/04/12/1900  
 Final Day 2006/10/30/1800  
 There are 4803 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	2.2	6.8	8.0	2.7	0.0	0.0	19.7	19.7	2.0	0.4
45.0	1.9	5.4	3.4	1.1	0.0	0.0	11.7	23.1	2.1	0.4
90.0	1.6	2.7	0.8	0.1	0.0	0.0	5.2	13.7	1.5	0.2
135.0	1.5	3.3	1.5	0.3	0.0	0.0	6.6	18.9	1.6	0.2
180.0	2.6	9.0	8.1	4.0	0.6	0.0	24.3	31.2	2.8	0.7
225.0	2.2	8.3	5.7	2.4	0.3	0.0	19.0	25.7	2.4	0.5
270.0	2.1	2.5	0.5	0.0	0.0	0.0	5.1	10.1	1.5	0.1
315.0	1.7	3.2	1.3	0.1	0.0	0.0	6.2	12.6	1.6	0.2

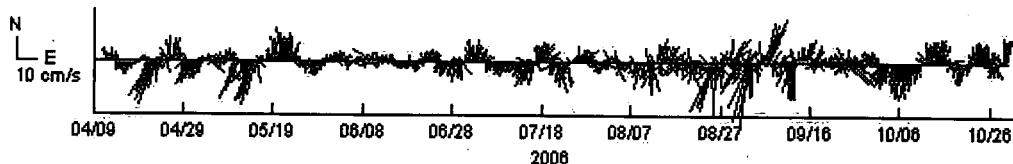
Mean Scalar Speed = 5.4 cm/s  
 Mean East Speed = -0.3 cm/s, Mean North Speed = -0.9 cm/s  
 Mean Velocity = 0.9 cm/s, 199 deg true  
 Variance = 22.5 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 2.1 15.9 41.1 29.2 10.7 1.0 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 27.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 27.7 m bin.



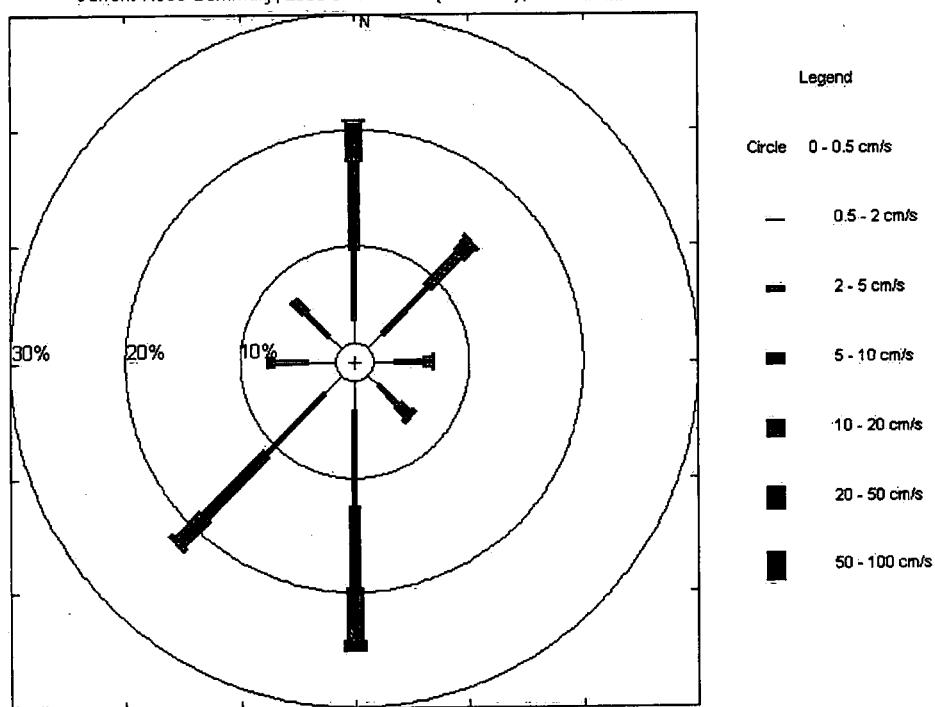
Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 26.7 metres.  
 First Day 2006/04/12/1900  
 Final Day 2006/10/30/1800  
 There are 4804 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	2.0	5.9	7.7	3.4	0.1	0.0	19.2	24.4	2.0	0.5
45.0	1.8	5.6	3.9	1.4	0.2	0.0	12.9	24.0	2.3	0.5
90.0	1.8	2.6	0.8	0.1	0.0	0.0	5.2	17.1	1.7	0.2
135.0	1.2	2.4	1.2	0.3	0.0	0.0	5.2	21.0	1.6	0.2
180.0	2.5	8.3	7.1	4.6	0.9	0.0	23.4	33.8	2.8	0.7
225.0	2.2	7.2	7.6	3.1	0.4	0.0	20.5	26.9	2.5	0.6
270.0	2.4	3.0	0.6	0.0	0.0	0.0	6.1	9.3	1.6	0.2
315.0	1.6	2.8	1.4	0.0	0.0	0.0	5.9	12.3	1.5	0.2

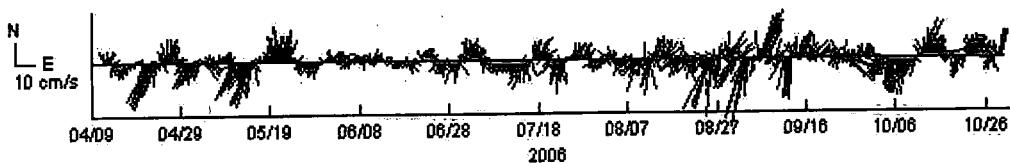
Mean Scalar Speed = 5.8 cm/s  
 Mean East Speed = -0.4 cm/s, Mean North Speed = -0.9 cm/s  
 Mean Velocity = 1.0 cm/s, 205 deg true  
 Variance = 26.2 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.6 15.5 37.9 30.3 13.0 1.6 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 26.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 26.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 25.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)	Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
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Towards	2	5	10	20	50	100	Total	cm/s	tion hours	sion km	cm/s
0.0	1.8	5.7	7.4	3.9	0.1	0.0	19.0	26.7	2.1	0.5	6.6
45.0	1.9	6.2	4.0	2.1	0.5	0.0	14.6	28.1	2.5	0.6	6.3
90.0	1.5	2.2	0.9	0.1	0.0	0.0	4.7	20.2	1.5	0.2	3.5
135.0	1.3	2.2	1.0	0.2	0.0	0.0	4.7	21.0	1.5	0.2	4.0
180.0	2.4	6.6	7.1	4.7	0.8	0.0	21.6	35.3	2.6	0.7	7.5
225.0	2.1	7.5	8.4	4.3	0.5	0.0	22.8	32.8	2.6	0.6	6.8
270.0	1.6	3.2	1.0	0.0	0.0	0.0	5.8	11.6	1.5	0.2	3.2
315.0	1.8	2.5	1.0	0.0	0.0	0.0	5.3	12.8	1.5	0.2	3.2

Mean Scalar Speed = 6.1 cm/s

Mean East Speed = -0.5 cm/s, Mean North Speed = -0.9 cm/s

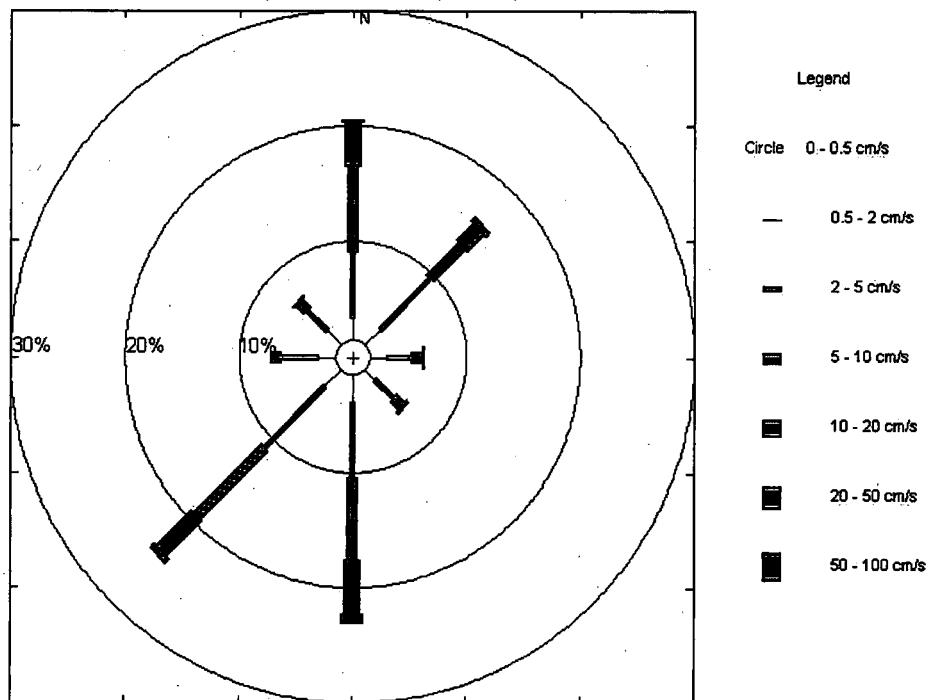
Mean Velocity = 1.0 cm/s, 210 deg true

Variance = 29.5 cm^2/s^2

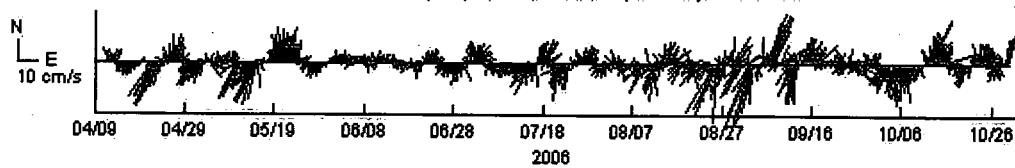
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.5	14.3	36.1	30.7	15.4	1.9	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 25.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 25.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 24.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

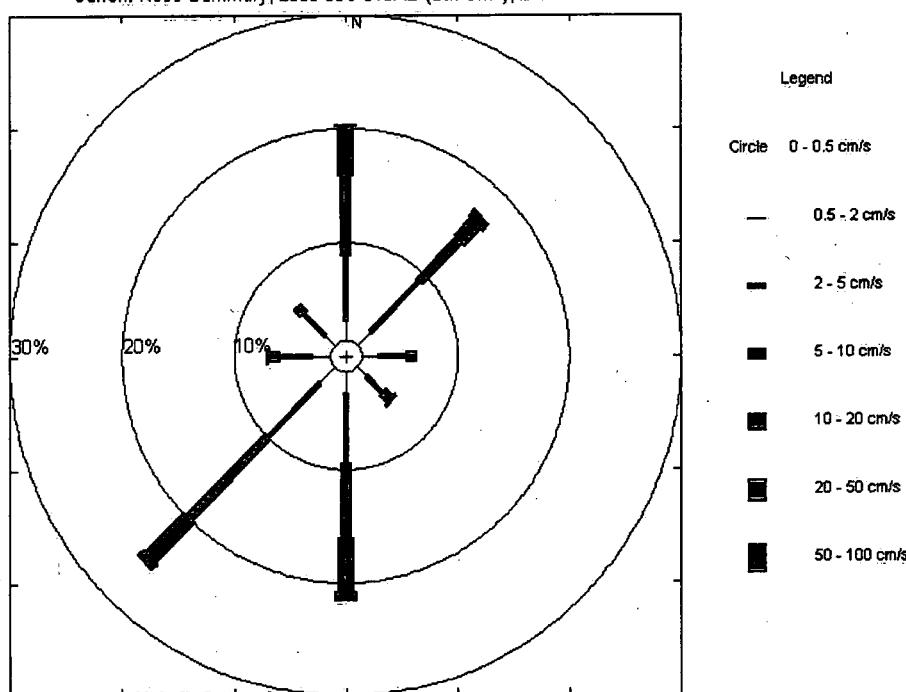
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current	Mean Duration	Mean Excursion	Mean Current	
Towards	2	5	10	20	50	100	Total	cm/s	hours	km	cm/s
0.0	1.8	5.8	6.9	4.4	0.0	0.0	18.9	22.7	2.1	0.5	6.9

45.0	1.6	6.3	5.1	2.1	0.8	0.0	15.8	31.1	2.6	0.6	6.6
90.0	1.5	2.5	0.9	0.1	0.0	0.0	4.9	23.5	1.5	0.2	3.5
135.0	1.1	2.1	0.9	0.2	0.0	0.0	4.3	19.8	1.7	0.2	3.9
180.0	1.9	6.1	6.6	4.7	0.8	0.0	20.1	34.3	2.6	0.7	7.7
225.0	2.0	6.5	10.0	4.9	0.7	0.0	24.1	34.1	2.9	0.8	7.4
270.0	1.7	2.9	1.0	0.1	0.0	0.0	5.7	13.5	1.6	0.2	3.2
315.0	1.3	2.7	0.8	0.0	0.0	0.0	4.8	11.3	1.6	0.2	3.3

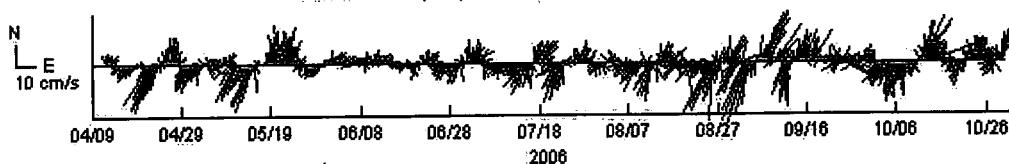
Mean Scalar Speed = 6.4 cm/s  
 Mean East Speed = -0.5 cm/s, Mean North Speed = -0.8 cm/s  
 Mean Velocity = 1.0 cm/s, 212 deg true  
 Variance = 32.5 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.4 12.9 34.9 32.1 16.5 2.3 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 24.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 24.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 23.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4804 readings out of a possible 4824.

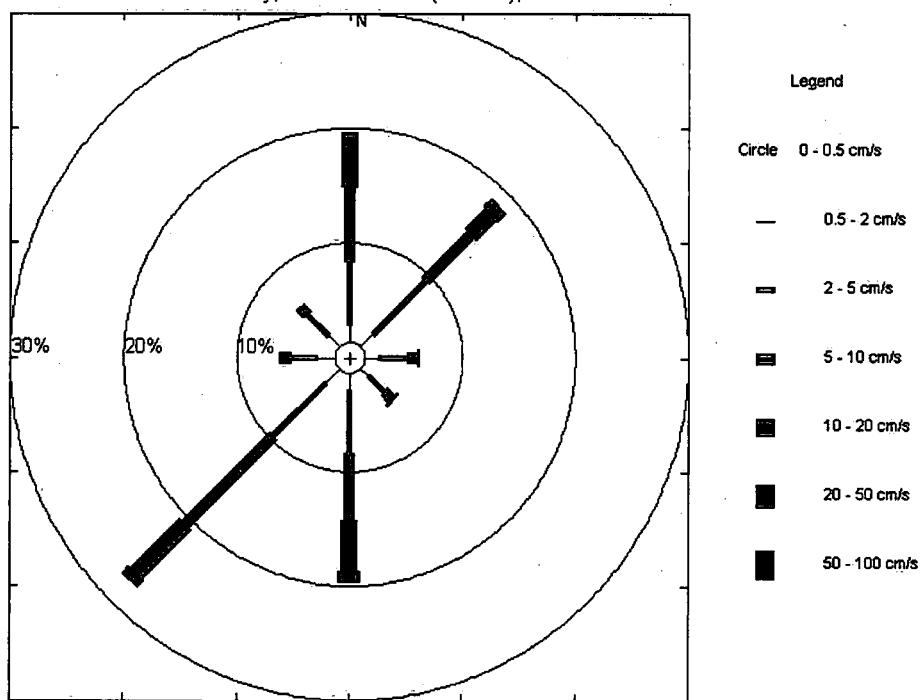
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.6	5.4	6.5	4.7	0.1	0.0	18.3	22.0	2.2	0.6
45.0	1.6	6.6	5.7	2.6	0.9	0.0	17.3	32.1	2.7	0.7
90.0	1.2	2.6	0.9	0.1	0.0	0.0	4.8	19.2	1.6	0.2
135.0	1.0	1.9	0.9	0.1	0.0	0.0	4.0	14.4	1.6	0.2
180.0	1.6	5.4	5.9	4.4	1.0	0.0	18.3	33.7	2.6	0.8

225.0	1.8	6.6	11.0	6.1	0.7	0.0	26.1	34.6	3.4	1.0	7.9
270.0	1.6	2.2	1.0	0.1	0.0	0.0	5.0	11.3	1.5	0.2	3.3
315.0	1.4	2.6	0.7	0.0	0.0	0.0	4.9	11.4	1.6	0.2	3.2

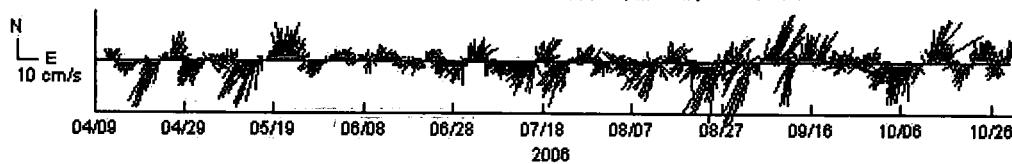
Mean Scalar Speed = 6.8 cm/s  
 Mean East Speed = -0.6 cm/s, Mean North Speed = -0.8 cm/s  
 Mean Velocity = 1.0 cm/s, 215 deg true  
 Variance = 35.4 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.3 11.7 33.5 32.7 18.1 2.6 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 23.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 23.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 22.7 metres.

First Day 2006/04/12/1900  
 Final Day 2006/10/30/1800

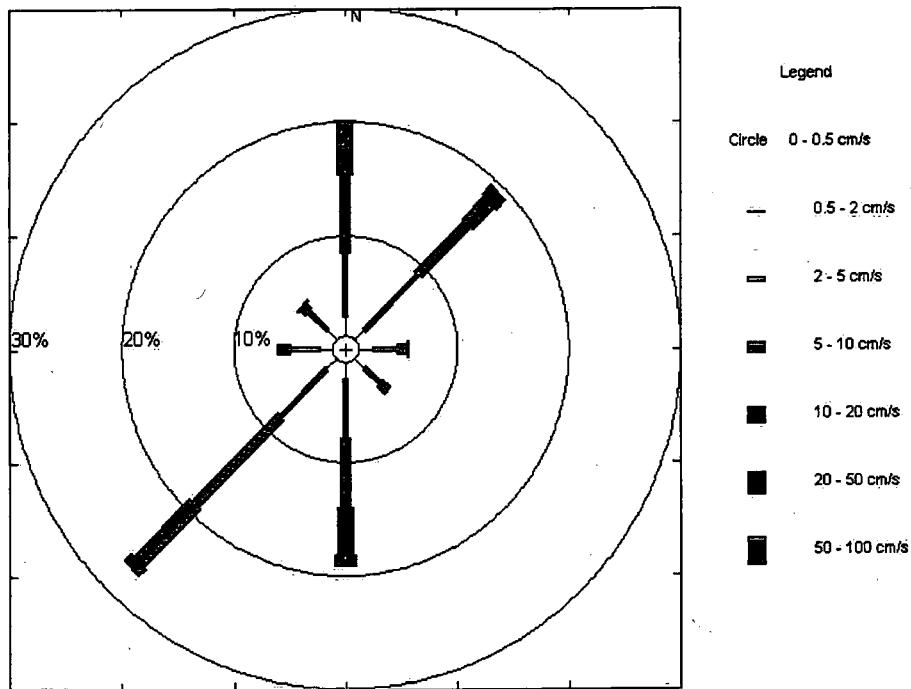
There are 4804 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
0.0	1.8	5.5	6.9	4.6	0.1	0.0	19.0	24.1	2.1	0.5	7.2
45.0	1.2	6.9	6.3	2.8	1.1	0.0	18.2	33.7	2.8	0.8	7.4
90.0	1.2	2.2	0.9	0.1	0.0	0.0	4.4	23.2	1.5	0.2	3.5
135.0	1.2	1.9	0.9	0.0	0.0	0.0	4.1	13.2	1.5	0.2	3.5
180.0	1.5	5.2	6.1	4.2	0.9	0.0	17.9	34.1	2.4	0.7	8.1
225.0	1.3	5.9	10.8	7.1	0.8	0.0	25.9	36.1	3.4	1.0	8.5
270.0	1.2	2.6	1.1	0.1	0.0	0.0	5.0	12.0	1.6	0.2	3.7
315.0	1.3	2.3	0.7	0.1	0.0	0.0	4.3	13.0	1.5	0.2	3.3

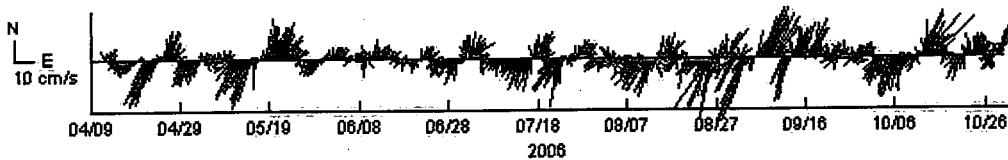
Mean Scalar Speed = 7.1 cm/s  
 Mean East Speed = -0.6 cm/s, Mean North Speed = -0.8 cm/s  
 Mean Velocity = 1.0 cm/s, 219 deg true  
 Variance = 38.4 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.2 10.7 32.6 33.6 18.9 3.1 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 22.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 22.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 21.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration. hours	Mean Excursion. km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.9	5.6	6.5	4.9	0.2	0.0	19.2	23.4	2.2	0.6
45.0	1.3	6.1	7.1	3.2	1.3	0.0	19.1	35.2	3.2	0.9
90.0	1.2	2.1	0.7	0.0	0.0	0.0	4.1	24.4	1.6	0.2
135.0	1.1	1.7	0.6	0.1	0.0	0.0	3.5	12.4	1.5	0.2
180.0	1.1	4.9	5.8	4.3	0.9	0.0	17.0	34.8	2.5	0.8
225.0	1.1	5.7	10.7	8.3	1.1	0.0	27.0	34.7	3.9	1.2
270.0	1.2	2.6	1.0	0.1	0.0	0.0	4.9	11.5	1.8	0.2
315.0	1.1	2.2	0.6	0.0	0.0	0.0	4.0	10.4	1.6	0.2

Mean Scalar Speed = 7.4 cm/s

Mean East Speed = -0.6 cm/s, Mean North Speed = -0.7 cm/s

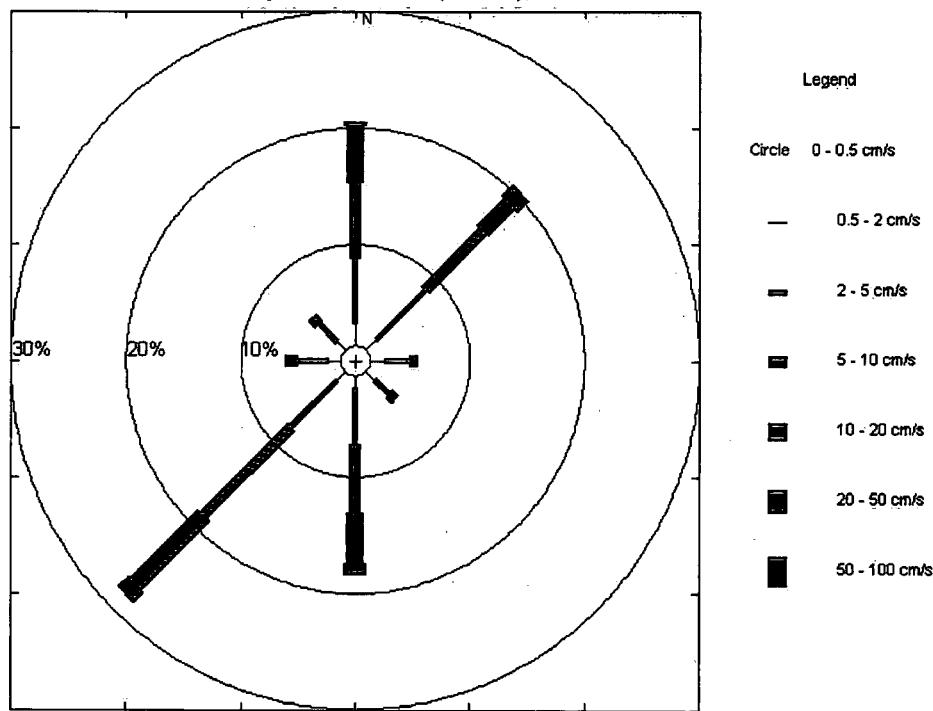
Mean Velocity = 1.0 cm/s, 221 deg true

Variance = 41.7 cm<sup>2</sup>/s<sup>2</sup>

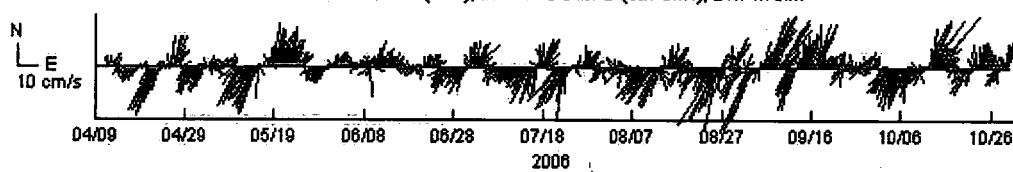
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.3	10.0	31.0	33.1	21.0	3.6	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 21.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 21.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 20.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4804 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards											
0.0	1.3	5.3	6.9	5.2	0.3	0.0	19.0	22.7	2.1	0.6	7.6
45.0	1.2	5.4	7.8	3.5	1.5	0.0	19.4	33.9	3.1	0.9	8.4
90.0	1.3	2.1	0.9	0.0	0.0	0.0	4.3	11.7	1.6	0.2	3.3
135.0	1.0	1.8	0.4	0.0	0.0	0.0	3.2	10.3	1.4	0.2	3.2
180.0	0.9	4.5	5.5	4.2	0.8	0.0	15.9	33.6	2.3	0.7	8.4
225.0	0.9	5.5	10.7	9.2	1.6	0.0	27.8	35.7	3.7	1.3	9.5
270.0	1.1	2.8	1.1	0.0	0.0	0.0	5.1	13.5	1.8	0.2	3.6
315.0	1.1	2.2	0.6	0.0	0.0	0.0	4.0	10.2	1.5	0.2	3.2

Mean Scalar Speed = 7.7 cm/s

Mean East Speed = -0.7 cm/s, Mean North Speed = -0.7 cm/s

Mean Velocity = 1.0 cm/s, 223 deg true

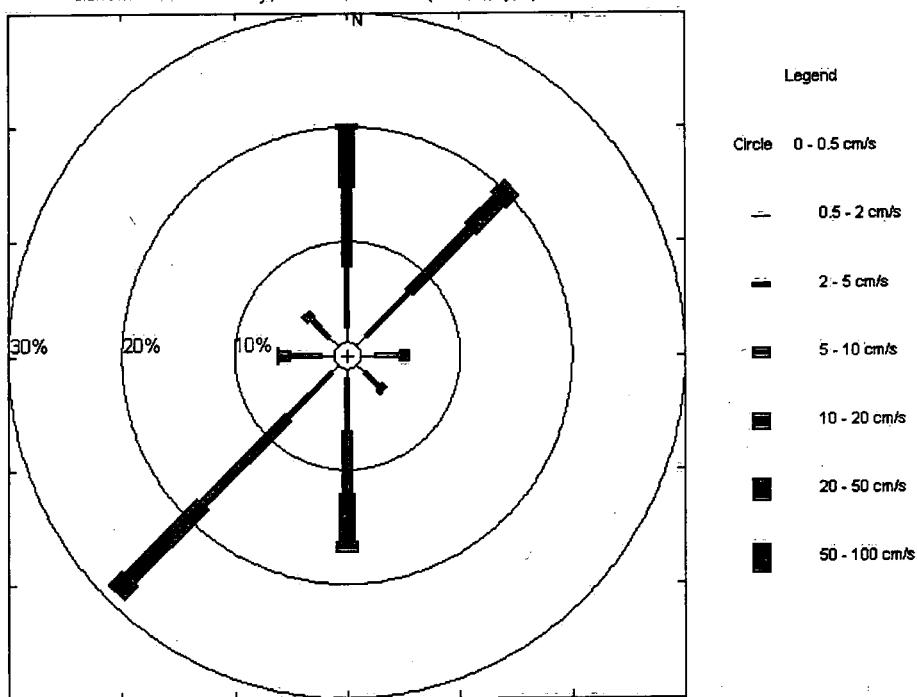
Variance = 45.1 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)

