

Mobile Platform Observations in the Gulf of Mexico

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- Origin and Technique of Seakeepers
- Data and Meta Data Availability
- Space/Time Structure of the data
- Quality of the data
- Assessment of the present situation

IOOS INTEGRATED OCEAN OBSERVING SYSTEM

GULF OF MEXICO COASTAL OCEAN OBSERVING SYSTEM

DATA PORTAL

Assets | Monitoring | Direct Data Access | DIFSOS | LDN SOS URLs | Vocabularies | Downloads | Contact Us

Report about integration of mobile observation platform data into GCOOS:

web site at <http://www.gcoos.org/> for more information on this regional association.

Region's Current Condition

The following is an interactive map to display resources and status of coastal and ocean observing stations. **Green** markers represent stations in full operation, **orange** markers are those with defective sensors and **red**-marked stations are those that are currently not transmitting data. Click on the station to view station details. Not all stations may be visible at the current scale. Zoom-in on an area to reveal all the stations. The HF Radar overlay uses Coastal Observing Research and Development Center (CORDC) published **HF RADAR API**. [Click here](#) to toggle back to 2D mapping from 3D display.

WHAT'S NEW!

- (2011-08-15) Update was posted on the [Download](#) page for the GCOOS version of IOOS DIF implementation using SQLite DBE. [Click here](#) to go to the Download page.
- (2011-08-05) The BETA version of the mobile-friendly GCOOS Data Portal is now available. Enter the URL "<http://gcoos.org/miami/mobile/>" to view it.



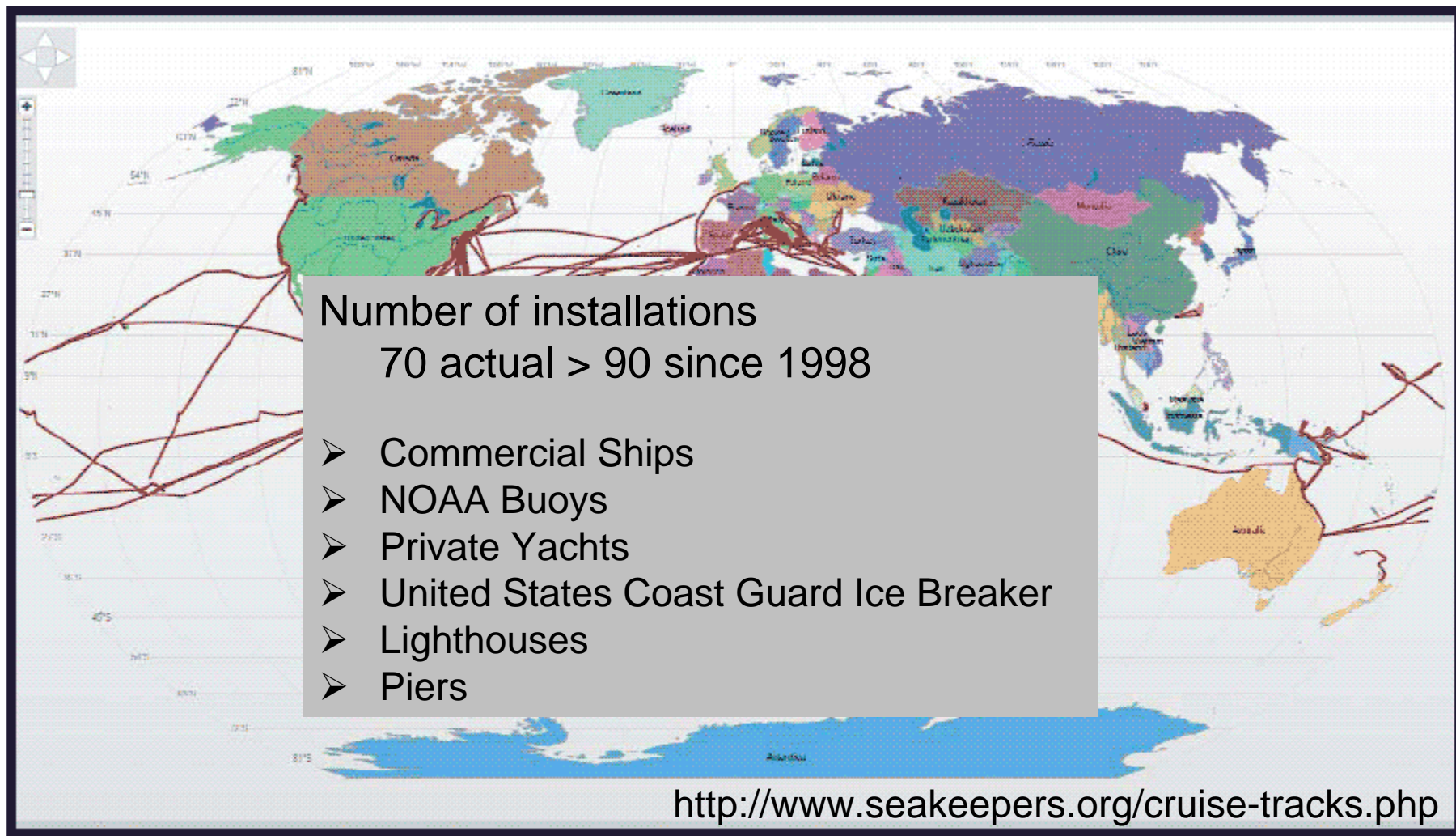
Origin of Seakeepers

“When SeaKeepers Society began 1998, the premise was simple, specific, and altruistic.

- *Could a group of private yacht owners effectively create a new system for oceanographic monitoring, utilizing their vessels as the initial platform for deployment?*
- *Could the system play a meaningful role in helping to measure what is happening in the sea with the ultimate purpose of aiding conservation of the declining marine ecosystem?”*

Mission of Seakeepers

...”to gather and distribute the most useful oceanographic and atmospheric data from which to draw rational conclusions concerning the health of the world’s oceans and climate. This data is provided to governments, scientists, educational institutions and private citizens throughout the world.”



The above image shows the tracks of the satellite data transmissions for SeaKeepers vessels in 2008. In many cases overlapping tracks hide multiple transmission points. In 2008 SeaKeepers will take approximately 9 million data samples; each data sample typically represents at least 10 different precise measurements, which are available to thousands of scientists worldwide analyzing and modeling our changing oceans.

