AOML/SEFSC Workshop on Observations, Data and Products from the Global Ocean Observing System

Miami, June 1st 2009

CoastWatch Program. Ocean Observations and Products

Caribbean and Gulf of Mexico Regional Node

Joaquin Angel Triñanes

Joaquin.Trinanes@noaa.gov

Caribbean/Gulf of Mexico Node

CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

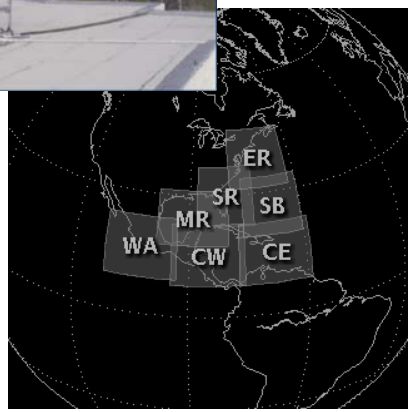
GIS on the Web

OGC Servers

Other Online Tools

Conclusion

- **Fundamental Advantages**
  - Synoptic view
  - Short revisit times
  - Operational data availability
  - Integration with GIS



- **CoastWatch Objectives**
  - Continuity: Promote follow-on sensors/Archival
  - Accessibility:OPeNDAP/THREDDS/ LAS (Open&Free)
  - Quality: NRT Products
  - Utilization: Regional and global, multipurpose

CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

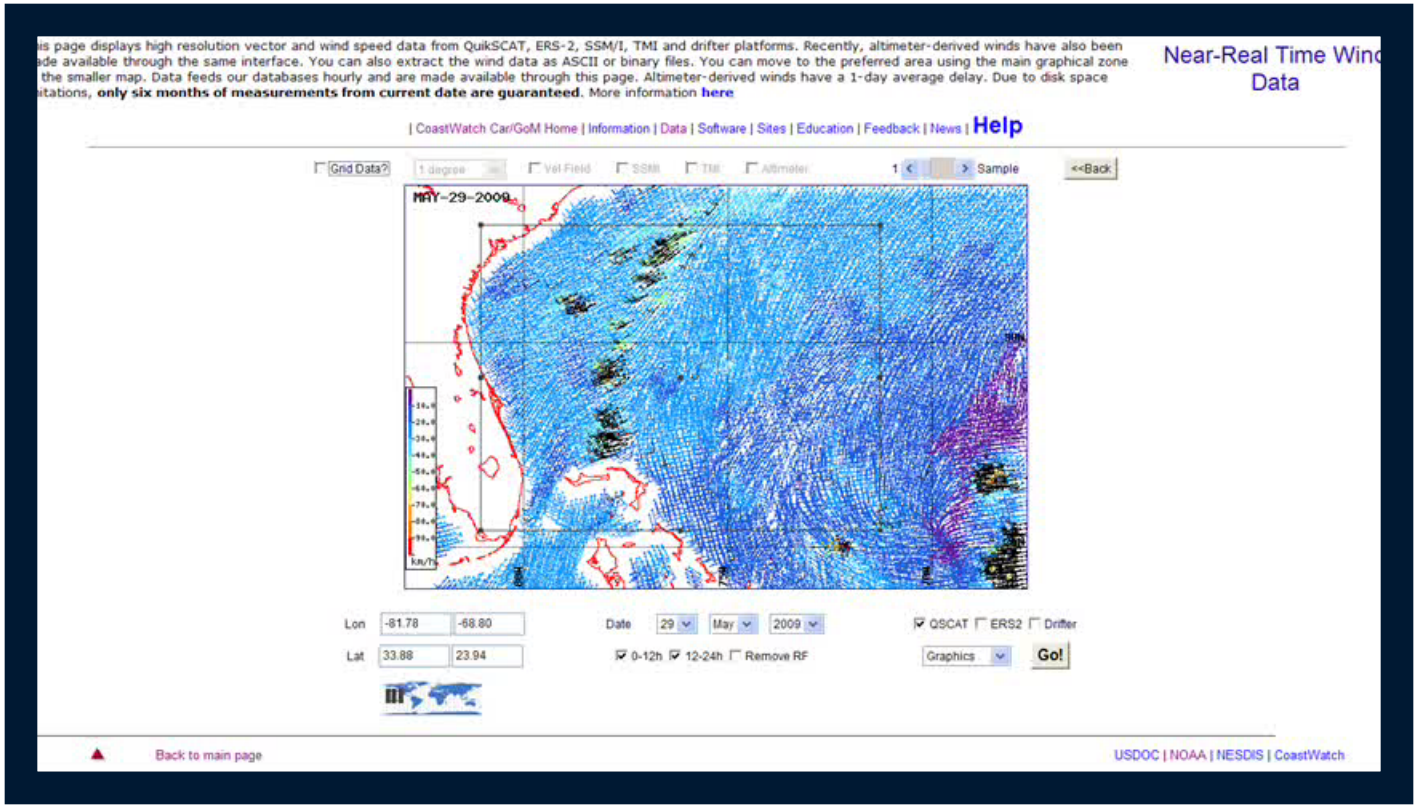
GIS on the Web

OGC Servers

Other Online Tools

Conclusion

- **Winds, SST, Chlorophyll, Altimetry, Turbidity,etc**



CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

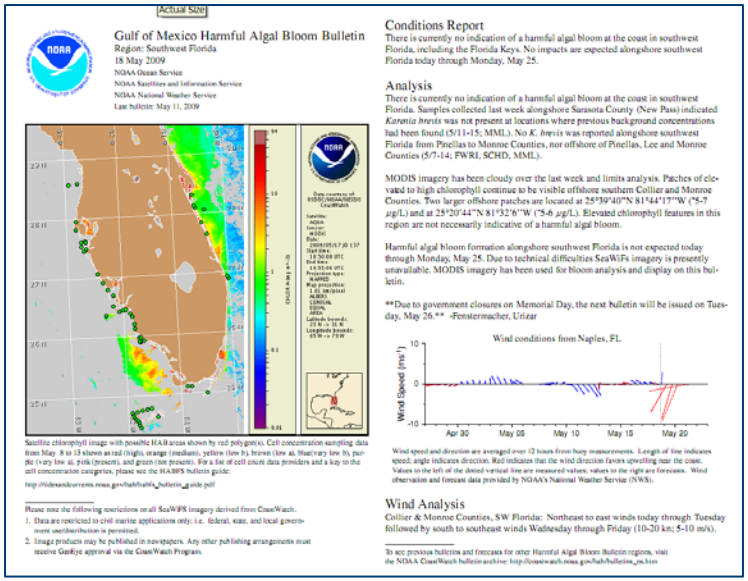
GIS on the Web

OGC Servers

Other Online Tools

Conclusion

- **Harmful Algal Blooms – Operational Monitoring and Forecasting**



Gulf of Mexico Harmful Algal Bloom Bulletin
Region: Southwest Florida
18 May 2009
NOAA Ocean Service
NOAA Satellites and Information Service
NOAA National Weather Service
Last bulletin: May 11, 2009

Conditions Report
There is currently no indication of a harmful algal bloom at the coast in southwest Florida, including the Florida Keys. No impacts are expected alongshore southwest Florida today through Monday, May 25.

Analysis
There is currently no indication of a harmful algal bloom at the coast in southwest Florida. Samples collected last week alongshore Sarasota County (New Pass) indicated *Karenia brevis* was not present at locations where previous background concentrations had been found (5/11-15; MML). No *K. brevis* was reported alongshore southwest Florida from Pinellas to Monroe Counties, nor offshore of Pinellas, Lee and Monroe Counties (5/7-14; FWRI, SCHD, MML).

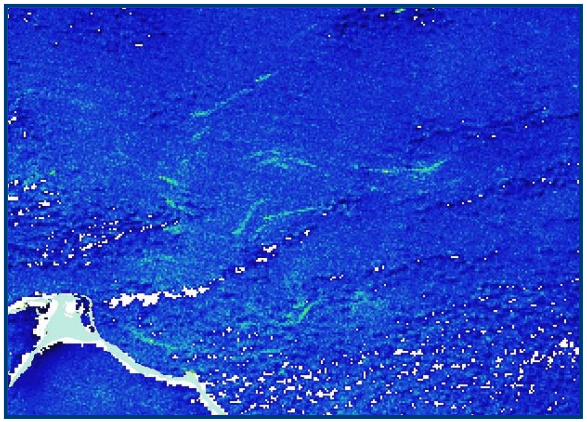
MODIS imagery has been cloudy over the last week and limits analysis. Patches of elevated to high chlorophyll continue to be visible offshore southern Collier and Monroe Counties. Two larger offshore patches are located at 25°39'40"N 81°44'17"W (~5-7 µg/L) and at 25°20'44"N 81°32'6"W (~5-6 µg/L). Elevated chlorophyll features in this region are not necessarily indicative of a harmful algal bloom.

Harmful algal bloom formation alongshore southwest Florida is not expected today through Monday, May 25. Due to technical difficulties SeaWiFs imagery is presently unavailable. MODIS imagery has been used for bloom analysis and display on this bulletin.