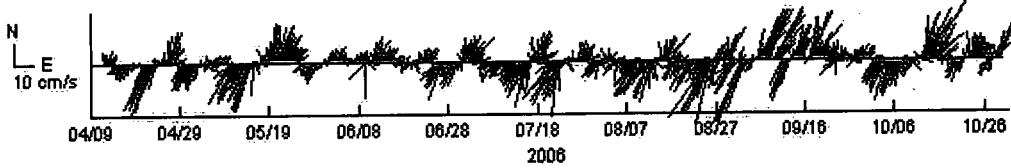
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.3	10.0	31.0	33.1	21.0	3.6	0.0

1.2 8.9 29.7 33.9 22.2 4.2 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 20.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 20.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 19.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.8	5.6	6.5	5.1	0.3	0.0	19.3	24.9	2.1	0.6
45.0	1.5	4.8	7.7	4.6	1.8	0.0	20.5	33.2	3.3	1.1
90.0	1.3	1.7	0.6	0.1	0.0	0.0	3.7	12.7	1.5	0.2
135.0	0.9	1.5	0.5	0.0	0.0	0.0	2.9	11.0	1.5	0.2
180.0	0.9	3.9	5.8	4.4	0.9	0.0	15.8	34.5	2.2	0.7
225.0	0.9	5.0	10.7	9.2	2.1	0.0	27.9	35.4	3.7	1.3
270.0	1.0	2.7	1.0	0.1	0.0	0.0	4.9	13.0	1.8	0.2
315.0	1.2	2.1	0.5	0.0	0.0	0.0	3.9	9.2	1.6	0.2

Mean Scalar Speed = 8.0 cm/s

Mean East Speed = -0.7 cm/s, Mean North Speed = -0.7 cm/s

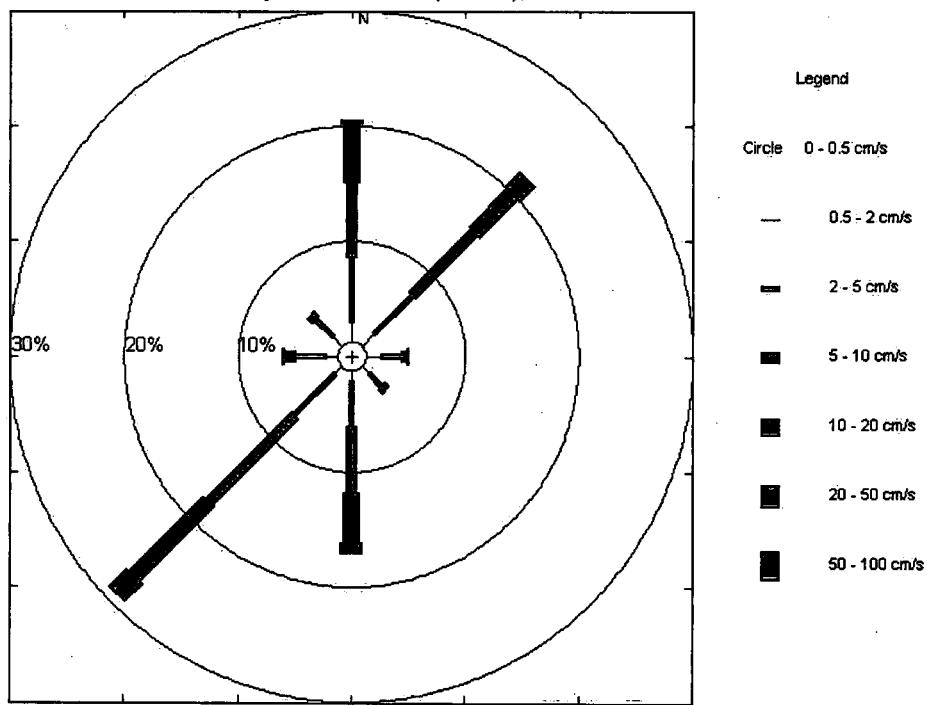
Mean Velocity = 0.9 cm/s, 226 deg true

Variance = 48.9 cm^2/s^2

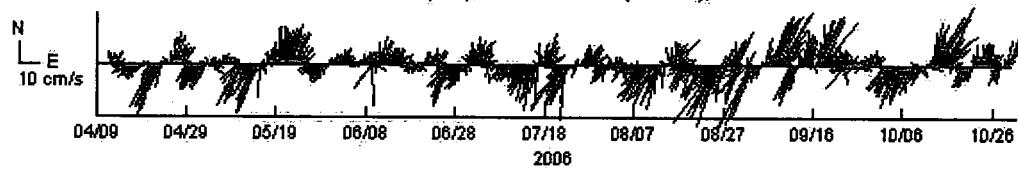
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.2	9.5	27.4	33.3	23.5	5.1	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 19.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 19.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 18.7 metres.

First Day 2006/04/12/1900

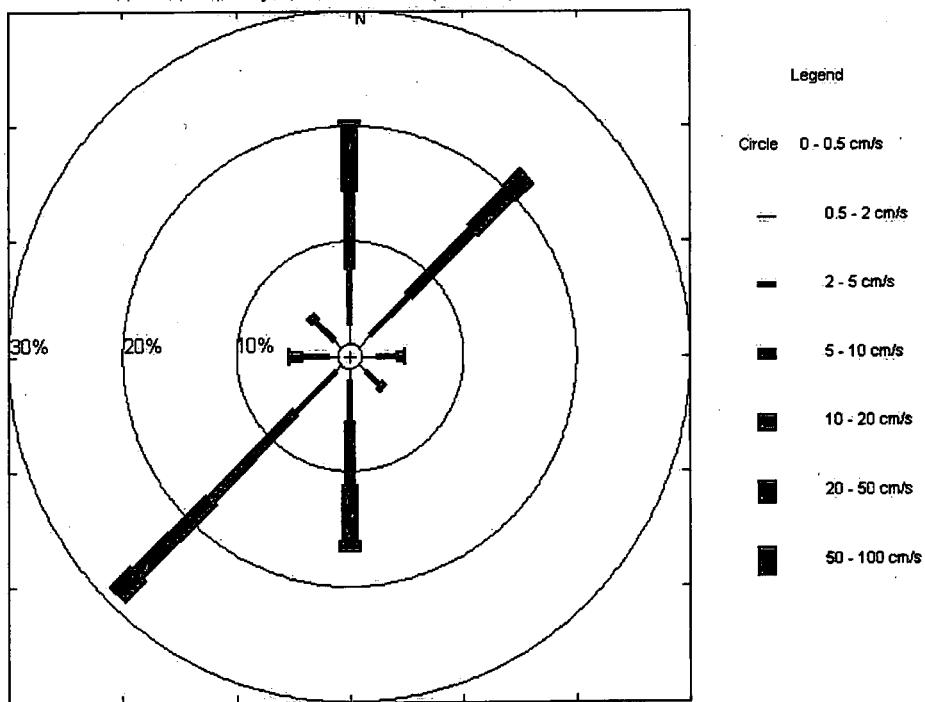
Final Day 2006/10/30/1800

There are 4804 readings out of a possible 4824.

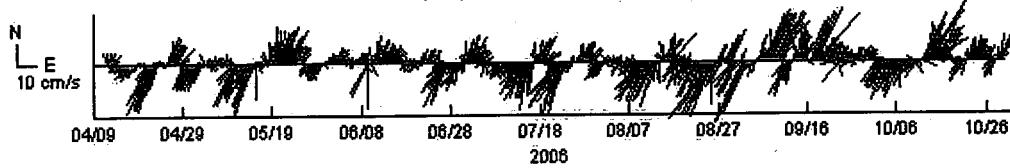
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.7	4.9	6.8	5.6	0.5	0.0	19.4	27.4	2.1	0.6
45.0	1.5	4.8	8.0	4.5	2.1	0.0	21.0	34.4	3.2	1.1
90.0	1.3	1.8	0.6	0.1	0.0	0.0	3.7	11.7	1.6	0.2
135.0	0.8	1.6	0.4	0.0	0.0	0.0	2.9	10.0	1.5	0.2
180.0	1.0	3.6	5.6	4.8	1.0	0.0	15.9	34.8	2.4	0.8
225.0	0.8	5.0	10.5	9.1	2.5	0.0	27.9	35.6	3.9	1.4
270.0	0.9	2.3	1.2	0.1	0.0	0.0	4.4	12.5	1.7	0.2
315.0	1.0	2.2	0.6	0.0	0.0	0.0	3.8	9.0	1.5	0.2
Mean Scalar Speed =	8.3 cm/s									
Mean East Speed =	-0.7 cm/s, Mean North Speed =									
Mean Velocity =	0.9 cm/s, 228 deg true									
Variance =	53.0 cm^2/s^2									

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.1 8.8 26.2 33.7 24.0 6.1 0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 18.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 18.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 17.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4804 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.4	5.0	6.7	5.1	0.7	0.0	18.8	30.7	2.0	0.6
45.0	1.6	5.1	7.6	5.4	2.3	0.0	21.9	34.3	3.3	1.1
90.0	1.0	1.9	0.7	0.0	0.0	0.0	3.6	12.9	1.5	0.2
135.0	0.9	1.1	0.5	0.0	0.0	0.0	2.5	9.4	1.4	0.2
180.0	0.8	3.4	5.5	4.9	1.1	0.0	15.6	34.1	2.3	0.8
225.0	1.0	4.3	10.4	9.4	2.8	0.0	27.9	36.8	3.9	1.5
270.0	0.8	2.3	1.1	0.1	0.0	0.0	4.4	11.3	1.7	0.2
315.0	1.1	2.6	0.5	0.0	0.0	0.0	4.2	10.3	1.7	0.2

Mean Scalar Speed = 8.6 cm/s

Mean East Speed = -0.6 cm/s, Mean North Speed = -0.5 cm/s

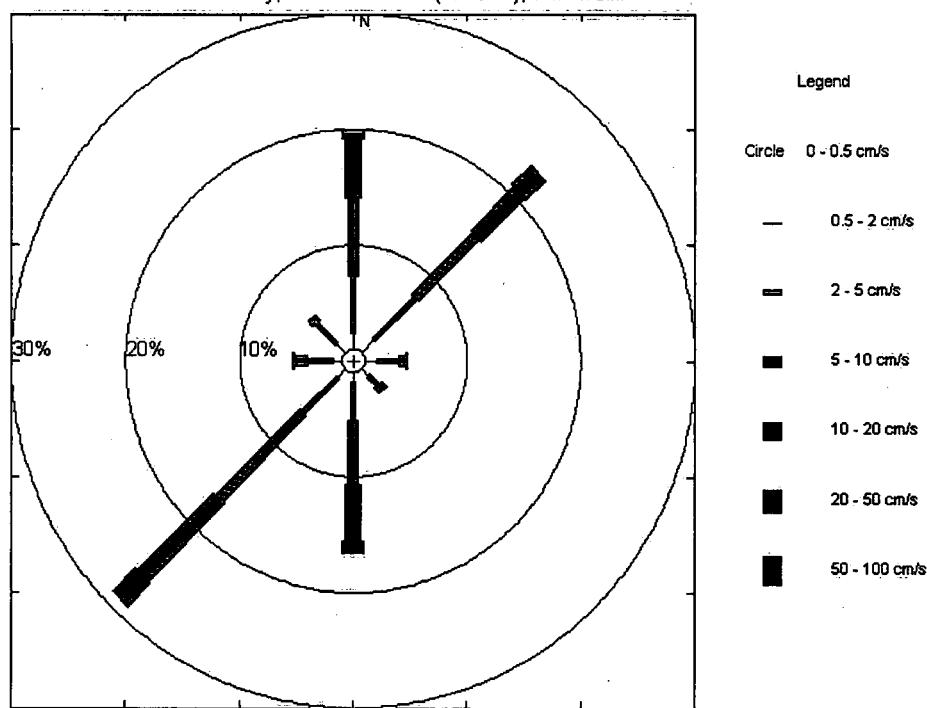
Mean Velocity = 0.8 cm/s, 228 deg true

Variance = 56.6 cm^2/s^2

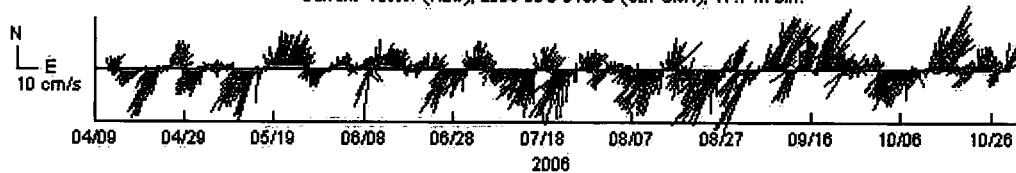
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.0	8.5	25.7	33.1	24.9	6.8	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 17.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 17.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 16.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.2	4.6	6.6	4.9	0.5	0.0	17.8	33.7	2.0	0.6
45.0	0.9	5.1	8.3	5.9	2.9	0.0	23.2	35.4	3.5	1.3
90.0	0.9	1.5	0.7	0.0	0.0	0.0	3.2	11.2	1.5	0.2
135.0	0.9	1.0	0.4	0.0	0.0	0.0	2.3	8.2	1.4	0.1
180.0	0.9	3.6	5.3	4.8	1.2	0.0	15.8	33.1	2.3	0.8
225.0	1.0	4.3	9.8	9.5	3.1	0.0	27.6	35.7	3.6	1.4
270.0	0.9	2.1	1.1	0.2	0.0	0.0	4.3	12.5	1.8	0.3
315.0	1.1	2.6	0.7	0.0	0.0	0.0	4.5	10.5	1.7	0.2

Mean Scalar Speed = 8.8 cm/s

Mean East Speed = -0.5 cm/s, Mean North Speed = -0.5 cm/s

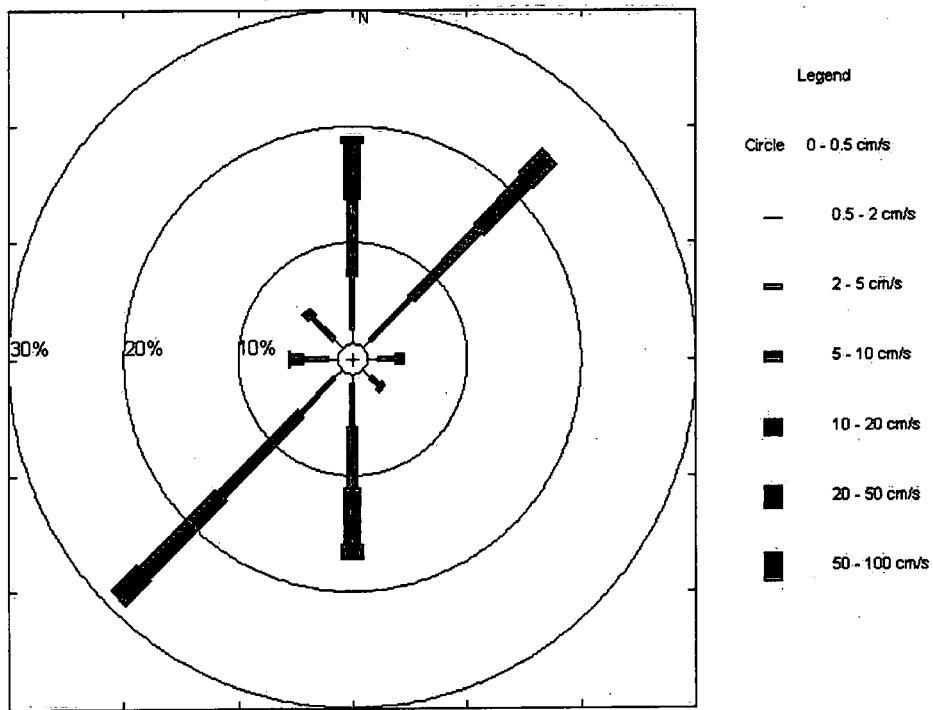
Mean Velocity = 0.7 cm/s, 229 deg true

Variance = 60.4 cm^2/s^2

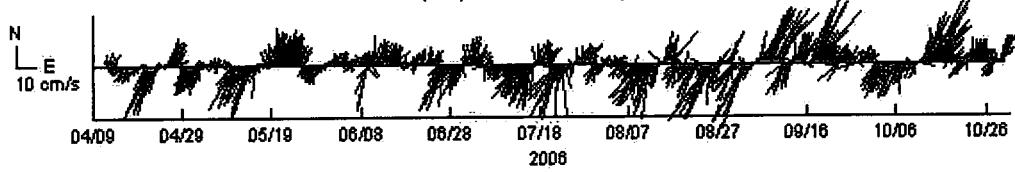
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.3	7.8	24.9	33.0	25.3	7.7	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 16.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 16.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 15.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.5	4.7	6.6	4.7	0.7	0.0	18.2	34.5	2.0	0.6
45.0	1.2	4.5	8.3	6.5	3.1	0.0	23.6	38.1	3.7	1.4
90.0	1.0	1.5	0.7	0.1	0.0	0.0	3.3	12.2	1.4	0.2
135.0	0.9	1.0	0.4	0.1	0.0	0.0	2.3	12.4	1.4	0.2
180.0	1.1	3.1	4.8	4.9	1.2	0.0	15.0	33.4	2.2	0.8
225.0	1.1	4.5	9.9	9.3	3.6	0.0	28.4	37.3	3.8	1.5
270.0	0.9	2.1	1.1	0.1	0.0	0.0	4.3	12.5	1.8	0.3
315.0	1.1	2.1	0.7	0.0	0.0	0.0	3.8	9.6	1.6	0.2

Mean Scalar Speed = 9.1 cm/s

Mean East Speed = -0.5 cm/s, Mean North Speed = -0.4 cm/s

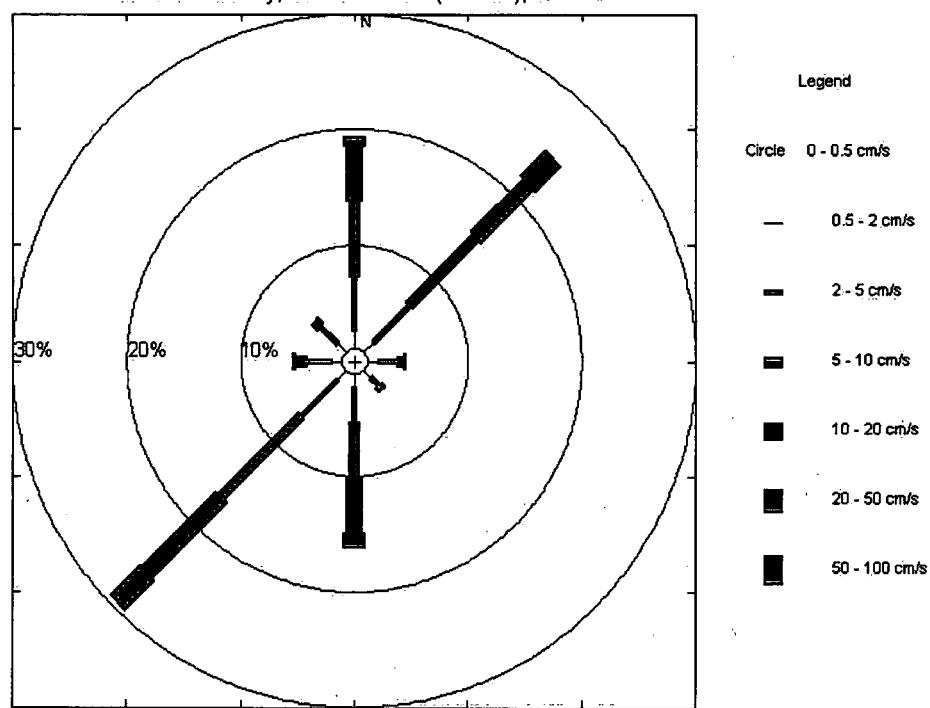
Mean Velocity = 0.6 cm/s, 231 deg true

Variance = 64.6 cm^2/s^2

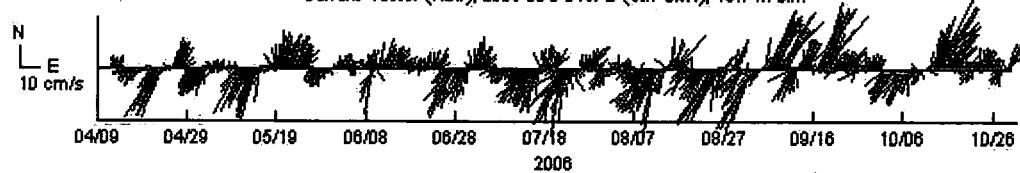
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.1	8.8	23.4	32.4	25.6	8.7	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 15.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 15.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 14.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards											
0.0	1.5	4.2	6.4	5.1	0.8	0.0	18.1	34.8	2.1	0.6	8.4
45.0	1.1	4.6	7.9	7.1	3.4	0.0	24.2	38.4	4.0	1.6	11.0
90.0	1.0	1.5	0.5	0.0	0.0	0.0	3.1	12.3	1.6	0.2	3.3
135.0	0.7	1.0	0.5	0.1	0.0	0.0	2.2	12.4	1.5	0.2	3.3
180.0	1.2	3.1	4.7	5.1	1.4	0.0	15.6	34.4	2.3	0.8	9.8
225.0	0.9	4.7	8.7	9.4	3.7	0.0	27.3	37.4	3.7	1.5	11.2
270.0	1.1	2.4	1.1	0.1	0.0	0.0	4.7	14.4	1.7	0.2	3.9
315.0	0.7	2.1	0.6	0.0	0.0	0.0	3.5	11.4	1.6	0.2	3.5

Mean Scalar Speed = 9.3 cm/s

Mean East Speed = -0.4 cm/s, Mean North Speed = -0.3 cm/s

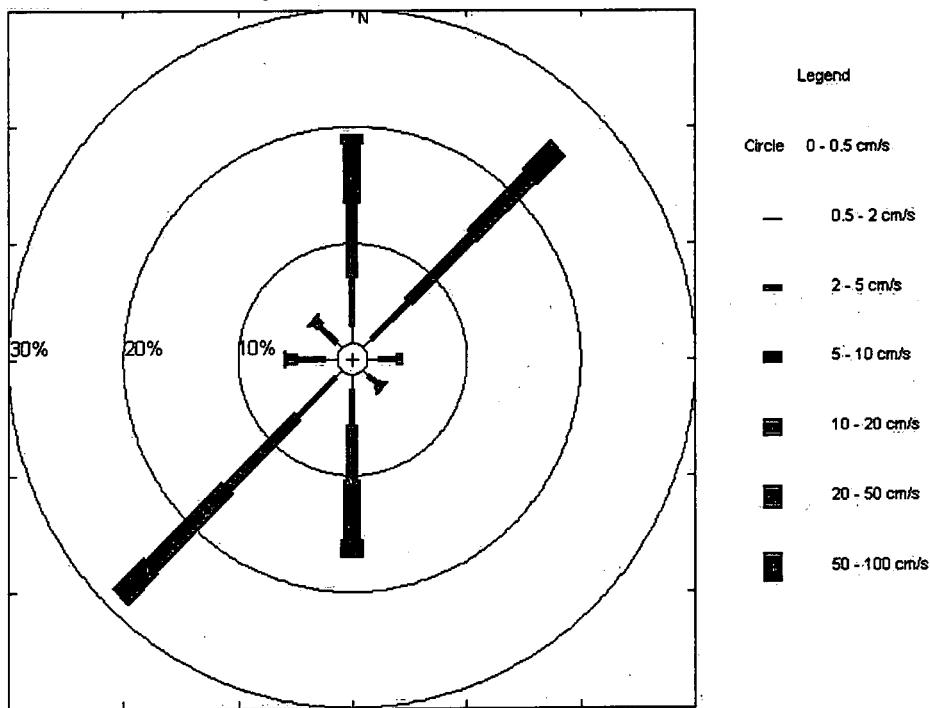
Mean Velocity = 0.5 cm/s, 235 deg true

Variance = 69.1 cm^2/s^2

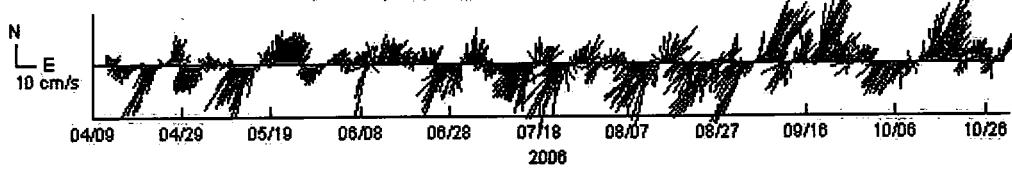
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.3	8.2	23.6	30.5	27.1	9.3	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 14.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 14.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 13.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4803 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.0	4.4	6.8	5.0	0.9	0.0	18.0	35.5	2.0	0.6
45.0	1.4	4.2	7.7	7.5	4.1	0.0	24.9	39.7	3.9	1.6
90.0	0.8	1.4	0.5	0.1	0.0	0.0	2.7	14.9	1.4	0.2
135.0	0.8	1.0	0.4	0.1	0.0	0.0	2.2	12.6	1.3	0.2
180.0	1.3	2.9	4.6	5.2	1.7	0.0	15.7	33.9	2.3	0.9
225.0	1.0	5.4	8.2	9.0	4.0	0.0	27.6	37.6	3.8	1.5
270.0	0.8	2.2	0.7	0.1	0.0	0.0	3.9	13.8	1.6	0.2
315.0	0.7	2.1	0.9	0.1	0.0	0.0	3.8	11.8	1.5	0.2

Mean Scalar Speed = 9.7 cm/s

Mean East Speed = -0.3 cm/s, Mean North Speed = -0.2 cm/s

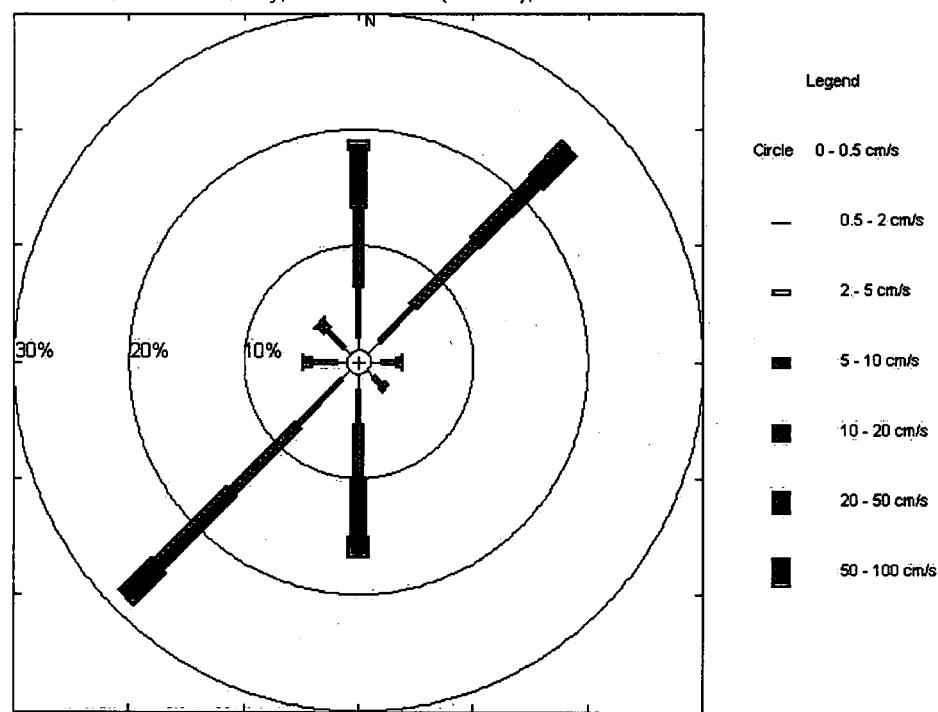
Mean Velocity = 0.4 cm/s, 243 deg true

Variance = 73.8 cm^2/s^2

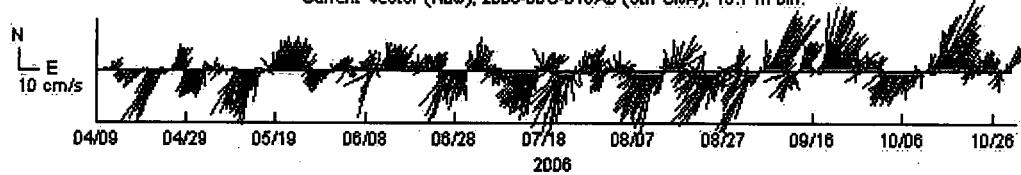
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.0	7.9	23.6	29.8	27.1	10.6	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 13.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 13.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 12.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4804 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards							Total			
0.0	0.9	4.2	6.6	5.2	0.8	0.0	17.7	35.4	2.0	0.6
45.0	0.8	3.7	8.2	7.4	4.9	0.0	25.1	40.8	4.1	1.8
90.0	1.0	1.4	0.6	0.1	0.0	0.0	3.0	14.4	1.5	0.2
135.0	1.1	1.2	0.4	0.1	0.0	0.0	2.7	13.2	1.5	0.2
180.0	1.3	3.1	4.4	5.1	1.9	0.0	15.8	35.0	2.4	0.9
225.0	0.7	4.4	7.7	9.0	4.2	0.0	26.1	38.0	3.6	1.5
270.0	0.7	2.6	1.0	0.2	0.0	0.0	4.6	15.1	1.7	0.3
315.0	0.9	2.0	1.0	0.1	0.0	0.0	4.0	16.3	1.7	0.2

