

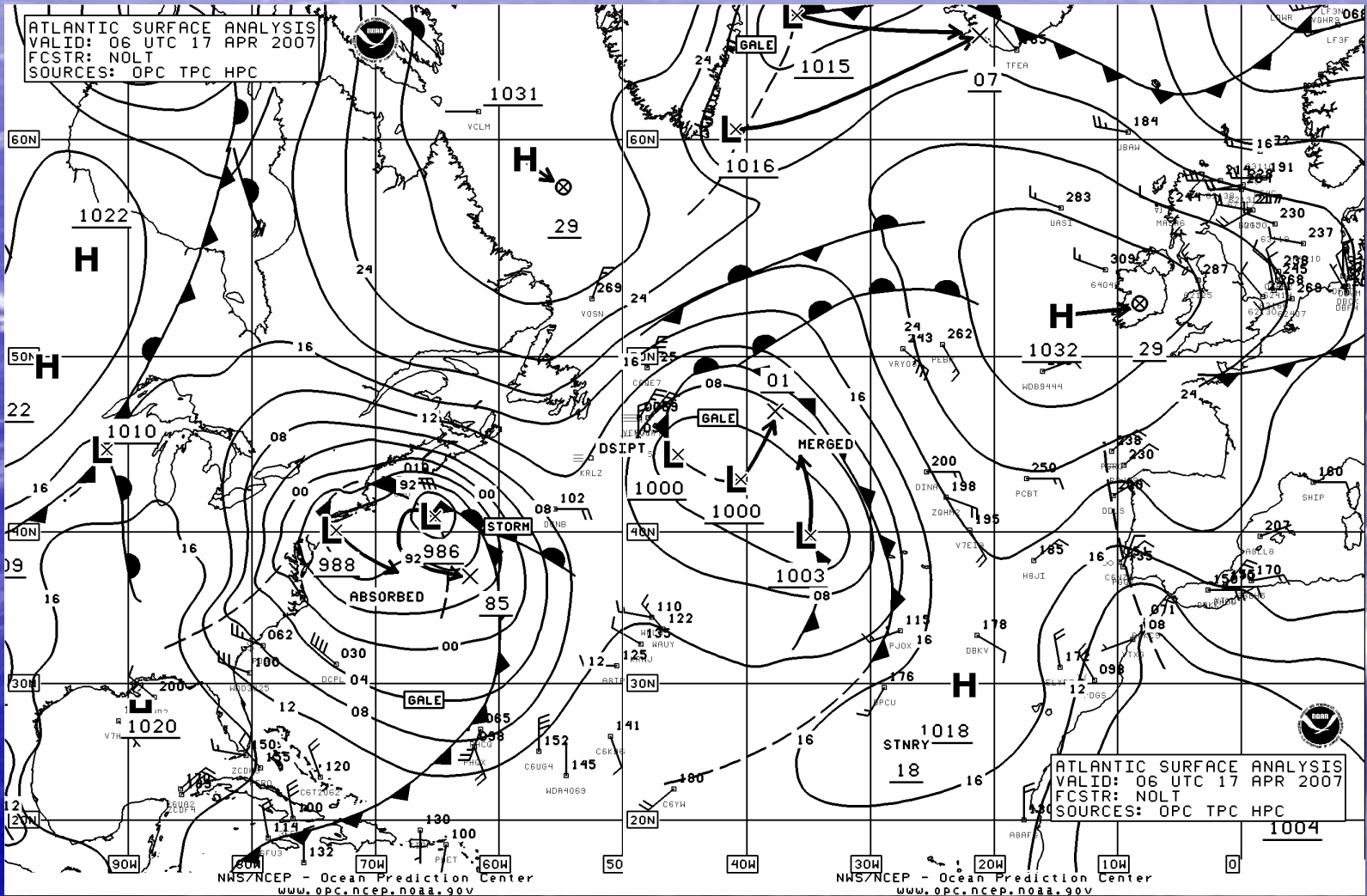
EVALUATION OF THE NOAA REAL TIME OCEAN FORECAST SYSTEM_ATLANTIC AT THE NOAA OCEAN PREDICTION CENTER

R.M. Daniels, IMSG @ NOAA / OPC
J.M. Sienkiewicz, NOAA / OPC

OUTLINE

- Ocean Prediction Center
- RT_OFS_ATL vs. Satellite (GOES) SST
 - West Atlantic: Jan 2006 – Apr 2007, weekly
 - Gulf of Mexico: Oct 2006 – Apr 2007, biweekly
- Water Levels
 - Feb – Apr 2007, weekly
- Comparison w/ Buoys
 - West Atlantic: Oct 2006 – Apr 2007, daily
 - Gulf of Mexico: Jan 2007 – Apr 2007, daily
- New Parallel Model
 - Preliminary Analysis: Last week
- Future Plans

April Noreaster

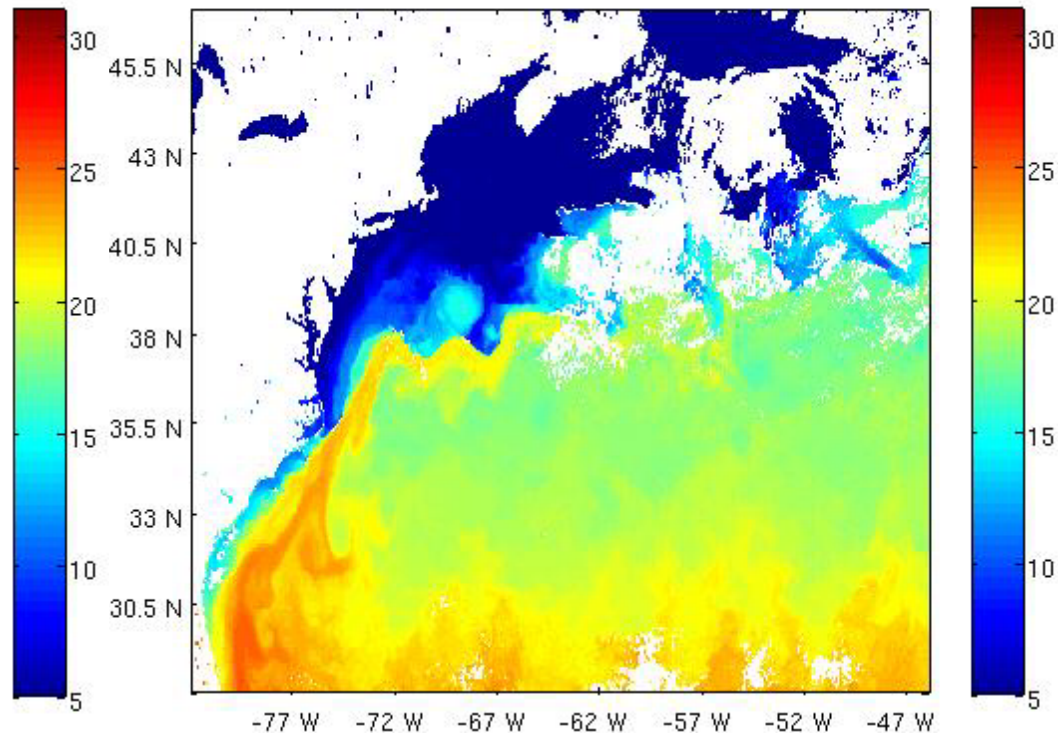
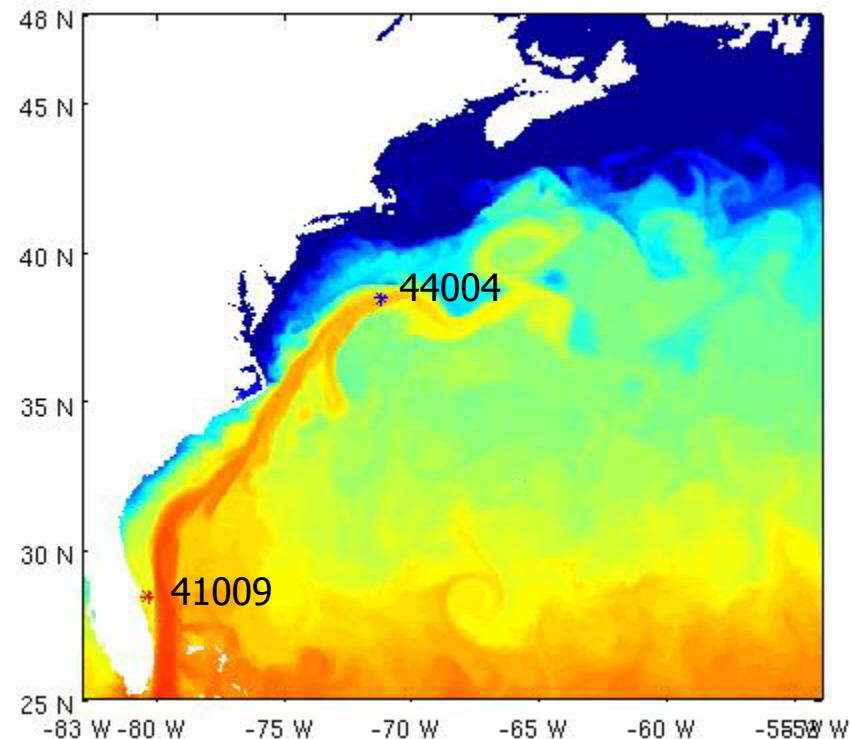