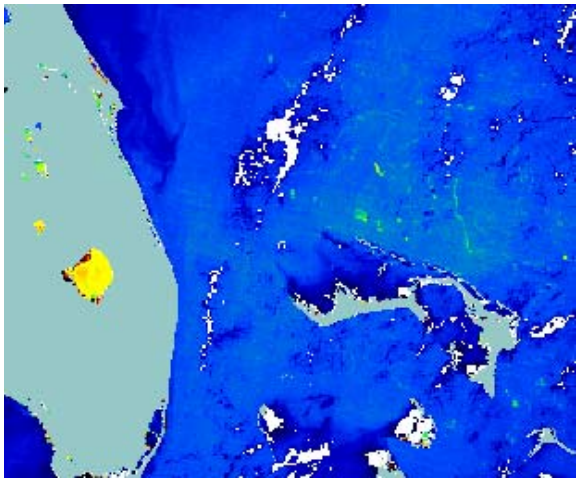
Due to government closures on Memorial Day, the next bulletin will be issued on Tuesday, May 26. -Feinstermacher, Urizar

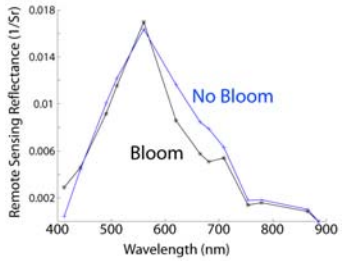
Wind conditions from Naples, FL

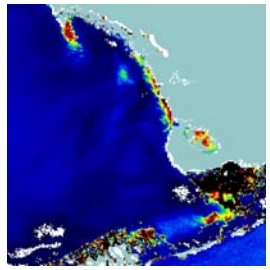
Wind Analysis
Collier & Monroe Counties, SW Florida: Northeast to east winds today through Tuesday followed by south to southeast winds Wednesday through Friday (10-20 kn; 5-10 m/s).