Mean Scalar Speed = 10.0 cm/s

Mean East Speed = -0.2 cm/s, Mean North Speed = -0.0 cm/s

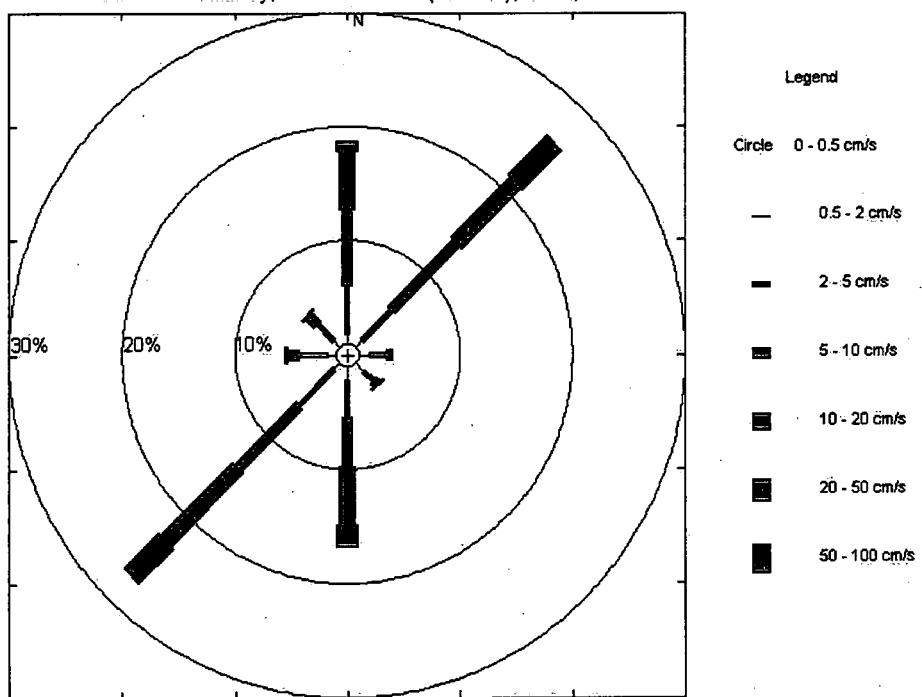
Mean Velocity = 0.2 cm/s, 265 deg true

Variance = 78.8 cm^2/s^2

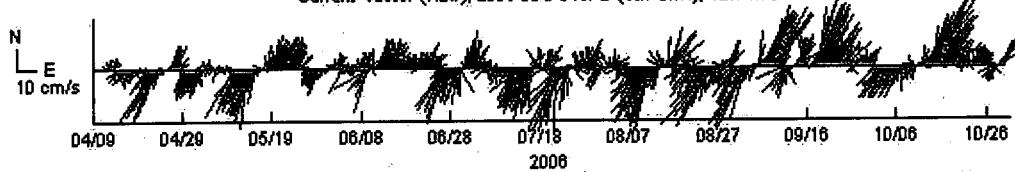
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.0	7.4	22.7	29.8	27.3	11.8	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 12.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 12.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 11.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4802 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards							Total			
0.0	1.1	4.1	6.3	5.2	0.7	0.0	17.4	36.9	2.0	0.6
45.0	0.6	3.5	8.6	7.5	5.6	0.0	25.8	41.8	4.3	2.0
90.0	0.9	1.5	0.7	0.1	0.0	0.0	3.1	14.6	1.5	0.2
135.0	0.8	1.1	0.4	0.1	0.0	0.0	2.5	14.0	1.5	0.2
180.0	1.2	3.8	4.6	5.1	2.1	0.0	16.7	35.5	2.3	0.9
225.0	1.0	4.1	6.8	8.9	4.4	0.0	25.2	40.2	3.3	1.5
270.0	0.8	1.9	1.3	0.4	0.0	0.0	4.4	17.1	1.6	0.3
315.0	0.7	2.0	1.2	0.1	0.0	0.0	4.1	12.1	1.6	0.3

Mean Scalar Speed = 10.2 cm/s

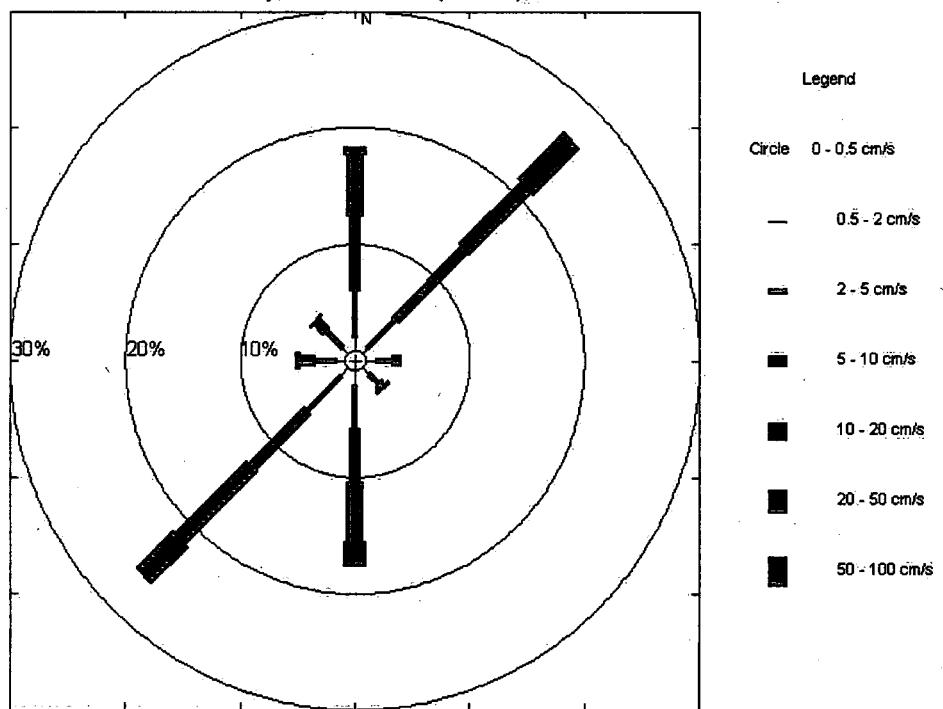
Mean East Speed = -0.1 cm/s, Mean North Speed = 0.1 cm/s

Mean Velocity = 0.1 cm/s, 311 deg true

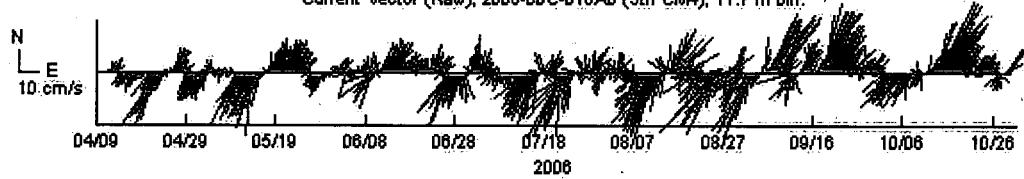
Variance = 83.2 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)					
0-0.5	0.5-2	2-5	5-10	10-20	20-50
0.9	7.2	22.0	29.9	27.3	12.7

Current Rose Summary, 2006-00C-016AB (Stn CM4), 11.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 11.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 10.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4801 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.8	3.9	6.7	5.1	0.6	0.0	17.1	37.6	2.1	0.6
45.0	0.8	4.2	8.5	7.6	6.1	0.0	27.1	43.1	4.3	2.0
90.0	0.8	1.2	0.6	0.1	0.0	0.0	2.7	16.4	1.6	0.2
135.0	0.9	1.2	0.6	0.1	0.0	0.0	2.9	12.4	1.5	0.2
180.0	1.0	3.4	4.6	5.0	2.1	0.0	16.1	35.3	2.4	0.9
225.0	0.9	4.0	7.0	8.5	4.6	0.0	25.0	41.3	3.6	1.6
270.0	1.0	1.9	1.2	0.3	0.0	0.0	4.5	17.7	1.7	0.3
315.0	0.7	1.8	1.2	0.1	0.0	0.0	3.8	13.8	1.7	0.3

Mean Scalar Speed = 10.5 cm/s

Mean East Speed = 0.0 cm/s, Mean North Speed = 0.2 cm/s

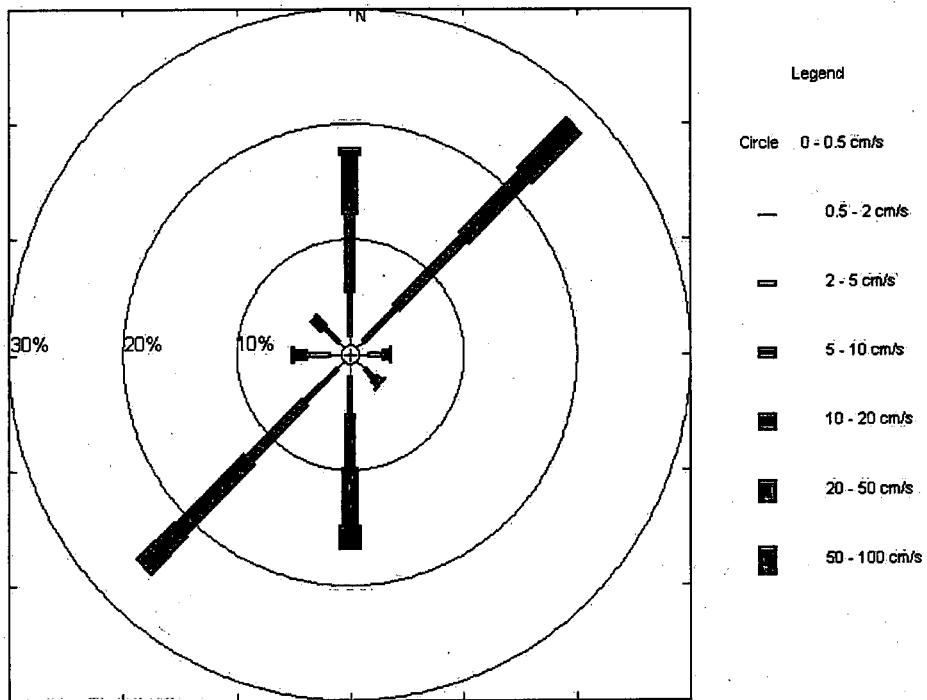
Mean Velocity = 0.2 cm/s, 11 deg true

Variance = 87.2 cm^2/s^2

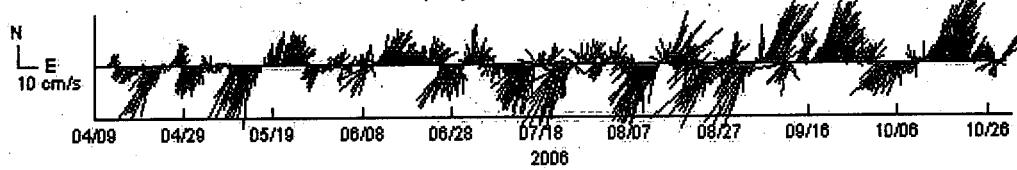
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.8	7.0	21.6	30.4	26.8	13.4	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 10.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 10.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 9.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4802 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	0.8	3.2	6.6	4.9	0.6	0.0	16.2	37.9	2.1	0.7
45.0	0.7	3.7	8.7	8.4	6.5	0.0	28.0	42.3	4.5	2.2
90.0	0.7	1.3	0.8	0.2	0.0	0.0	3.0	22.4	1.6	0.2
135.0	0.6	1.6	0.6	0.1	0.0	0.0	3.0	13.7	1.5	0.2
180.0	1.3	3.7	4.5	4.7	2.0	0.0	16.3	42.1	2.2	0.8
225.0	0.8	3.9	6.9	8.4	5.0	0.0	25.0	44.4	3.3	1.5
270.0	0.7	2.0	1.2	0.2	0.0	0.0	4.0	19.8	1.8	0.3
315.0	0.7	1.7	1.2	0.1	0.0	0.0	3.7	15.9	1.7	0.2

Mean Scalar Speed = 10.7 cm/s

Mean East Speed = 0.2 cm/s, Mean North Speed = 0.3 cm/s

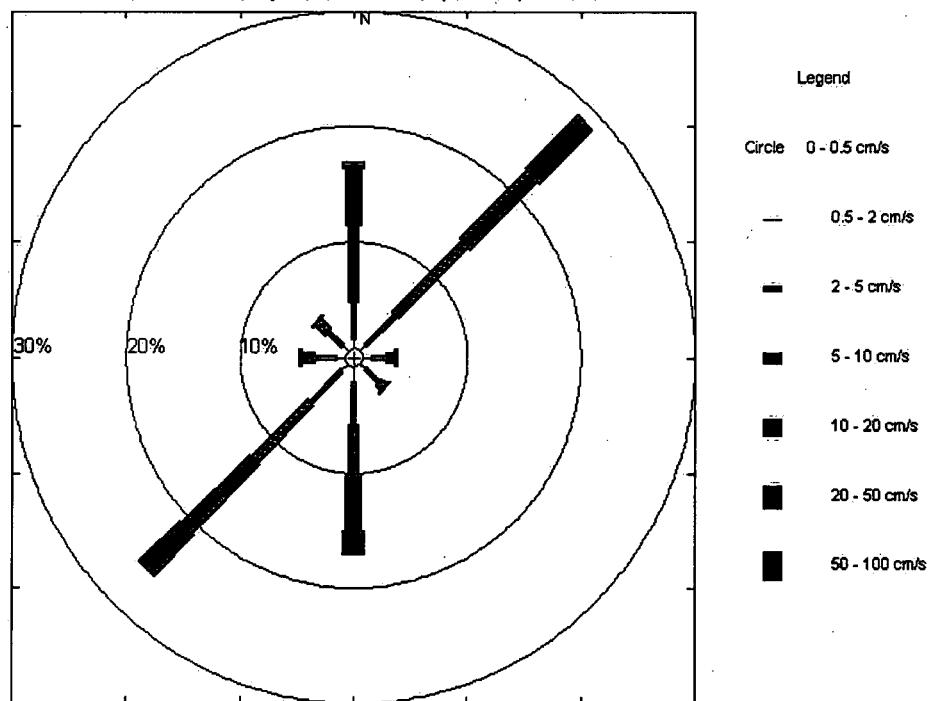
Mean Velocity = 0.4 cm/s, 35 deg true

Variance = 90.5 cm^2/s^2

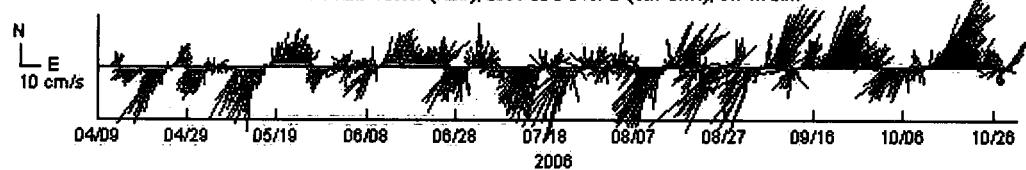
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.8	6.4	21.1	30.6	27.0	14.2	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 9.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 9.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 8.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4800 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	0.6	3.3	6.0	5.0	0.6	0.0	15.6	33.3	2.1	0.7
45.0	0.6	3.7	8.7	8.8	7.0	0.0	28.8	43.3	4.7	2.3
90.0	0.6	1.2	1.0	0.2	0.1	0.0	3.1	24.2	1.5	0.3
135.0	0.7	1.9	0.5	0.1	0.0	0.0	3.3	14.8	1.5	0.2
180.0	1.2	3.7	4.6	4.6	2.0	0.0	16.0	44.3	2.3	0.9
225.0	0.8	3.8	7.2	8.2	5.1	0.0	25.2	46.1	3.6	1.6
270.0	0.8	1.9	1.2	0.3	0.0	0.0	4.2	24.4	1.5	0.3
315.0	0.6	1.4	1.0	0.1	0.0	0.0	3.2	13.4	1.7	0.3

Mean Scalar Speed = 10.9 cm/s

Mean East Speed = 0.4 cm/s, Mean North Speed = 0.4 cm/s

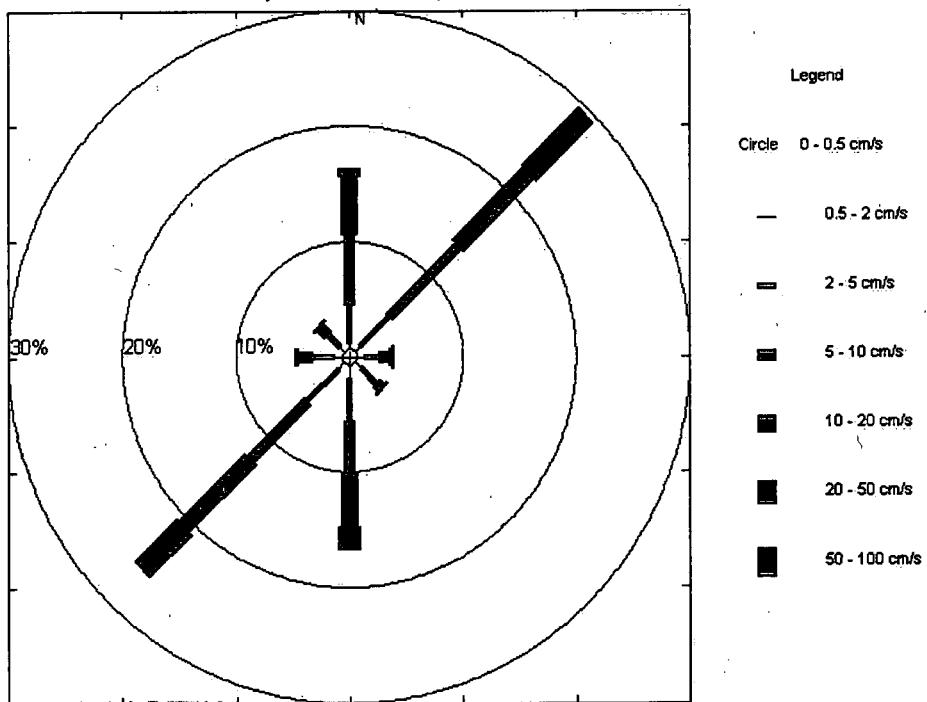
Mean Velocity = 0.5 cm/s, 45 deg true

Variance = 93.9 cm^2/s^2

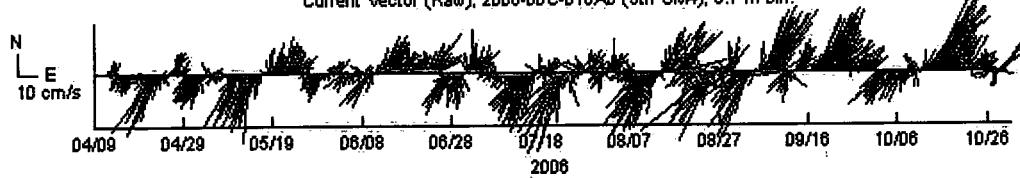
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.7	6.0	20.9	30.2	27.4	14.8	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 8.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 8.7 m-bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 7.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4792 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.6	2.9	5.8	4.7	0.6	0.0	14.5	38.9	2.0	0.6
45.0	0.6	3.1	8.6	9.5	7.6	0.0	29.4	43.7	4.8	2.5
90.0	0.5	1.5	1.3	0.4	0.1	0.0	3.8	25.6	1.5	0.3
135.0	0.9	1.9	0.7	0.2	0.0	0.0	3.7	14.7	1.5	0.2
180.0	1.0	3.7	4.2	4.5	1.7	0.0	15.2	41.7	2.2	0.8
225.0	0.8	4.4	6.7	8.3	5.3	0.0	25.4	49.9	3.6	1.7
270.0	0.8	1.9	1.5	0.3	0.1	0.0	4.5	27.6	1.6	0.3
315.0	0.4	1.3	1.0	0.1	0.0	0.0	2.9	16.0	1.6	0.3

Mean Scalar Speed = 11.1 cm/s

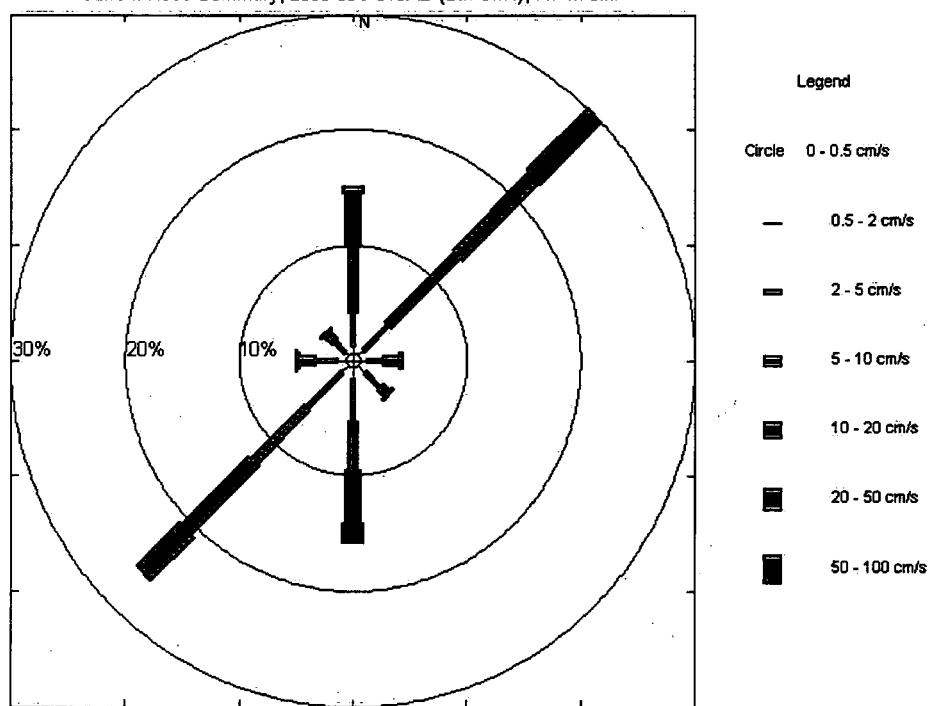
Mean East Speed = 0.6 cm/s, Mean North Speed = 0.4 cm/s

Mean Velocity = 0.7 cm/s, 51 deg true

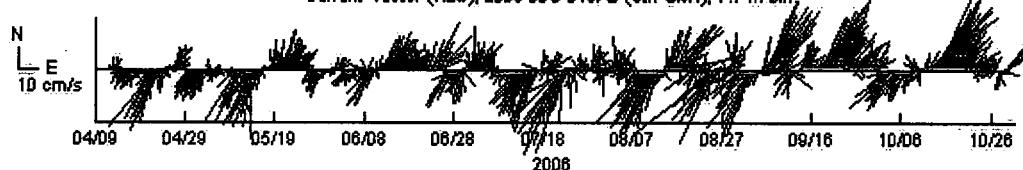
Variance = 97.7 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.6	5.6	20.7	29.8	28.0	15.3	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 7.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 7.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 6.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4777 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.3	2.2	5.4	4.3	0.8	0.0	13.0	39.3	1.9	0.7
45.0	0.6	2.8	7.7	10.4	7.9	0.0	29.5	44.6	5.0	2.7
90.0	0.9	1.8	2.0	0.5	0.0	0.0	5.2	22.3	1.8	0.3
135.0	1.0	2.0	0.9	0.2	0.0	0.0	4.1	21.7	1.5	0.2
180.0	0.9	4.0	4.8	4.6	2.0	0.0	16.2	40.2	2.3	0.8
225.0	0.9	3.7	6.2	8.2	5.2	0.0	24.3	55.1	3.4	1.6
270.0	0.7	1.8	1.5	0.3	0.1	0.0	4.4	27.3	1.7	0.3
315.0	0.6	1.0	1.0	0.1	0.0	0.0	2.8	14.8	1.5	0.3
							Total			

Mean Scalar Speed = 11.4 cm/s

Mean East Speed = 0.8 cm/s, Mean North Speed = 0.5 cm/s

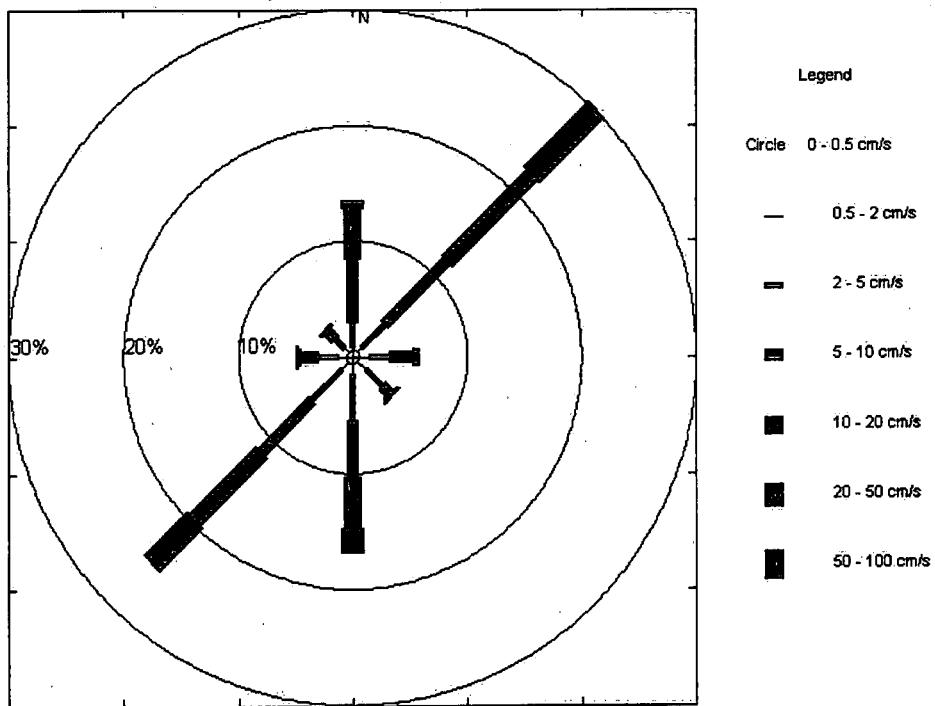
Mean Velocity = 0.9 cm/s, 61 deg true

Variance = 102.0 cm^2/s^2

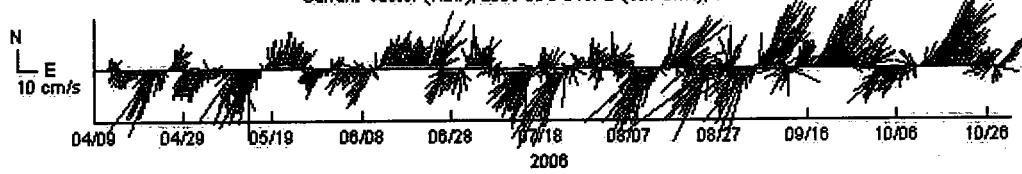
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.6	5.9	19.3	29.6	28.6	16.0	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 6.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 6.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 5.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4751 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.4	1.7	4.5	4.4	0.9	0.0	11.9	45.7	1.9	0.7
45.0	0.5	2.7	7.2	10.7	8.8	0.0	29.9	44.3	5.3	3.0
90.0	0.7	1.8	2.7	0.7	0.1	0.0	5.9	22.3	1.9	0.4
135.0	0.7	2.0	1.3	0.1	0.1	0.0	4.1	32.9	1.5	0.3
180.0	1.1	4.1	4.9	4.8	2.2	0.0	17.2	39.5	2.5	0.9
225.0	0.8	3.7	5.6	7.9	5.1	0.0	23.2	57.1	3.4	1.6
270.0	0.5	1.8	1.6	0.5	0.1	0.0	4.4	30.0	1.6	0.3
315.0	0.5	1.2	1.0	0.2	0.0	0.0	2.9	18.4	1.7	0.3