RT_OFS_ATL vs. GOES SST in the West Atlantic

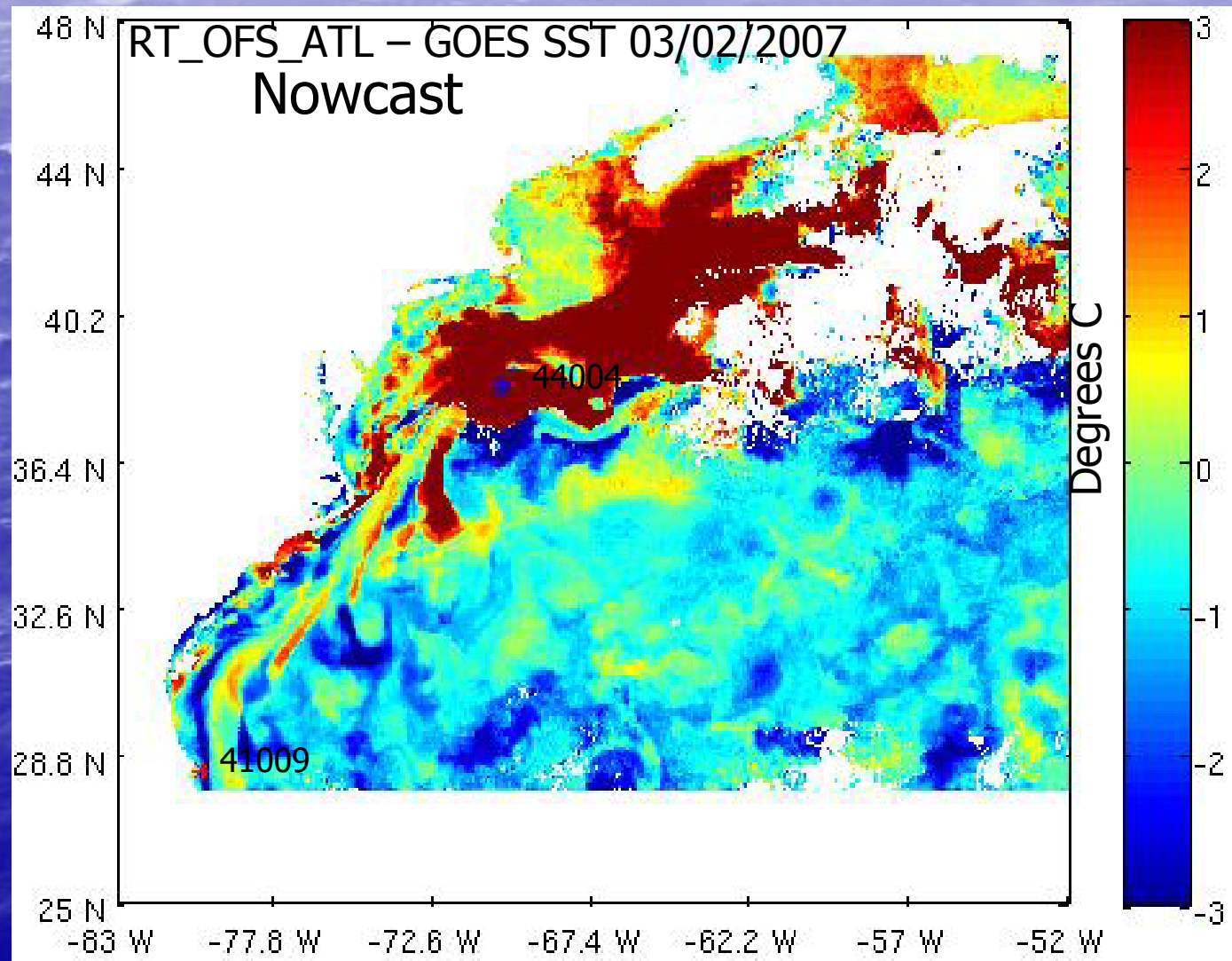
RT_OFS_ATL SST 03/02/2007

GOES SST 03/02/2007

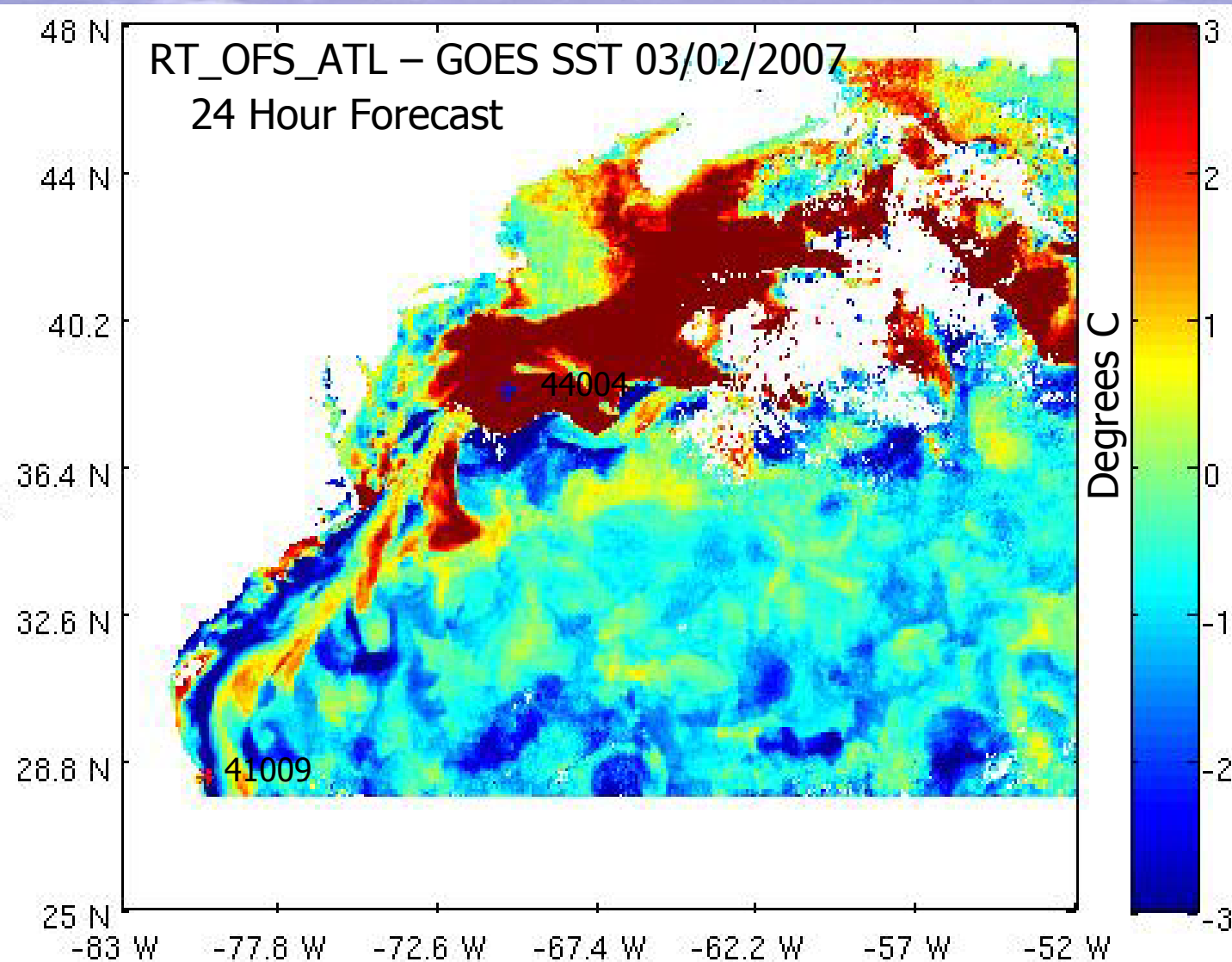
Hycom SST in the West Atlantic



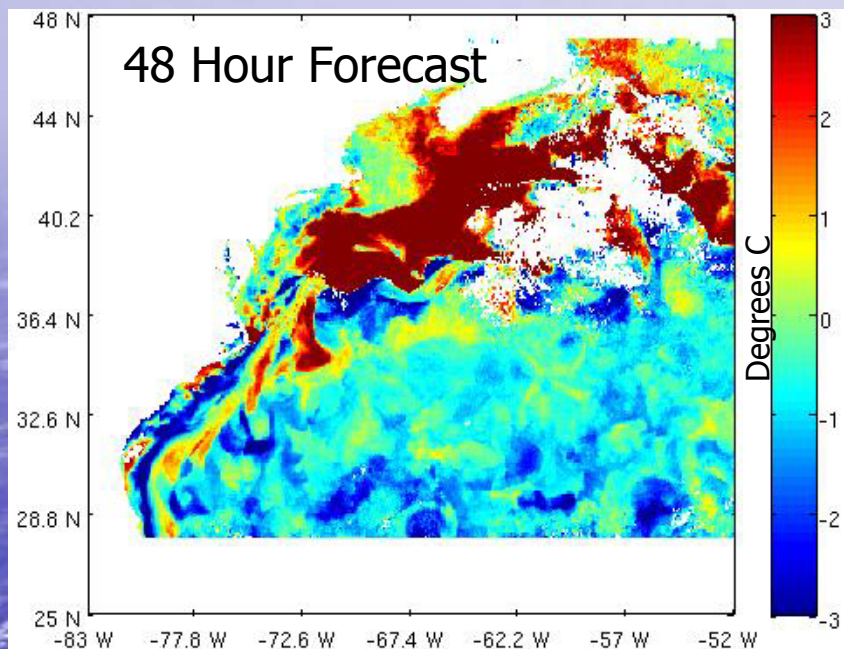
RT_OFS_ATL vs. GOES SST in the West Atlantic



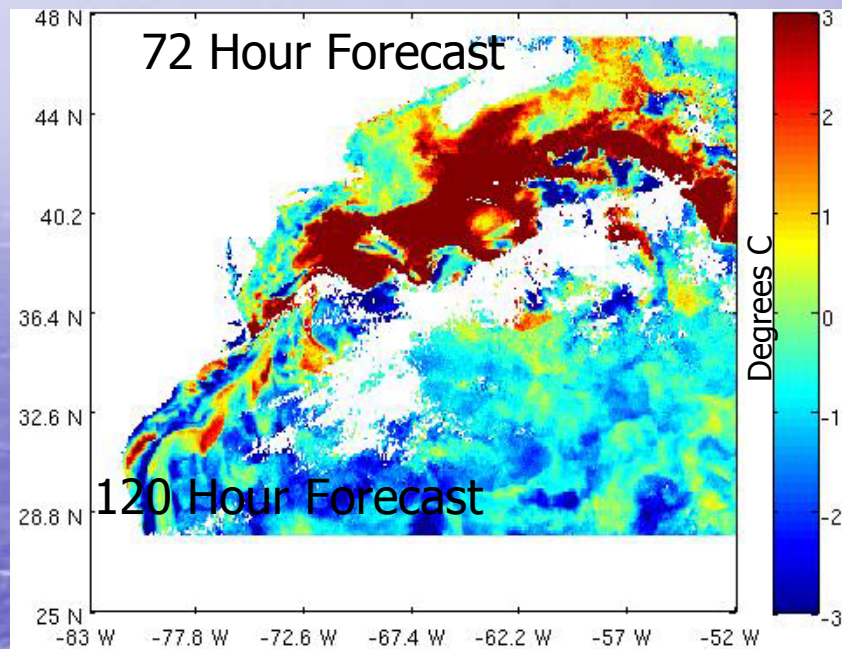
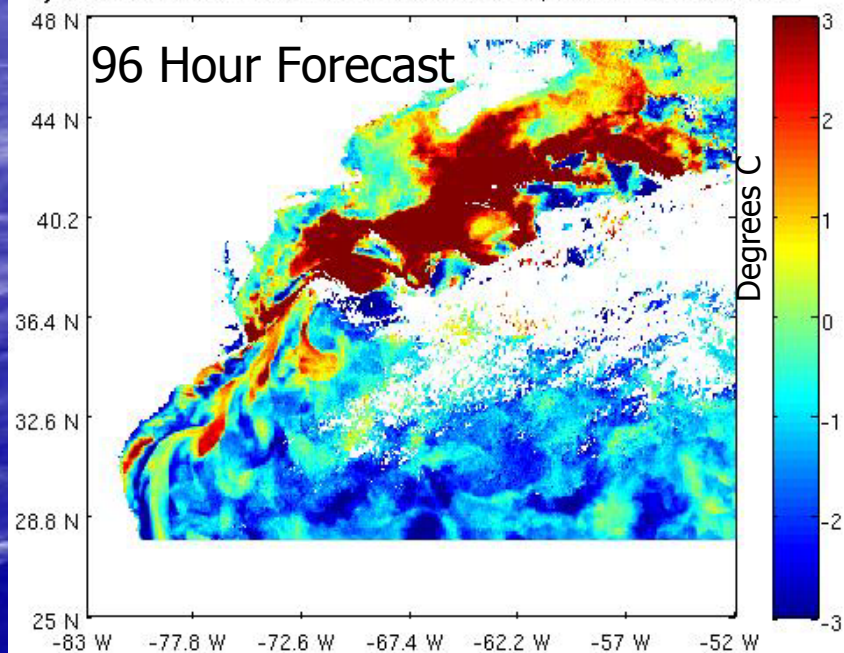
RT_OFS_ATL vs. GOES SST in the West Atlantic



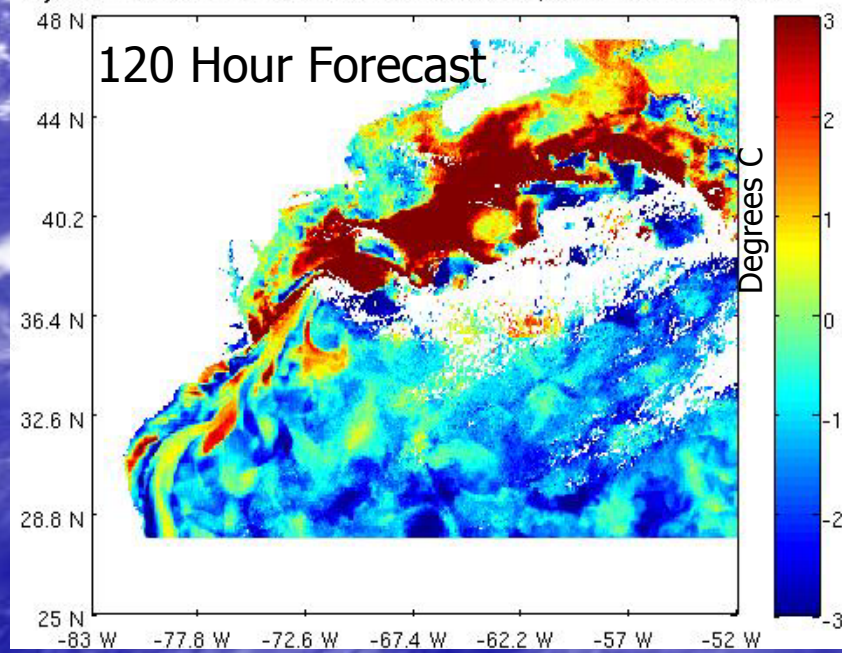
RT_OFS_ATL – GOES SST 03/02/2007



Hycom - GOES SST in the West Atlantic March 2, 2007 96 Hour Forecast



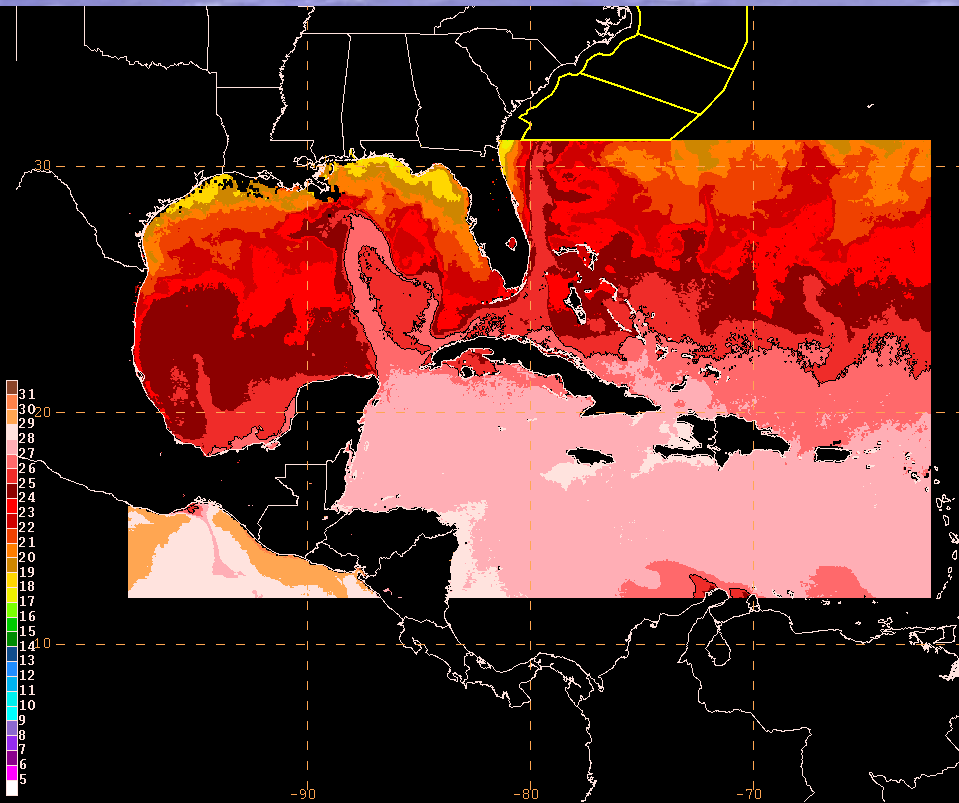
Hycom - GOES SST in the West Atlantic March 2, 2007 120 Hour Forecast



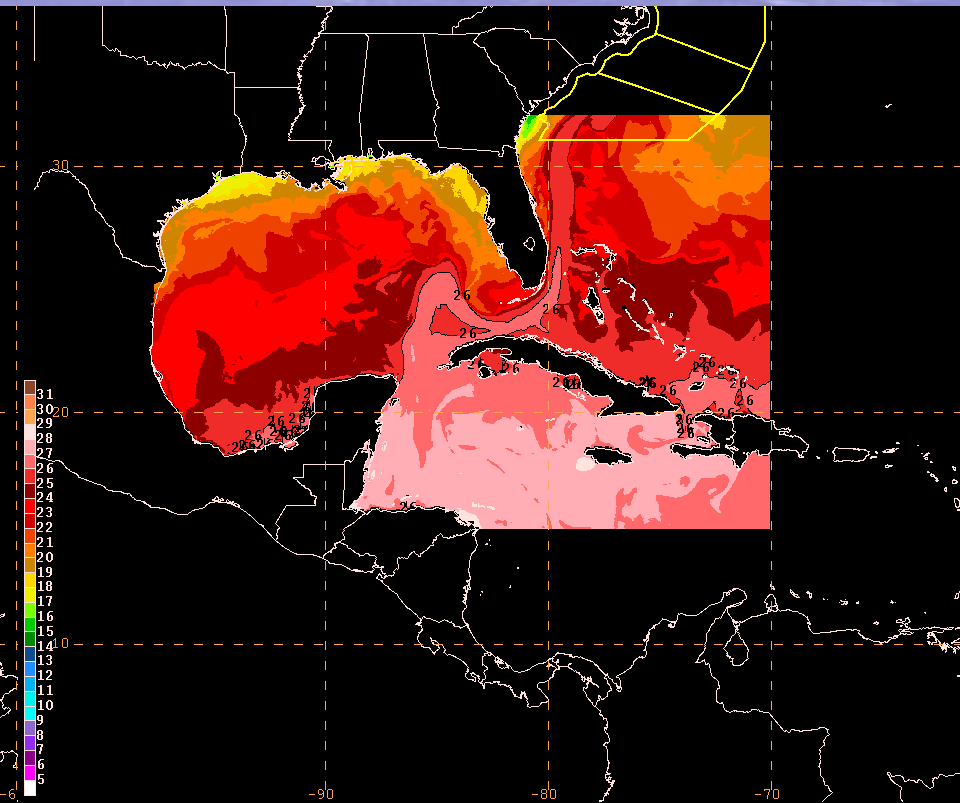
RT_OFS_ATL vs. GOES SST in the Gulf of Mexico

GOES SST March 15, 2007

RT_OFS_ATL SST March 15, 2007



GOES SST: 3DAILY_GMEX 070315/1200V000 GOES 6km SST (deg C)

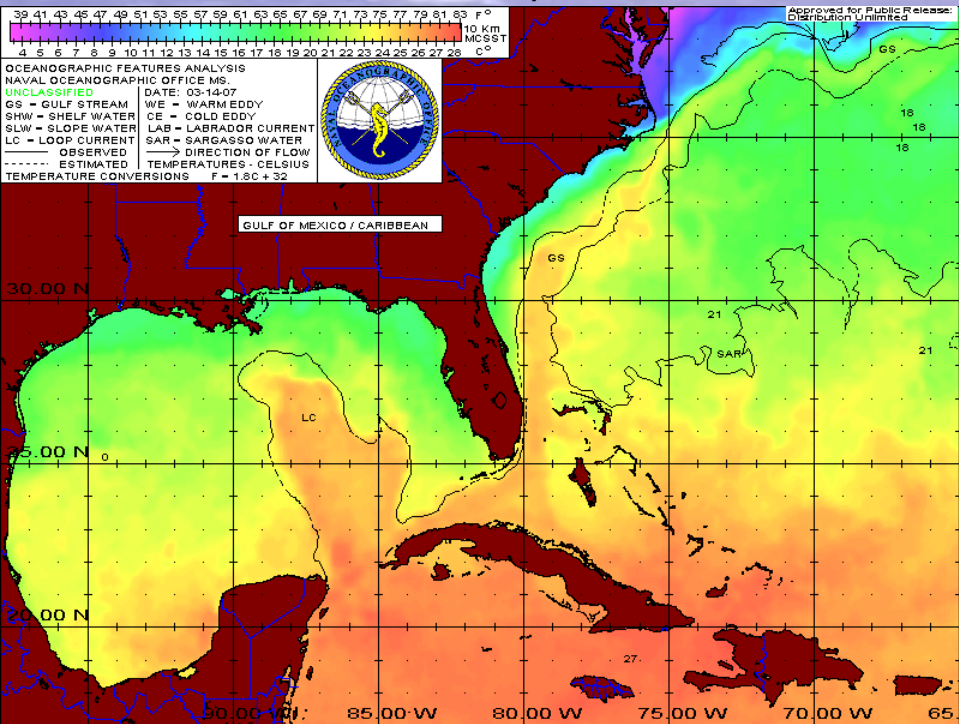


HYCOM_GMEX 070315/0000V000 HYCOM Surface Temperature (C)