SEAKEEPER 1000™ YSI Appointed Exclusive Licensee

Water intake and antifouling device



Stainless steel braided Teflon discharge hose

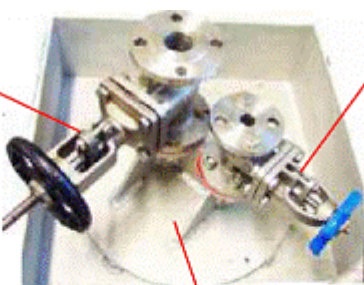
Outside hull

DIMENSIONS
Diameter: 9 inches (230 mm)
Height: 25 inches (640 mm)

Inside hull

1 1/2" Lloyds certified, guillotine, inlet gate valve

DIMENSIONS
Height: 6.5 in. (165 mm)
Max Dim: 15 in. (380 mm)

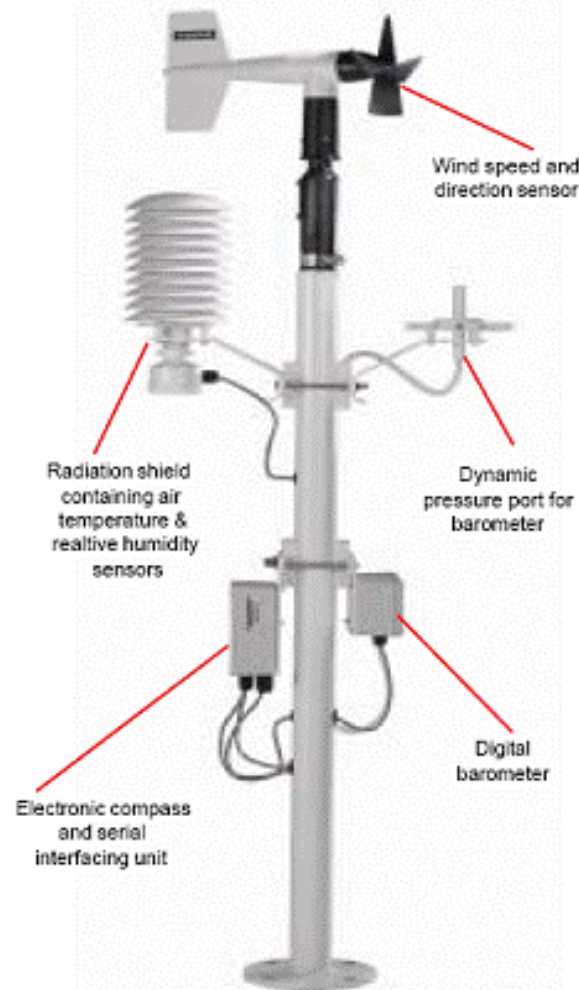


3/4" Lloyds certified discharge gate valve

DIMENSIONS
Height: 4.5 in. (115 mm)
Max Dim: 10 in. (255 mm)

Platinum thermometer and antifouling device external to hull.

Meteorological Station



Wind speed and direction sensor

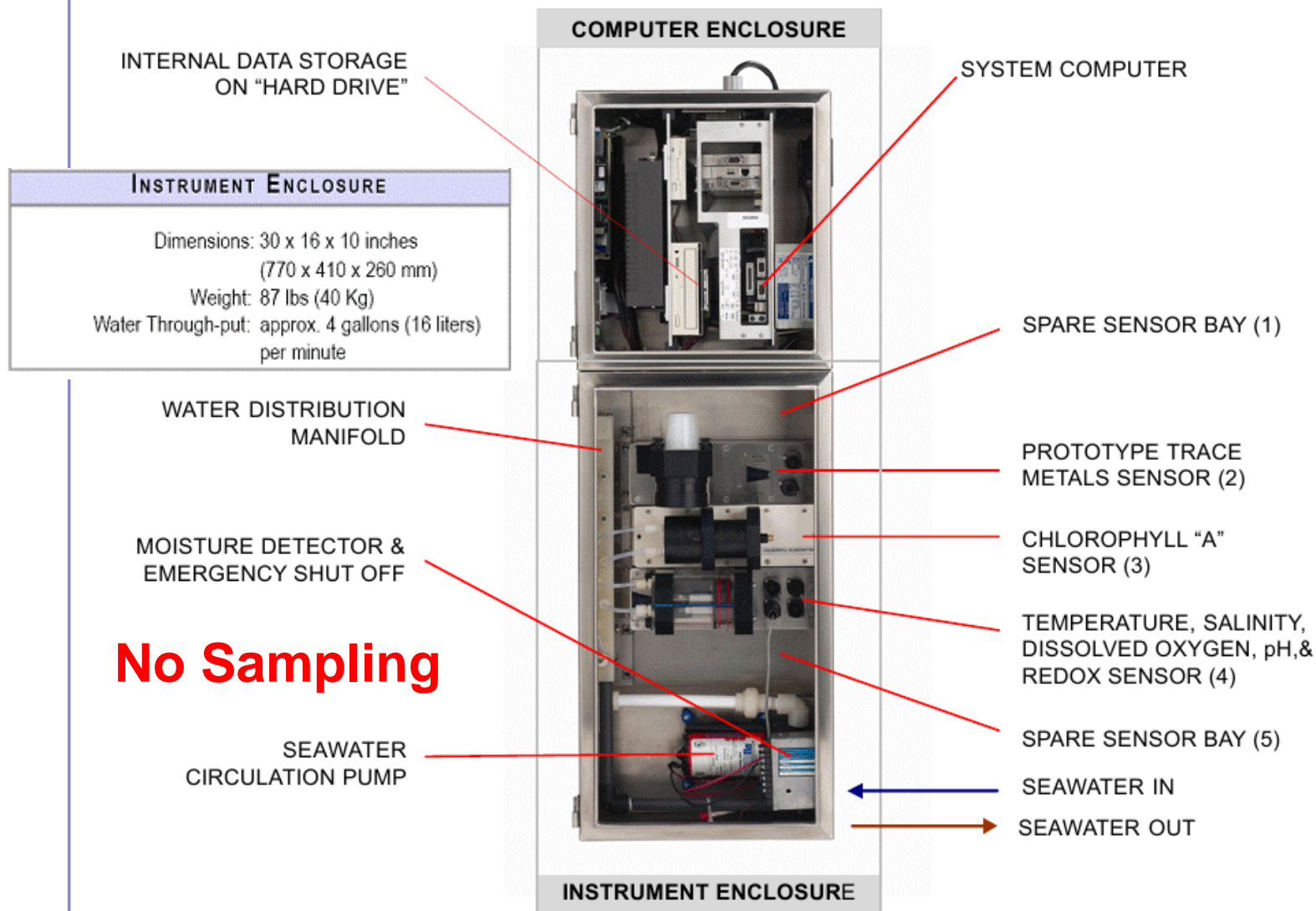
Radiation shield containing air temperature & relative humidity sensors