Mean Scalar Speed = 11.8 cm/s

Mean East Speed = 1.1 cm/s, Mean North Speed = 0.6 cm/s

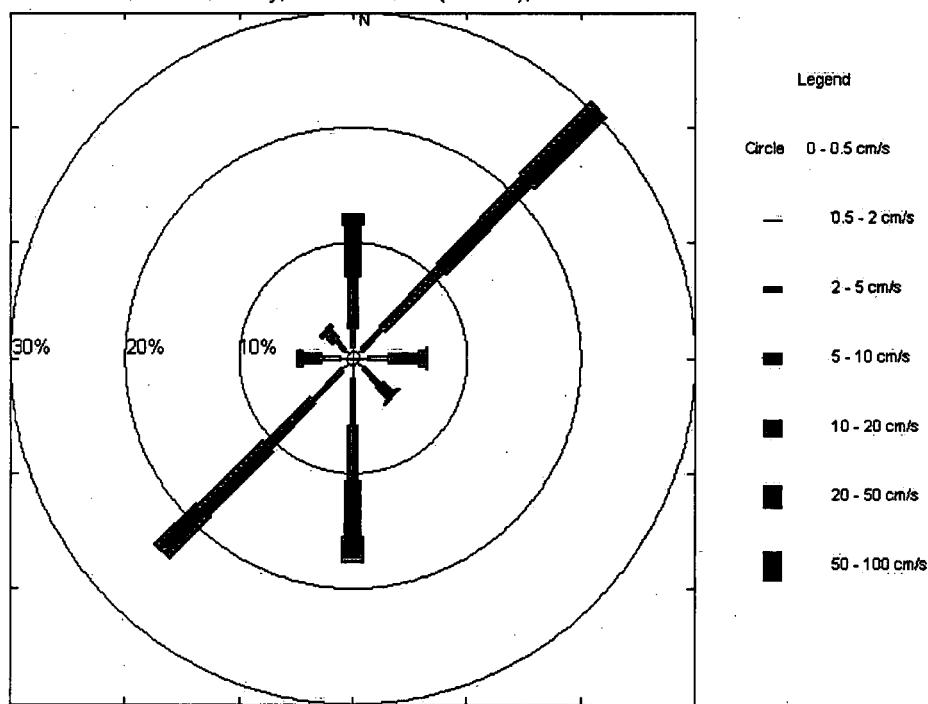
Mean Velocity = 1.2 cm/s, 63 deg true

Variance = 107.8 cm^2/s^2

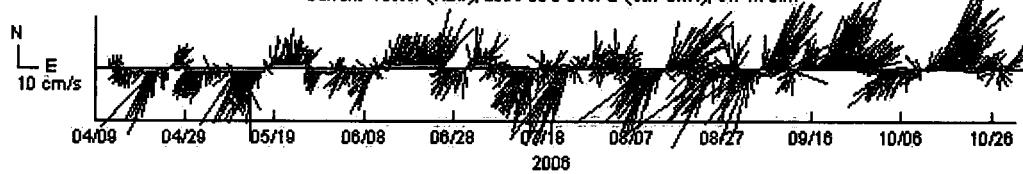
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.6	5.1	19.0	28.7	29.5	17.2	0.0

Current Rose Summary, 2006-00C-016AB (Stn CM4), 5.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 5.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 4.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 4659 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	0.5	1.9	3.9	4.5	1.0	0.0	11.8	45.7	1.8	0.7
45.0	0.5	2.2	6.6	10.9	10.0	0.0	30.1	44.6	5.4	3.2
90.0	0.7	1.6	2.9	1.4	0.2	0.0	6.7	26.7	2.0	0.5
135.0	0.5	2.0	1.8	0.3	0.1	0.0	4.6	35.6	1.6	0.3
180.0	0.8	3.4	5.3	5.3	2.0	0.0	16.8	41.1	2.4	0.9
225.0	0.9	3.7	5.6	6.8	5.5	0.1	22.7	60.6	3.0	1.5
270.0	0.7	1.6	1.3	0.6	0.1	0.0	4.3	33.0	1.7	0.4
315.0	0.3	1.0	0.9	0.5	0.0	0.0	2.7	24.7	1.8	0.4
										6.2

Mean Scalar Speed = 12.3 cm/s

Mean East Speed = 1.5 cm/s, Mean North Speed = 0.7 cm/s

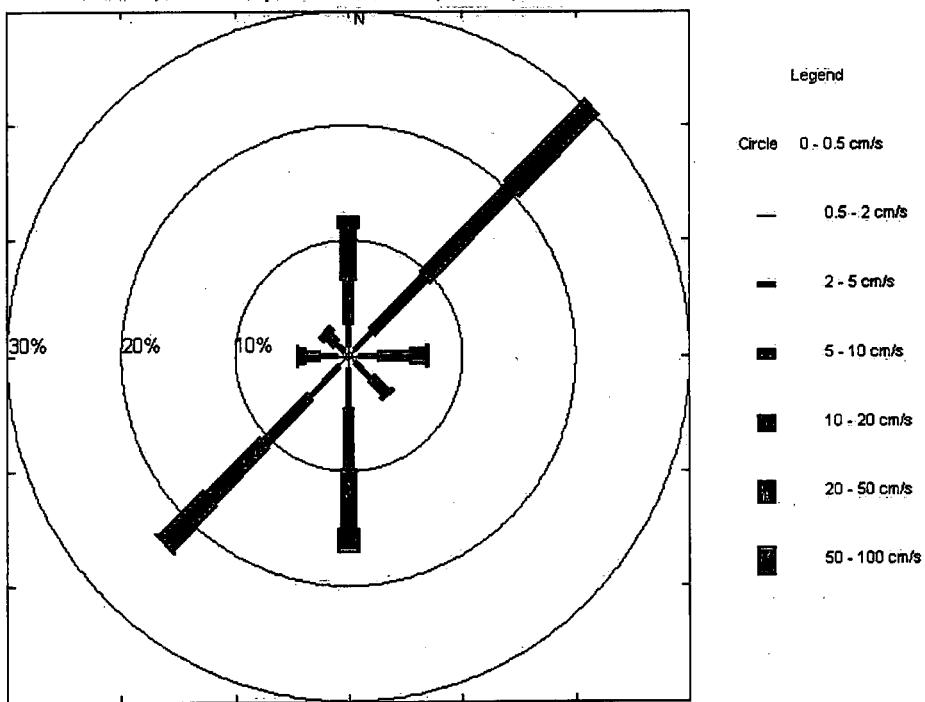
Mean Velocity = 1.6 cm/s, 65 deg true

Variance = 115.3 cm^2/s^2

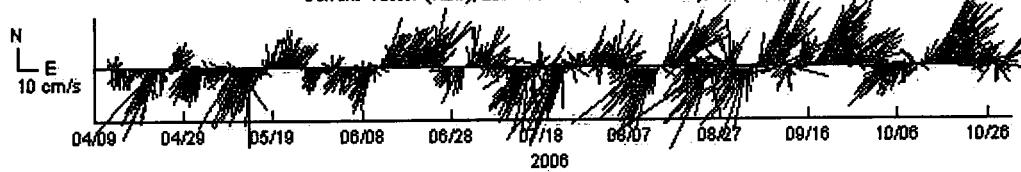
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.3	4.9	17.4	28.3	30.1	19.0	0.1

Current Rose Summary, 2006-00C-016AB (Stn CM4), 4.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 4.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 3.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 2089 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.6	1.5	4.1	4.7	0.8	0.0	11.7	32.2	1.7	0.6
45.0	0.2	2.4	5.5	9.1	3.0	0.0	20.2	36.6	2.7	1.3
90.0	0.4	1.7	3.7	1.7	0.0	0.0	7.6	20.6	1.9	0.5
135.0	0.6	2.2	2.2	0.6	0.1	0.0	5.6	28.7	1.8	0.4
180.0	1.5	4.2	6.1	6.3	3.0	0.0	21.1	43.9	2.2	0.8
225.0	0.8	3.5	6.1	7.7	5.7	0.4	24.3	82.5	2.2	1.2
270.0	0.9	1.6	1.6	0.8	0.5	0.0	5.5	53.9	1.5	0.4
315.0	0.4	0.9	1.4	0.5	0.1	0.0	3.4	25.5	1.5	0.4
										7.1

Mean Scalar Speed = 11.3 cm/s

Mean East Speed = -0.5 cm/s, Mean North Speed = -2.0 cm/s

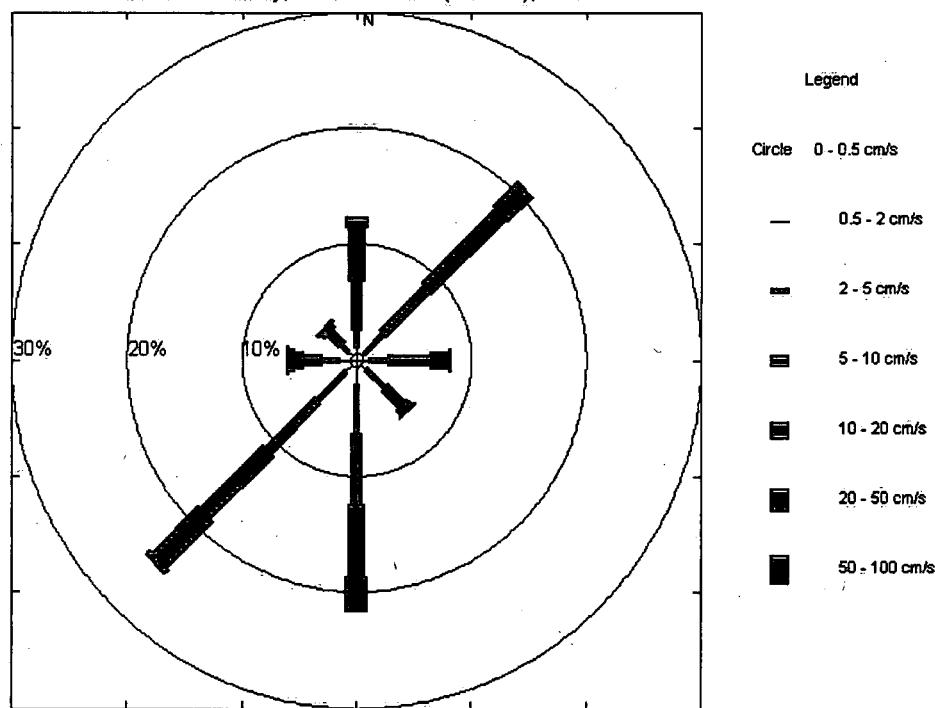
Mean Velocity = 2.1 cm/s, 193 deg true

Variance = 98.7 cm^2/s^2

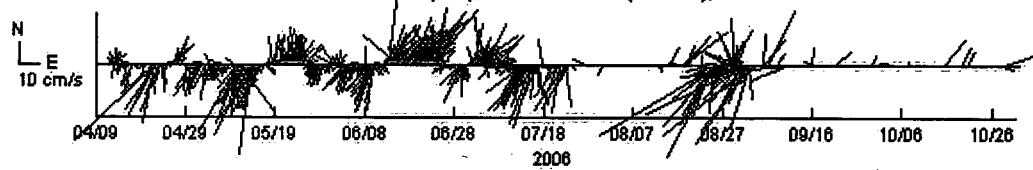
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.6	5.5	18.1	30.7	31.4	13.3	0.5

Current Rose Summary, 2006-00C-016AB (Stn CM4), 3.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 3.7 m bin.



Mooring 2006-00C-016AB (Stn CM4), ADCP bin depth is 2.7 metres.

First Day 2006/04/12/1900

Final Day 2006/10/30/1800

There are 587 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards							Total			
0.0	1.7	3.2	4.8	3.4	0.3	0.0	13.5	25.1	1.2	0.3
45.0	1.9	4.9	5.5	4.9	0.5	0.0	17.7	30.1	1.6	0.4
90.0	1.2	2.6	2.6	1.5	0.0	0.0	7.8	17.8	1.3	0.3
135.0	1.0	1.4	1.0	0.5	0.0	0.0	3.9	15.0	1.2	0.2
180.0	2.0	2.9	2.7	3.2	0.0	0.0	10.9	15.3	1.3	0.3
225.0	4.8	5.5	7.0	4.1	0.2	0.2	21.6	53.2	1.6	0.4
270.0	2.2	3.7	4.9	2.2	0.0	0.0	13.1	17.8	1.3	0.3
315.0	1.5	2.7	1.7	1.5	0.0	0.0	7.5	14.8	1.4	0.3

Mean Scalar Speed = 6.5 cm/s

Mean East Speed = -0.6 cm/s, Mean North Speed = 0.5 cm/s

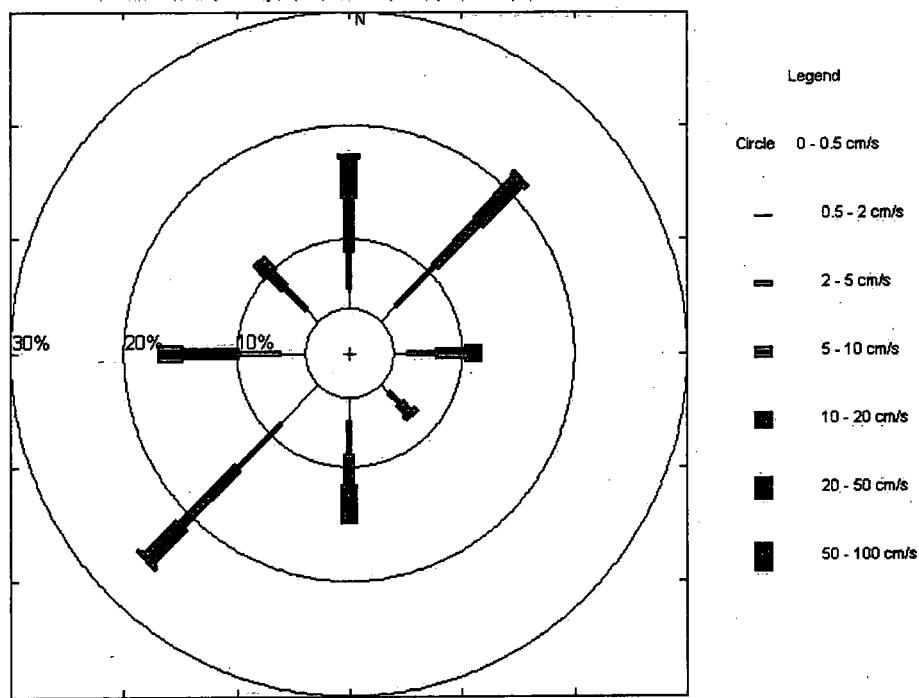
Mean Velocity = 0.8 cm/s, 312 deg true

Variance = 33.4 cm^2/s^2

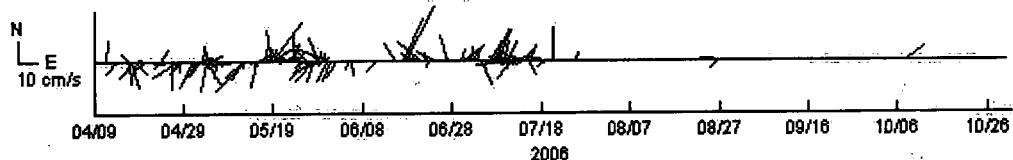
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
3.9	16.4	26.9	30.2	21.5	1.0	0.2

Current Rose Summary, 2006-00C-016AB (Stn CM4), 2.7 m bin.



Current Vector (Raw), 2006-00C-016AB (Stn CM4), 2.7 m bin.



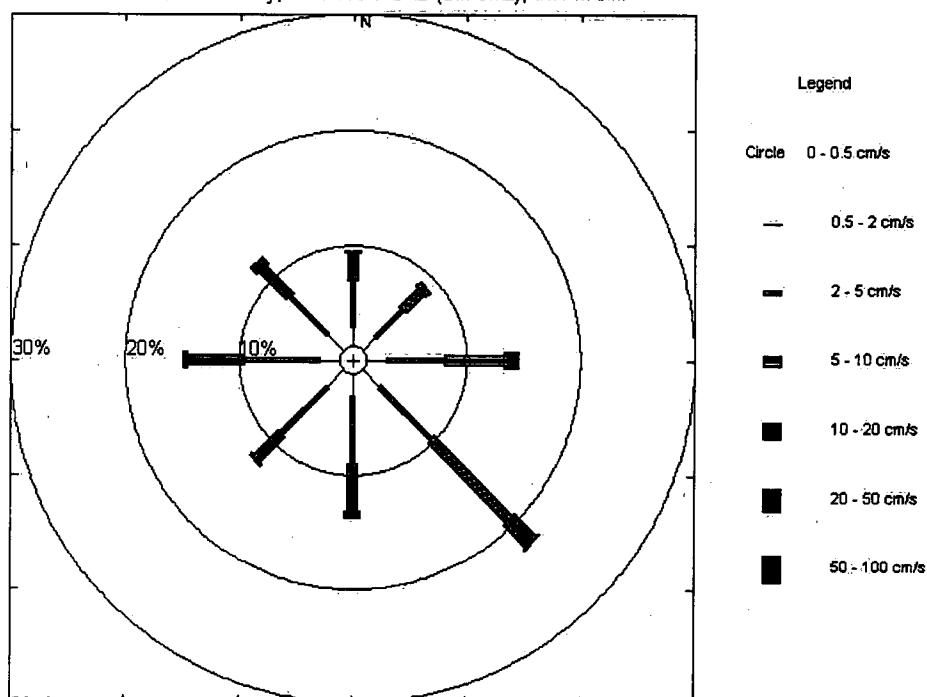
Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 14.1 metres.  
 First Day 2006/04/12/1600  
 Final Day 2006/10/30/1500  
 There are 4799 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	1.7	4.0	2.5	0.1	0.0	0.0	8.4	11.7	1.4	0.2
45.0	1.6	3.4	2.3	0.5	0.0	0.0	7.8	22.9	1.9	0.3
90.0	1.8	5.1	5.2	1.3	0.1	0.0	13.4	25.2	2.2	0.4
135.0	2.1	6.4	9.7	2.8	0.1	0.0	21.1	24.8	2.9	0.6
180.0	2.0	5.8	4.1	0.5	0.0	0.0	12.4	16.2	2.1	0.3
225.0	2.1	5.7	3.1	0.2	0.0	0.0	11.1	14.1	2.0	0.3
270.0	1.7	6.6	5.1	0.4	0.0	0.0	13.8	14.8	2.3	0.4
315.0	2.0	4.7	3.4	0.7	0.0	0.0	10.9	22.5	2.1	0.4

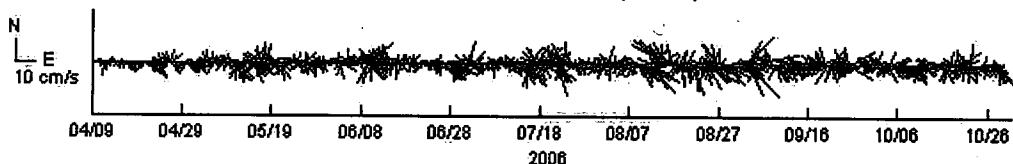
Mean Scalar Speed = 5.0 cm/s  
 Mean East Speed = 0.6 cm/s, Mean North Speed = -0.9 cm/s  
 Mean Velocity = 1.0 cm/s, 145 deg true  
 Variance = 16.9 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.2 15.0 41.8 35.4 6.4 0.3 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 14.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 14.1 m bin.



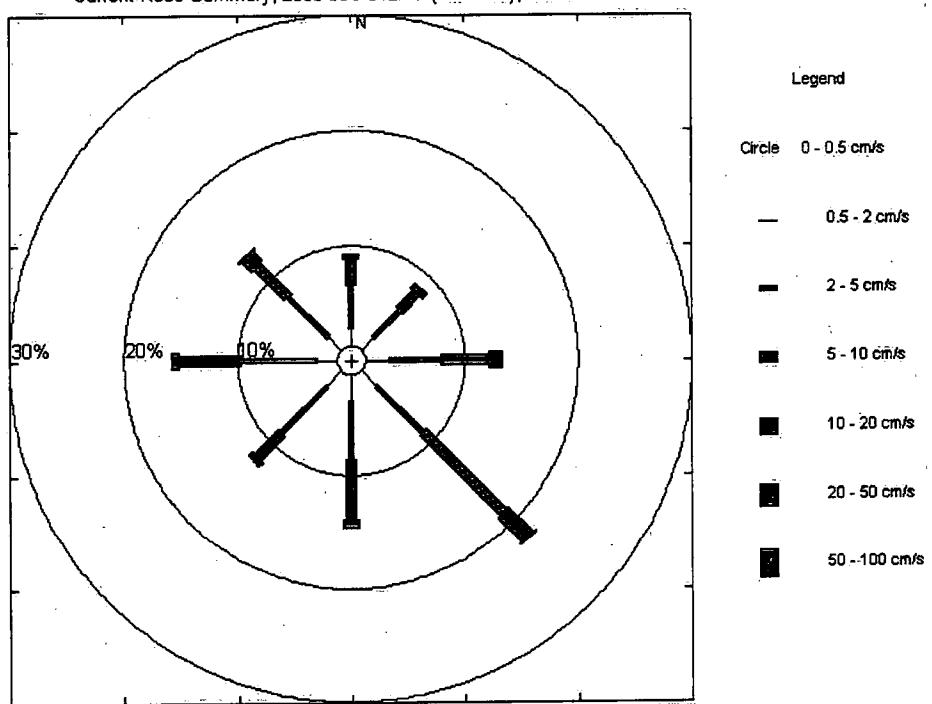
Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 13.1 metres.  
 First Day 2006/04/12/1600  
 Final Day 2006/10/30/1500  
 There are 4799 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	1.5	3.8	2.4	0.4	0.0	0.0	8.0	12.7	1.5	0.2
45.0	1.5	3.3	2.1	0.5	0.0	0.0	7.5	23.0	2.0	0.3
90.0	2.1	4.6	4.2	1.0	0.0	0.0	12.0	23.0	2.2	0.4
135.0	1.9	5.7	10.0	3.0	0.1	0.0	20.7	25.7	3.0	0.7
180.0	2.3	5.1	5.1	0.7	0.0	0.0	13.3	16.5	2.2	0.4
225.0	1.9	5.6	3.0	0.4	0.0	0.0	10.9	14.0	2.0	0.3
270.0	1.8	6.7	5.5	0.6	0.0	0.0	14.5	16.4	2.6	0.5
315.0	1.7	5.0	3.9	1.2	0.1	0.0	11.8	25.4	2.4	0.5

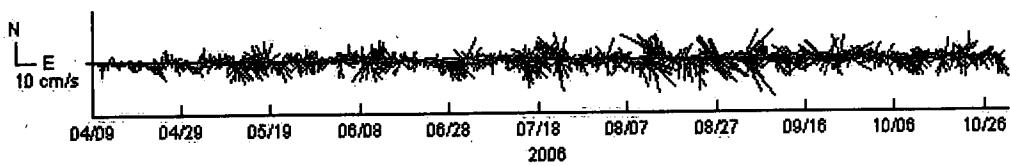
Mean Scalar Speed = 5.2 cm/s  
 Mean East Speed = 0.3 cm/s, Mean North Speed = -0.9 cm/s  
 Mean Velocity = 1.0 cm/s, 161 deg true  
 Variance = 18.4 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.3 14.6 39.9 36.2 7.9 0.2 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 13.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 13.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 12.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

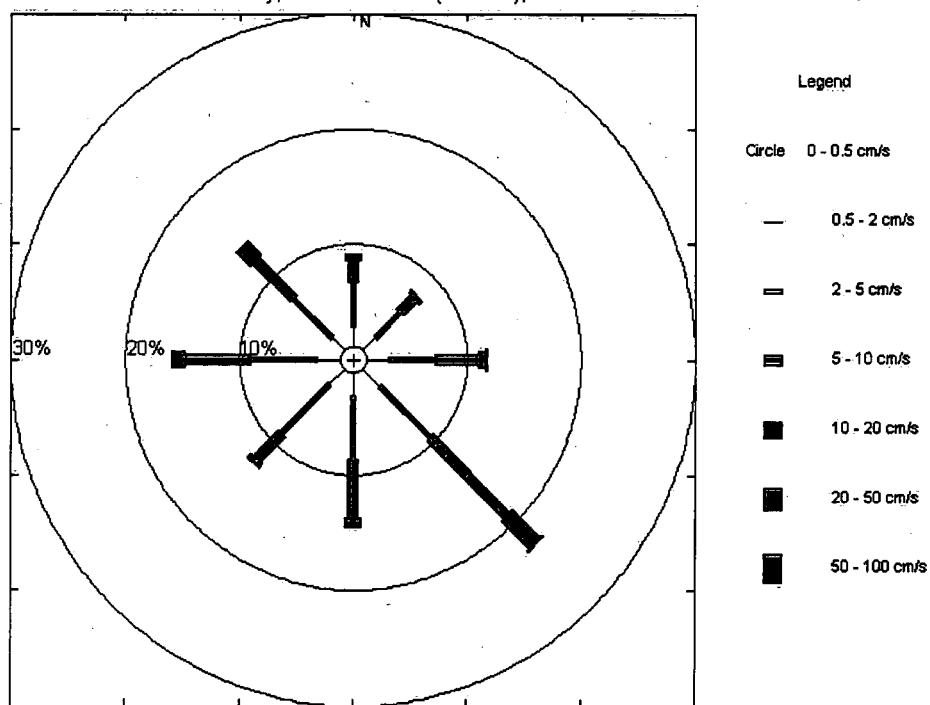
Direction Deg True	Percent Observed (unit of Current Category, cm/s)	Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
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Towards	2	5	10	20	50	100	Total	cm/s	hours	km	cm/s
0.0	1.7	3.8	1.9	0.5	0.0	0.0	8.0	17.1	1.5	0.2	4.3
45.0	1.6	3.1	1.7	0.3	0.0	0.0	6.7	22.0	1.8	0.3	4.2
90.0	1.9	4.1	3.8	0.7	0.0	0.0	10.5	23.7	2.0	0.4	5.0
135.0	2.2	6.2	9.6	3.4	0.1	0.0	21.5	26.5	3.3	0.8	6.5
180.0	2.0	5.4	5.1	0.7	0.0	0.0	13.3	22.6	2.2	0.4	5.0
225.0	1.9	6.0	3.1	0.4	0.0	0.0	11.3	13.9	2.1	0.3	4.2
270.0	2.0	5.9	5.8	1.1	0.0	0.0	14.8	16.2	2.5	0.5	5.2
315.0	1.6	4.8	4.8	1.6	0.0	0.0	12.8	22.3	2.6	0.5	5.7