Gulf of Mexico

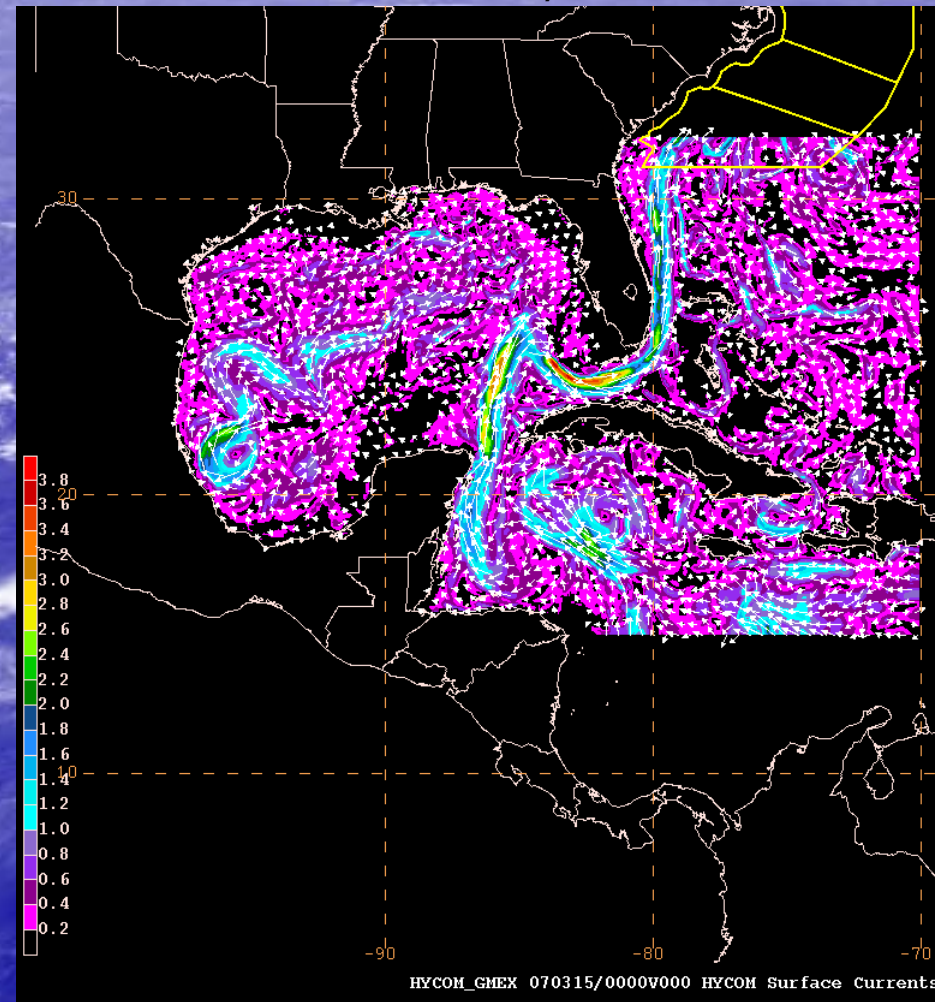
NAVOCEANO GULF FEATURES ANALYSIS

March 14, 2007



RT_OFS_ATL CURRENTS

March 15, 2007

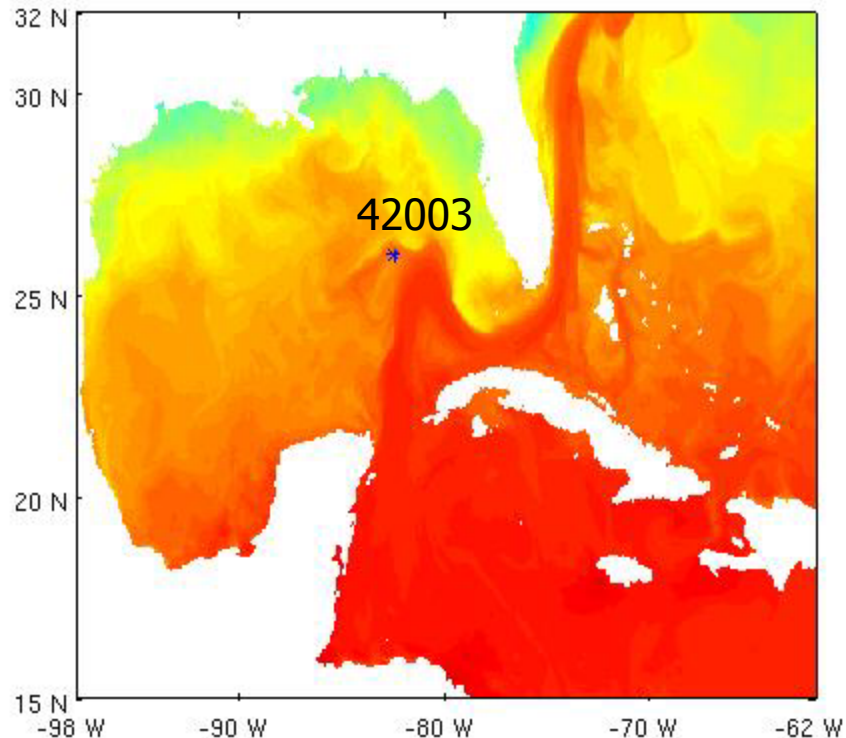


Gulf of Mexico

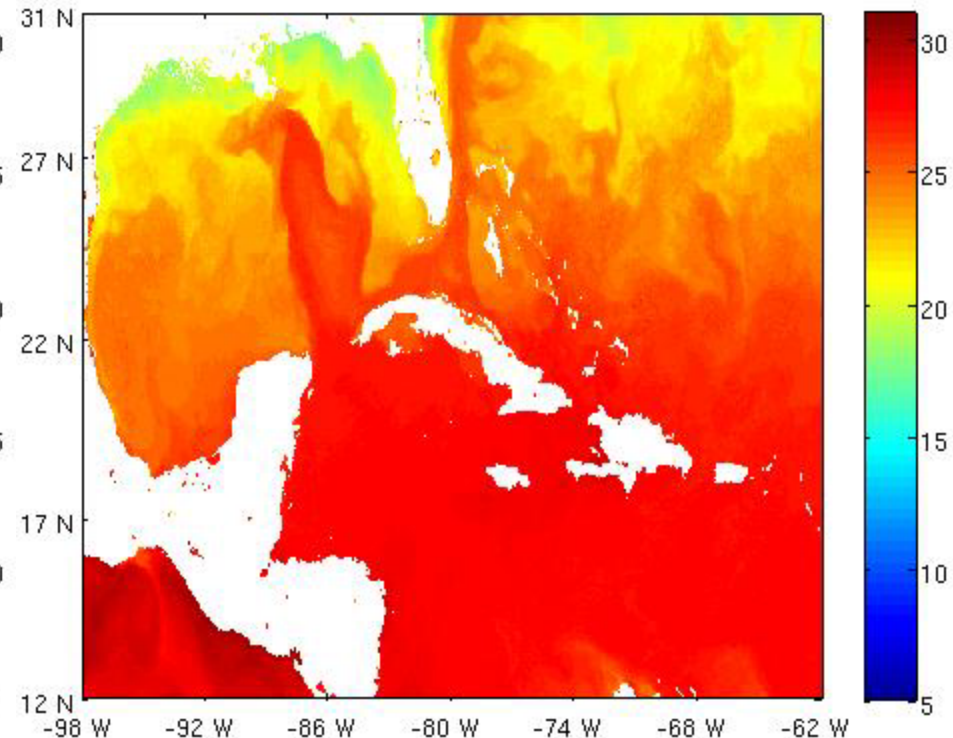
RT_OFS_ATL SST March 15, 2007

GOES SST March 15, 2007

Hycom SST in the Gulf of Mexico March 15, 2007

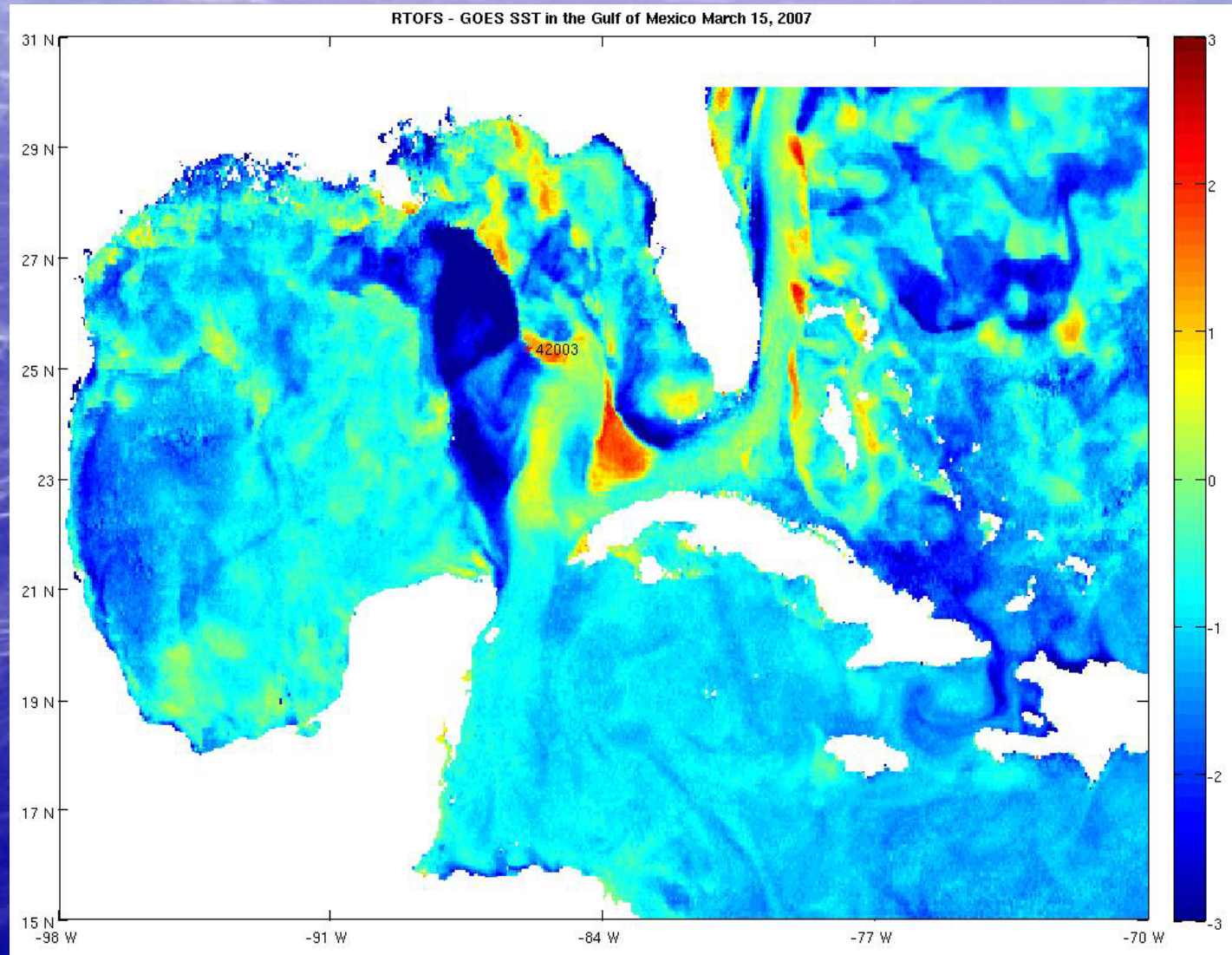


Goes SST in the Gulf of Mexico March 15, 2007

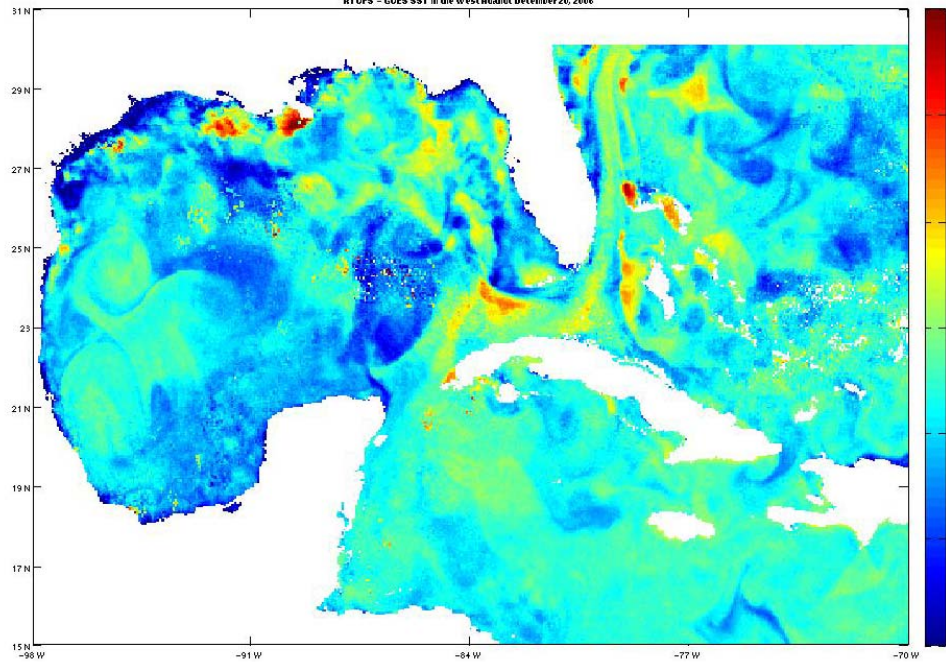


Gulf of Mexico

RT_OFS_ATL - GOES SST March 15, 2007



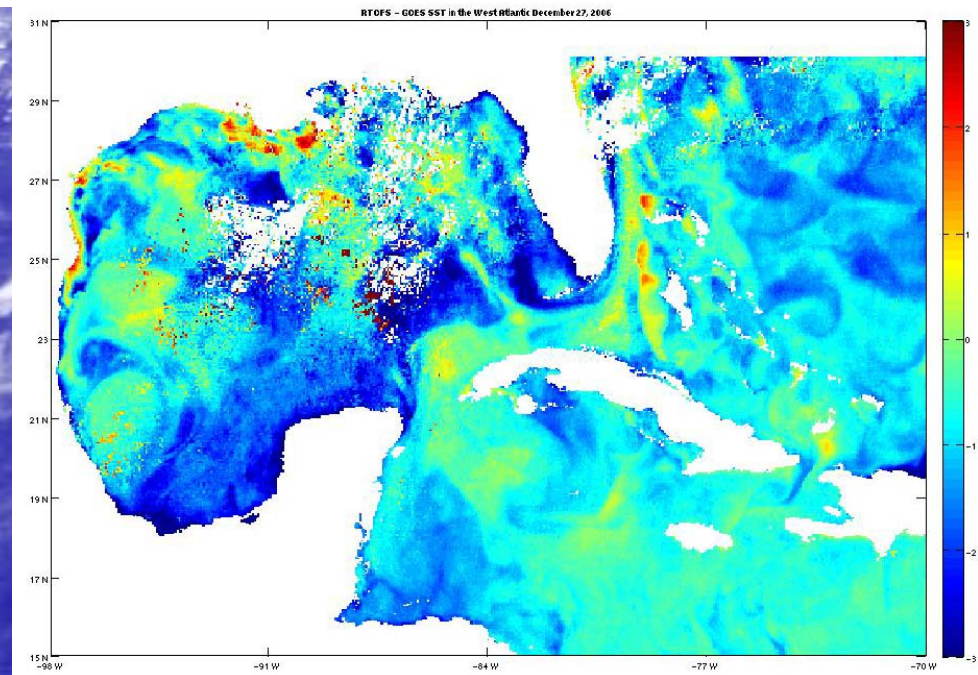
RT_OFS - GOES SST in the West Atlantic December 20, 2006