- **MERIS RR&FRS**







CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

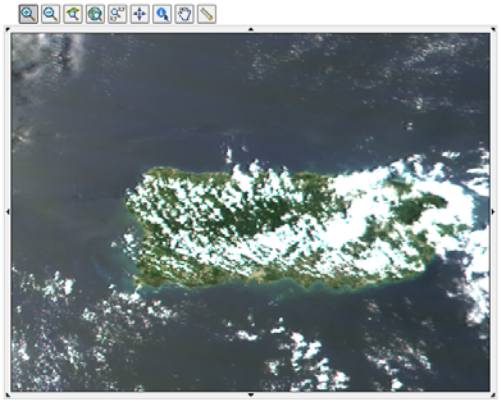
Products

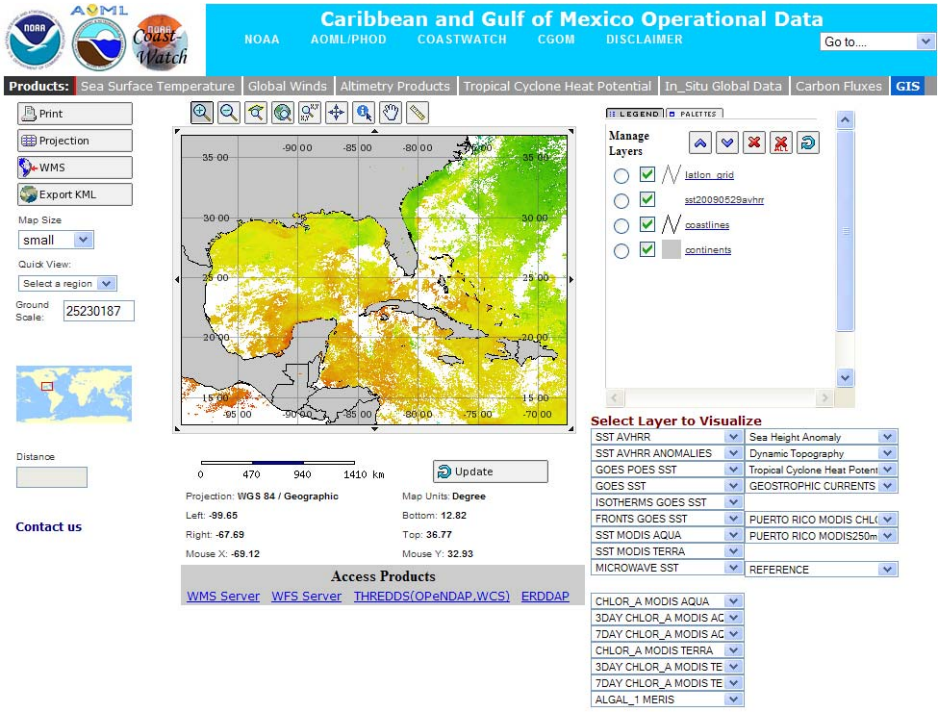
GIS on the Web

OGC Servers

Other Online Tools

Conclusion



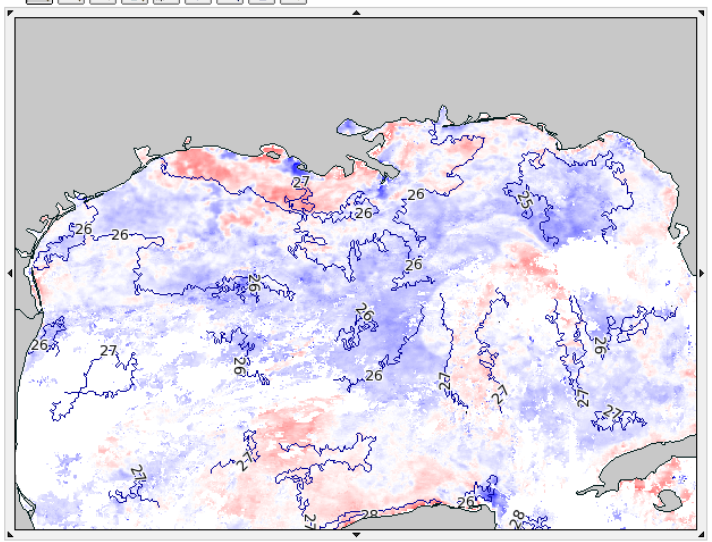


- **Features:**
  - **Public access**
  - **Integrate ocean variables within GIS Environment**
  - **Retrieve data from local and remote servers**
  - **Client interact directly with web services**
  - **Query capabilities, etc.**

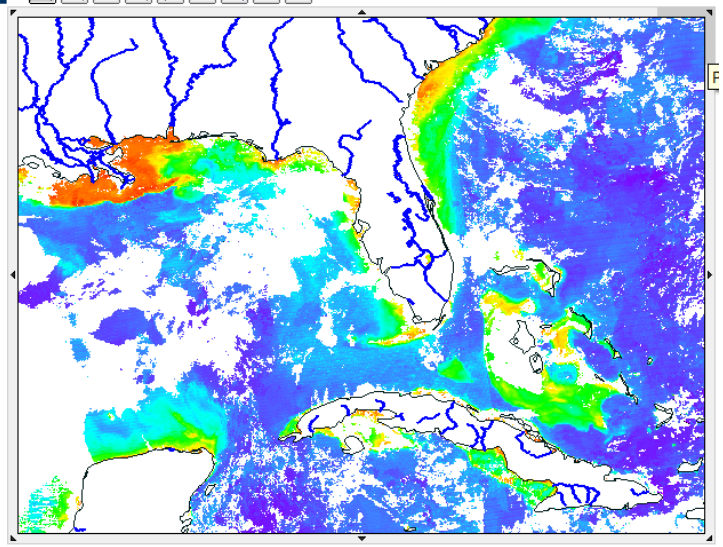
CoastWatch Program. Ocean Observations and Products

- Satellites& CoastWatch
- Products
- **GIS on the Web**
- OGC Servers
- Other Online Tools
- Conclusion