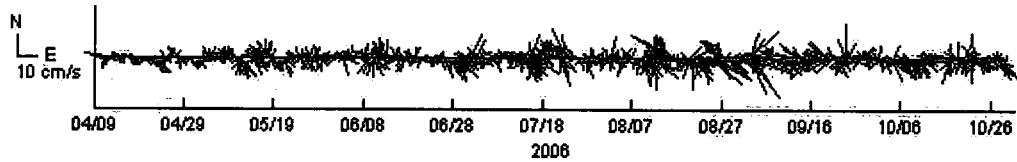
Mean Scalar Speed = 5.2 cm/s  
 Mean East Speed = 0.1 cm/s, Mean North Speed = -1.0 cm/s  
 Mean Velocity = 1.0 cm/s, 175 deg true  
 Variance = 18.8 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.1 14.9 39.3 35.8 8.7 0.2 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 12.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 12.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 11.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

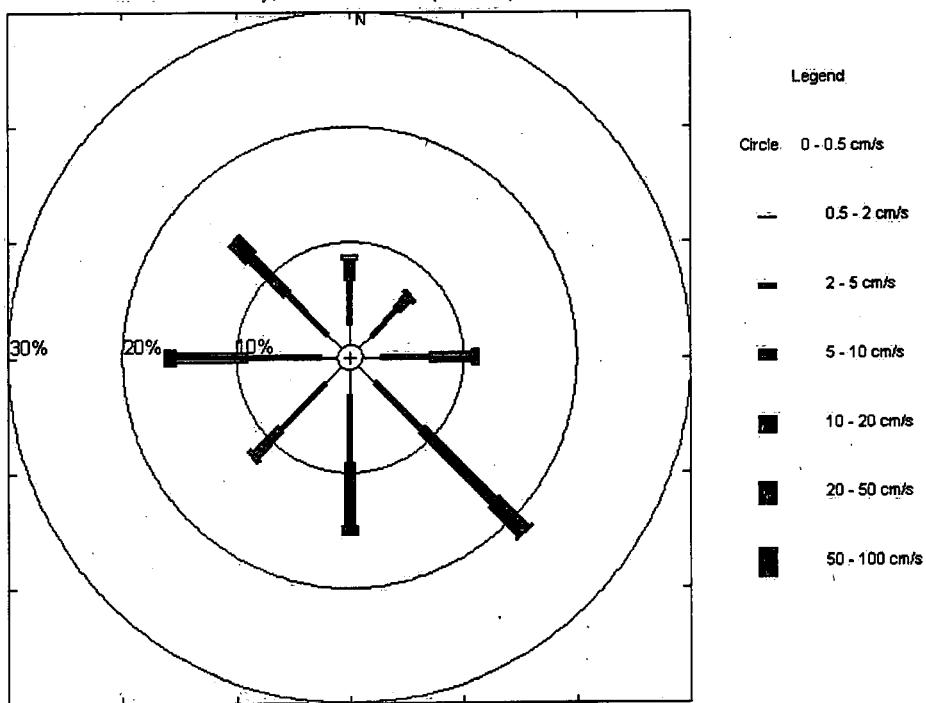
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	1.8	3.8	1.8	0.4	0.0	0.0	7.8	16.6	1.4	0.2
45.0	1.5	3.2	1.4	0.3	0.0	0.0	6.4	21.6	1.9	0.3

90.0	1.6	4.3	3.7	0.6	0.0	0.0	10.2	19.1	2.2	0.4	4.9
135.0	2.0	5.8	8.9	3.7	0.1	0.0	20.5	27.0	3.3	0.8	6.7
180.0	2.2	5.8	5.5	0.8	0.0	0.0	14.3	22.8	2.4	0.4	5.0
225.0	2.0	5.6	3.2	0.3	0.0	0.0	11.1	14.0	2.0	0.3	4.2
270.0	1.5	6.5	6.2	1.1	0.0	0.0	15.3	18.6	2.5	0.5	5.3
315.0	1.8	5.0	4.5	2.1	0.0	0.0	13.3	20.7	2.5	0.5	5.9

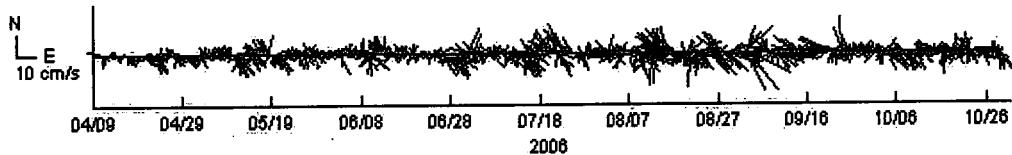
Mean Scalar Speed = 5.3 cm/s  
 Mean East Speed = -0.1 cm/s, Mean North Speed = -1.0 cm/s  
 Mean Velocity = 1.0 cm/s; 185 deg true  
 Variance = 19.1 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.1 14.4 39.9 35.1 9.2 0.2 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 11.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 11.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 10.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

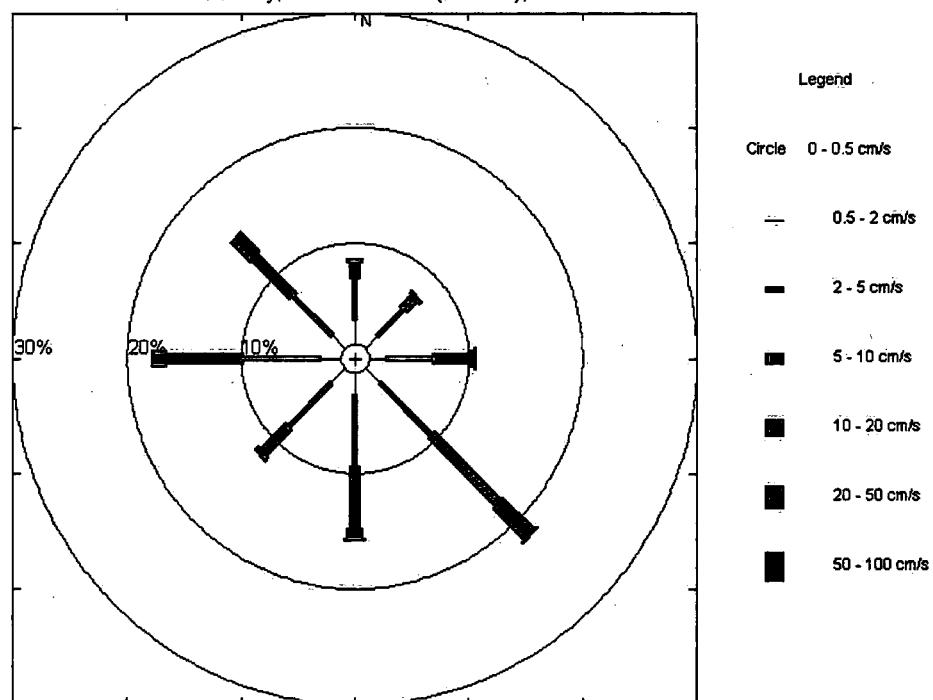
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	cm/s
0.0	2.1	3.5	1.5	0.2	0.0	0.0	7.3	16.1	1.4	0.2
45.0	1.5	3.3	1.3	0.3	0.0	0.0	6.4	22.1	1.8	0.3
90.0	1.5	4.0	3.2	0.6	0.0	0.0	9.3	21.8	2.1	0.4
135.0	1.7	6.4	8.4	3.9	0.1	0.0	20.5	27.0	3.2	0.8
180.0	1.8	6.4	5.3	1.0	0.0	0.0	14.5	23.4	2.4	0.4
225.0	1.8	5.3	3.1	0.4	0.0	0.0	10.6	13.6	2.0	0.3

270.0	1.9	6.7	6.8	1.2	0.0	0.0	16.6	18.3	2.8	0.5	5.3
315.0	1.7	4.8	4.8	2.4	0.0	0.0	13.6	19.8	2.8	0.6	6.2

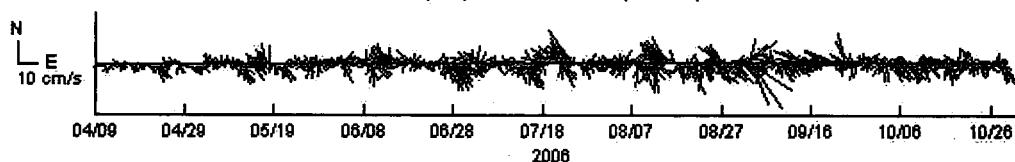
Mean Scalar Speed = 5.3 cm/s  
 Mean East Speed = -0.2 cm/s, Mean North Speed = -1.0 cm/s  
 Mean Velocity = 1.1 cm/s, 193 deg true  
 Variance = 19.2 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.3 14.0 40.4 34.3 9.8 0.2 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 10.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 10.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 9.1 metres.  
 First Day 2006/04/12/1600  
 Final Day 2006/10/30/1500  
 There are 4799 readings out of a possible 4824.

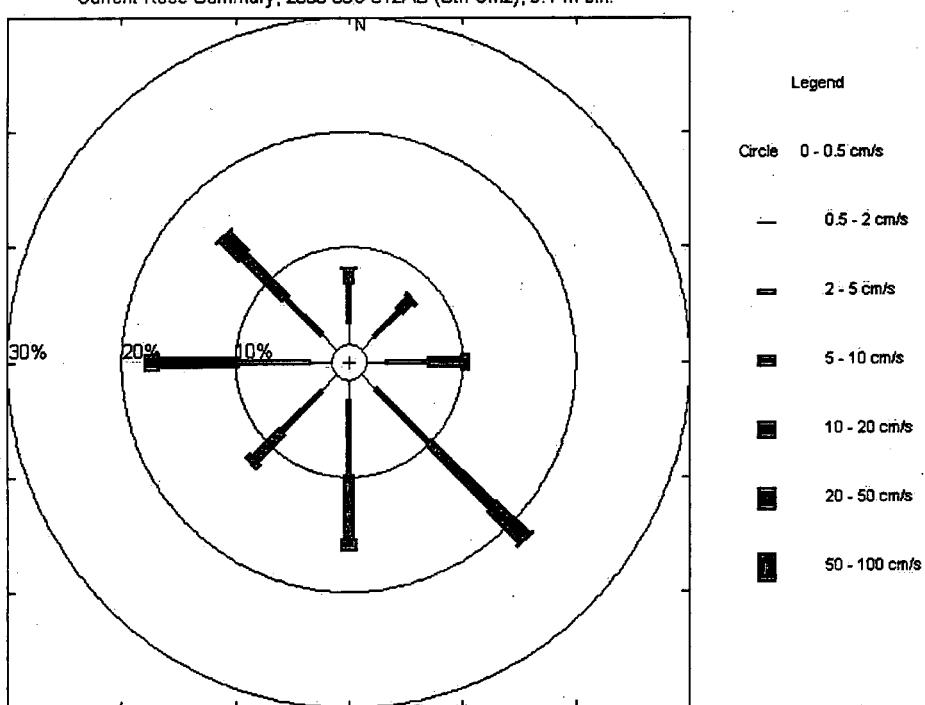
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km.	Mean Current cm/s	
	2	5	10	20	50	100					
Towards	2	5	10	20	50	100	Total	cm/s	hours	km.	
0.0	1.9	3.4	1.3	0.1	0.0	0.0	6.7	14.3	1.3	0.2	3.5
45.0	1.6	3.1	1.3	0.3	0.0	0.0	6.3	20.9	1.9	0.3	3.7
90.0	1.6	3.8	2.9	0.7	0.0	0.0	9.0	20.3	2.0	0.4	4.8
135.0	1.7	6.6	7.9	4.0	0.1	0.0	20.3	27.0	3.0	0.7	6.6
180.0	1.7	6.6	5.6	0.9	0.0	0.0	14.9	24.2	2.4	0.4	5.1
225.0	1.9	5.0	3.4	0.5	0.0	0.0	10.8	14.4	1.9	0.3	4.4
270.0	1.9	6.3	7.0	1.3	0.0	0.0	16.5	19.1	2.6	0.5	5.3
315.0	1.9	4.4	5.3	2.3	0.0	0.0	14.0	21.0	2.7	0.6	6.2

Mean Scalar Speed = 5.3 cm/s

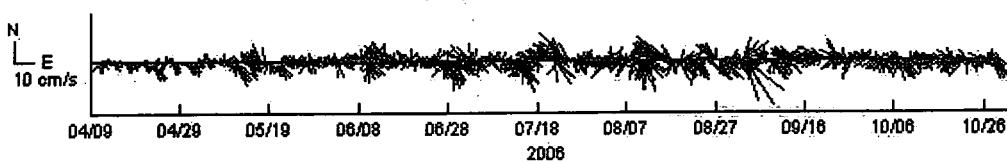
Mean East Speed = -0.3 cm/s, Mean North Speed = -1.1 cm/s  
 Mean Velocity = 1.2 cm/s, 197 deg true  
 Variance = 19.3 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 1.5 14.3 39.2 34.6 10.2 0.2 0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 9.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 9.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 8.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards							Total				
0.0	1.7	3.1	1.3	0.1	0.0	0.0	6.2	12.1	1.3	0.2	3.5
45.0	1.7	3.0	0.8	0.2	0.0	0.0	5.7	17.2	1.6	0.2	3.4
90.0	1.6	3.6	2.8	0.5	0.0	0.0	8.6	21.7	1.9	0.3	4.7
135.0	2.1	6.7	7.7	3.8	0.1	0.0	20.3	26.7	2.8	0.6	6.4
180.0	2.3	7.1	5.7	1.3	0.0	0.0	16.5	25.2	2.3	0.4	5.0
225.0	1.8	5.8	3.3	0.3	0.0	0.0	11.1	12.6	2.0	0.3	4.2
270.0	2.2	5.7	6.4	1.4	0.0	0.0	15.8	18.2	2.5	0.5	5.4
315.0	1.8	4.5	5.6	2.1	0.1	0.0	14.1	20.7	2.6	0.6	6.2

Mean Scalar Speed = 5.2 cm/s

Mean East Speed = -0.4 cm/s, Mean North Speed = -1.1 cm/s

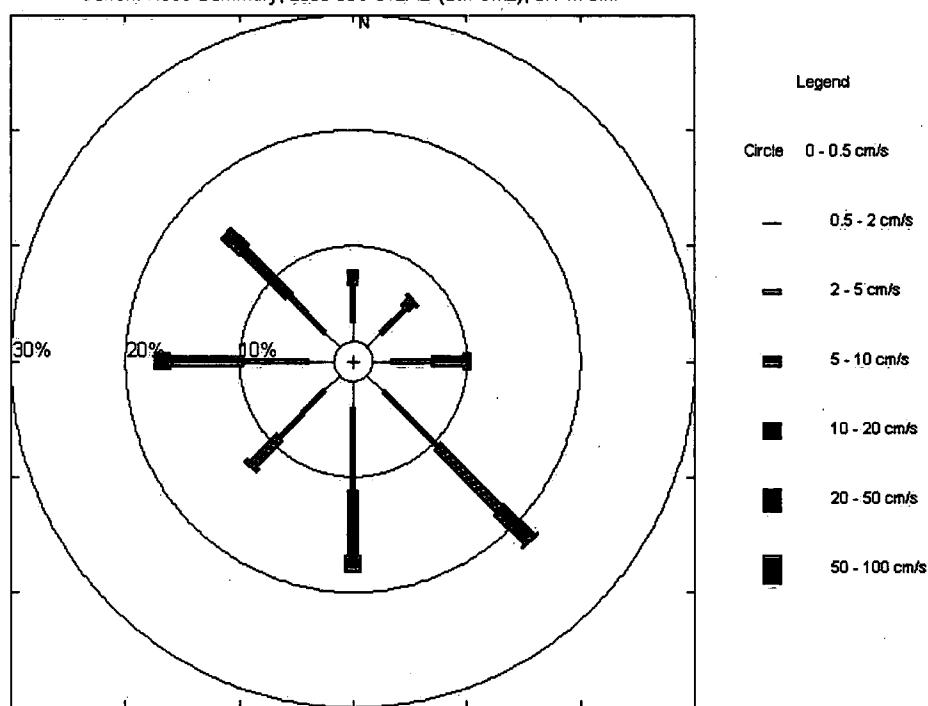
Mean Velocity = 1.2 cm/s, 199 deg true

Variance = 18.8 cm<sup>2</sup>/s<sup>2</sup>

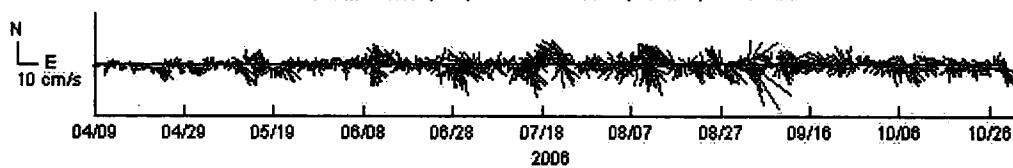
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.7	15.3	39.4	33.5	9.8	0.3	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 8.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 8.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 7.1 metres.  
 First Day 2006/04/12/1600  
 Final Day 2006/10/30/1500  
 There are 4799 readings out of a possible 4824.

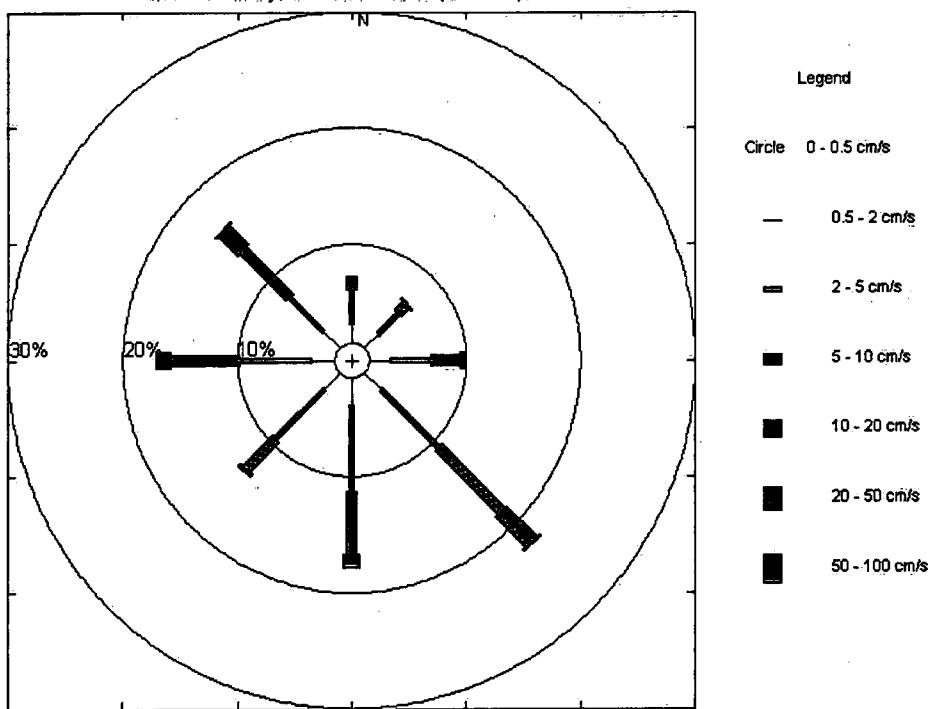
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excur- sion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards	2	5	10	20	50	100	Total	cm/s	hours	cm/s	
0.0	1.6	2.9	1.2	0.1	0.0	0.0	5.8	12.9	1.3	0.2	3.4
45.0	1.7	2.5	1.0	0.1	0.0	0.0	5.4	21.2	1.7	0.2	3.5
90.0	1.8	3.6	2.5	0.5	0.0	0.0	8.4	22.4	1.8	0.3	4.5
135.0	2.1	7.1	7.8	3.7	0.1	0.0	20.7	28.9	2.8	0.6	6.3
180.0	2.4	7.4	5.3	1.2	0.0	0.0	16.3	25.0	2.2	0.4	5.0
225.0	2.0	6.0	3.6	0.3	0.0	0.0	11.9	12.7	2.0	0.3	4.2
270.0	2.0	6.3	6.0	1.2	0.0	0.0	15.5	18.9	2.4	0.5	5.2
315.0	2.1	4.1	5.8	2.3	0.1	0.0	14.4	20.6	2.6	0.6	6.3

Mean Scalar Speed = 5.2 cm/s  
 Mean East Speed = -0.4 cm/s, Mean North Speed = -1.2 cm/s  
 Mean Velocity = 1.2 cm/s, 200 deg true  
 Variance = 18.5 cm^2/s^2

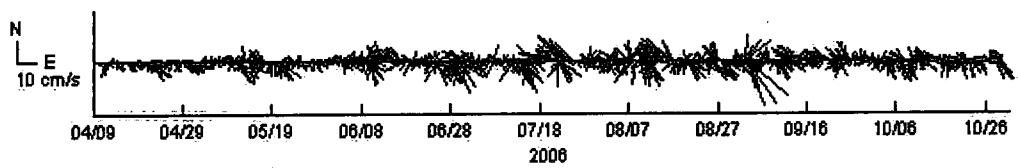
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.5	15.8	39.9	33.1	9.4	0.3	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 7.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 7.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 6.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards											
0.0	1.3	2.8	1.3	0.0	0.0	0.0	5.4	11.6	1.3	0.2	3.7
45.0	1.6	2.7	0.9	0.2	0.0	0.0	5.4	21.2	1.6	0.2	3.7
90.0	1.5	3.8	2.4	0.5	0.0	0.0	8.3	21.3	1.7	0.3	4.6
135.0	2.4	7.2	8.0	3.6	0.1	0.0	21.3	36.2	2.8	0.6	6.3
180.0	2.7	7.5	5.2	1.4	0.0	0.0	16.8	26.0	2.1	0.4	5.0
225.0	2.4	5.9	3.1	0.2	0.0	0.0	11.6	14.3	1.9	0.3	4.0
270.0	2.1	6.2	5.7	1.2	0.0	0.0	15.1	18.4	2.4	0.5	5.2
315.0	1.8	4.3	5.7	2.6	0.1	0.0	14.5	22.0	2.6	0.6	6.4

Mean Scalar Speed = 5.2 cm/s

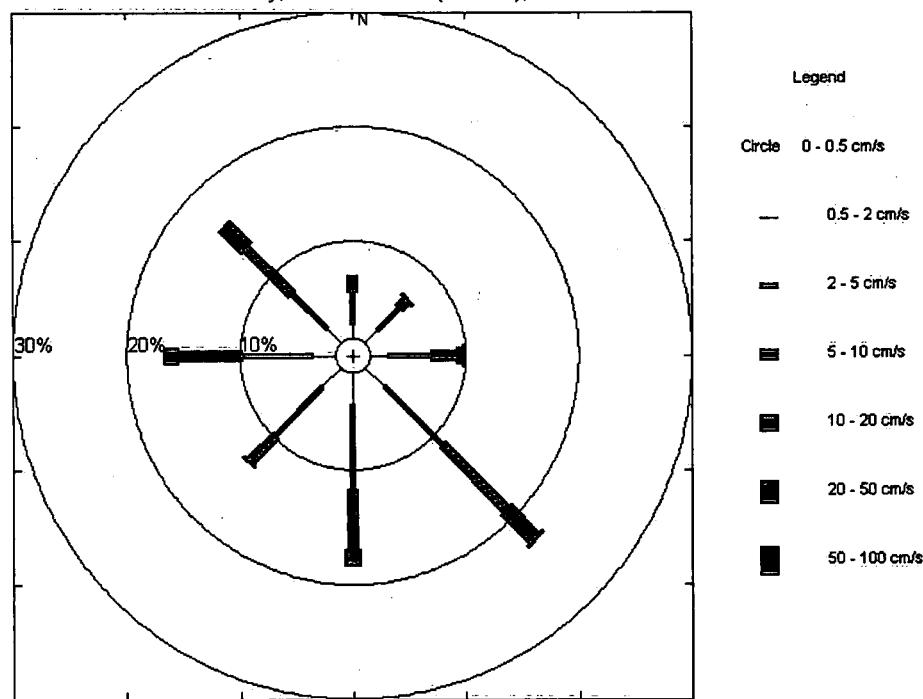
Mean East Speed = -0.3 cm/s, Mean North Speed = -1.2 cm/s

Mean Velocity = 1.2 cm/s, 196 deg true

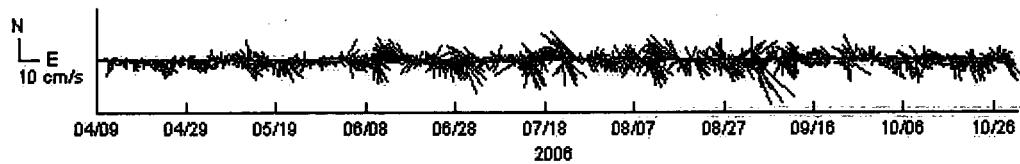
Variance = 18.9 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.5	15.9	40.3	32.3	9.7	0.3	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 6.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 6.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 5.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4799 readings out of a possible 4824.