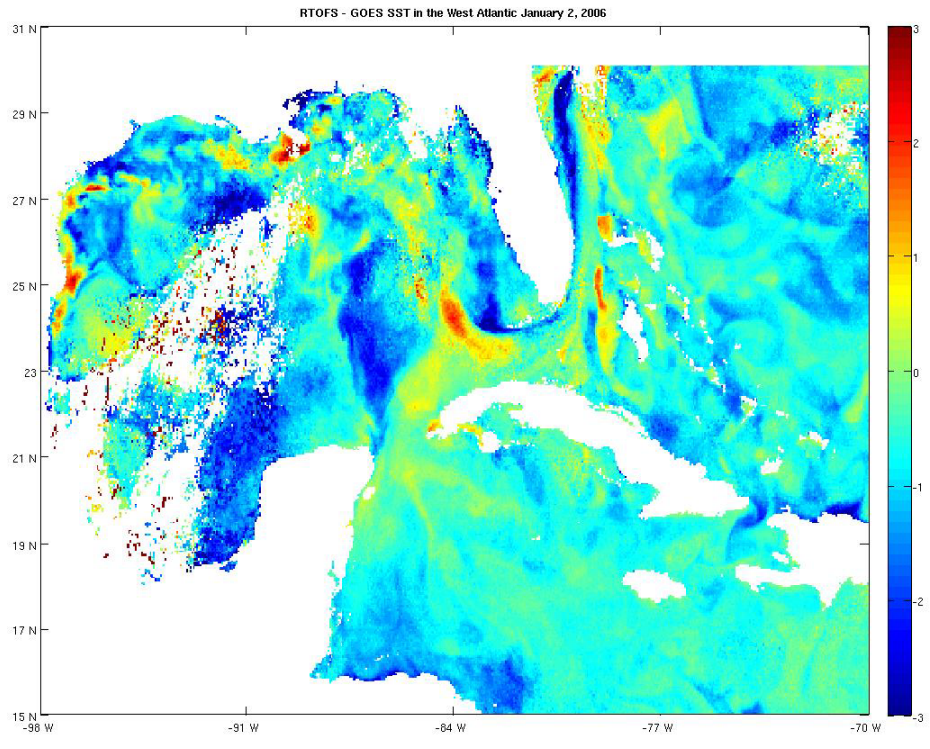


RT_OFS_ATL - GOES SST
December 20, 2006

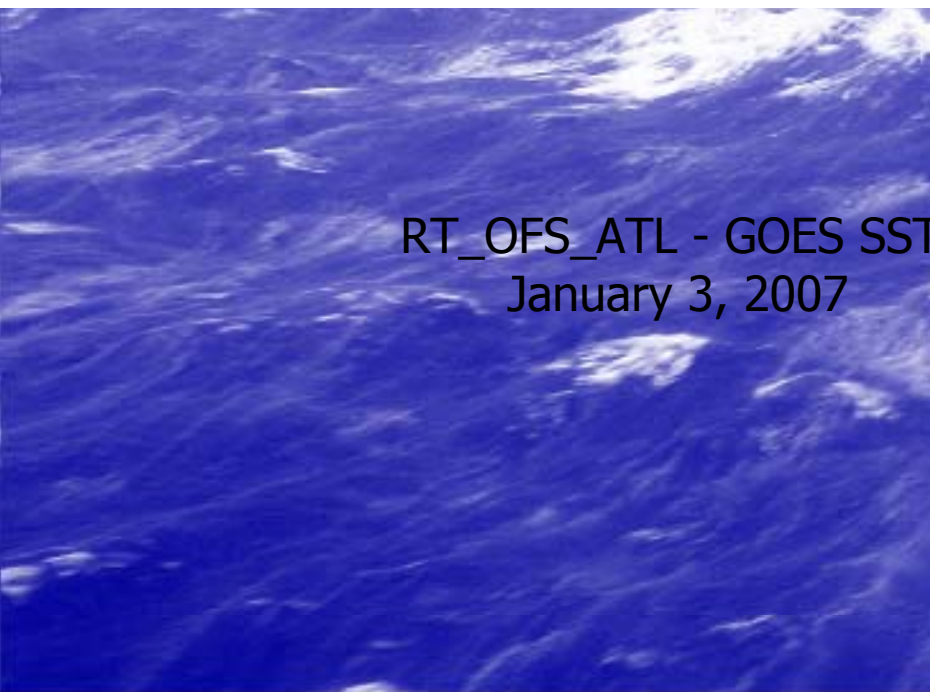


RT_OFS_ATL - GOES SST
December 27, 2006

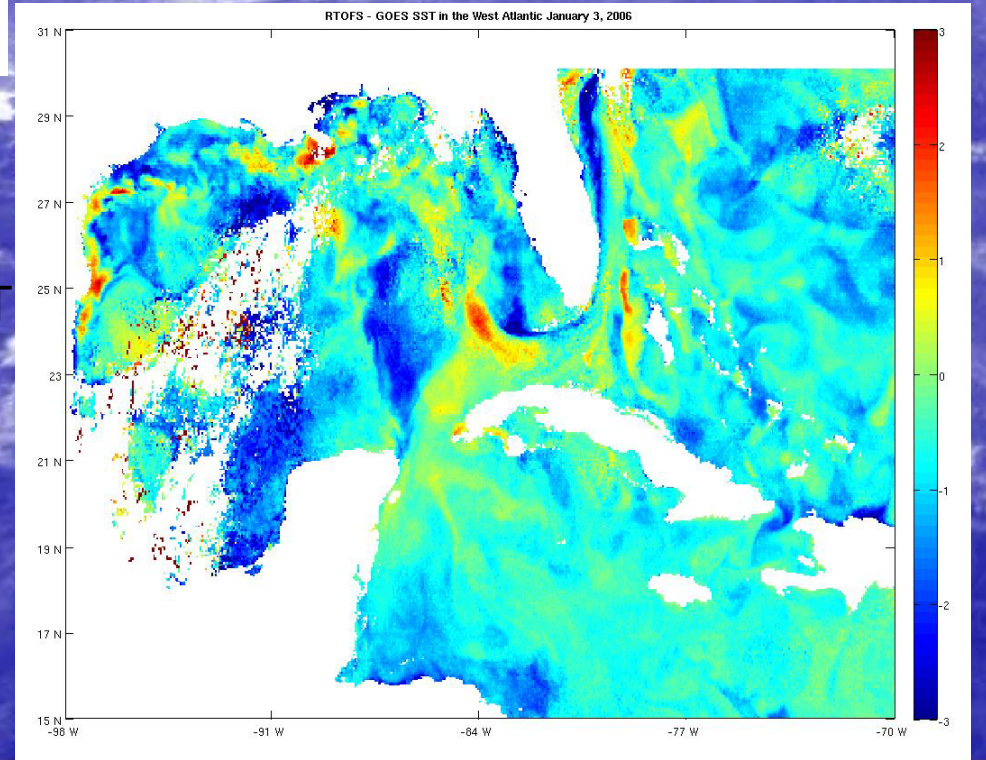




RT_OFS_ATL - GOES SST
January 2, 2007



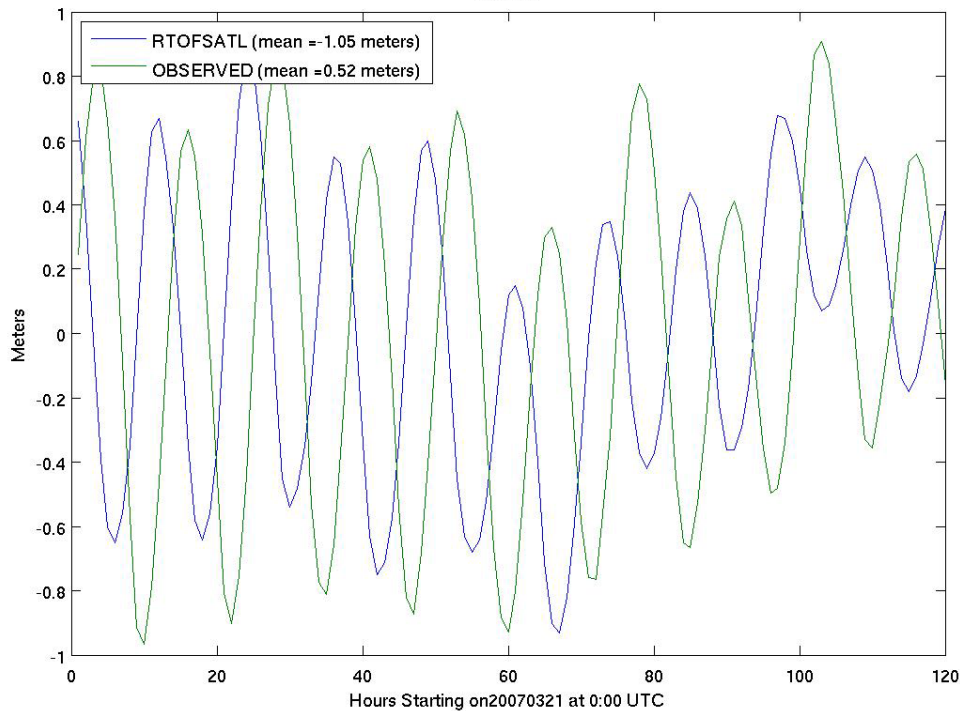
RT_OFS_ATL - GOES SST
January 3, 2007



WATER LEVELS: NOS STATIONS and RT_OFS_ATL

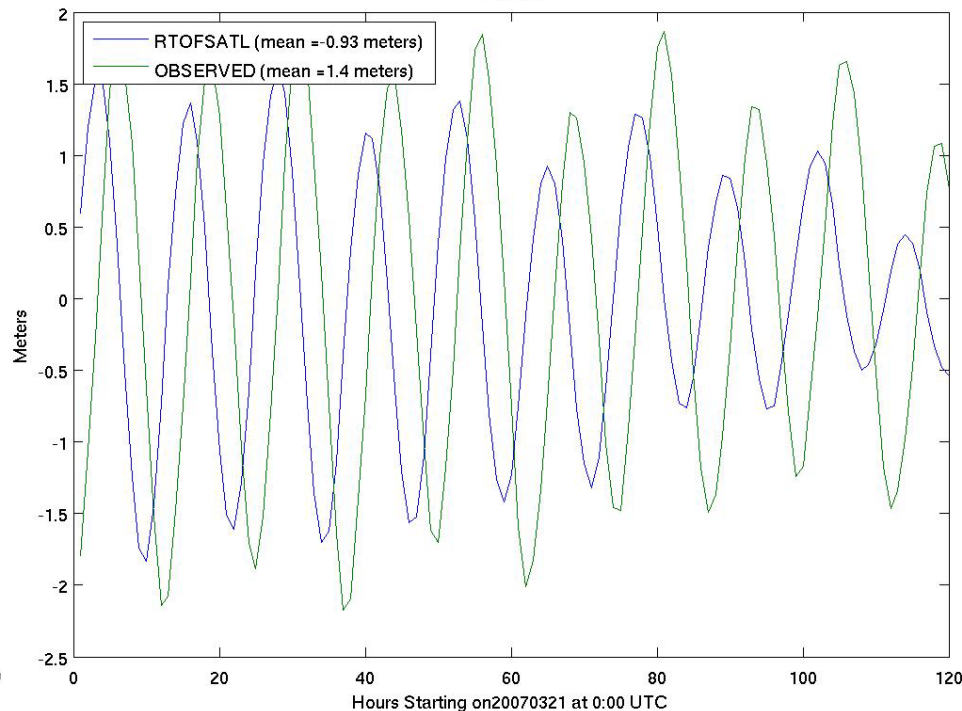
Lewes, DE

Hycom vs. Observed Demeaned Water Levels at
Lewes, DE
Station
8557380



Boston

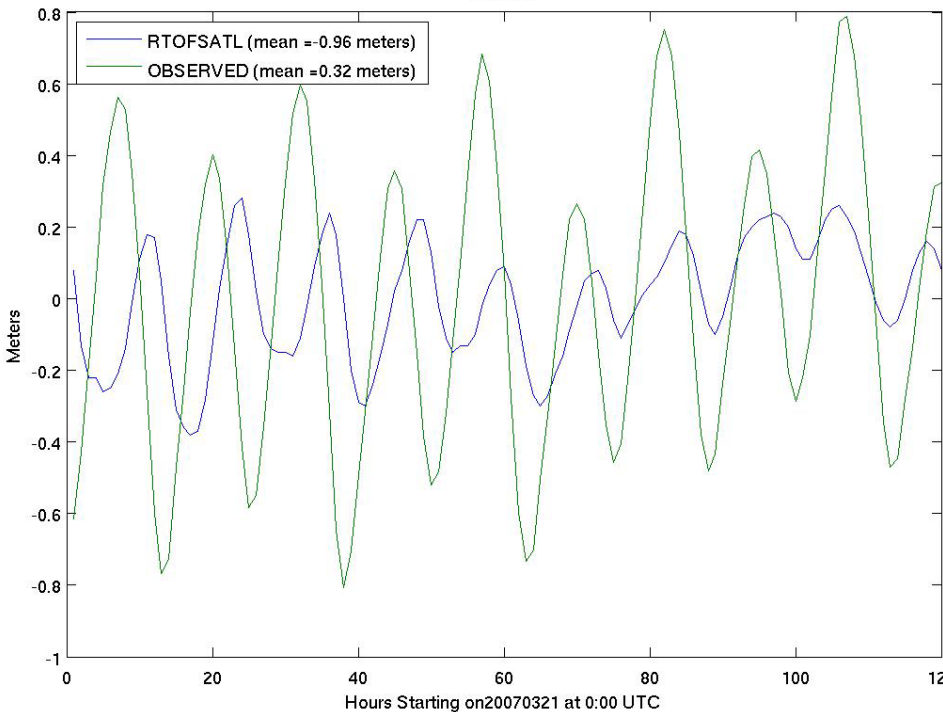
Hycom vs. Observed Demeaned Water Levels at
Boston
Station
8443970