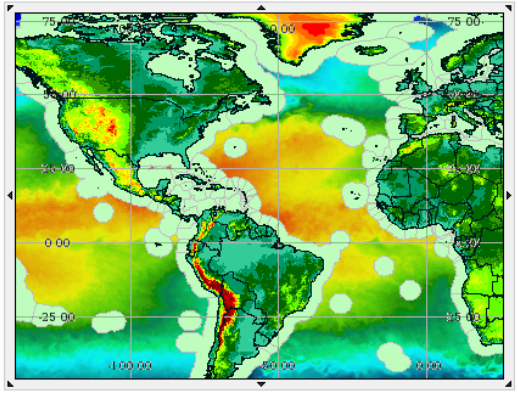
1



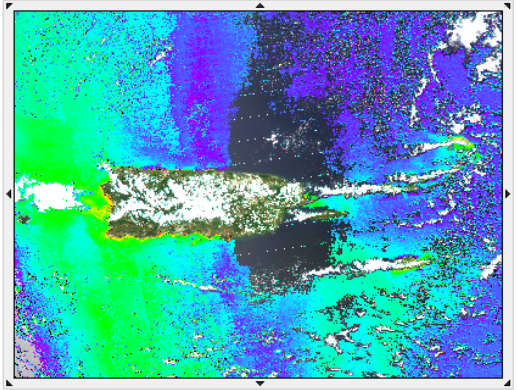
2



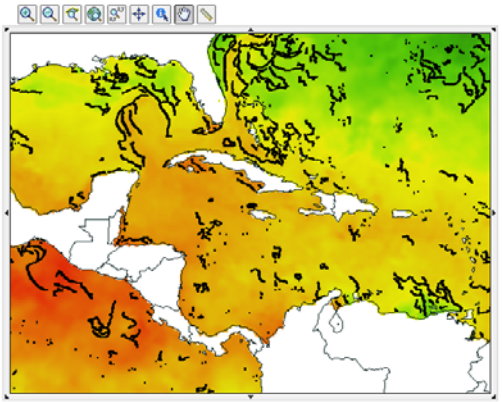
3



4

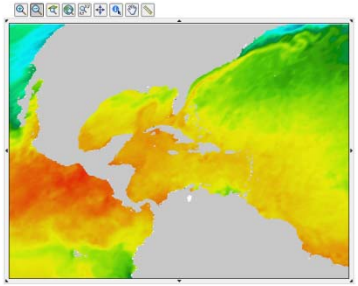


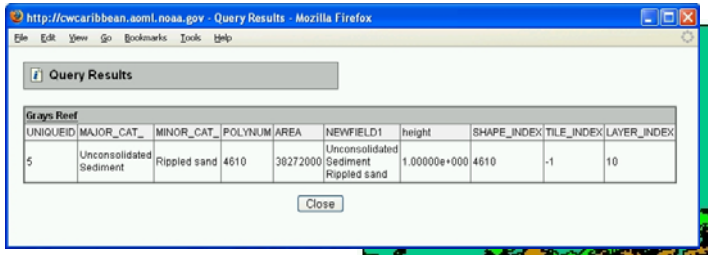
5

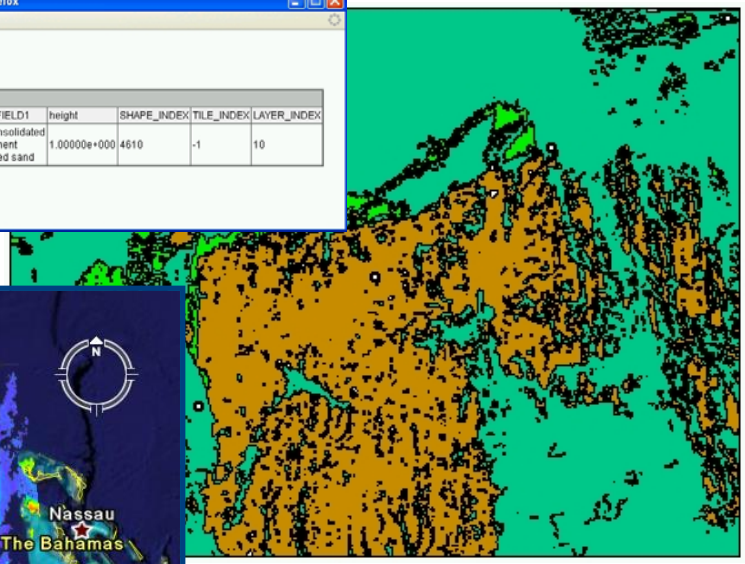


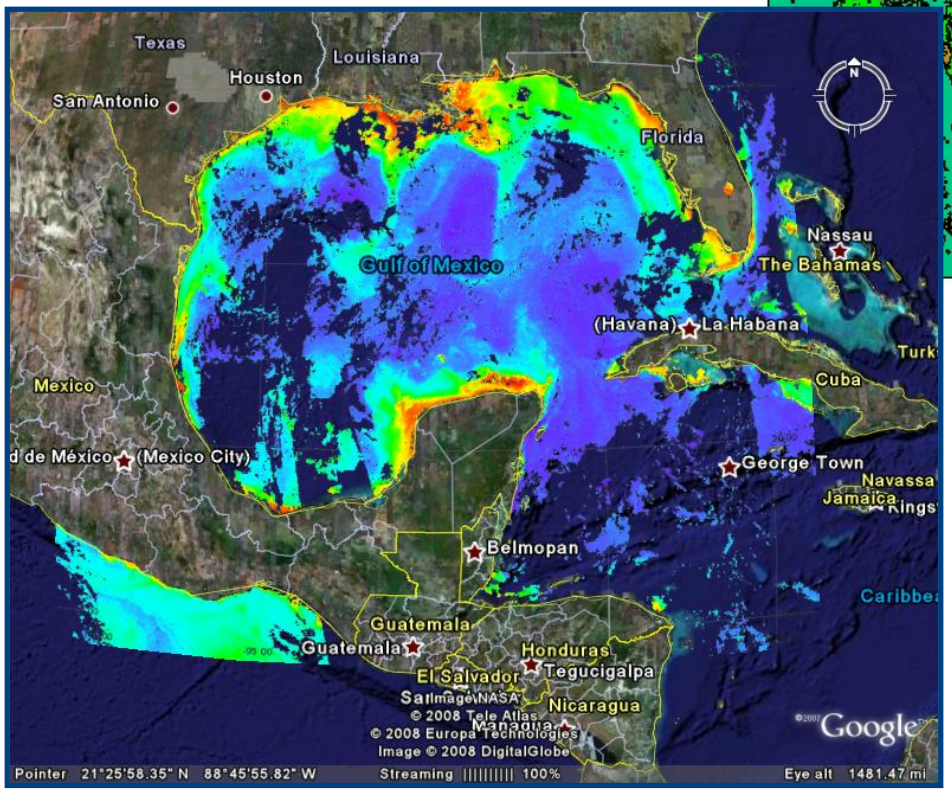
CoastWatch Program. Ocean Observations and Products

- Satellites& CoastWatch
- Products
- **GIS on the Web**
- OGC Servers
- Other Online Tools
- Conclusion









CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

GIS on the Web

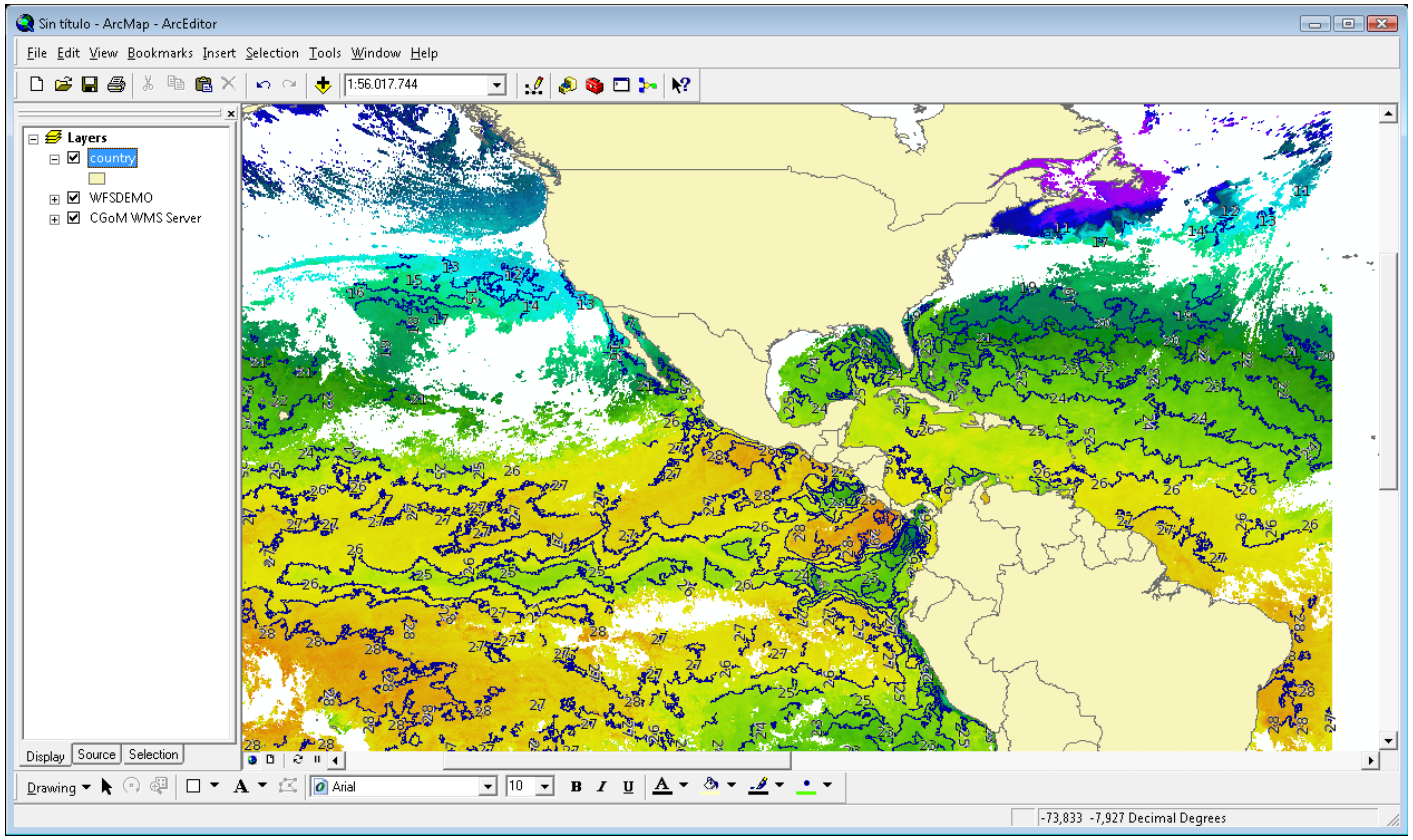
OGC Servers

Other Online Tools

Conclusion

- **OGC Servers: WFS, WMS and WCS**

Example: ArcGIS 9.3 (GOES 24HR+Isotherms)



CoastWatch Program. Ocean Observations and Products

THREDDS

THREDDS Data Server

unidata

Catalog http://cwcgom.aoml.noaa.gov/thredds/catalog.xml

Dataset: THREDDS Server Catalog : Caribbean and Gulf of Mexico Regional Node/CHLOR_MODIS_AQUA