Direction Deg True	Percent (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards	2	5	10	20	50	100	Total				
0.0	1.4	3.0	1.5	0.1	0.0	0.0	6.1	12.9	1.3	0.2	3.7
45.0	1.5	3.0	1.3	0.3	0.0	0.0	6.0	21.8	1.7	0.2	4.0
90.0	1.6	3.9	2.8	0.7	0.0	0.0	9.0	22.3	1.7	0.3	4.9
135.0	2.0	7.3	8.0	3.9	0.2	0.0	21.4	29.8	2.7	0.6	6.4
180.0	2.7	7.3	5.5	1.4	0.0	0.0	17.0	23.8	2.1	0.4	5.0
225.0	2.0	5.2	2.8	0.4	0.0	0.0	10.4	13.1	1.9	0.3	4.3
270.0	2.0	5.1	5.3	1.4	0.0	0.0	13.8	18.7	2.3	0.4	5.4
315.0	1.7	4.8	5.8	2.7	0.0	0.0	14.9	22.1	2.6	0.6	6.4

Mean Scalar Speed = 5.3 cm/s

Mean East Speed = -0.2 cm/s, Mean North Speed = -1.1 cm/s

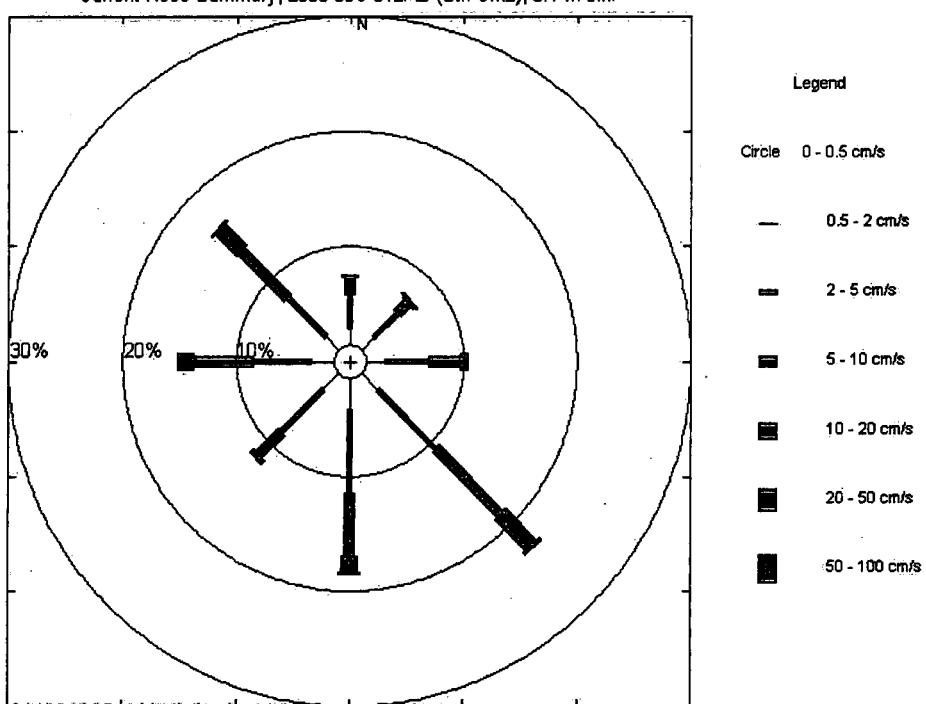
Mean Velocity = 1.2 cm/s, 189 deg true

Variance = 19.9 cm^2/s^2

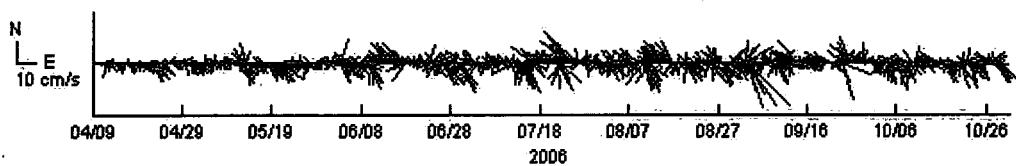
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.4	15.0	39.5	33.0	10.9	0.3	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 5.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 5.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 4.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4792 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current	Mean Duration	Mean Excursion	Mean Current
	2	5	10	20	50	100				
Towards							Total	cm/s	hours	km
0.0	1.2	3.5	2.3	0.3	0.0	0.0	7.3	14.0	1.3	0.2
45.0	1.1	3.1	1.9	0.4	0.0	0.0	6.5	22.2	1.8	0.3
90.0	1.9	3.4	3.1	1.0	0.0	0.0	9.4	22.5	1.7	0.3
135.0	1.9	7.2	7.9	4.0	0.2	0.0	21.1	30.0	2.5	0.6
180.0	2.1	6.6	6.1	1.6	0.0	0.0	16.5	24.7	2.0	0.4
225.0	1.8	5.3	3.2	0.6	0.0	0.0	10.9	17.1	1.8	0.3
270.0	1.7	4.4	4.9	1.2	0.0	0.0	12.2	16.0	2.2	0.4
315.0	1.5	4.5	5.7	3.0	0.0	0.0	14.7	20.9	2.5	0.6

Mean Scalar Speed = 5.6 cm/s

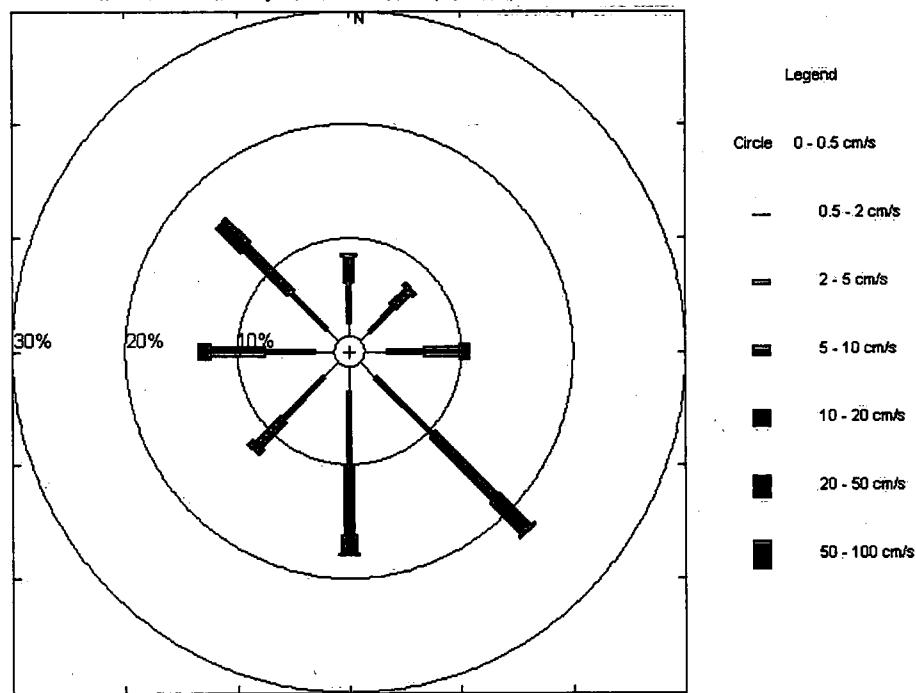
Mean East Speed = -0.0 cm/s, Mean North Speed = -1.1 cm/s

Mean Velocity = 1.1 cm/s, 182 deg true

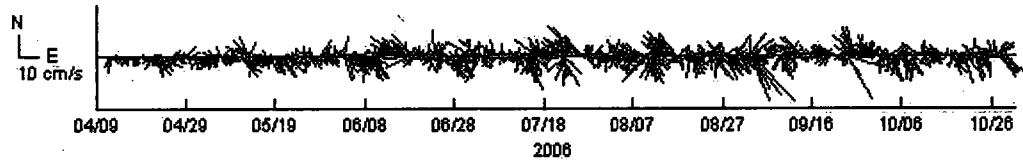
Variance = 21.7 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.4	13.1	38.1	35.0	12.1	0.3	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 4.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn. CM2), 4.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 3.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 4777 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current Total	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.4	2.8	3.0	0.8	0.0	0.0	7.9	15.1	1.4	0.3
45.0	1.1	3.0	2.5	0.6	0.0	0.0	7.3	23.6	1.7	0.3
90.0	1.4	4.0	4.1	1.7	0.0	0.0	11.2	21.1	1.8	0.4
135.0	1.7	6.0	8.4	4.0	0.3	0.0	20.4	31.2	2.4	0.6
180.0	1.6	5.5	6.3	2.2	0.0	0.0	15.6	24.2	1.9	0.4
225.0	1.3	4.4	3.9	0.9	0.0	0.0	10.5	22.0	1.8	0.3
270.0	1.1	4.4	4.5	1.6	0.0	0.0	11.7	19.4	2.2	0.5
315.0	1.4	3.7	5.8	3.5	0.0	0.0	14.4	21.2	2.6	0.7

Mean Scalar Speed = 6.2 cm/s

Mean East Speed = 0.1 cm/s, Mean North Speed = -1.0 cm/s

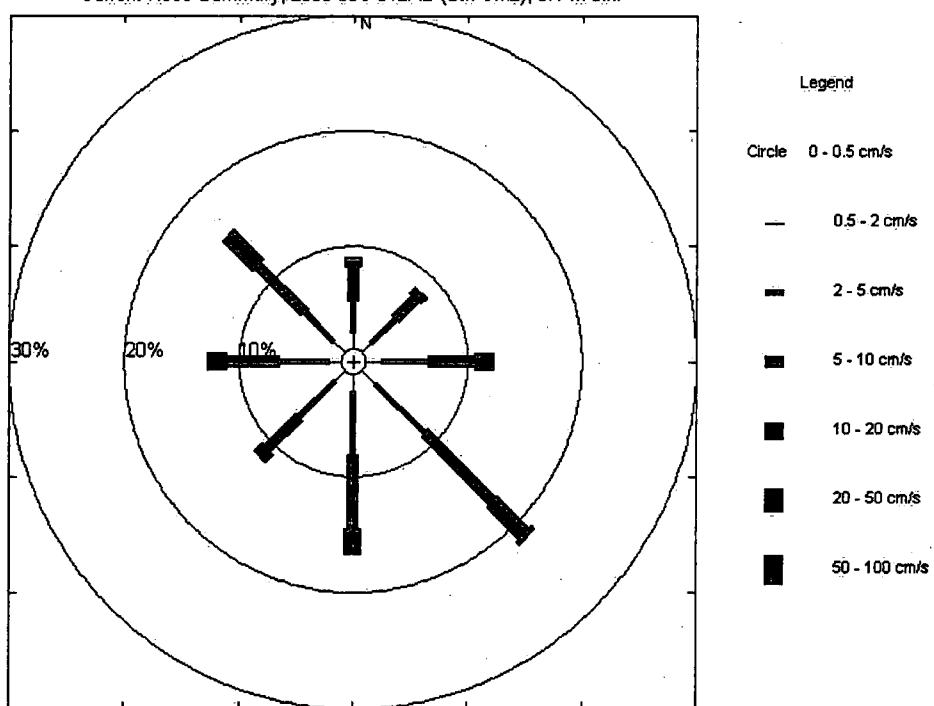
Mean Velocity = 1.0 cm/s, 172 deg true

Variance = 26.0 cm^2/s^2

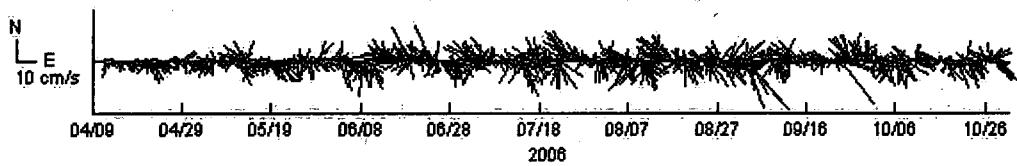
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.1	10.9	33.7	38.5	15.3	0.4	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 3.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 3.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 2.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 3960 readings out of a possible 4824..

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.0	2.2	3.5	1.6	0.0	0.0	8.4	21.3	1.3	0.3
45.0	0.7	2.6	3.2	1.3	0.0	0.0	7.9	20.3	1.7	0.4
90.0	1.4	3.3	5.6	2.8	0.2	0.0	13.3	25.7	1.8	0.5
135.0	1.2	5.4	8.9	5.5	0.4	0.0	21.4	32.6	2.4	0.7
180.0	1.4	4.4	6.7	3.0	0.1	0.0	15.7	24.8	1.8	0.4
225.0	0.9	3.5	3.7	1.6	0.1	0.0	9.8	25.0	1.7	0.4
270.0	0.9	2.7	4.6	1.8	0.1	0.0	10.0	21.3	1.9	0.5
315.0	0.9	3.0	4.8	4.1	0.2	0.0	12.9	23.6	2.1	0.6

Mean Scalar Speed = 7.2 cm/s

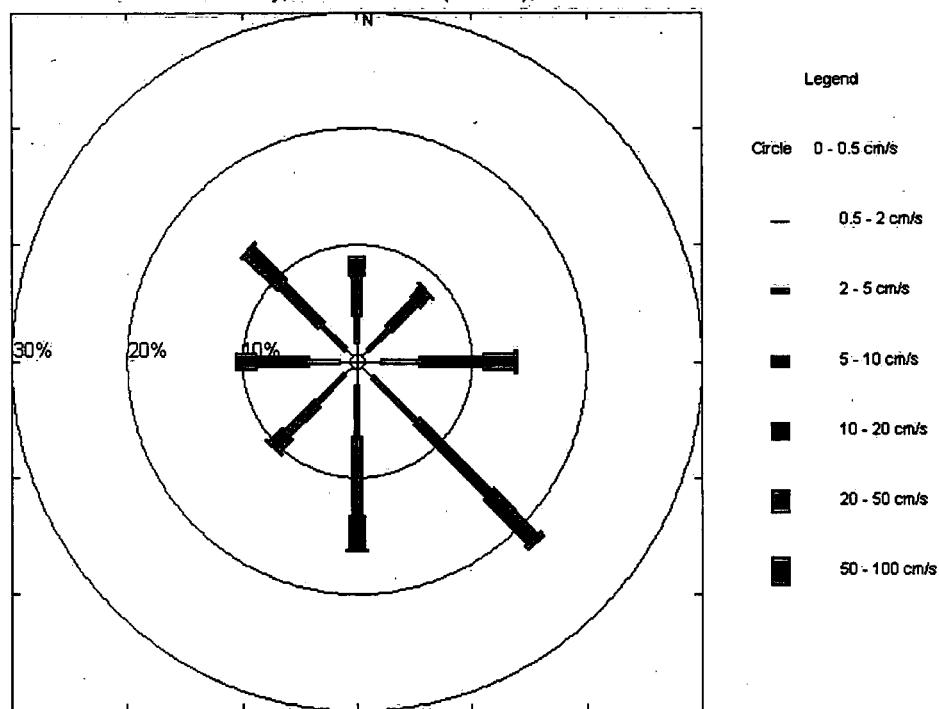
Mean East Speed = 0.7 cm/s, Mean North Speed = -1.1 cm/s

Mean Velocity = 1.3 cm/s, 148 deg true

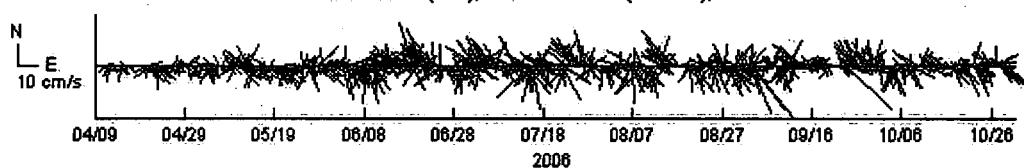
Variance = 34.5 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.6	8.4	27.2	41.0	21.7	1.1	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 2.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 2.1 m bin.



Mooring 2006-00C-012AB (Stn CM2), ADCP bin depth is 1.1 metres.

First Day 2006/04/12/1600

Final Day 2006/10/30/1500

There are 194 readings out of a possible 4824.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.0	3.1	1.0	1.0	0.0	0.0	6.2	13.4	1.2	0.2
45.0	0.5	3.6	2.6	2.1	0.0	0.0	8.8	18.2	1.2	0.3
90.0	1.0	3.6	5.2	6.2	1.5	0.0	17.5	23.3	1.7	0.6
135.0	1.0	3.1	6.2	5.2	0.5	0.0	16.0	20.1	1.4	0.5
180.0	0.5	5.7	7.7	1.0	2.1	0.0	17.0	23.7	1.4	0.4
225.0	0.0	3.1	4.6	3.1	0.0	0.0	10.8	17.3	1.5	0.4
270.0	0.5	2.6	5.7	1.5	0.0	0.0	10.3	14.4	1.3	0.3
315.0	1.5	3.6	5.7	1.5	0.0	0.0	12.4	15.2	1.4	0.3

Mean Scalar Speed = 7.9 cm/s

Mean East Speed = 1.5 cm/s, Mean North Speed = -1.6 cm/s

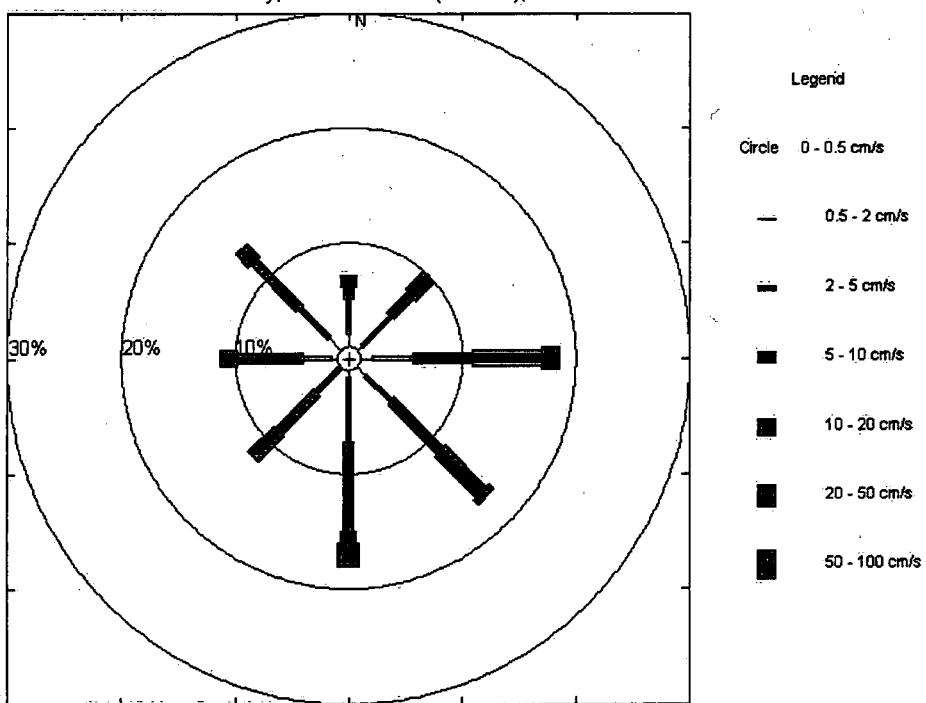
Mean Velocity = 2.2 cm/s, 136 deg true

Variance = 43.7 cm^2/s^2

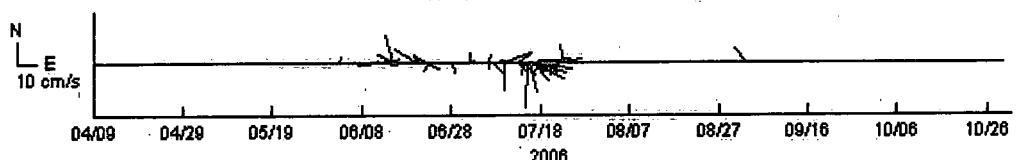
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.0	6.2	28.4	38.7	21.6	4.1	0.0

Current Rose Summary, 2006-00C-012AB (Stn CM2), 1.1 m bin.



Current Vector (Raw), 2006-00C-012AB (Stn CM2), 1.1 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 17.9 metres.  
 First Day 2006/04/12/1500  
 Final Day 2006/07/24/1500  
 There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	2.4	1.8	0.1	0.0	0.0	0.0	4.3	7.4	1.2	0.1
45.0	3.6	5.2	1.5	0.2	0.0	0.0	10.5	15.7	1.8	0.2
90.0	4.5	14.9	15.7	5.8	0.1	0.0	41.0	21.2	4.5	0.9
135.0	4.0	6.5	2.0	0.1	0.0	0.0	12.6	14.9	1.7	0.2
180.0	2.6	2.8	0.2	0.0	0.0	0.0	5.6	7.3	1.4	0.1
225.0	2.7	3.7	0.4	0.0	0.0	0.0	6.7	7.0	1.5	0.1
270.0	3.3	7.6	1.4	0.0	0.0	0.0	12.3	10.3	2.3	0.3
315.0	2.4	1.8	0.2	0.0	0.0	0.0	4.4	8.7	1.3	0.1

Mean Scalar Speed = 4.1 cm/s

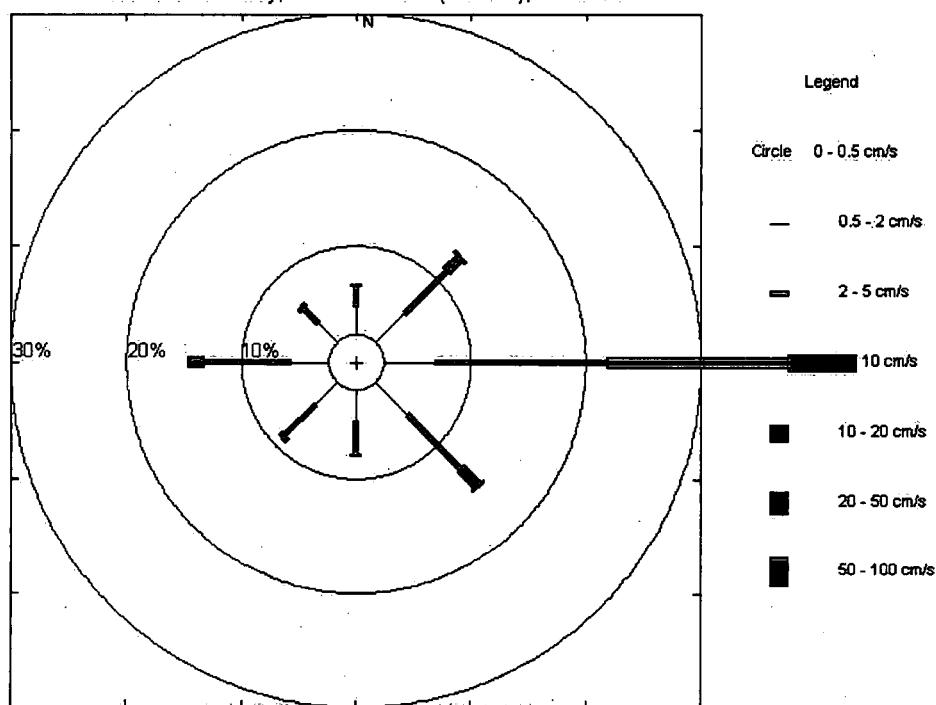
Mean East Speed = 2.4 cm/s, Mean North Speed = -0.1 cm/s

Mean Velocity = 2.4 cm/s, 93 deg true

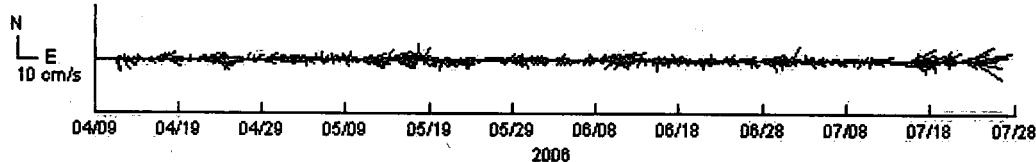
Variance = 10.6 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 2.4 25.5 44.3 21.6 6.2 0.1 0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 17.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 17.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 16.9 metres.  
 First Day 2006/04/12/1500  
 Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	hours	km	cm/s
0.0	2.2	1.9	0.1	0.0	0.0	0.0	4.1	5.3	1.1	0.1
45.0	3.0	4.8	1.5	0.2	0.0	0.0	9.5	15.6	1.7	0.2
90.0	5.4	14.3	16.2	7.2	0.2	0.0	43.2	21.5	4.5	1.0
135.0	3.6	6.8	2.3	0.3	0.0	0.0	13.0	15.3	1.7	0.2
180.0	2.8	2.3	0.2	0.0	0.0	0.0	5.2	6.3	1.3	0.1
225.0	2.6	3.0	0.4	0.0	0.0	0.0	6.1	7.2	1.7	0.1
270.0	3.0	6.6	1.4	0.1	0.0	0.0	11.1	12.0	2.8	0.3
315.0	2.0	2.2	0.4	0.0	0.0	0.0	4.5	9.3	1.5	0.1

Mean Scalar Speed = 4.3 cm/s

Mean East Speed = 2.7 cm/s, Mean North Speed = -0.1 cm/s

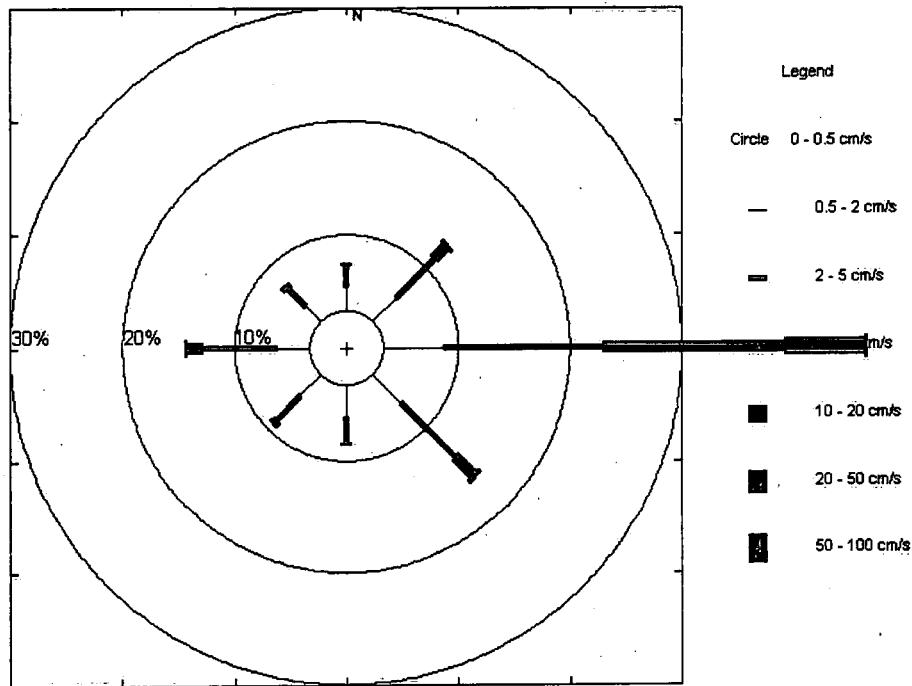
Mean Velocity = 2.7 cm/s, 93 deg true

Variance = 11.9 cm^2/s^2

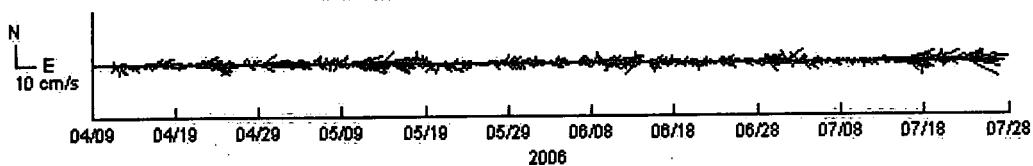
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
3.3	24.5	41.9	22.4	7.8	0.2	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 16.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 16.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 15.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

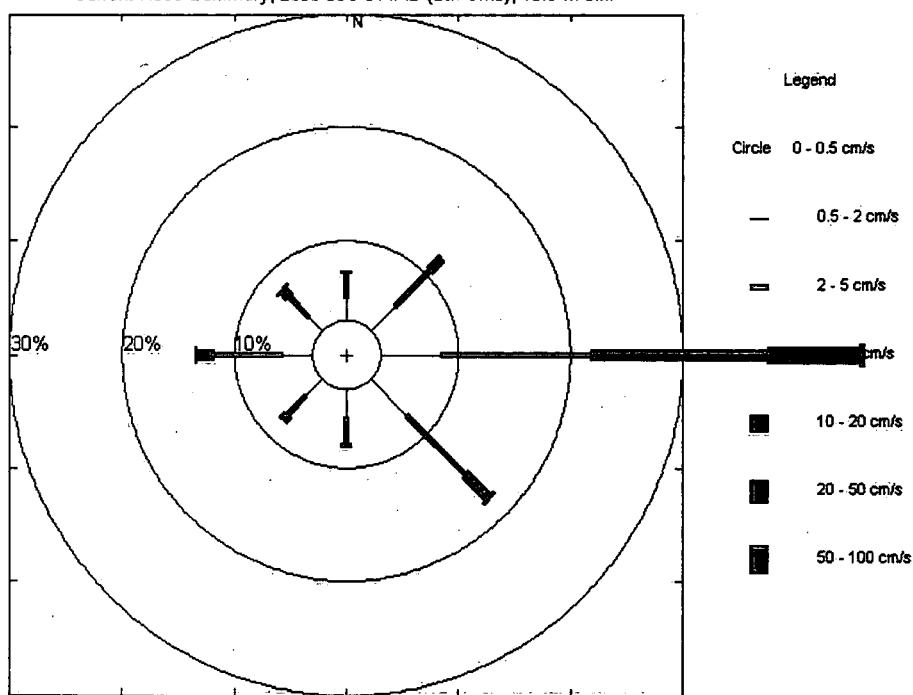
Direction Deg True	Percent Observed (unit of Current Category, cm/s)	Maximum Current cm/s	Mean Dura- hours	Mean Excurs- km	Mean Current cm/s
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Towards	2	5	10	20	50	100	Total	cm/s	hours	tion	sion	km	cm/s
0.0	1.9	2.2	0.2	0.0	0.0	0.0	4.3	6.1	1.3	0.1	2.2		
45.0	3.1	4.3	1.5	0.0	0.0	0.0	8.9	10.5	1.6	0.2	3.1		
90.0	5.3	13.4	15.8	8.2	0.3	0.0	43.0	22.9	4.8	1.1	6.6		
135.0	4.6	7.3	2.9	0.2	0.0	0.0	15.0	13.4	2.0	0.2	3.4		
180.0	2.5	2.4	0.2	0.0	0.0	0.0	5.0	7.2	1.4	0.1	2.2		
225.0	2.1	2.4	0.6	0.0	0.0	0.0	5.0	7.7	1.5	0.1	2.6		
270.0	2.7	6.2	1.5	0.1	0.0	0.0	10.5	13.1	2.6	0.3	3.2		
315.0	1.8	2.4	0.8	0.1	0.0	0.0	5.1	11.7	1.7	0.2	3.1		

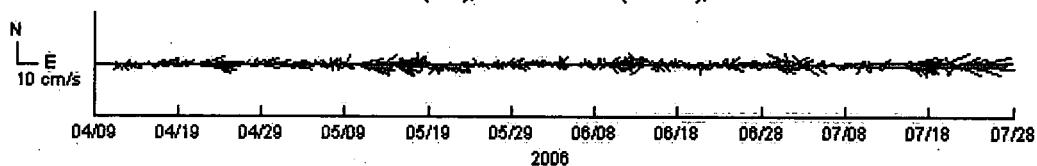
Mean Scalar Speed = 4.5 cm/s  
 Mean East Speed = 2.9 cm/s, Mean North Speed = -0.2 cm/s  
 Mean Velocity = 2.9 cm/s, 94 deg true  
 Variance = 13.3 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 3.0 24.0 40.6 23.4 8.6 0.3 0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 15.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 15.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 14.9 metres.  
 First Day 2006/04/12/1500  
 Final Day 2006/07/24/1500  
 There are 2463 readings out of a possible 2473.