WATER LEVELS: NOS STATIONS and RT_OFS_ATL

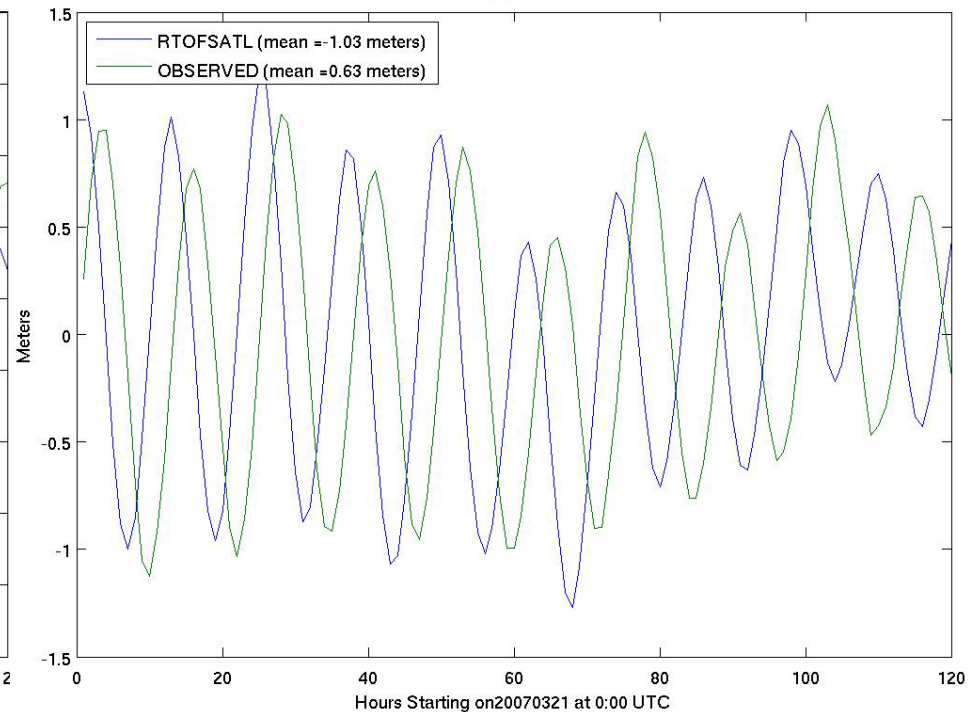
Nantucket

Hycom vs.Observed Demeaned Water Levels at
Nantucket
Station
8449130

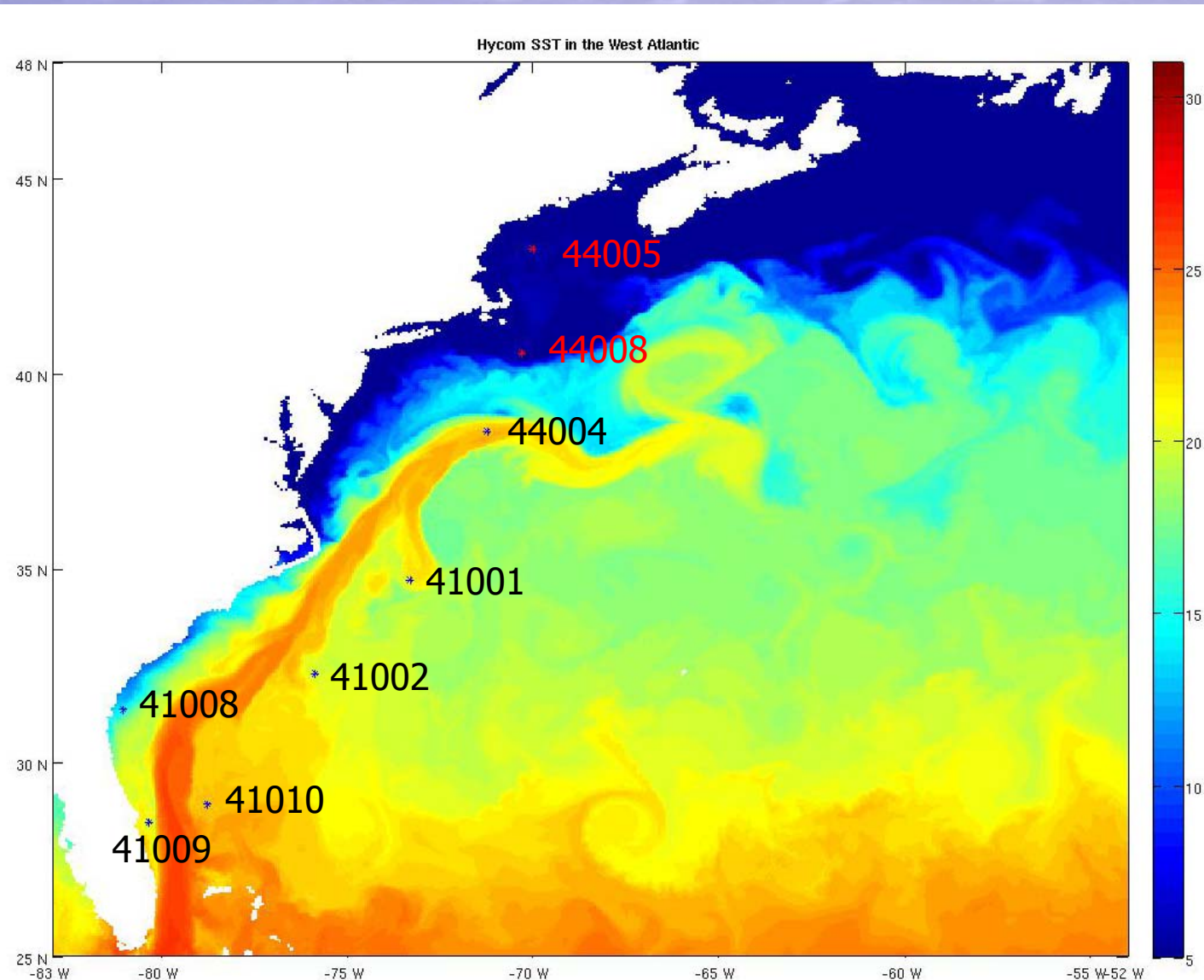


Cape May, NJ

Hycom vs.Observed Demeaned Water Levels at
Cape May, NJ
Station
8536110



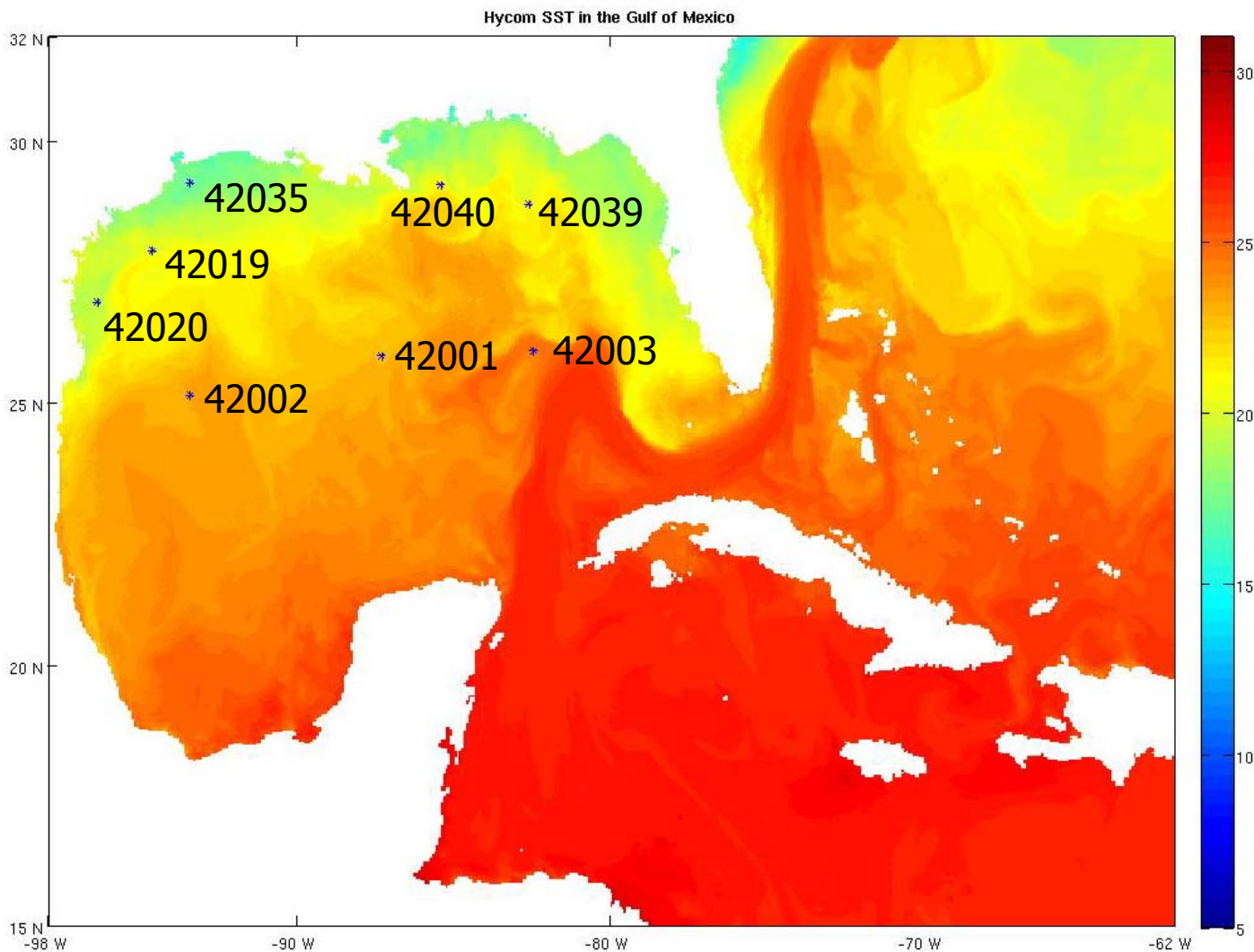
NOAA OFFSHORE BUOYS



Atlantic Buoys

41001 East Hatteras
41002 South Hatteras
44004 Hotel
44005 Gulf of Maine
44008 Nantucket
41008 Grays Reef
41009 Canaveral
41010 Canaveral East

NOAA OFFSHORE BUOYS

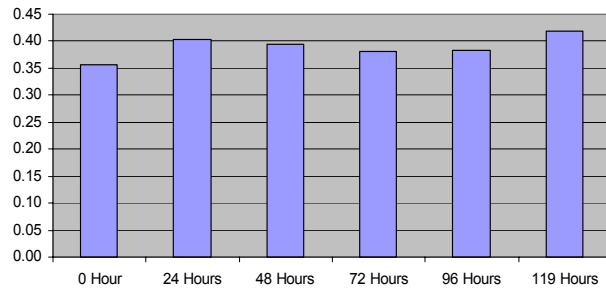


Gulf of Mexico Buoys

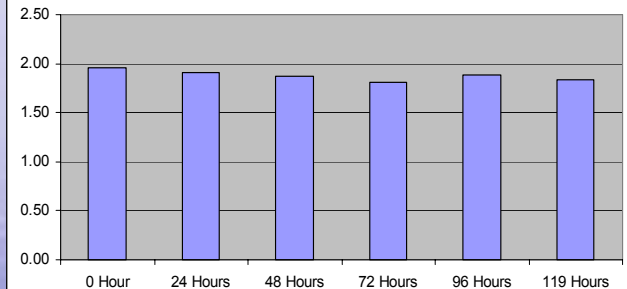
42001 Mid Gulf
42002 Western Gulf
42003 East Gulf
42019 Freeport
42020 Corpus Christi
42035 Galveston
42039 Pensacola
42040 Mobile South

Atlantic Hourly RMS of RT_OFS_ATL and Buoy SST for January 2007

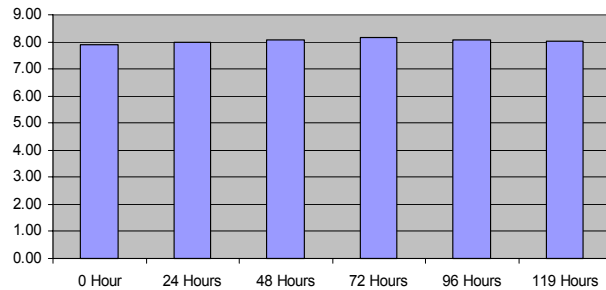
Buoy 41001 RMS of Model - Buoy SST for January 2007



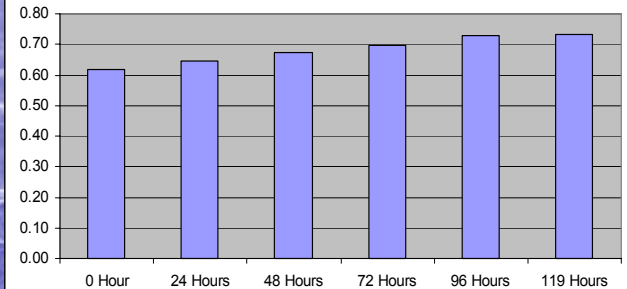
Buoy 41002 RMS of Model - Buoy SST for January 2007



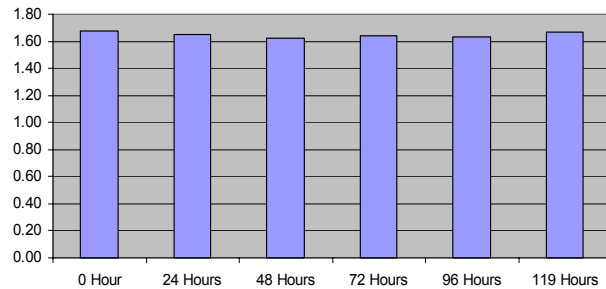
Buoy 44004 RMS of Model - Buoy SST for January 2007



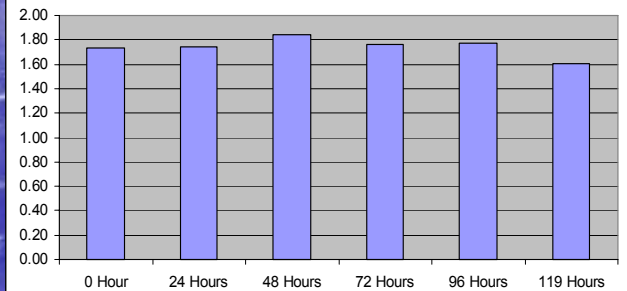
Buoy 44005 RMS of Model - Buoy SST for January 2007



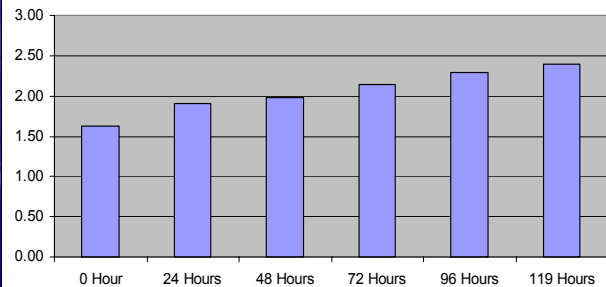
Buoy 44008 RMS of Model - Buoy SST for January 2007



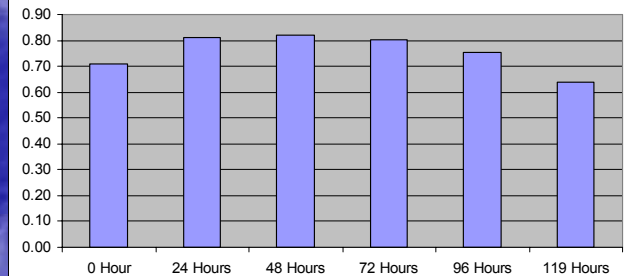
Buoy 41008 RMS of Model - Buoy SST for January 2007