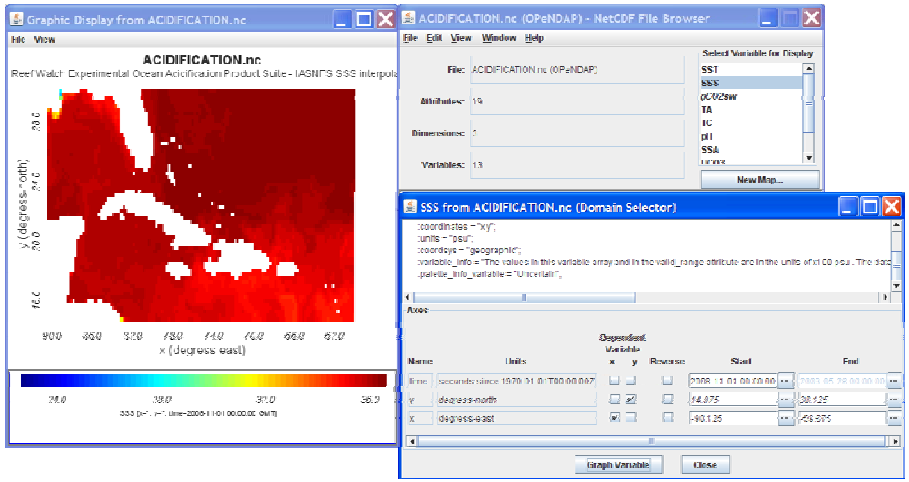
- *Data type:* Grid
- *ID:* MODIS_AQUA_CHLOR

Access:

1. **OPENDAP:** http://cwcgom.aoml.noaa.gov/thredds/dodsC/MODISAQUACHLOR/CHLOR_A.nc
2. **WCS:** http://cwcgom.aoml.noaa.gov/thredds/wcs/MODISAQUACHLOR/CHLOR_A.nc
3. **NetcdfSubset:** http://cwcgom.aoml.noaa.gov/thredds/ncss/grid/MODISAQUACHLOR/CHLOR_A.nc

Viewers:

- Integrated Data Viewer (IDV) (webstart)
- NetCDF-Java Tools (webstart)



CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

GIS on the Web

OGC Servers

Other Online Tools

Conclusion

ERDDAP

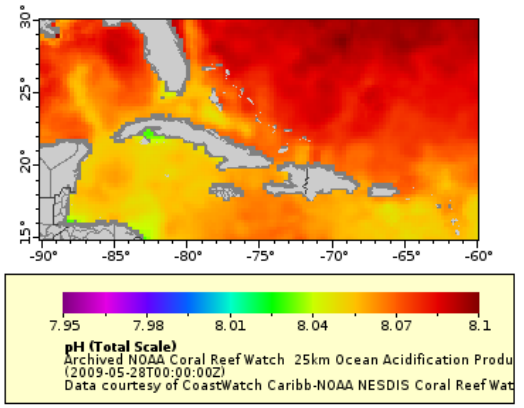
Dataset Title: **Archived NOAA Coral Reef Watch 25km Ocean Acidification Product Suite for the Greater Caribbean Region Quality Flag**
Dataset ID: miamiacidification
Institution: CoastWatch Caribb-NOAA NESDIS Coral Reef Watch
Information: Summary | Variables | Background | Data Access Form

Graph Type: surface
X Axis: longitude
Y Axis: latitude
Color: pH

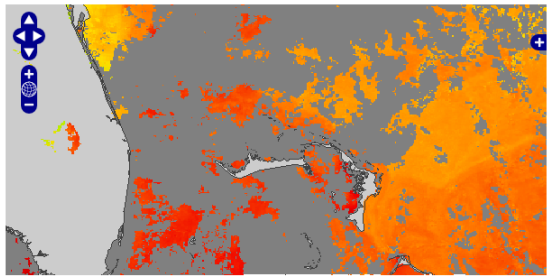
Dimension Ranges	Start	Stop
time (UTC)	specify just 1 value →	2009-05-28T00:00:00
latitude (degrees_north)	14.875	30.125
longitude (degrees_east)	-90.125	-59.875

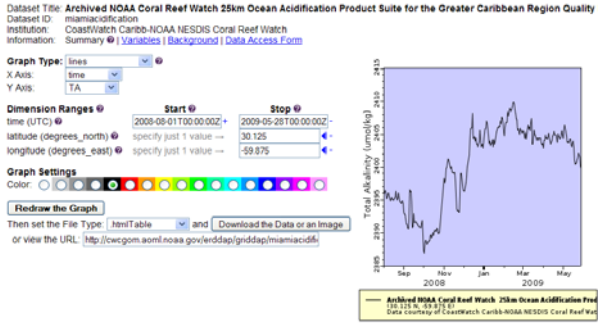
Graph Settings
Color Bar: Continuity: Scale:
Min: Max: N Sections:
Draw the land mask: over the data

Redraw the Graph
Then set the File Type: .htmlTable and Download the Data or an Image
or view the URL: http://cwcgom.aoml.noaa.gov/erddap/griddap/miamiacidifi



You can select different values for the data variable's dimension(s):
time: 2009-05-29T00:00:00Z