Dynamic pressure port for barometer

Electronic compass and serial interfacing unit

Digital barometer

SEAKEEPER 1000™ OCEAN MONITORING SYSTEM (doors open)



EXISTING FLOW THROUGH SENSORS



IDRONAUT
6 Parameter Sensor
Measures Conductivity, Temperature, Pressure, O₂, pH, & Redox



SEABIRD ELECTRONICS
Thermosalinograph
Utilizing SBE electrode cell



SEAPOINT SENSORS, INC.
Fluorometer
Measures Chlorophyll "A" concentration



FSIS™
MOUNTING MODULE



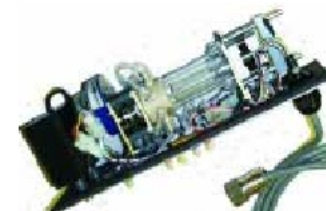
SATLANTIC
ISUS Nitrate Sensor
Measures absorption spectra



GENERAL OCEANICS, Inc
pCO₂ System
Idronaut 7P-CTD (top) and pCO₂ with Equilibrator (bottom)



IDRONAUT/CABE
Trace Metals Sensor



ENVIROTECH
Nutrient Analysis Sensor
Uses Reagents in IV Bags

1 minute high resolution (“raw”) data

- Stored at onboard computer; downloaded and archived by Seakeepers Society
- Not included in the data portals

Transmitted data

- Based on 1 min data
- transmission via Satcom C each three (one) hours
- transmitted data tuples are averages of the last 10 minutes before transmission



<http://data.seakeepers.org/dps/DPSMain2.php>

Data Extraction Request

Home
 Edit Profile
 Data Extraction
 Support
 Logout
 SeaKeepers.org
 Help

Extraction Request | Track Plots | Data Plots

Ship IDs

- KS079
- KS080
- KS081
- KS082
- KS083
- KS084
- KS085
- KS086
- KS087
- KS088**
- KS089

Date Specification

Extraction Begin Date:			Extraction End Date:		
January	1	2008	July	26	2008
February	2	2007	August	27	2007
March	3	2008	September	28	2008
April	4	2009	October	29	2009
May	5	2010	November	30	2010
June	6	2011	December	31	2011

Region Specification:

- World
- User Specified
- Atlantic Ocean
- North Atlantic

MetaData Overview

Geographic Specification

Position 1

Latitude:
 Longitude:

NW Corner of Rectangle:
 Center of Circle:
 Bypass Geographic Specification:

Position 2

Latitude/Radius:
 Longitude:

SE Corner of Rectangle:
 Radius of Circle (n.m.):

Latitude and longitude values can be entered in two ways, as decimal values and in degrees, minutes, and seconds. If entered as degrees, etc., the syntax is -85d43m2s, for example. In both cases, a negative position is indicated by a leading negative sign.

If specifying a geographic rectangle, the smaller of the two possible rectangles is chosen. If specifying a geographic circle, the radius is assumed to be in nautical miles.

Output HTML: Output XML:

Execute Data Request

- No link from Seakeepers Society web pages (or any else)
- Contains meteo- and oceanographic standard sensor data
- Data quality (window with wide ranges) coded in colours
- No data plots

- Works only with



<http://data.seakeepers.org/>

Welcome to Data Administration
The International SeaKeepers Society Data Server

[Home](#) | [Transmitted Data](#) | [Archived Data](#) | [Order Products](#)

SeaKeepers Administration
[Login](#)

You will be able to:
 Register a New Module
 Access Tutos
 Edit Module States
 Download GLOBE Data (IP restricted)
 Download Processed Data
 Upload Processed Data
 Change Your Password

Data Administration
[Login](#)

- For internal use and hence only basic functionality: directory with link to files
- Contains sensor data beyond meteo- and oceanogr. standard
- Clumsy data format
- No quality check

http://seakeepers.org/the-data.php

openSUSE Most Visited GKSS-Umweltdaten GKSS-intern ditundat Search Lexika Wetter Tools conferences usf

Index of ftp... Tampa Wea... Web Portal... Home Ferry... Satcom - C... mark luther... dict.leo.org... Global Clim...

The Seakeeper 1000™

Sensor (FSIS™)

The Data

Calibration Lab

Cruise Tracks

Technology News

Useful Links

Variable	Unit of Measure	Accuracy +/-	Resolution	Reasonable Range	Physical Range	
DATE/TIME/LOCATION STAMP						
Date	MM/DD/YYYY	±.013 sec	.001 sec	MM [1-12]/DD [1-31]/YYYY [2000-2009]		
UTC time	HH:MM:SS	±.013 sec	.001 sec	0 to 23 hours 0 to 23 hours		
Latitude	Degrees	±.02 minutes	.001 minutes	[-90, 90] [-90, 90]		
Longitude	Degrees	±.02 minutes	.001 minutes	[-180, 180] [-180, 180]		
Variable	CodeType	Unit of Measure	Accuracy +/-	Resolution	Reasonable Range	Physical Range
OCEAN DATA						
Cell Pressure	CP IV	Decibars	± 0.1	0.01	[0, 20]	[0, 30]
Cell Temperature (Internal)	CT IV	°C	± 0.003	0.001	[-1.8, 45]	[-1.8, 45]
Conductivity	CND IV	mmho/cm	± 0.003	0.001	[0, 75]	[0, 75]
Sea Surface Salinity (Calc)	SLN P	psa (practical salinity units)	± 0.006	0.001	[0, 45]	[0, 45]
Oxygen Saturation	O2S IV	% Saturation	± 0.1	0.01	[2, 110]	[0, 150]
Oxygen Concentration	O2C P	ppm (mg/liter)	± 0.1	0.1	[0, 12]	[0, 12]
pH	Ph P	pH units	0.14	0.01	[6, 8.5]	[1, 14]
Eh	Eh P	mV (millivolts)	± 1	0.1	[-1000, +1000]	[-1000, 1000]
Sea Surface Temperature (External)	SST P	°C	± 0.003	0.001	[-1.8, 45]	[-1.8, 45]
ATMOSPHERIC DATA						
Wind Speed (apparent)	WS IV	knots	± 0.5	0.1	[0, 120]	[0, 200]
Magnetic Wind Direction (apparent)	MWD IV	Degrees	± 6	0.1	[0, 359.9]	[0, 359.9]
Air Temperature	AT P	°C	± 0.3	0.1	[-30, 45]	[-50, 50]
Relative Humidity	RH P	%	± 2	0.1	[40, 120]	[0, 160]
Barometric Pressure	P P	hPa (hecto Pascals)	± 1	0.06	[940, 1040]	[800, 1080]
Compass Heading	CH IV	Degrees	± 5	0.1	[0, 359.9]	[0, 359.9]
Relative Wind Direction	RWD IV	Degrees	± 5	0.1	[0, 359.9]	[0, 359.9]
True Wind Speed (Calc)	TWS P	Knots	± 0.6	0.1	[0, 120]	[0, 200]
True Wind Direction (Calc)	TWD P	Degrees	± 6	0.1	[0, 359.9]	[0, 359.9]
Course Over Ground (Calc)	COG IV	Degrees	± 3	1	[0, 359.9]	[0, 359.9]
Speed Over Ground (Calc)	SOG IV	Knots	± 0.5	0.1	[0, 50]	[0, 50]