Buoy 41009 RMS of Model - Buoy SST for January 2007

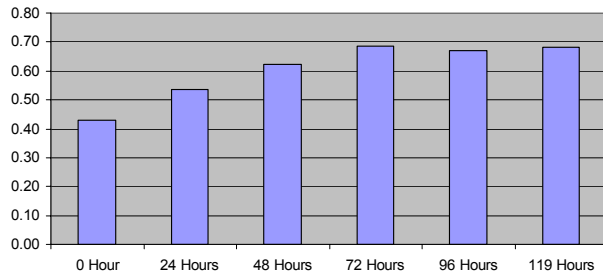


Buoy 41010 RMS of Model - Buoy SST for January 2007

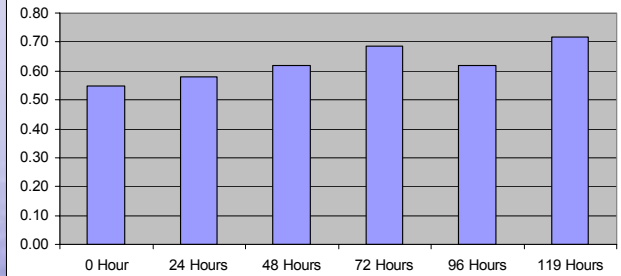


Gulf of Mexico Hourly RMS of RT_OFS_ATL and Buoy SST for January 2007

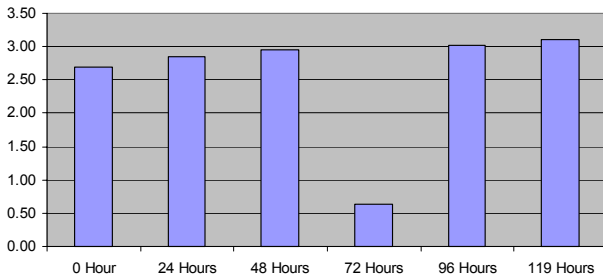
Buoy 42001 RMS of Model - Buoy SST for January 2007



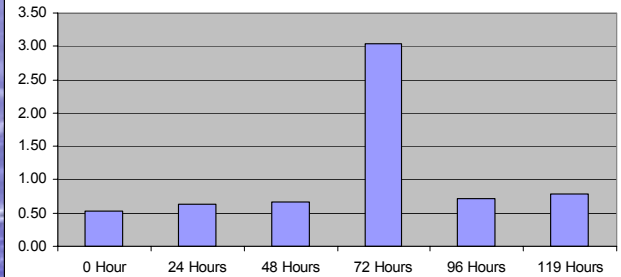
Buoy 42002 RMS of Model - Buoy SST for January 2007



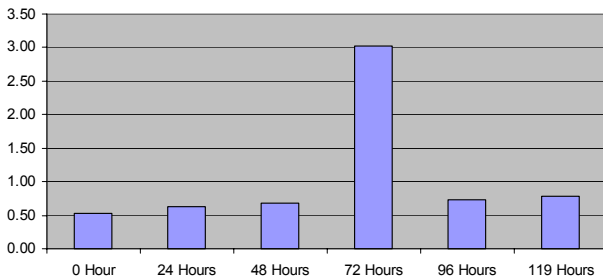
Buoy 42003 RMS of Model - Buoy SST for January 2007



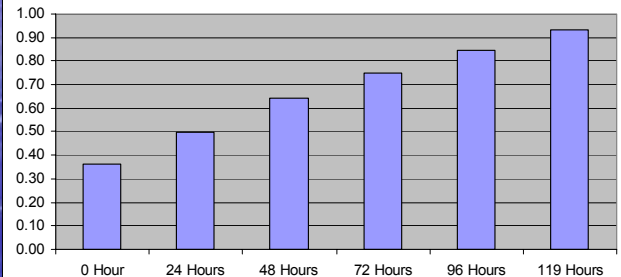
Buoy 42019 RMS of Model - Buoy SST for January 2007



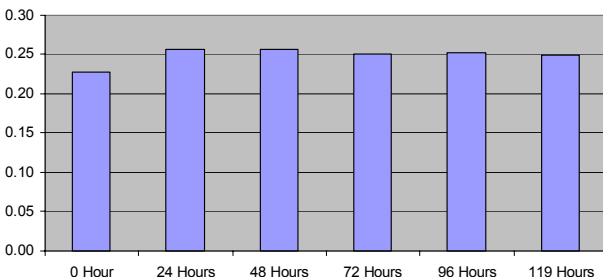
Buoy 42020 RMS of Model - Buoy SST for January 2007



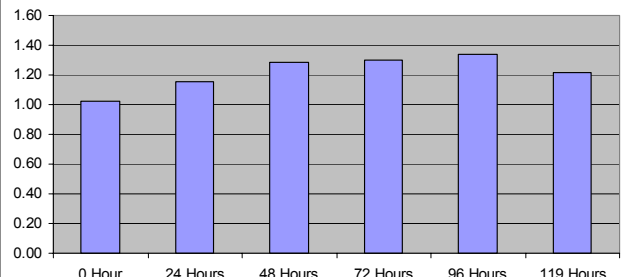
Buoy 42035 RMS of Model - Buoy SST for January 2007



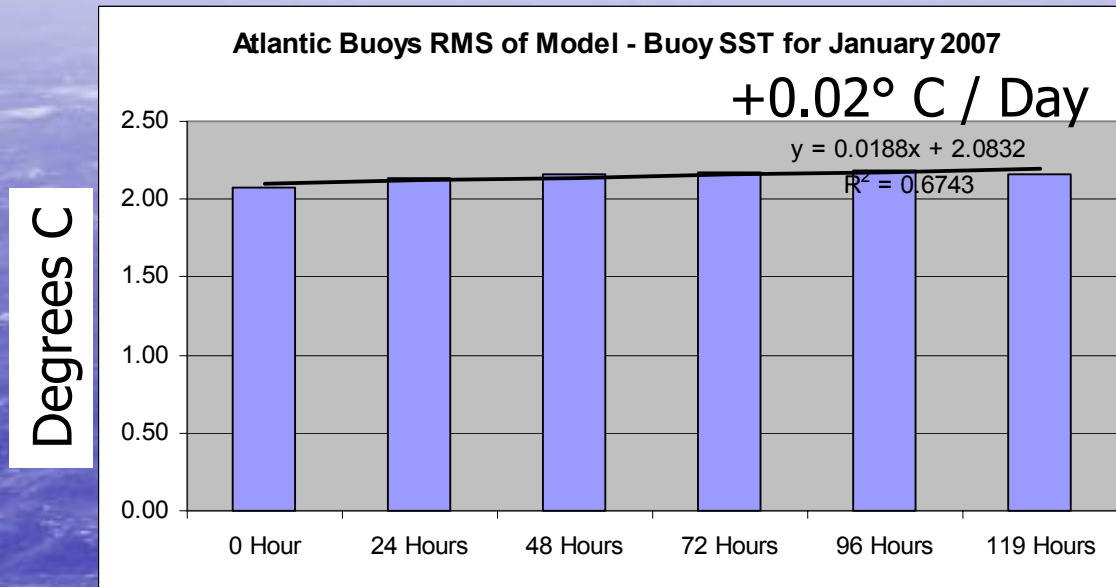
Buoy 42039 RMS of Model - Buoy SST for January 2007



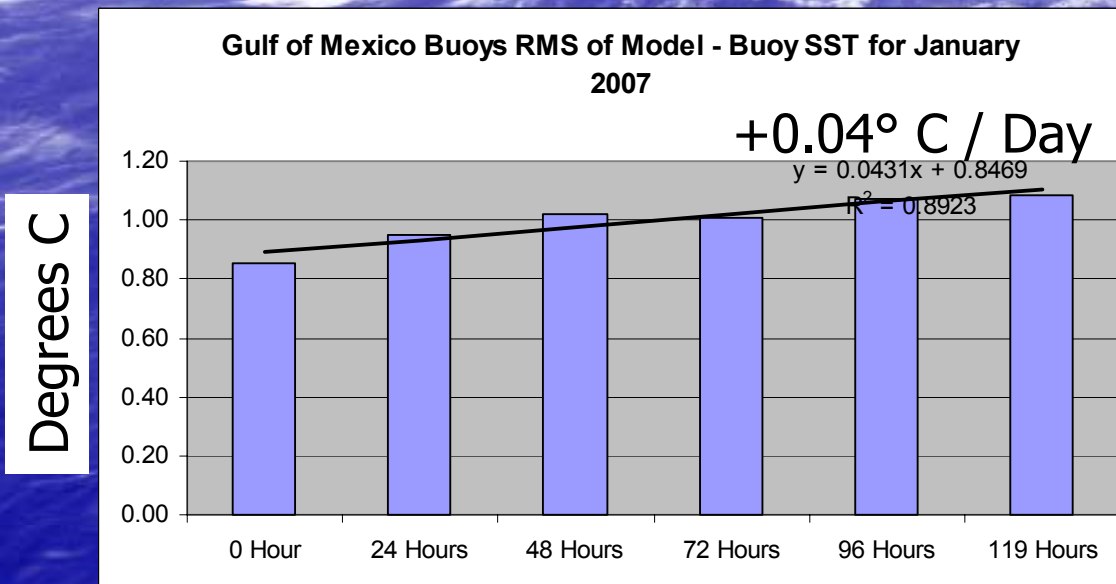
Buoy 42040 RMS of Model - Buoy SST for January 2007



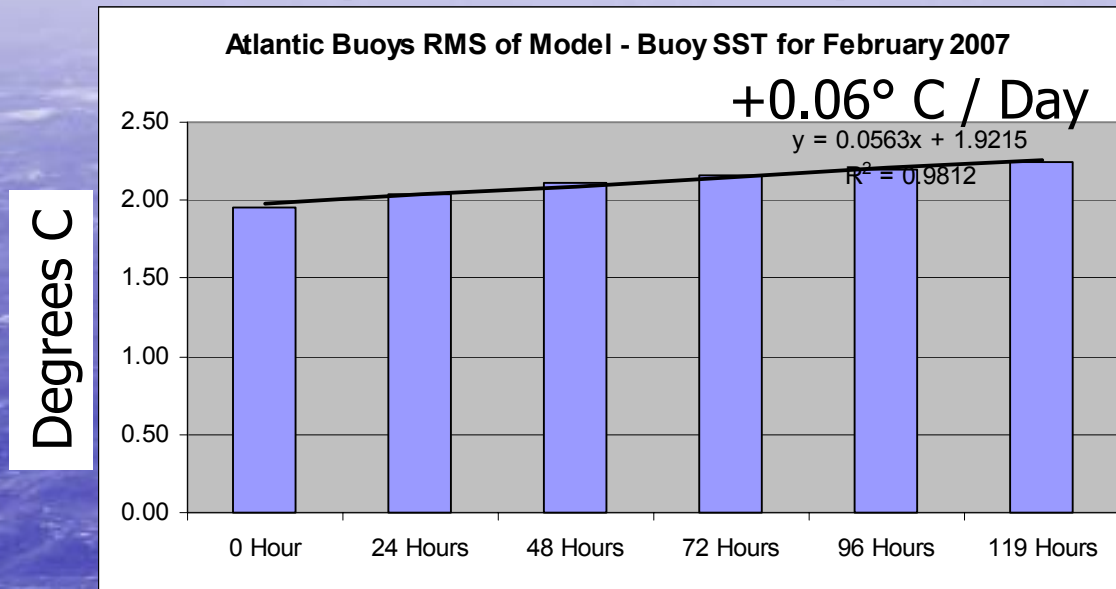
Average RMS for Atlantic and Gulf of Mexico Buoys in January 2007



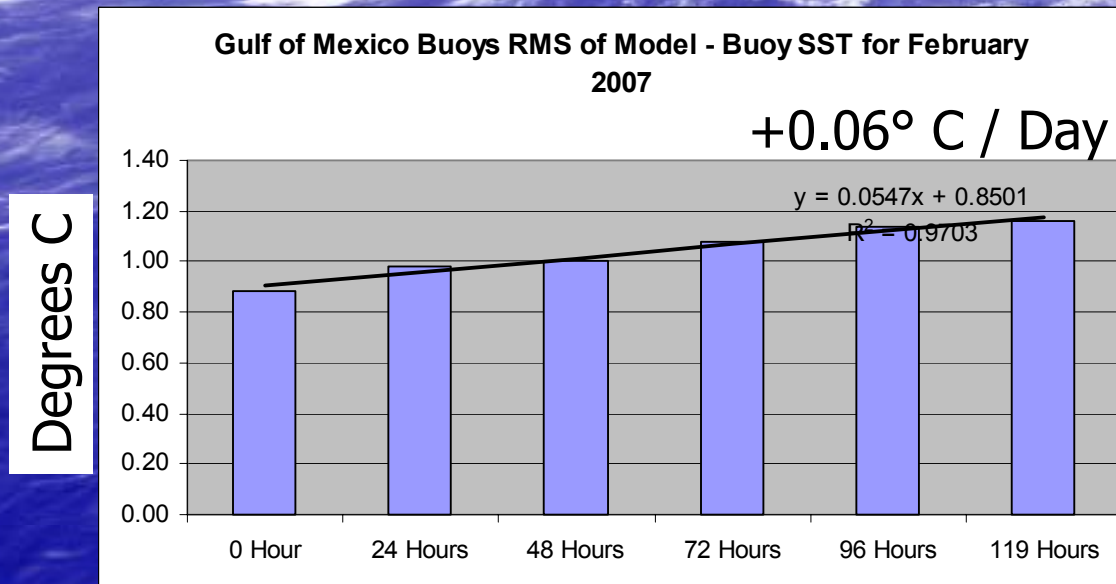
Small Positive Slopes



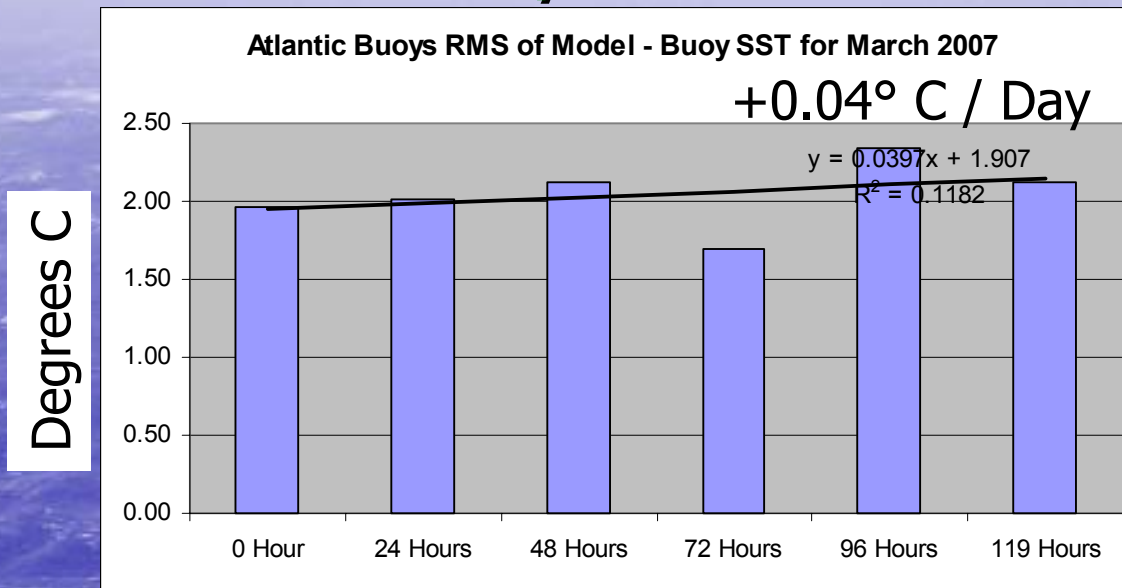
Average RMS for Atlantic and Gulf of Mexico Buoys in February 2007