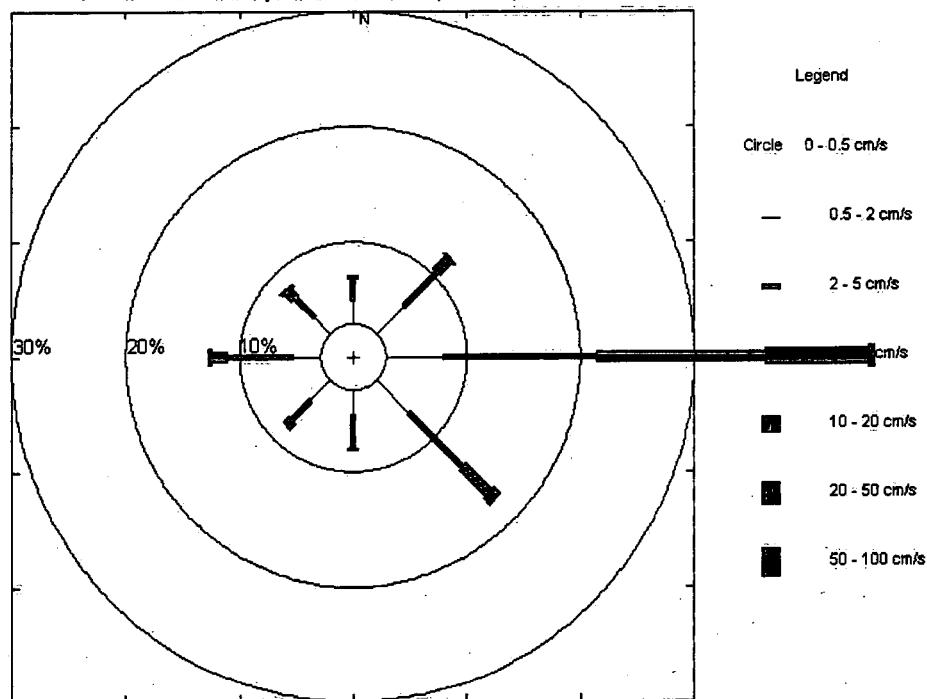
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current	Mean Dura- tion	Mean Excur- sion	Mean Current	
Towards	2	5	10	20	50	100	Total	cm/s	hours	km	cm/s
0.0	2.0	1.9	0.4	0.0	0.0	0.0	4.3	7.1	1.2	0.1	2.5

45.0	3.4	4.1	1.5	0.1	0.0	0.0	9.1	12.4	1.6	0.2	3.1
90.0	5.0	13.5	14.9	9.0	0.5	0.0	43.0	23.4	4.5	1.1	6.8
135.0	4.0	6.7	3.2	0.7	0.0	0.0	14.7	17.6	1.9	0.3	3.9
180.0	2.2	2.9	0.2	0.0	0.0	0.0	5.2	6.4	1.5	0.1	2.3
225.0	2.5	2.4	0.6	0.0	0.0	0.0	5.5	9.2	1.5	0.1	2.6
270.0	2.5	5.7	1.4	0.3	0.0	0.0	9.9	14.3	2.6	0.3	3.4
315.0	2.1	2.3	0.9	0.2	0.0	0.0	5.5	12.1	1.7	0.2	3.2

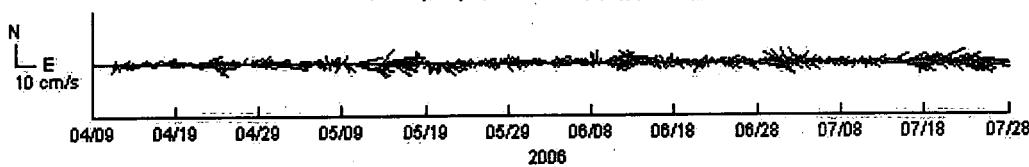
Mean Scalar Speed = 4.8 cm/s  
 Mean East Speed = 3.0 cm/s, Mean North Speed = -0.3 cm/s  
 Mean Velocity = 3.0 cm/s, 95 deg true  
 Variance = 14.7 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 2.9 23.7 39.5 23.1 10.3 0.5 0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 14.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 14.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 13.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

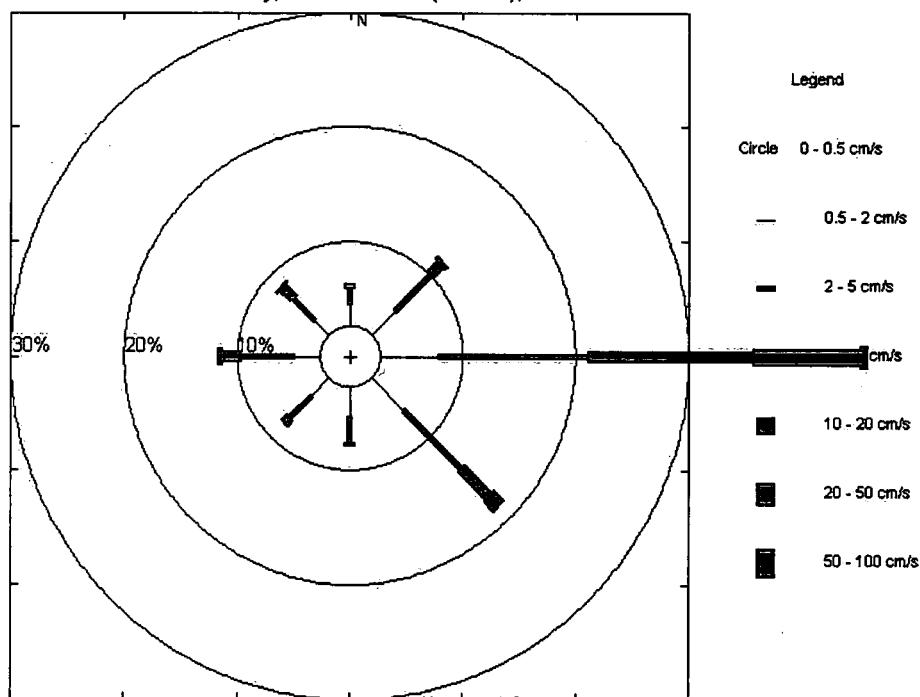
Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	1.9	1.4	0.4	0.0	0.0	0.0	3.7	8.1	1.2	0.1
45.0	2.9	4.5	1.3	0.2	0.0	0.0	8.9	11.7	1.7	0.2
90.0	5.1	13.3	14.6	9.4	0.7	0.0	43.1	24.2	4.5	1.1
135.0	4.0	7.2	3.4	1.3	0.0	0.0	15.9	18.9	2.1	0.3
180.0	2.7	2.3	0.2	0.0	0.0	0.0	5.1	5.8	1.5	0.1

225.0	2.3	2.6	0.7	0.0	0.0	0.0	5.6	8.8	1.6	0.2	2.7
270.0	2.3	4.7	1.7	0.4	0.0	0.0	9.1	13.7	2.5	0.3	3.7
315.0	1.7	2.7	1.3	0.2	0.0	0.0	6.0	14.0	1.9	0.3	3.7

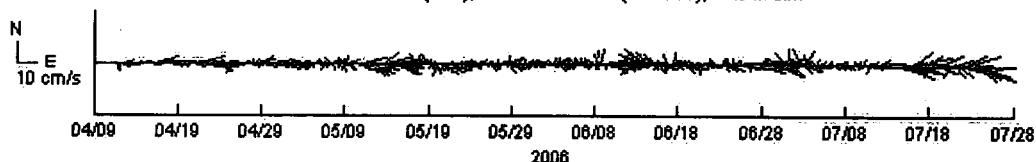
Mean Scalar Speed = 5.0 cm/s  
 Mean East Speed = 3.2 cm/s, Mean North Speed = -0.3 cm/s  
 Mean Velocity = 3.2 cm/s, 96 deg true  
 Variance = 16.3 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 2.7 22.9 38.8 23.5 11.5 0.7 0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 13.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 13.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 12.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

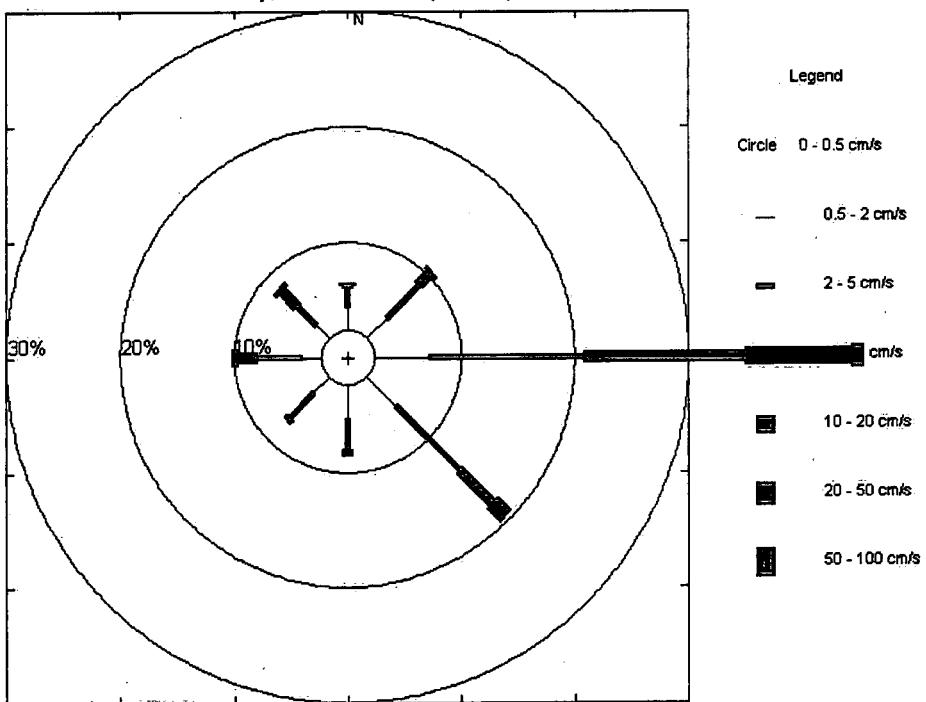
There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	2.1	1.6	0.3	0.1	0.0	0.0	4.1	10.4	1.2	0.1
45.0	2.5	4.0	1.4	0.2	0.0	0.0	8.1	16.0	1.7	0.2
90.0	4.8	13.7	14.2	9.3	1.0	0.0	43.0	25.9	4.5	1.2
135.0	3.6	7.9	4.1	1.5	0.0	0.0	17.2	19.7	2.1	0.3
180.0	2.9	2.8	0.4	0.0	0.0	0.0	6.1	8.6	1.5	0.1
225.0	1.9	3.0	0.3	0.0	0.0	0.0	5.2	8.0	1.6	0.2
270.0	1.7	4.0	1.6	0.5	0.0	0.0	7.8	14.5	2.2	0.3
315.0	1.6	2.4	1.9	0.3	0.0	0.0	6.2	13.7	2.1	0.3

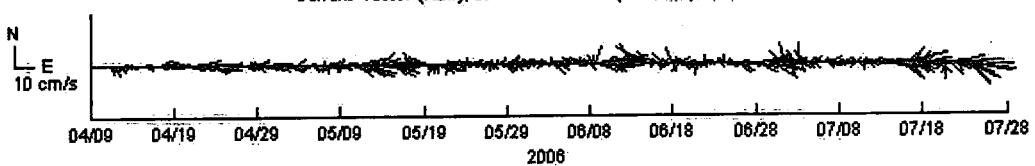
Mean Scalar Speed = 5.2 cm/s  
 Mean East Speed = 3.3 cm/s, Mean North Speed = -0.4 cm/s  
 Mean Velocity = 3.3 cm/s, 98 deg true  
 Variance = 18.1 cm<sup>2</sup>/s<sup>2</sup>

Total Percent Observed for each Current Category (cm/s)  
 0-0.5 0.5-2 2-5 5-10 10-20 20-50 50-100  
 2.4 21.1 39.4 24.2 11.9 1.0 0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 12.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 12.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 11.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.7	1.7	0.4	0.0	0.0	0.0	3.7	12.6	1.1	0.1
45.0	2.8	3.8	1.5	0.2	0.0	0.0	8.3	12.1	1.8	0.2
90.0	3.9	13.0	13.8	9.0	1.2	0.0	40.8	31.3	4.7	1.3
135.0	3.7	8.7	4.5	2.2	0.1	0.0	19.2	21.1	2.3	0.4
180.0	2.1	3.2	0.9	0.1	0.0	0.0	6.2	10.9	1.6	0.2
225.0	2.4	2.9	0.3	0.0	0.0	0.0	5.6	8.2	1.7	0.2
270.0	2.0	4.2	2.0	0.5	0.0	0.0	8.6	13.7	2.6	0.4
315.0	1.2	1.8	1.9	0.8	0.0	0.0	5.7	14.4	2.2	0.4

Mean Scalar Speed = 5.5 cm/s

Mean East Speed = 3.4 cm/s, Mean North Speed = -0.6 cm/s

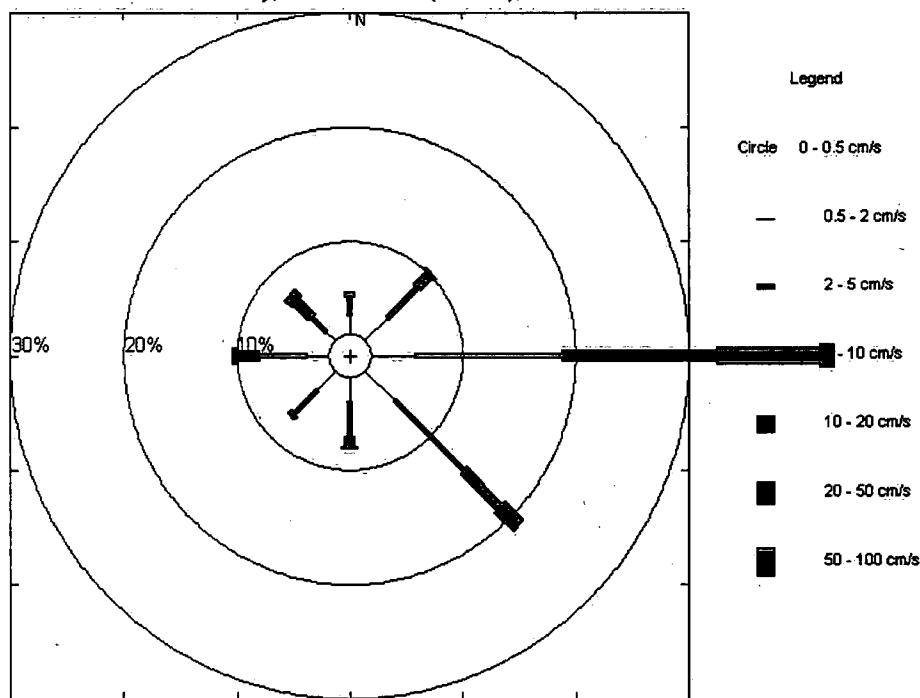
Mean Velocity = 3.4 cm/s, 100 deg true

Variance = 20.0 cm<sup>2</sup>/s<sup>2</sup>

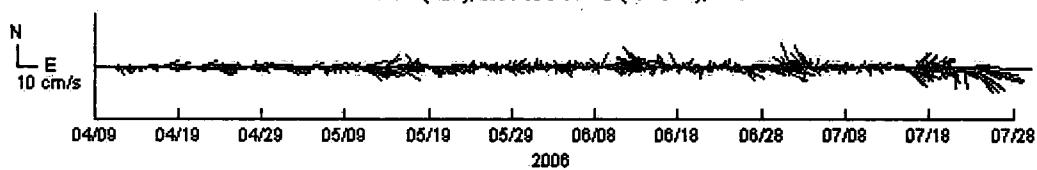
Total Percent Observed for each Current Category (cm/s)

Current Category (cm/s)	0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
	1.9	19.6	39.2	25.3	12.8	1.3	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 11.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 11.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 10.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.6	1.5	0.5	0.1	0.0	0.0	3.7	13.4	1.2	0.1
45.0	2.4	3.7	1.1	0.1	0.0	0.0	7.2	13.1	1.7	0.2
90.0	3.9	12.6	13.7	9.3	1.5	0.0	41.1	34.8	4.5	1.3
135.0	3.5	8.0	5.3	2.1	0.2	0.0	19.1	28.1	2.4	0.4
180.0	3.0	2.8	0.7	0.2	0.0	0.0	6.7	14.3	1.7	0.2
225.0	1.9	2.5	0.9	0.0	0.0	0.0	5.2	8.4	1.6	0.2
270.0	1.9	3.8	1.9	0.7	0.0	0.0	8.3	15.1	2.3	0.4
315.0	1.1	1.5	2.2	1.0	0.0	0.0	5.8	15.3	2.1	0.4

Mean Scalar Speed = 5.7 cm/s

Mean East Speed = 3.4 cm/s, Mean North Speed = -0.7 cm/s

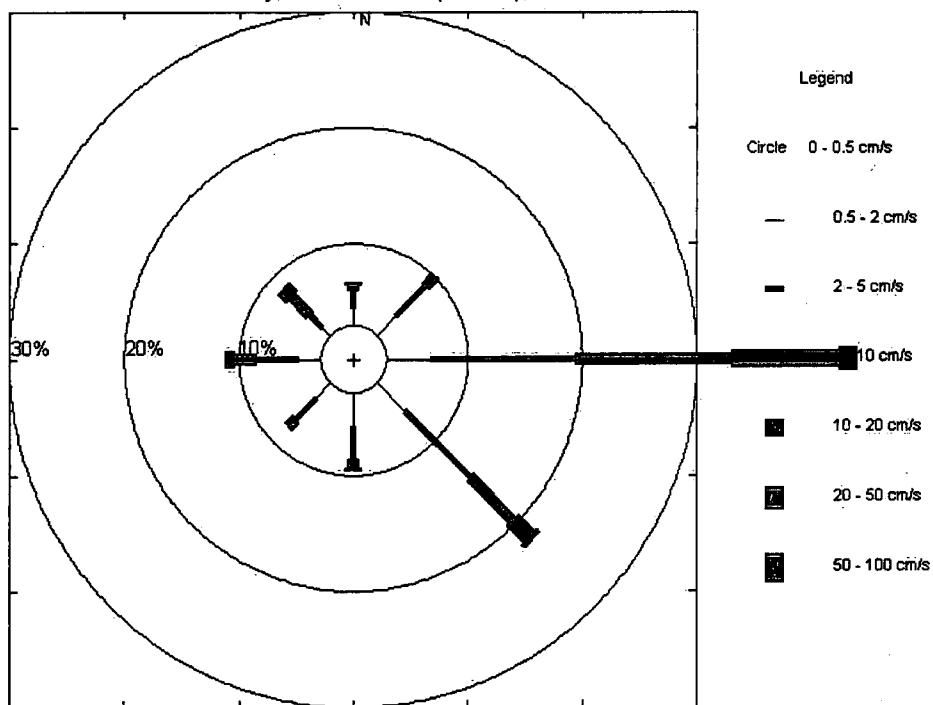
Mean Velocity = 3.4 cm/s, 101 deg true

Variance = 22.1 cm^2/s^2

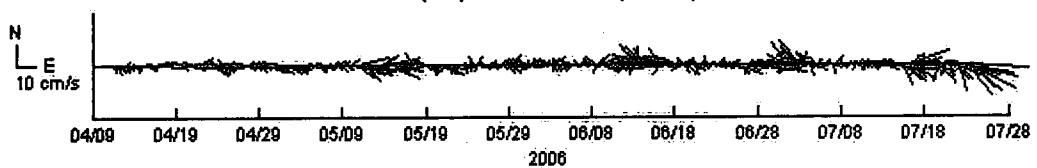
Total Percent Observed for each Current Category (cm/s)

Current Category (cm/s)	0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
	2.9	19.2	36.4	26.3	13.4	1.8	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 10.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 10.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 9.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.4	1.5	0.4	0.1	0.0	0.0	3.4	11.6	1.2	0.1
45.0	2.7	3.3	1.3	0.2	0.0	0.0	7.5	15.6	1.6	0.2
90.0	4.3	12.8	12.3	9.3	1.8	0.0	40.5	35.6	4.5	1.3
135.0	2.9	7.7	6.1	2.7	0.4	0.0	19.8	26.1	2.4	0.5
180.0	2.8	3.0	1.3	0.0	0.0	0.0	7.2	13.1	1.8	0.2
225.0	2.2	2.0	1.0	0.1	0.0	0.0	5.3	11.3	1.6	0.2
270.0	2.1	2.8	2.5	1.0	0.0	0.0	8.4	15.8	2.5	0.4
315.0	1.3	1.7	1.4	1.6	0.0	0.0	5.9	17.4	2.2	0.5

Mean Scalar Speed = 5.9 cm/s

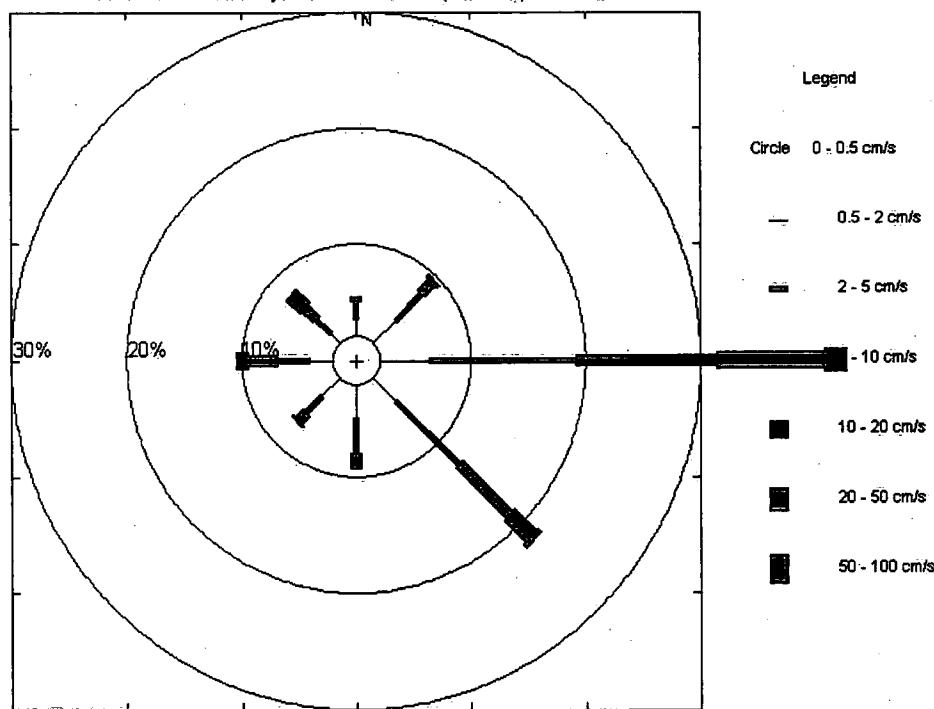
Mean East Speed = 3.4 cm/s, Mean North Speed = -0.8 cm/s

Mean Velocity = 3.5 cm/s, 103 deg true

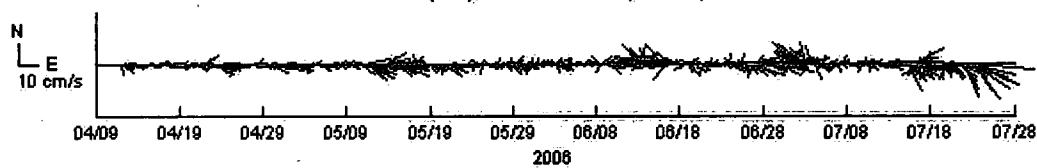
Variance = 24.0 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
2.1	19.7	34.8	26.2	15.0	2.2	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 9.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 9.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 8.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.4	1.8	0.5	0.1	0.0	0.0	3.8	13.3	1.3	0.1
45.0	2.1	3.6	1.1	0.3	0.0	0.0	7.1	11.8	1.7	0.2
90.0	3.7	12.7	11.7	9.3	1.8	0.0	39.3	34.1	4.4	1.3
135.0	2.9	8.2	6.6	2.7	0.4	0.0	20.8	27.8	2.4	0.5
180.0	2.2	3.0	1.3	0.4	0.0	0.0	7.0	24.2	1.6	0.2
225.0	1.9	2.1	0.9	0.2	0.0	0.0	5.0	12.8	1.7	0.2
270.0	1.9	2.7	2.2	1.5	0.0	0.0	8.3	16.5	2.2	0.4
315.0	1.2	1.7	1.5	1.9	0.0	0.0	6.3	18.7	2.2	0.6

Mean Scalar Speed = 6.1 cm/s

Mean East Speed = 3.3 cm/s, Mean North Speed = -0.9 cm/s

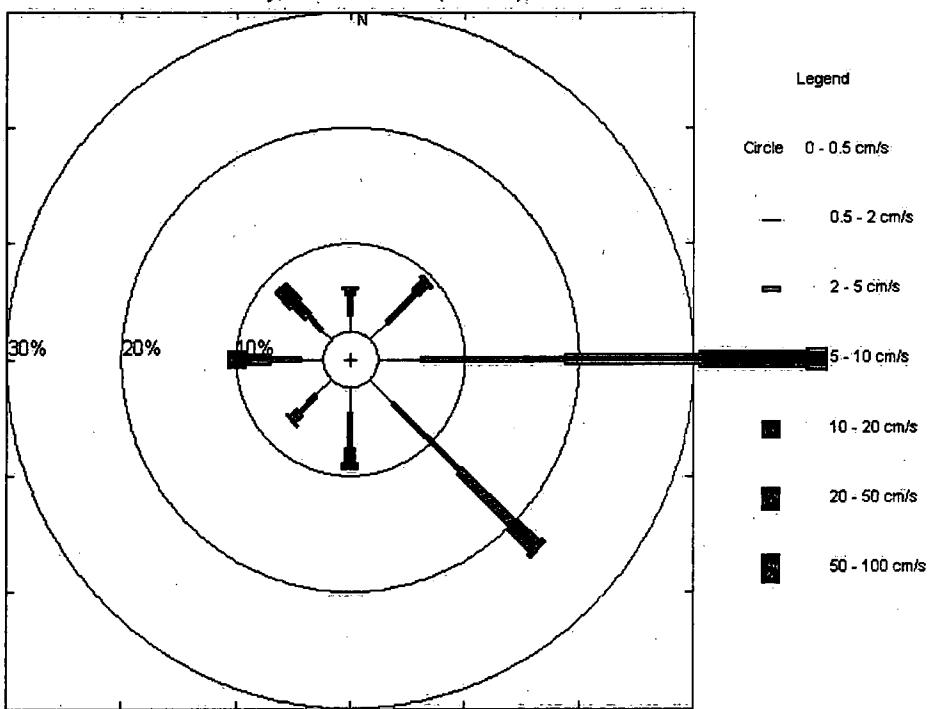
Mean Velocity = 3.4 cm/s, 105 deg true

Variance = 26.4 cm^2/s^2

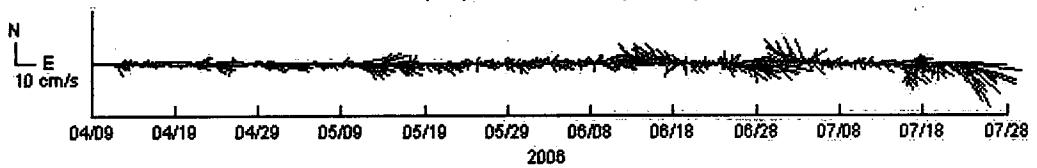
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
2.4	17.3	35.9	25.8	16.4	2.3	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 8.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 8.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 7.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2463 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	1.5	1.7	0.8	0.1	0.0	0.0	4.0	11.9	1.3	0.2
45.0	2.5	3.2	1.2	0.1	0.0	0.0	6.9	11.9	1.7	0.2
90.0	3.2	12.4	11.2	9.4	1.7	0.0	37.9	34.1	4.3	1.2
135.0	3.0	8.2	6.8	2.8	0.6	0.0	21.3	31.0	2.4	0.5
180.0	2.3	2.8	1.4	0.5	0.1	0.0	7.2	26.5	1.6	0.2
225.0	1.7	2.6	0.7	0.2	0.0	0.0	5.2	13.5	1.7	0.2
270.0	2.0	2.2	2.0	2.0	0.0	0.0	8.3	22.8	2.6	0.6
315.0	1.1	1.8	2.2	2.1	0.0	0.0	7.3	20.4	2.5	0.6