CoastWatch Program. Ocean Observations and Products

Satellites& CoastWatch

Products

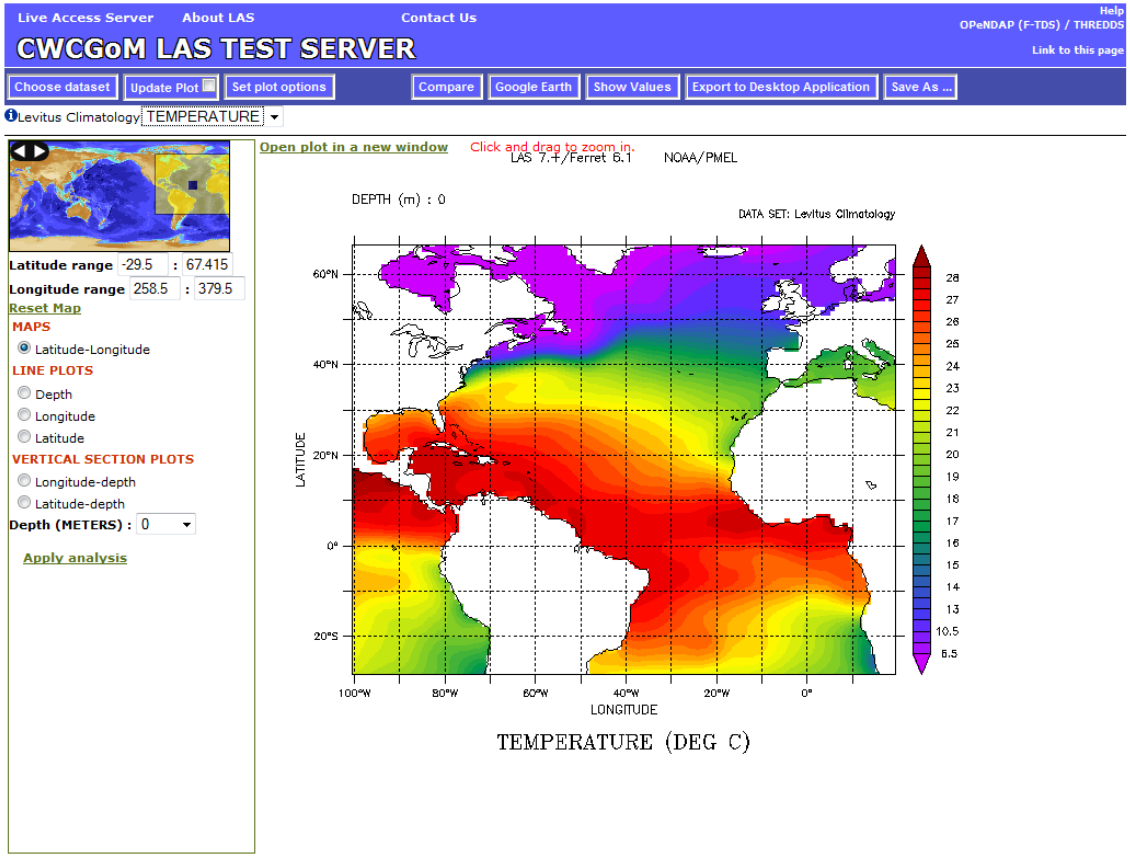
GIS on the Web

OGC Servers

Other Online Tools

Conclusion

- **LAS**



CoastWatch Program. Ocean Observations and Products

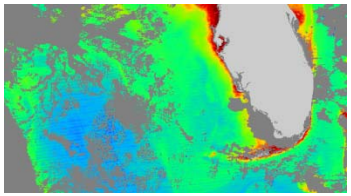
- **Ongoing Enhancements:**
  - **Multiday Composites**
  - **Anomalies**
  - **Trends**
  - **Additional Vector features**
  - **Regional Algorithms (e.g. TSM)**
  - **Wind Stress and Ekman Transports**
- **Future products:**

Bacteria (vibrio), fish ethology, model hypoxia, upwelling indexes, SST/Chlor/Currents frontal product (strength-related, persistence), marine sanctuaries, etc.

CoastWatch Program. Ocean Observations and Products

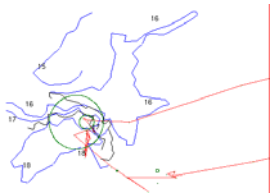
- **We look forward to closer collaboration with Fisheries**
- **Goal: meet your needs and requirements**
- **Your comments and feedback are always welcome**

Contact Info: **Joaquin.Trinanes@noaa.gov**

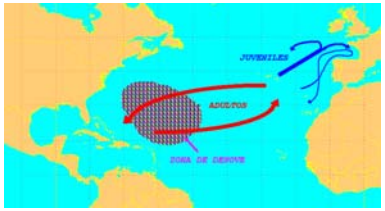


Productivity

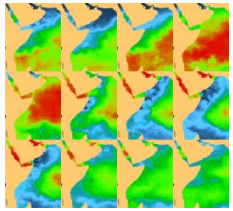
Coral Reefs/Acidification



CPUE



Migrations



Ocean Dynamics

Frontal Products