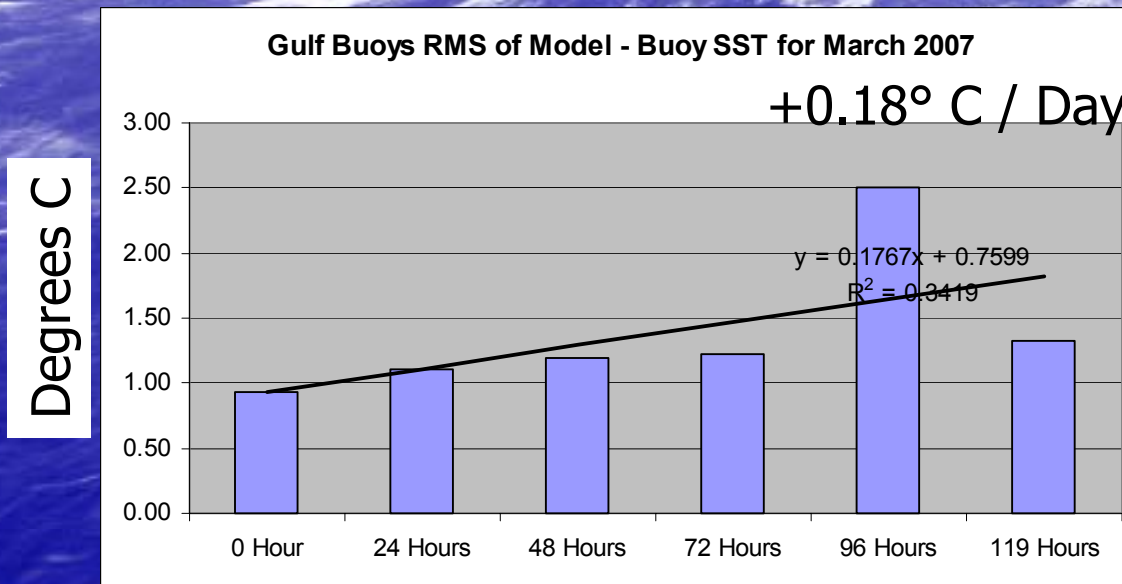
Small Positive Slopes



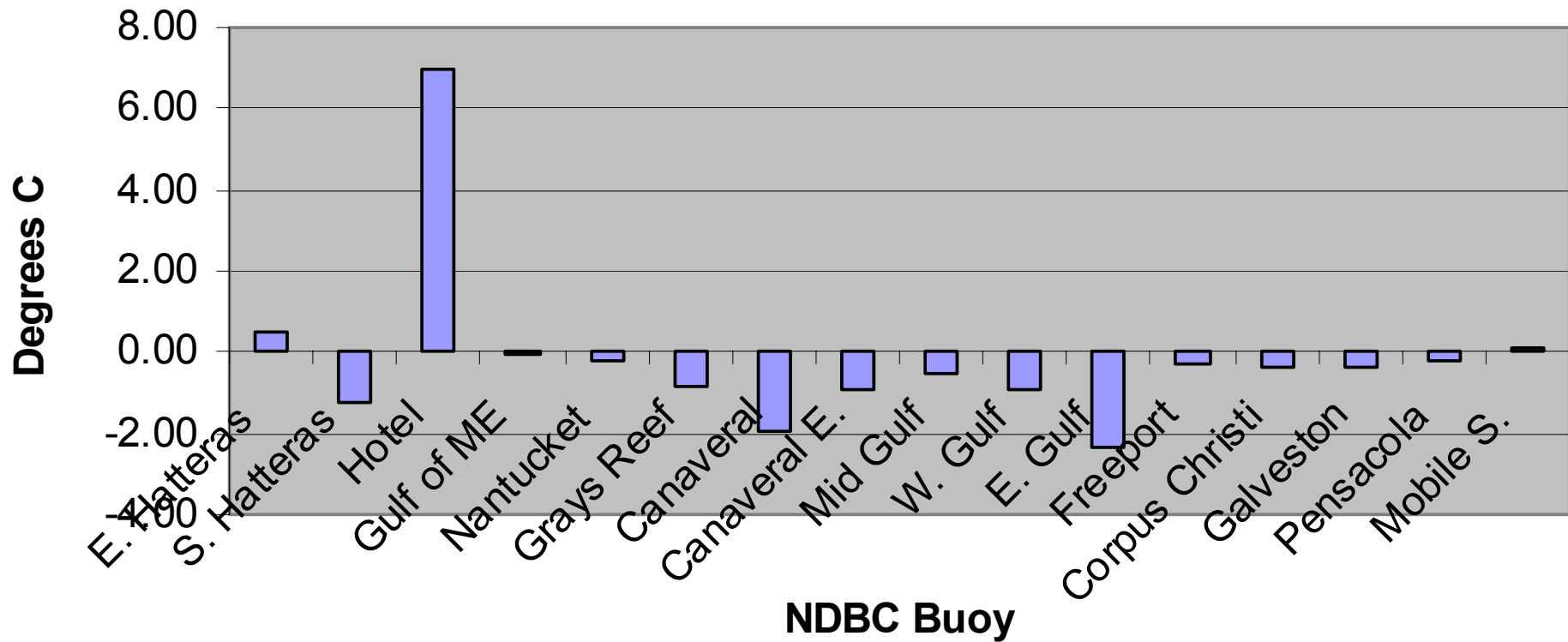
Average RMS for all Atlantic and Gulf of Mexico Buoys in March 2007



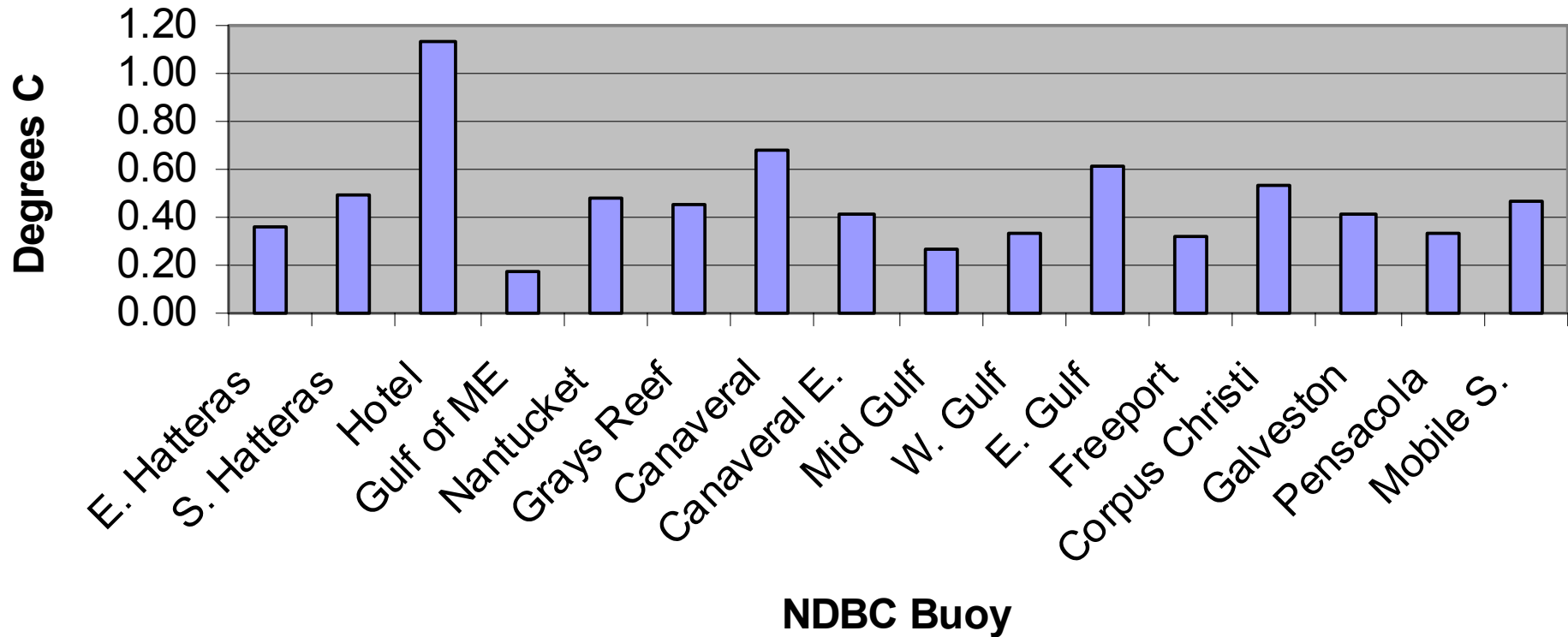
Small Positive Slopes



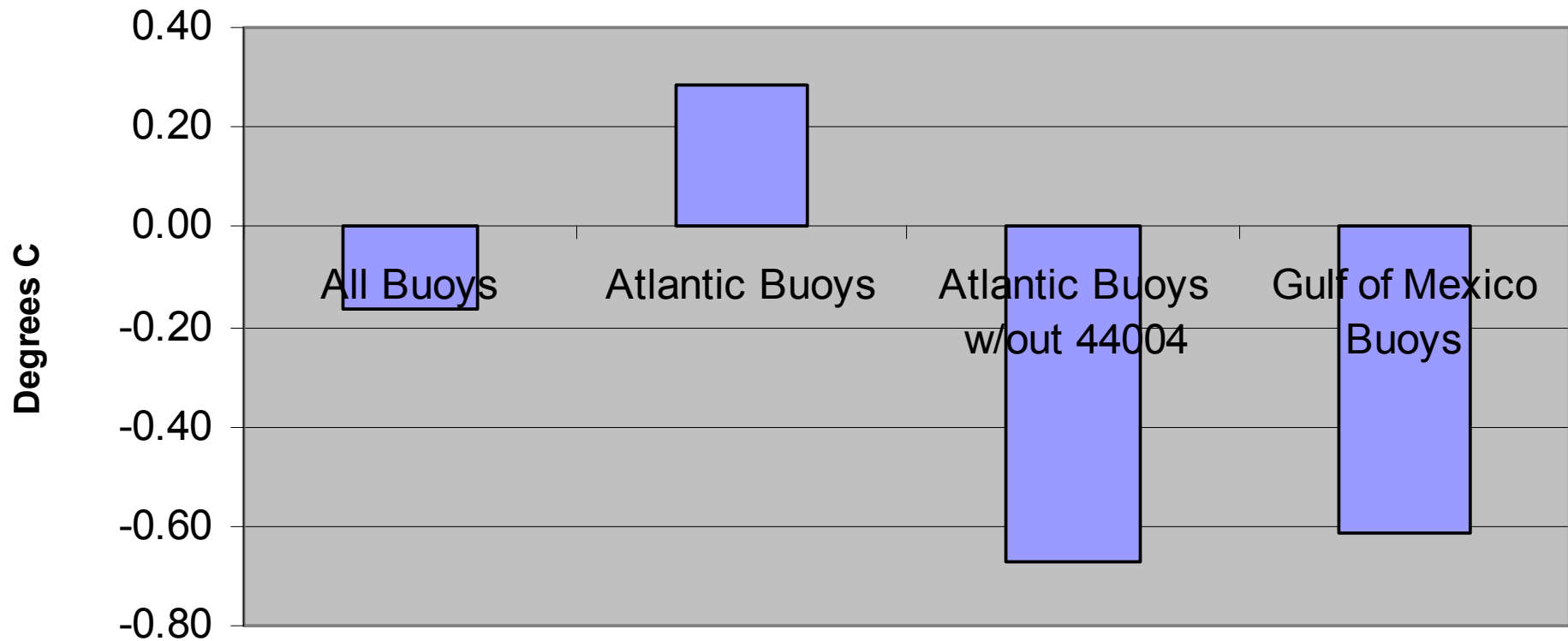
Average of Daily Difference (Bias) between RT_OFS - Buoy SST



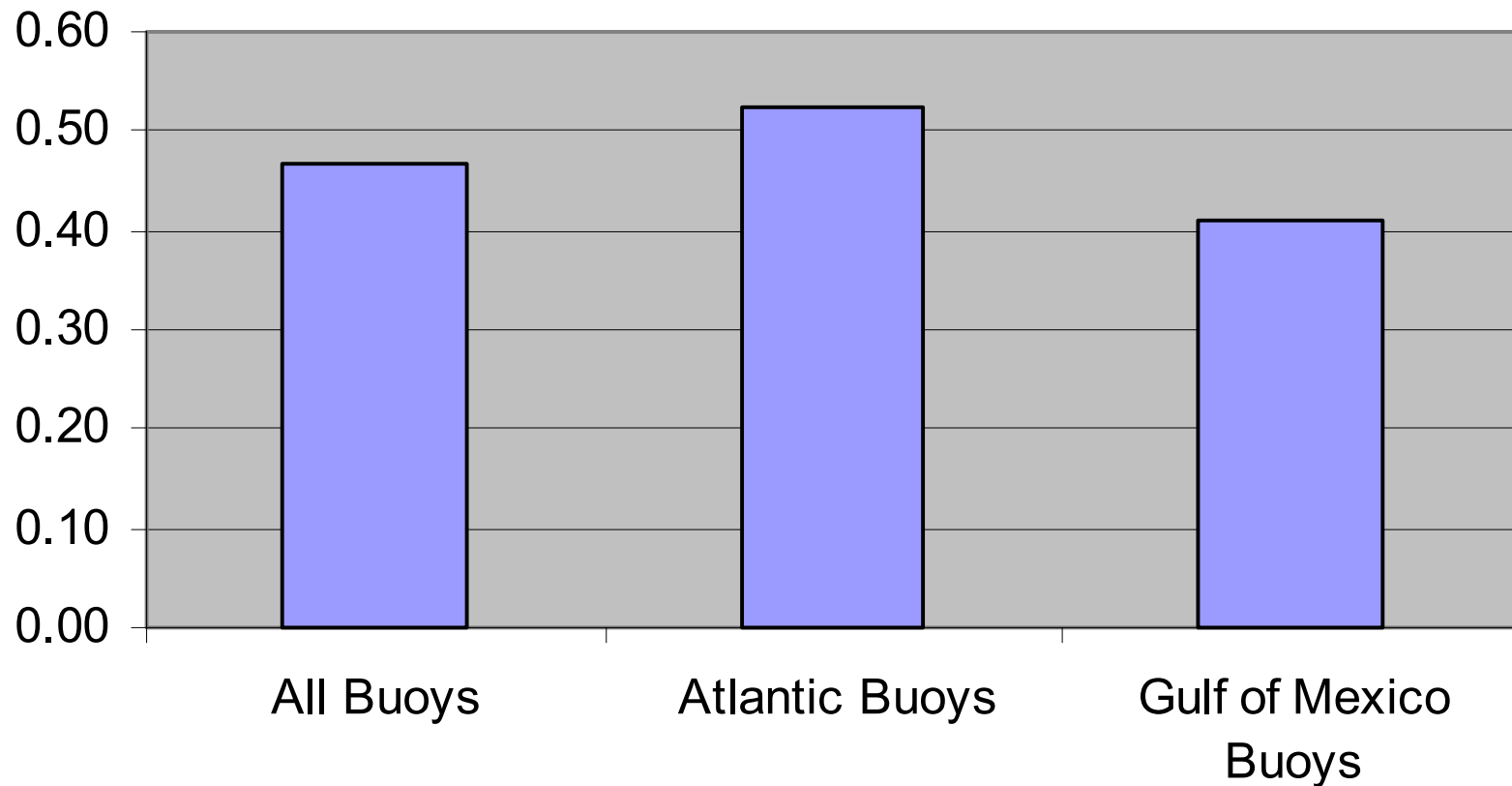
Average of Daily Standard Deviation of RT_OFS - Buoy SST