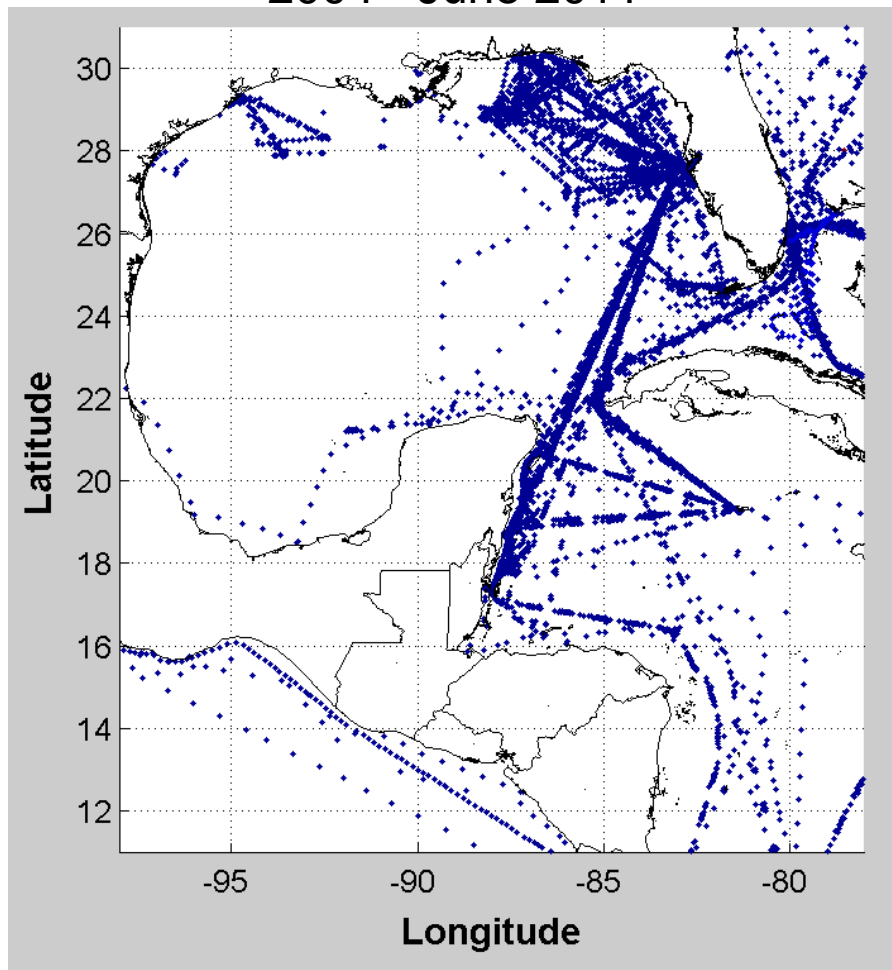
IV - Intermediate Variable
P = Parameter

[to SK-Technology]

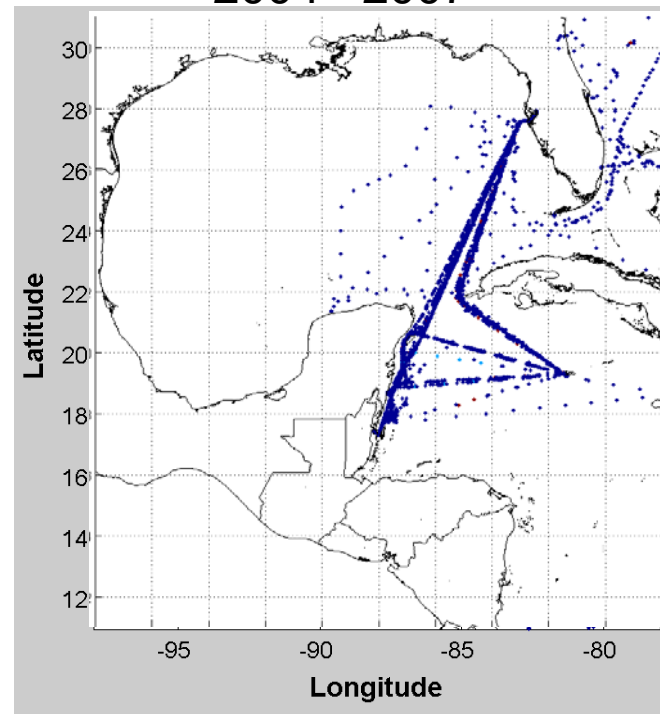
Find: 1238 Previous Next Highlight all Match case Reached end of page, continued from top