Mean Scalar Speed = 6.3 cm/s

Mean East Speed = 3.1 cm/s, Mean North Speed = -0.9 cm/s

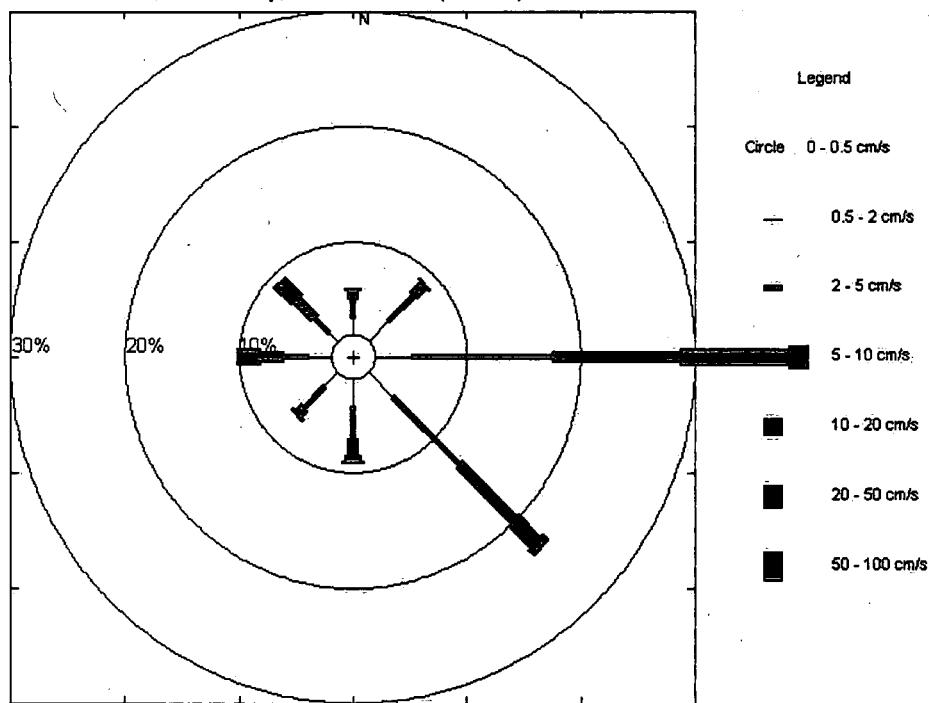
Mean Velocity = 3.2 cm/s, 106 deg true

Variance = 28.8 cm^2/s^2

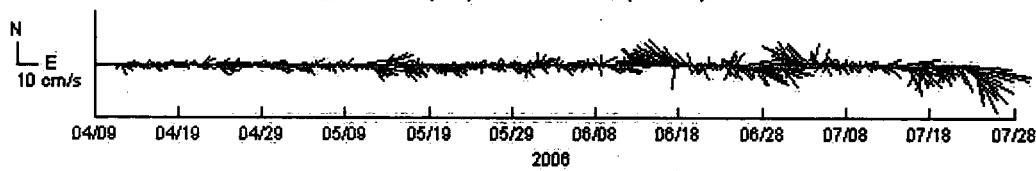
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.9	17.2	34.9	26.3	17.2	2.4	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 7.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 7.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 6.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2462 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards	2	5	10	20	50	100	Total				
0.0	0.9	2.0	0.9	0.0	0.0	0.0	3.8	12.8	1.4	0.2	3.5
45.0	2.2	3.9	0.7	0.0	0.0	0.0	6.8	9.4	1.6	0.2	2.8
90.0	2.5	12.1	11.8	8.8	1.4	0.0	36.6	32.9	4.2	1.2	7.9
135.0	3.0	8.7	6.8	3.2	0.5	0.0	22.3	32.7	2.5	0.6	6.2
180.0	1.3	3.5	1.7	0.7	0.1	0.0	7.4	27.1	1.8	0.3	5.1
225.0	1.6	3.2	0.7	0.2	0.0	0.0	5.7	13.3	1.9	0.2	3.4
270.0	1.3	1.7	2.0	2.6	0.1	0.0	7.7	23.5	2.3	0.6	7.6
315.0	1.2	1.7	2.4	2.2	0.1	0.0	7.7	23.9	2.6	0.7	7.5

Mean Scalar Speed = 6.4 cm/s

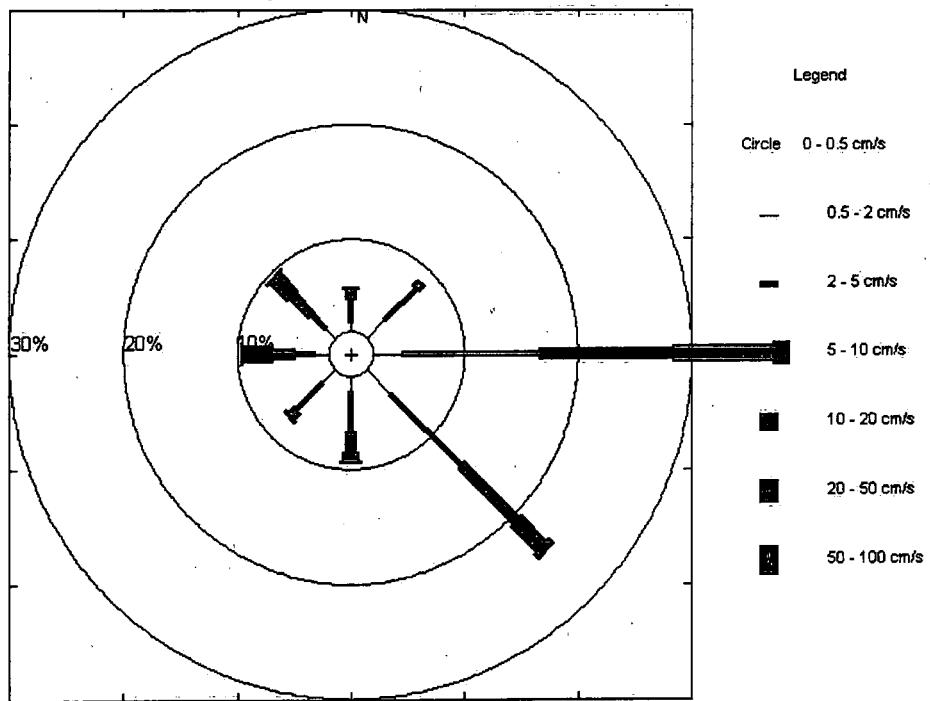
Mean East Speed = 2.9 cm/s, Mean North Speed = -1.0 cm/s

Mean Velocity = 3.1 cm/s, 109 deg true

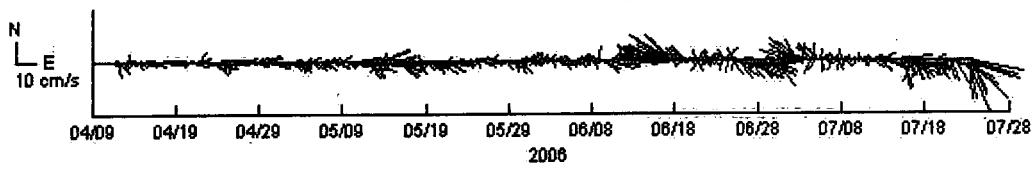
Variance = 29.5 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)						
0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.9	14.0	37.0	27.1	17.7	2.3	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 6.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 6.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 5.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

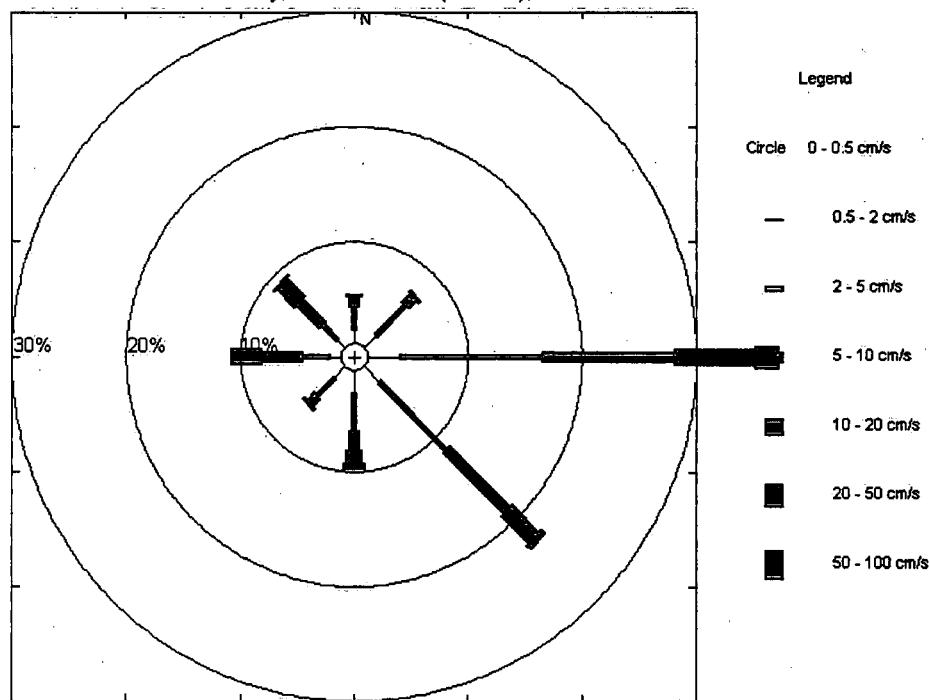
There are 2462 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.1	2.2	0.9	0.1	0.0	0.0	4.2	13.7	1.4	0.2
45.0	1.5	3.7	1.0	0.2	0.0	0.0	6.3	12.6	2.0	0.3
90.0	2.8	12.5	11.6	7.0	2.1	0.0	35.9	30.9	3.9	1.1
135.0	1.9	8.4	7.4	3.4	0.4	0.0	21.5	27.5	2.3	0.5
180.0	2.0	3.3	1.7	1.1	0.4	0.0	8.5	31.4	1.8	0.4
225.0	1.4	2.2	0.9	0.2	0.0	0.0	4.7	12.3	1.6	0.2
270.0	0.9	2.5	3.5	2.7	0.0	0.0	9.6	17.7	2.7	0.7
315.0	0.9	1.9	2.8	2.3	0.1	0.0	8.0	21.5	2.7	0.7
Mean Scalar Speed =	6.6	cm/s								
Mean East Speed =	2.8	cm/s, Mean North Speed =	-1.0	cm/s						
Mean Velocity =	2.9	cm/s, 110 deg true								
Variance =	30.2	cm^2/s^2								

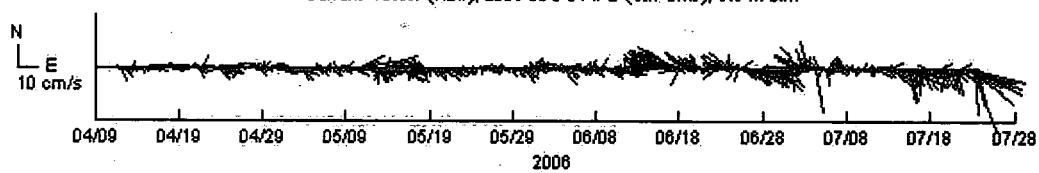
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
1.2	12.6	36.6	29.8	16.9	3.0	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 5.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn. CM3), 5.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 4.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2460 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards										
0.0	1.2	2.1	1.4	0.2	0.0	0.0	4.9	11.6	1.4	0.2
45.0	1.2	2.9	1.4	0.2	0.0	0.0	5.7	18.8	1.6	0.2
90.0	2.5	11.4	11.7	7.2	1.5	0.0	34.3	31.2	3.7	1.0
135.0	1.9	7.6	9.3	3.3	0.8	0.0	22.8	30.5	2.6	0.6
180.0	1.3	2.9	1.6	1.1	0.5	0.0	7.3	26.1	1.8	0.4
225.0	1.3	2.1	1.1	0.1	0.0	0.0	4.6	11.4	1.6	0.2
270.0	1.4	1.8	3.7	2.9	0.1	0.0	9.8	21.7	2.7	0.7
315.0	0.6	2.4	3.0	3.7	0.0	0.0	9.8	21.2	2.8	0.8

Mean Scalar Speed = 6.9 cm/s

Mean East Speed = 2.6 cm/s, Mean North Speed = -1.0 cm/s

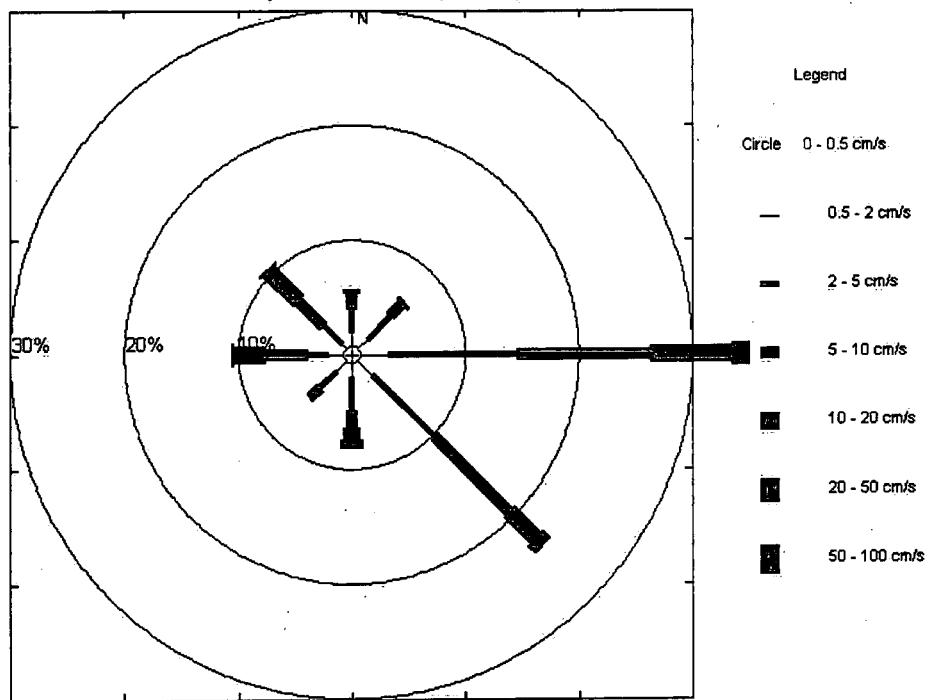
Mean Velocity = 2.8 cm/s, 111 deg true

Variance = 33.3 cm^2/s^2

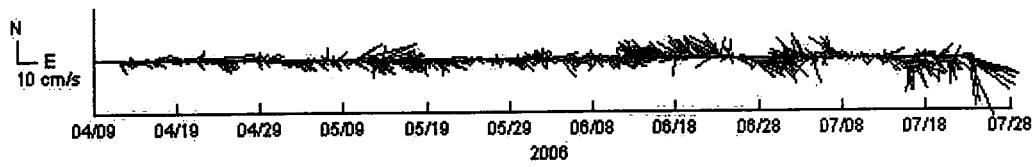
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.7	11.3	33.1	33.3	18.5	3.0	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 4.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 4.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 3.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2447 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s	
	2	5	10	20	50	100					
Towards											
0.0	0.9	2.0	1.3	0.3	0.0	0.0	4.5	16.7	1.4	0.2	4.4
45.0	1.6	3.8	1.8	0.2	0.0	0.0	7.5	20.1	1.8	0.3	4.1
90.0	2.2	9.7	11.9	6.9	1.5	0.0	32.2	28.3	3.7	1.1	8.0
135.0	1.7	6.7	8.8	4.4	1.1	0.0	22.7	31.1	2.6	0.7	7.7
180.0	1.1	2.1	2.4	1.0	0.7	0.0	7.2	27.8	2.0	0.5	7.6
225.0	1.1	1.8	1.4	0.6	0.0	0.0	4.9	13.4	1.7	0.3	5.0
270.0	0.7	1.7	3.3	3.3	0.2	0.0	9.2	23.2	2.9	0.9	8.3
315.0	0.8	2.1	3.2	4.5	0.4	0.0	11.0	29.9	3.2	1.0	9.1

Mean Scalar Speed = 7.4 cm/s

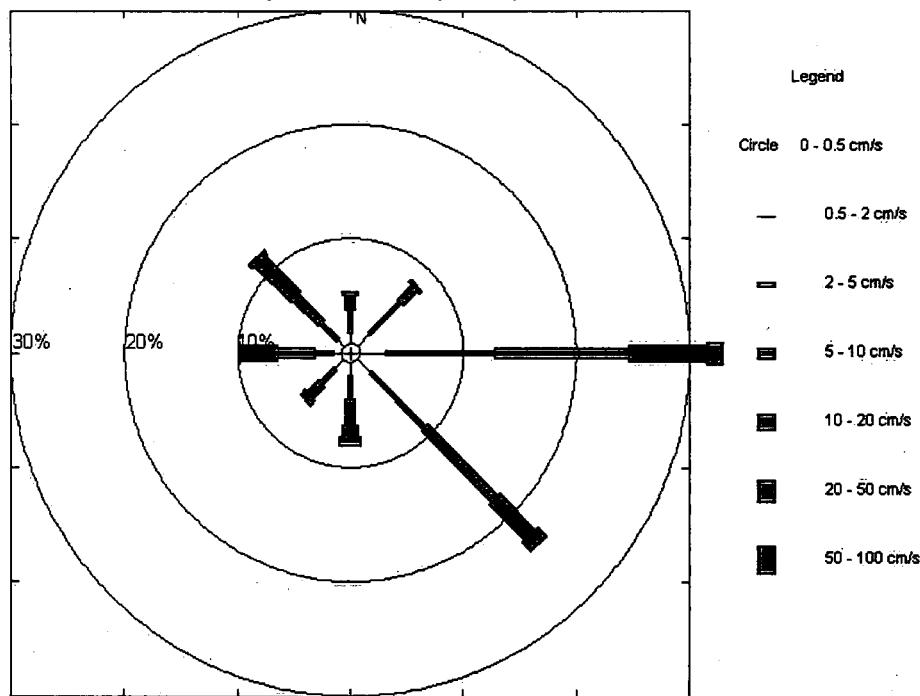
Mean East Speed = 2.5 cm/s, Mean North Speed = -0.9 cm/s

Mean Velocity = 2.7 cm/s, 110 deg true

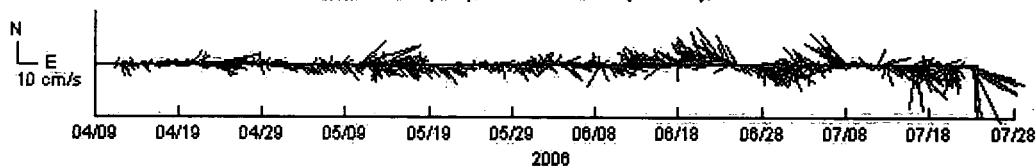
Variance = 38.6 cm^2/s^2

Total Percent Observed for each Current Category (cm/s)					
0-0.5	0.5-2	2-5	5-10	10-20	20-50
0.8	10.1	30.0	34.0	21.2	3.9

Current Rose Summary, 2006-00C-014AB (Stn CM3), 3.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 3.9 m bin.



Mooring 2006-00C-014AB (Stn CM3), ADCP bin depth is 2.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 2410 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total	cm/s	hours	km
0.0	0.9	1.7	2.2	0.6	0.0	0.0	5.4	18.4	1.4	0.3
45.0	1.0	3.9	2.5	0.4	0.1	0.0	7.8	31.6	1.9	0.3
90.0	1.3	8.9	11.3	7.6	1.5	0.0	30.6	31.7	3.3	1.0
135.0	1.2	5.9	9.0	5.1	1.1	0.0	22.4	31.7	2.6	0.8
180.0	1.1	2.7	2.3	0.9	0.6	0.0	7.6	30.6	1.8	0.5
225.0	0.9	1.8	1.7	0.9	0.0	0.0	5.2	17.0	1.8	0.4
270.0	1.0	1.8	3.0	3.7	0.0	0.0	9.5	23.3	2.9	0.9
315.0	0.6	1.7	3.8	4.2	0.5	0.0	10.7	25.2	3.1	1.1

Mean Scalar Speed = 7.9 cm/s

Mean East Speed = 2.6 cm/s, Mean North Speed = -0.8 cm/s

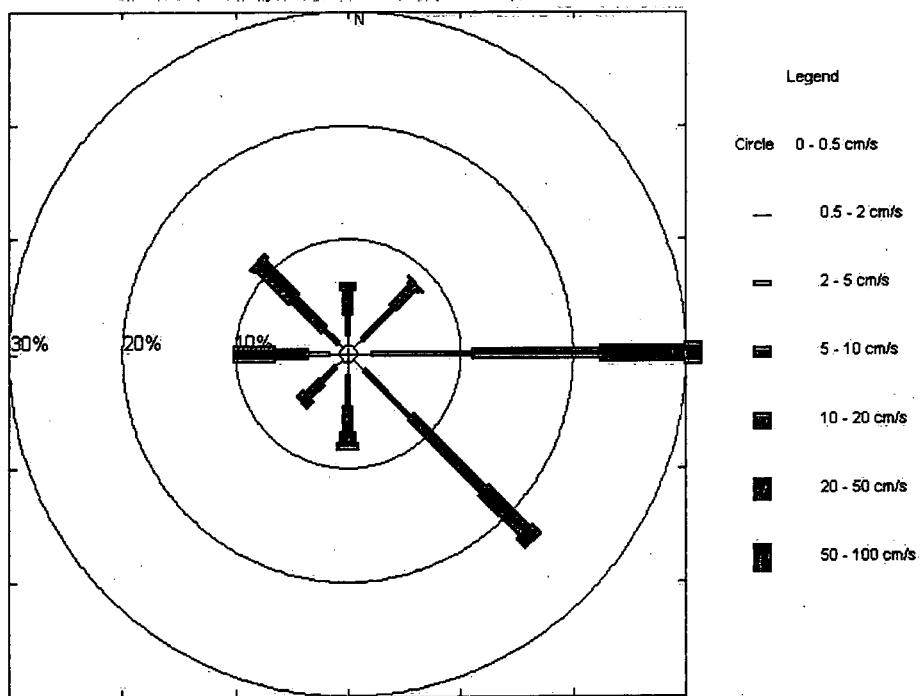
Mean Velocity = 2.7 cm/s, 108 deg true

Variance = 43.3 cm^2/s^2

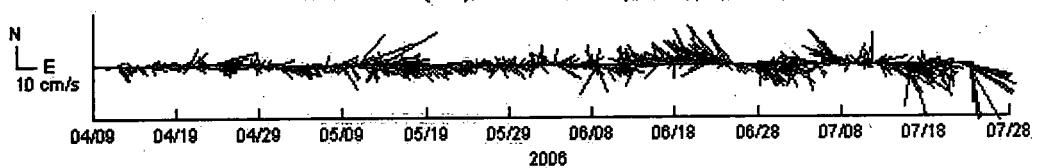
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.7	8.0	28.3	35.9	23.3	3.8	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 2.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn. CM3), 2.9 m bin.



Mooring 2006-00C-014AB (Stn. CM3), ADCP bin depth is 1.9 metres.

First Day 2006/04/12/1500

Final Day 2006/07/24/1500

There are 475 readings out of a possible 2473.

Direction Deg True	Percent Observed (unit of Current Category, cm/s)						Maximum Current cm/s	Mean Duration hours	Mean Excursion km	Mean Current cm/s
	2	5	10	20	50	100				
Towards	2	5	10	20	50	100	Total			
0.0	0.8	2.7	3.4	1.3	0.0	0.0	8.2	18.0	1.1	0.3
45.0	1.7	3.8	4.6	1.9	0.4	0.0	12.4	22.9	1.4	0.3
90.0	1.5	8.0	10.5	9.7	3.4	0.0	33.1	27.4	1.8	0.6
135.0	0.6	6.1	7.4	4.4	1.7	0.0	20.2	33.3	1.5	0.5
180.0	1.1	4.6	2.9	0.4	0.0	0.0	9.1	12.5	1.4	0.2
225.0	1.9	2.3	1.5	0.8	0.0	0.0	6.5	19.1	1.5	0.3
270.0	1.3	1.9	1.1	0.8	0.0	0.0	5.1	14.9	1.2	0.2
315.0	0.4	1.7	1.5	1.3	0.2	0.0	5.1	22.9	2.0	0.6

Mean Scalar Speed = 7.9 cm/s

Mean East Speed = 4.4 cm/s, Mean North Speed = -0.6 cm/s

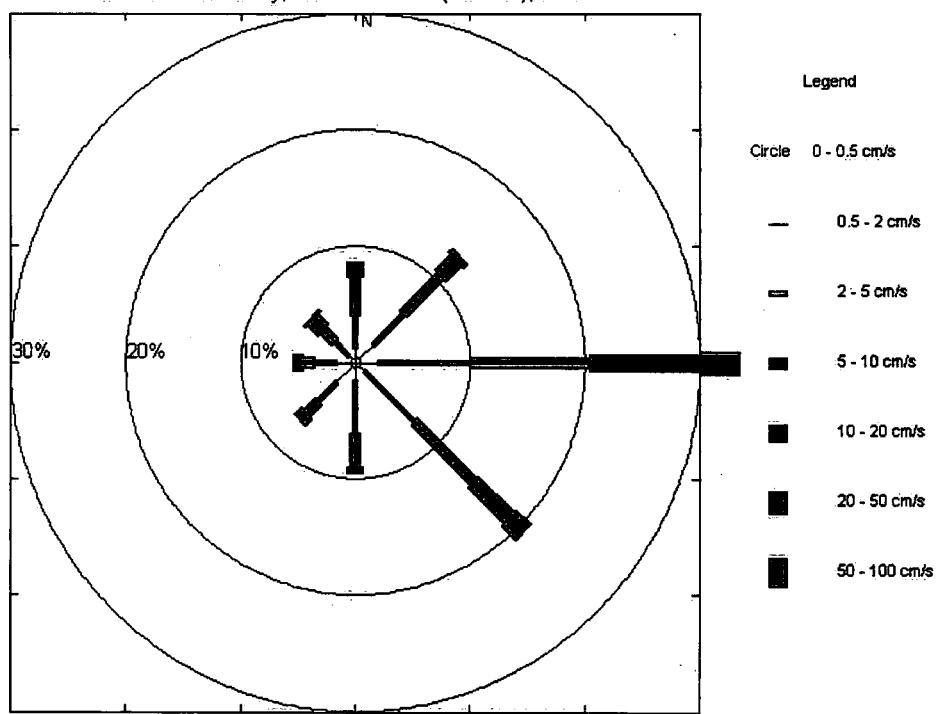
Mean Velocity = 4.5 cm/s, 97 deg true

Variance = 38.8 cm^2/s^2

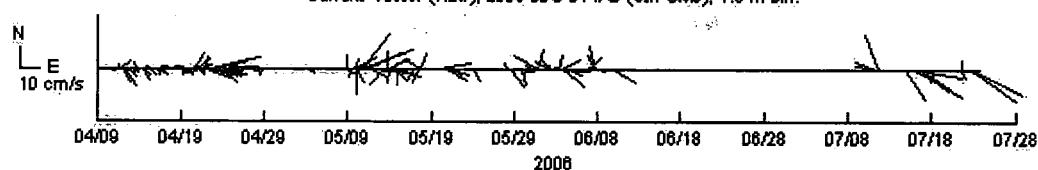
Total Percent Observed for each Current Category (cm/s)

0-0.5	0.5-2	2-5	5-10	10-20	20-50	50-100
0.4	9.3	31.2	32.8	20.6	5.7	0.0

Current Rose Summary, 2006-00C-014AB (Stn CM3), 1.9 m bin.



Current Vector (Raw), 2006-00C-014AB (Stn CM3), 1.9 m bin.





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