# The OCG, FIO and UNOLS

# **University of South Florida College of Marine Science**





Research Vessel Operators' Committee Annual Meeting April 24-26, 2007



### THE OCEAN CIRCULATION GROUP (OCG) Director: Dr. Robert H. Weisberg (a.k.a. Bob)



**"OCG"** (*Oh-Sea-Gee*): A group of scientists, engineers, modelers, graduate students, and post-docs funded by NOAA, NSF, ONR, USGS, MMS, FWCC, the State of Florida and others that are highly dedicated to the study of "physical oceanography" with a focus on the following:

- The study of water movement, such as waves, tides, and currents and the processes responsible for them.
- The description of the temperature, salinity and density patterns found in the worlds oceans.
- The transfer of energy and momentum between the ocean and the atmosphere.
- The special properties of seawater, such as the propagation of sound and light energy.
- Having fun!

# **Ocean-Atmosphere Measurements**

## • ATMOSPHERIC MEASUREMENTS:

- Wind speed & direction
- Sea surface temperature
- Air temperature
- Relative humidity
- Barometric pressure
- Short & Long wave solar radiation
- Precipitation

# • OCEAN MEASUREMENTS: (surface and sub-surface)

- Current speed (velocity) & direction
- Temperature and Conductivity (salinity)
- DATA TELEMETRY:
  - Hourly NOAA GOES Satellite Transmissions, RF Radio and Acoustic Modems

# **Tools of the Trade**



CTD (conductivity, temp., & depth)

**Doppler Profilers** (velocity & direction)





# **Air-Sea Interaction**





# **The Tropics**





# **WECOMA**

# Oregon State





# MOANA WAVE

# Univ. of Hawaii





# ALPHA HELIX

# Univ. of Alaska





# ROGER REVELLE

# Scripps





DISCOVERER



KA'IMIMOANA



MALCHOM BALDRIDGE (RESEARCHER)





**OCEANOGRAPHER** 



# LE NOROIT

# France



# **The Tropics**



# **The West Florida Shelf**



# **Pilot Mooring - 1993**









# **SUNCOASTER**



# **BELLOWS**



# The State of Florida's

# **Coastal Ocean Modeling and Prediction System (COMPS)**



**1998** 

# **COMPS:**

# Objective

- Support basic science research programs of the region
- More accurate predictions of coastal flooding and storm surge (Emergency Management)
- Safety and efficiency of marine navigation
- Search and rescue efforts
- Fisheries management

# Approach

- Install and array of instrumentation along the coast and offshore
- Combined with numerical circulation models
- Build on existing in-situ measurements and funding provided by various state and federal agencies

# **Complete Florida System (COMPS + NDBC)**



## Proposed US Integrated Ocean Observing System (IOOS) Coastal Component – A System of Systems Approach



# Global Component of the Observing Subsystem <u>Integrate Remote & In Situ Sensing</u> An International Collaboration



**Subsurface Obs – XBTs, Argo, Moorings** 

**Coastal sites**: water levels, met and oceanographic data via satellite and radio. (OMPL)





# **Buoy Inspection**







# **Bottom Mounted ADCP Turn-Around**



# **COMPS Real-Time Web Display** http://comps.marine.usf.edu



### **COMPS** Station

#### Navy-2

Station ID	NA2	Latitude	27° 10.084' N	
Station Type	Offshore Buoy	Longitude	82° 55.608' W	
Responsible Agency		USF		

Site Notes Mooring located at 27° 10.084' N, 82° 55.608' W (27.168° N, 82.928° W)

a distance 20 miles offshore of New Pass inlet (Sarasota) in a water depth of 80 feet.

Instrumentation and recent service history

Station photos

▶ Buoy Deployment history

Note!!! Please note the new position of the buoy.

#### Latest Observations

Data is updated hourly with three meteorological, temperature and salinity measurements and one adcp measurement made during past hour. Time reported is UTC (Coordinated Universal Time): subtract 5 hours for EST, subtract 4 hours for EDT.

Provisional data - not quality-controlled - use at your own risk - see disclaimer.

#### Meteorological Data

Date	03–04–04		03–04–04	03–04–04
Time	20:10:00		19:50:00	19:30:00
Wind Speed	2.92 ms <sup>-1</sup>	5.67 knots	2.20 ms <sup>-1</sup>	2.58 ms <sup>-1</sup>
Wind Direction	142° True	142 ° True	141 ° True	126 ° True
Wind Gusts	3.1 ms <sup>-1</sup>	6.02 knots	2.5 ms <sup>-1</sup>	2.7 ms <sup>-1</sup>
<u>Air Temp</u>	20.99 °C	69.78 °F	20.38 °C	20.36 °C
<u>Sea Surface Temp</u>	19.70 °C	67.46 °F	19.60 °C	19.40 °C
Barometric Pressure	1021.6 mbar	30.17 in Hg	1021.8 mbar	1021.9 mbar
Relative Humidity	86 %	86 %	90 %	90 %
Shortwave Radiation	605.90 W/m <sup>2</sup>	605.90 W/m <sup>2</sup>	659.50 W/m <sup>2</sup>	722.40 W/m <sup>2</sup>
Longwave Radiation	362.10 W/m <sup>2</sup>	362.10 W/m <sup>2</sup>	361.90 W/m <sup>2</sup>	362.60 W/m <sup>2</sup>



# **Waves Display and Graphics**



# Example of shelf models

SST and surface  $\underline{V}$  are inside the dashed line and the NAT HYCOM is outside

Warm water is detached from the Loop Current and transported northward as mesoscale eddies and filaments produced by the WFS ROMS.



surf. vel. and SST 2004-01-02

# HBOI - SEADIVER

![](_page_34_Picture_1.jpeg)

# **Two Major Milestones Ahead:**

- COMPS turns "Ten"! 1998 2008
- **COMPS-50:** Our 50<sup>th</sup> research cruise on the shelf

![](_page_35_Picture_3.jpeg)