All tracks of satellite data transmissions

2004 - June 2011

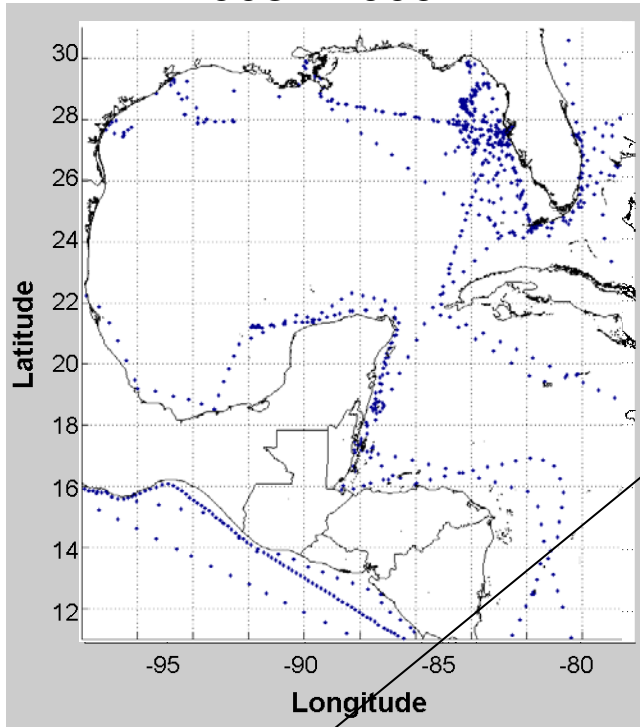


2004 - 2007

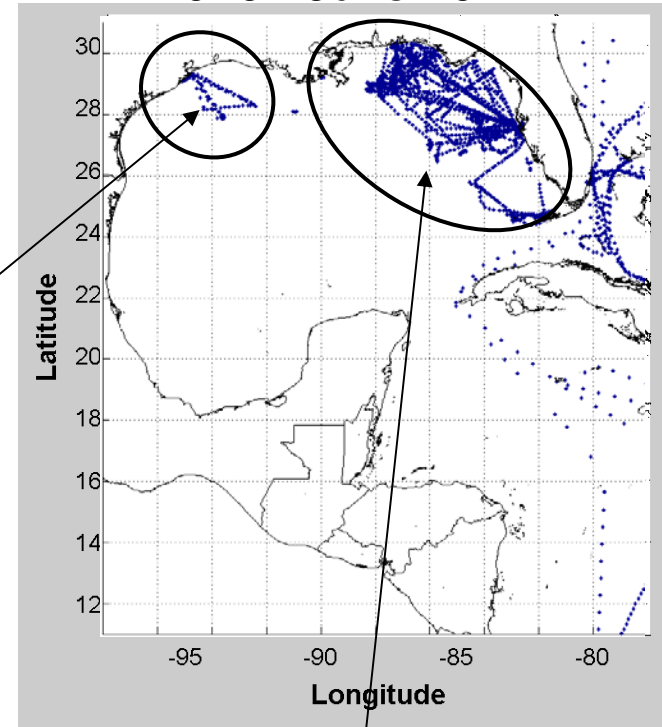


All tracks of satellite data transmissions

2008 - 2009

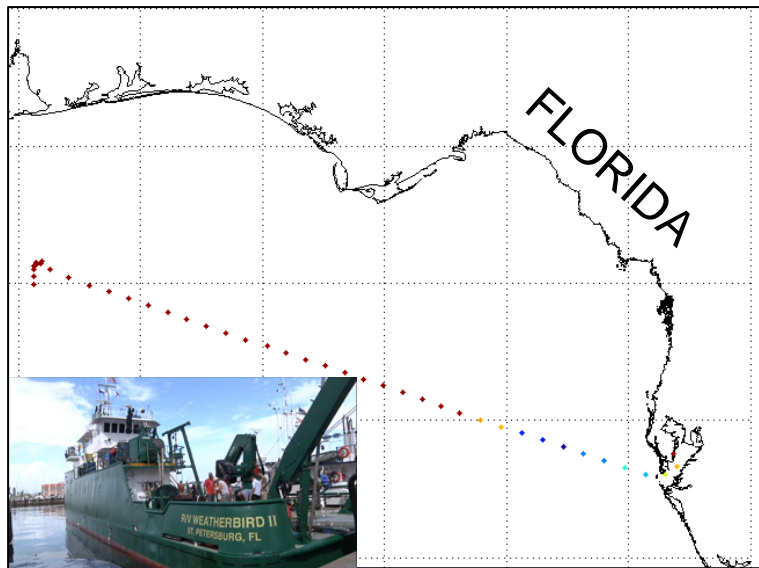


2010 - June 2011



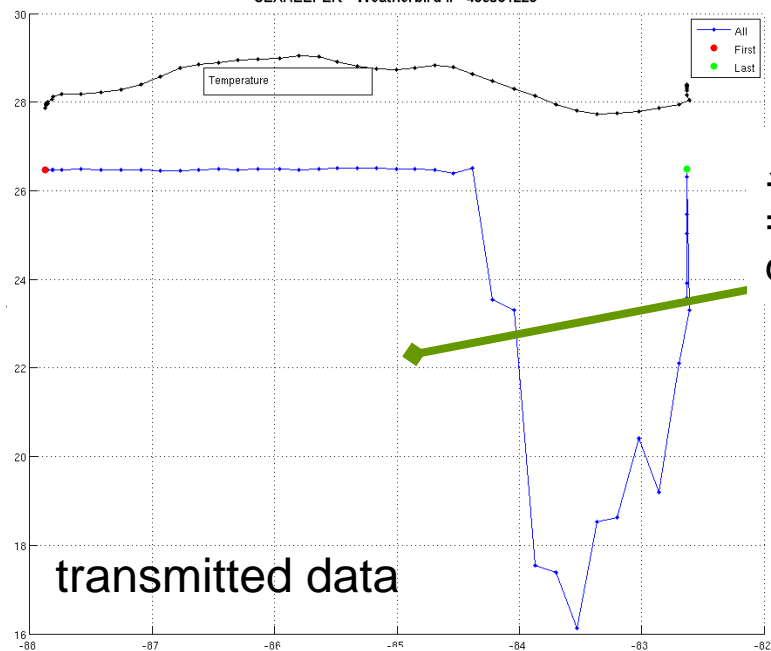
The problem of transmitted data
(10 minute averages)

Latitude



SEAKEEPER - Weatherbird II - 436901220

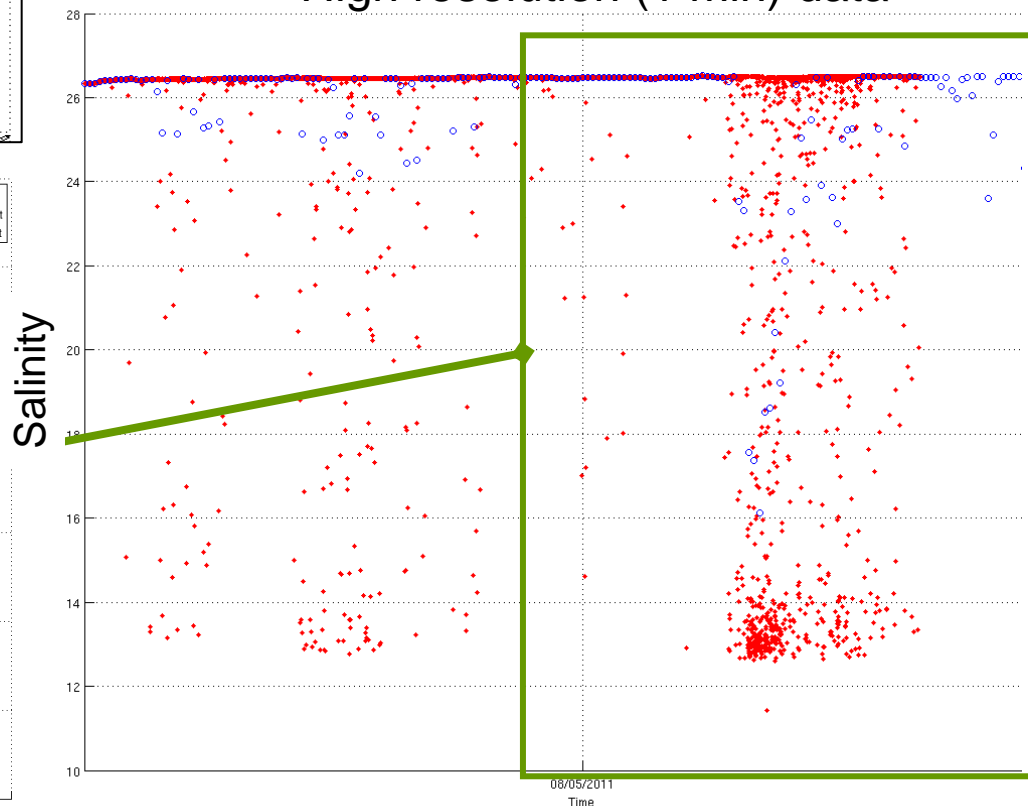
Salinity



transmitted data

Longitude

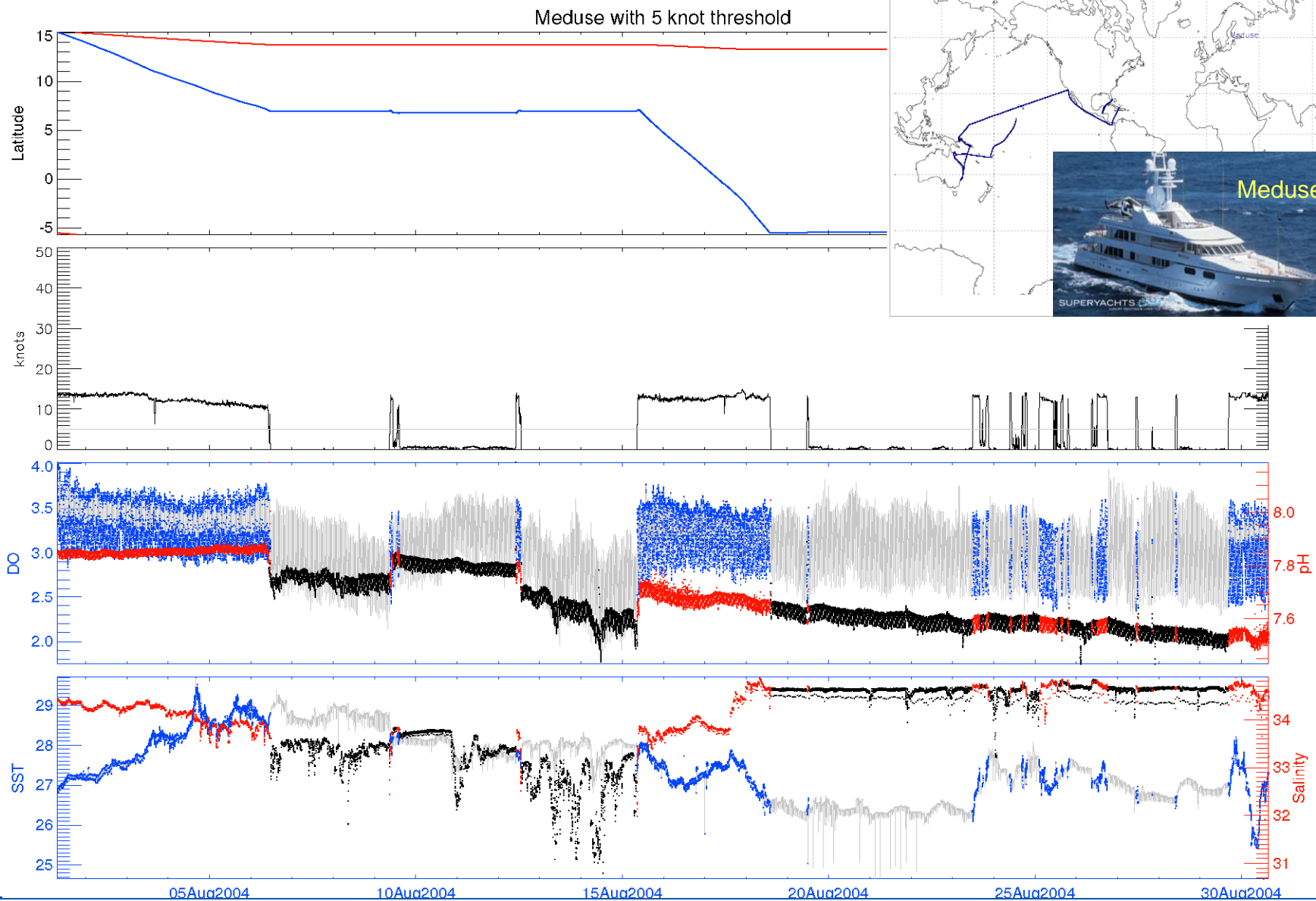
High resolution (1 min) data



Salinity

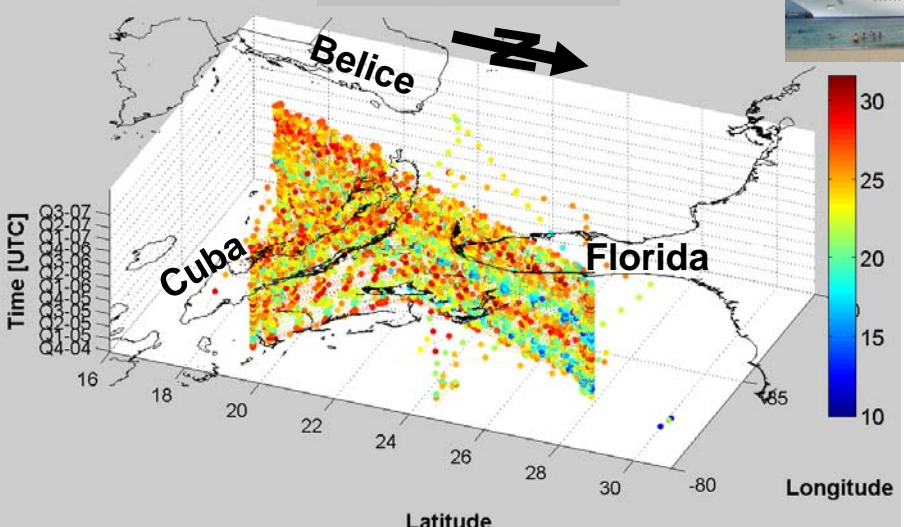
08/05/2011
Time

High resolution (1 min) data

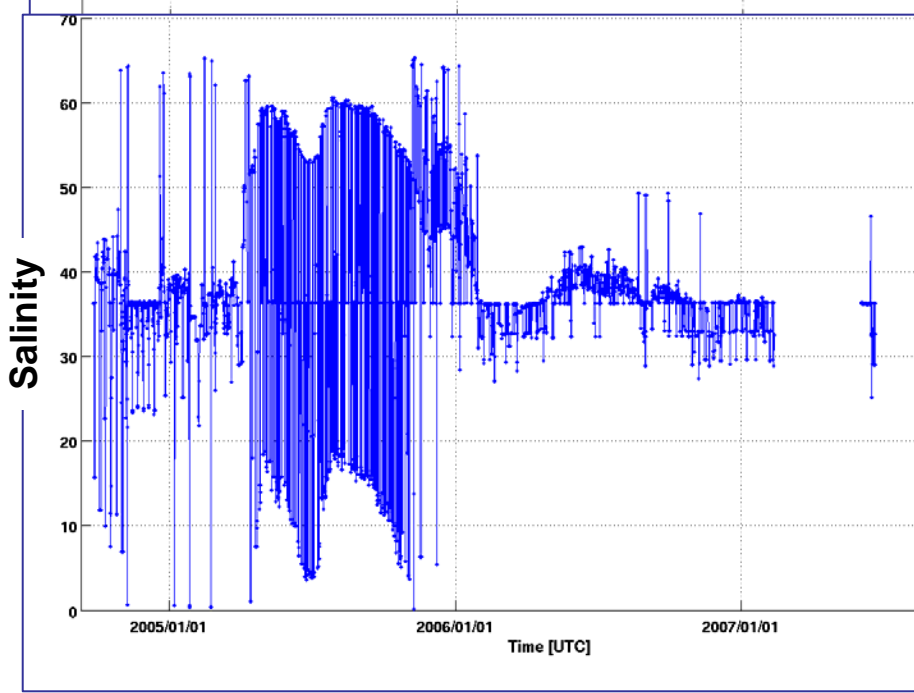
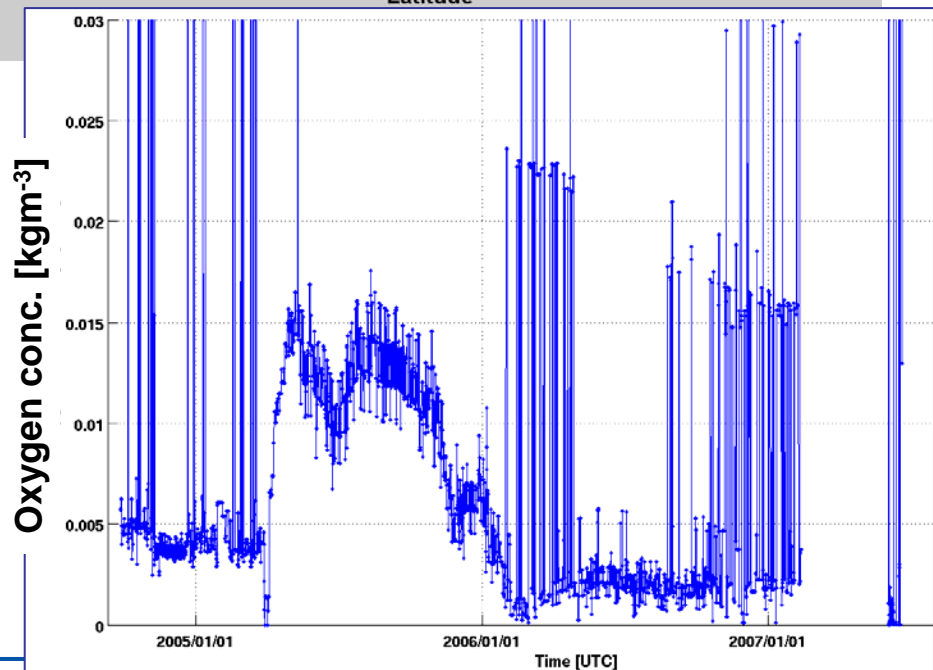
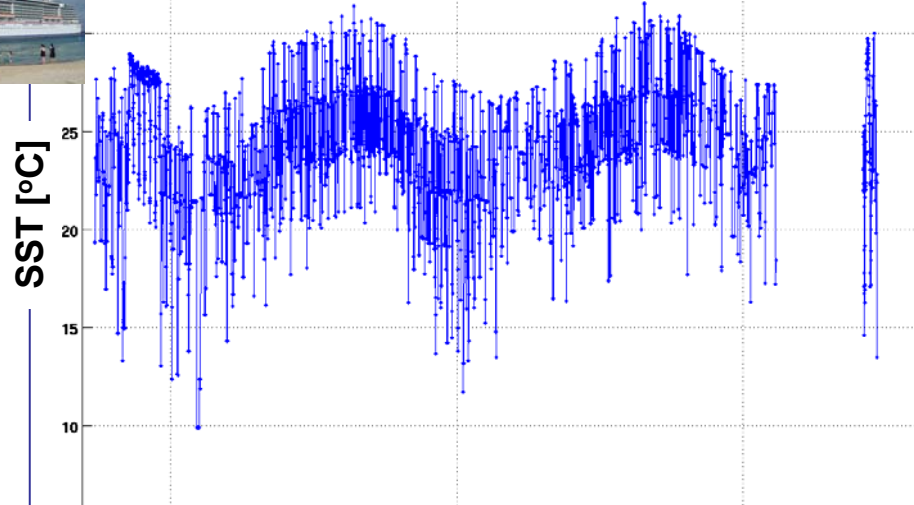


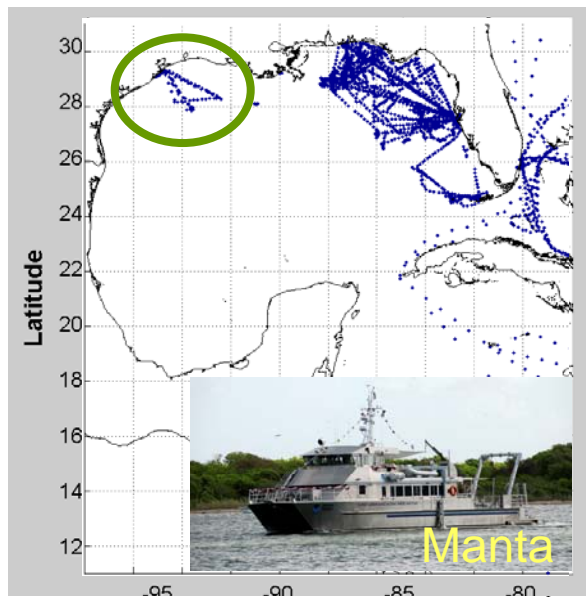
Examples of data

Gulf of Mexico - Seakeeper
493171238; 26-Sep-2004 00:00:25 to 31-Dec-2007 21:00:23

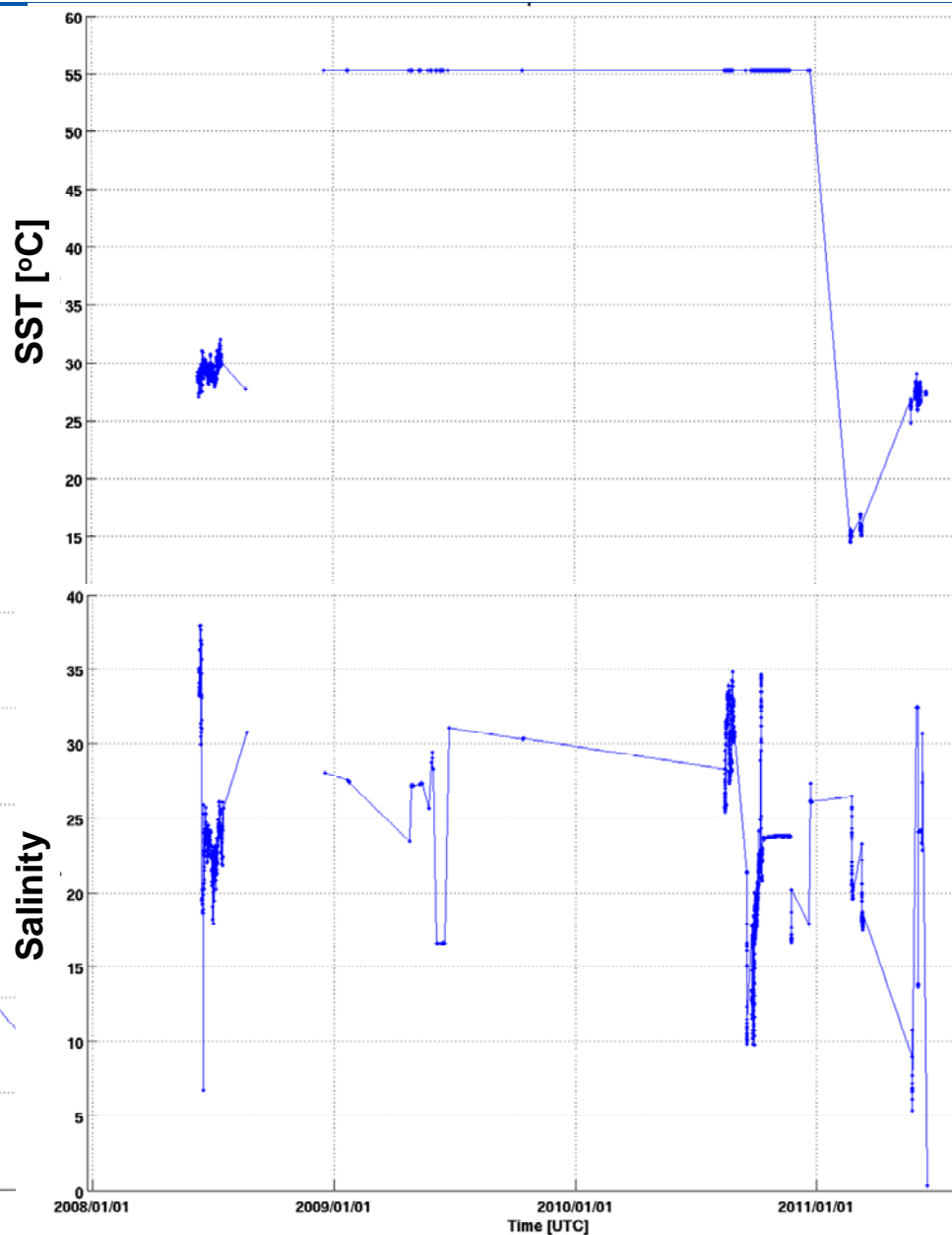
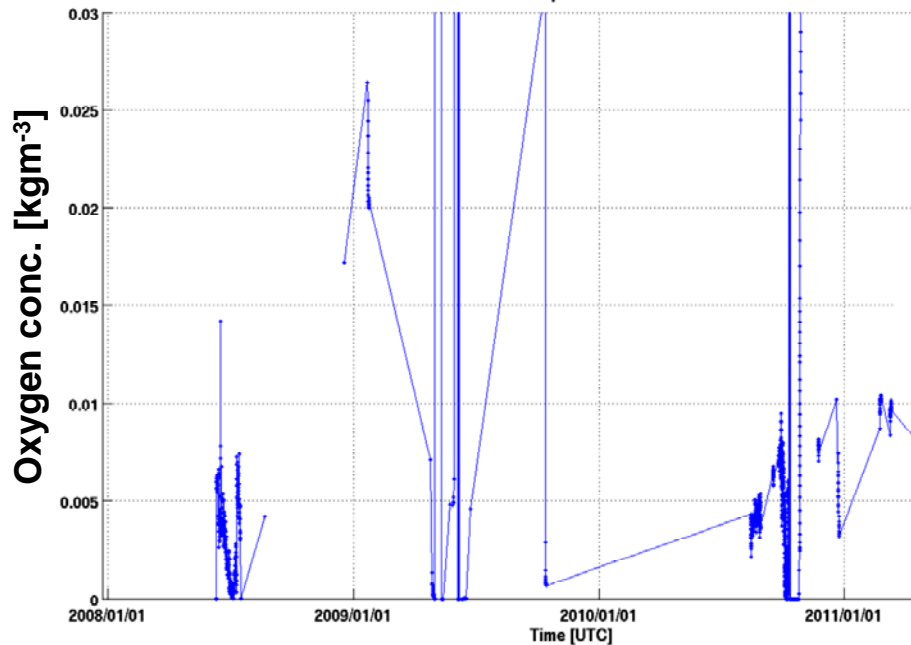


2004-2007





2008-2011



For the Gulf of Mexico

- Only one 3 years data series on a defined track (“Carnival Miracle”)
- In most cases data too sporadic and not guided by clear objectives
- Large parts of the Gulf not covered

In general

- Limited a
- Limited r

To establish working procedures that deliver high quality and informative long-term observations

- Data qua
 - Mai
 - intr
 - Qua
 - No
 - No sampling

projects with clear scientific and/or coastal management objectives are required

sors

- Without access to the high-resolution data Seakeepers data can not be corrected and interpreted
- Until recently, obviously nobody had looked critically at the oceanographic data
- No publications in refereed journals using Seakeeper data