Average of Daily Difference (Bias) between RT_OFS_ATL - Buoy SST

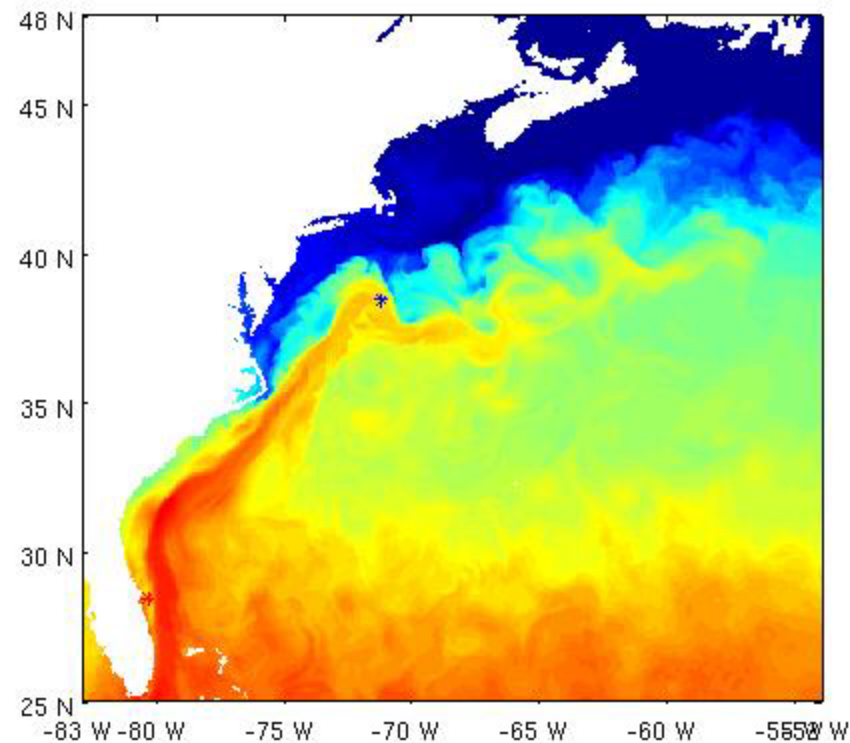


Average Daily Standard Deviation of RT_OFS_ATL - Buoy SST

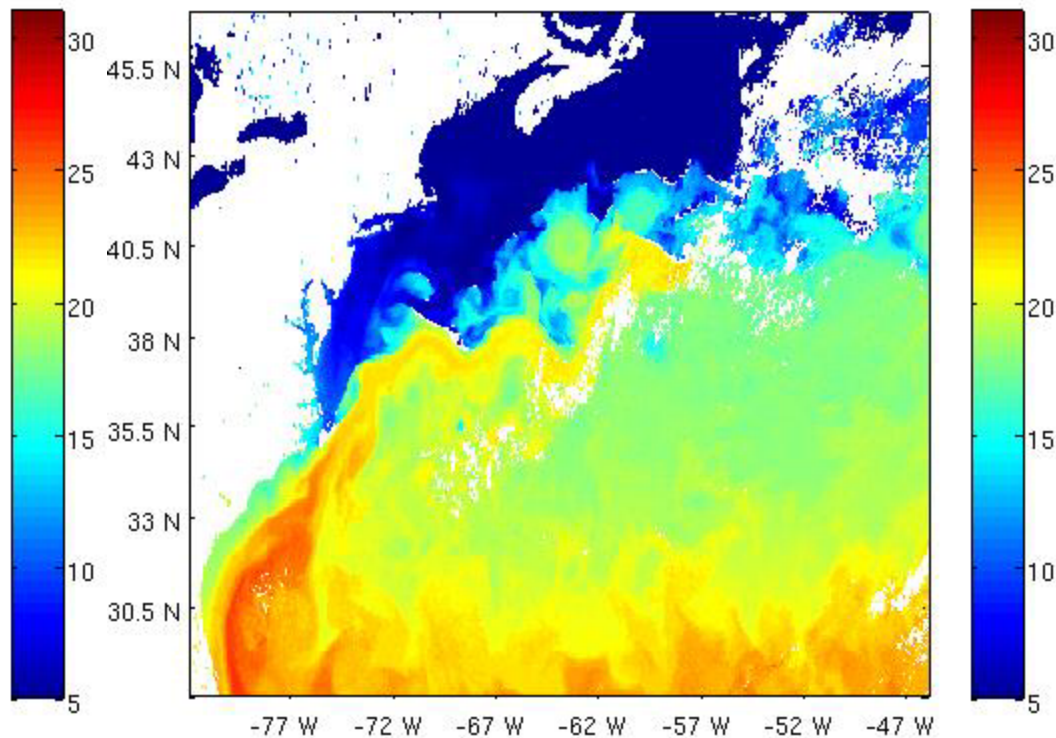


New Parallel RT_OFS_ATL in the West Atlantic

Parallel RT_OFS April 22, 2007



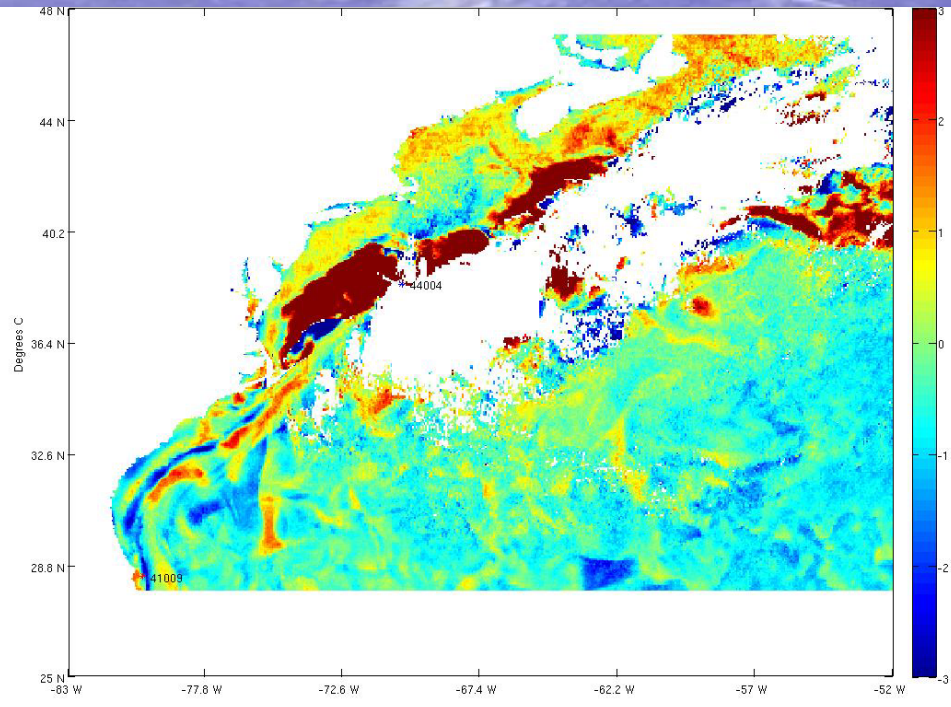
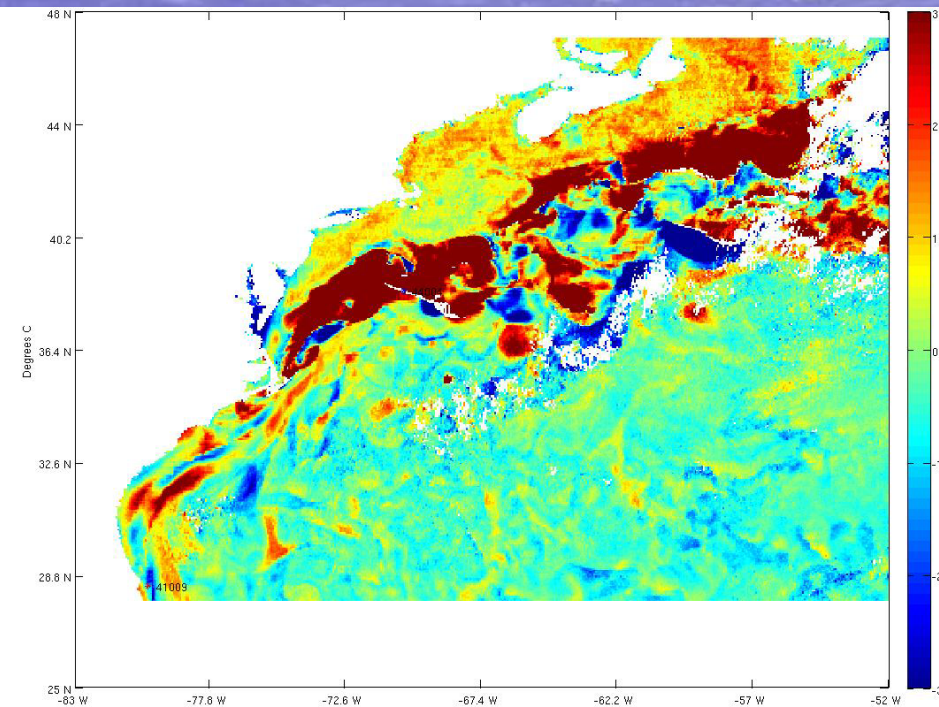
Goes SST April 22, 2007



New Parallel RT_OFS_ATL in the West Atlantic

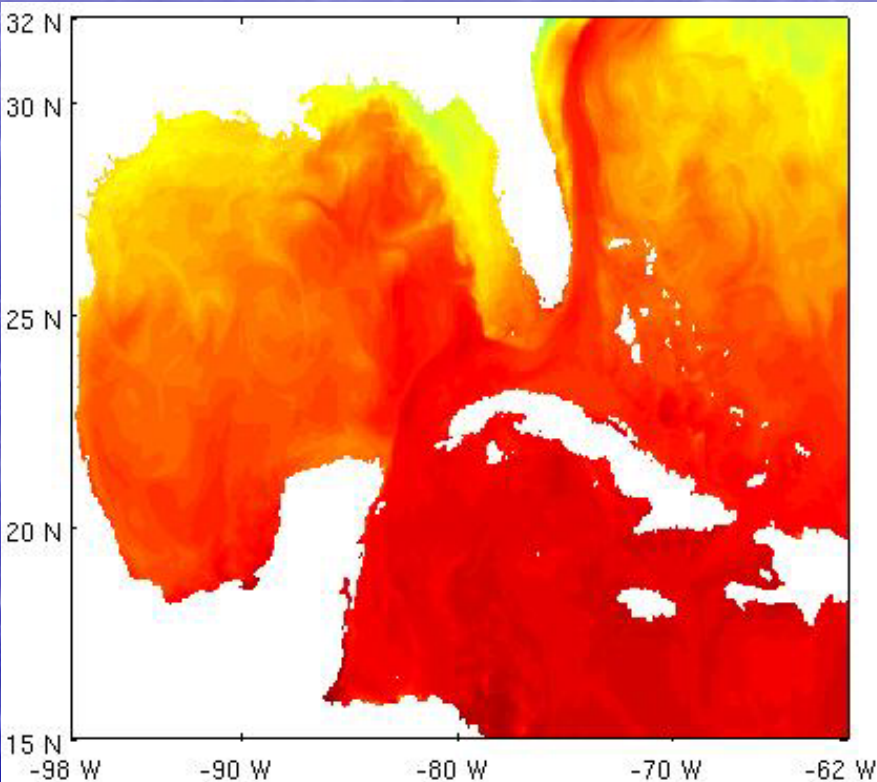
Parallel RT_OFS – Goes SST April 22, 2007

Parallel RT_OFS – Goes SST April 21, 2007

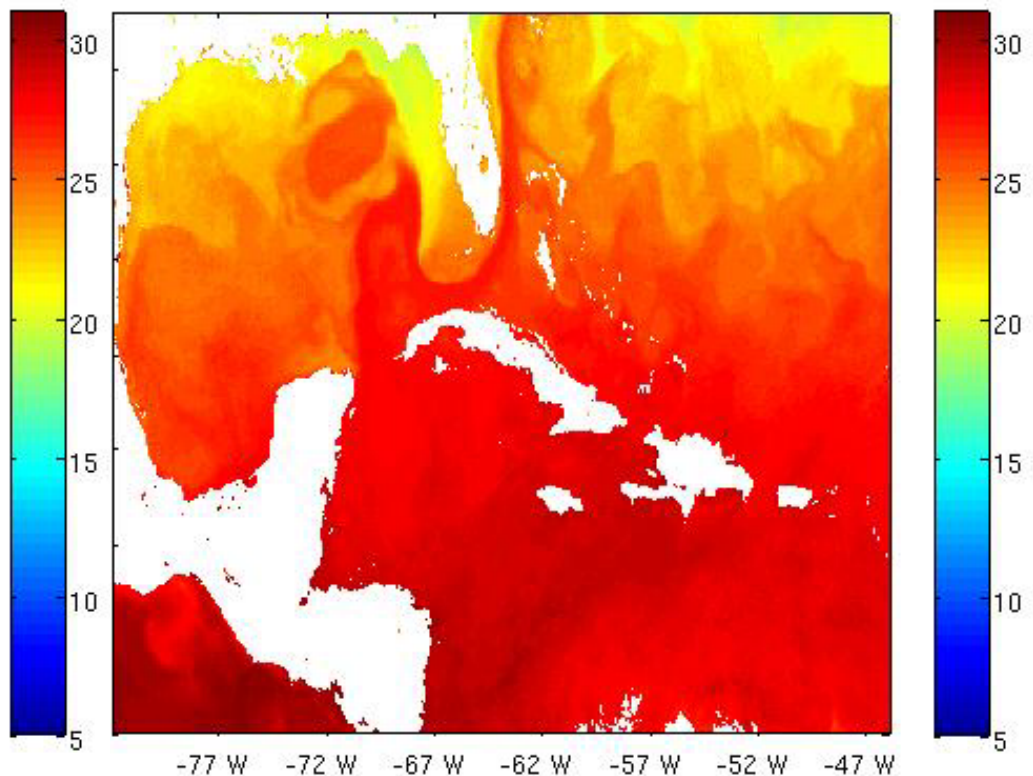


New Parallel RT_OFS_ATL in the Gulf of Mexico

Parallel RT_OFS April 22, 2007



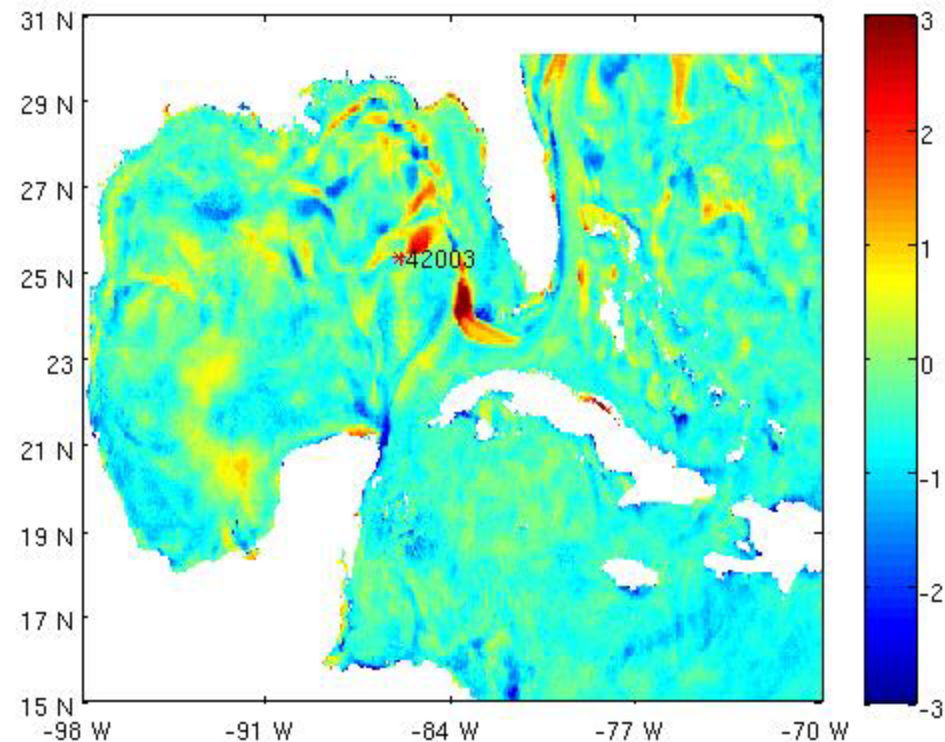
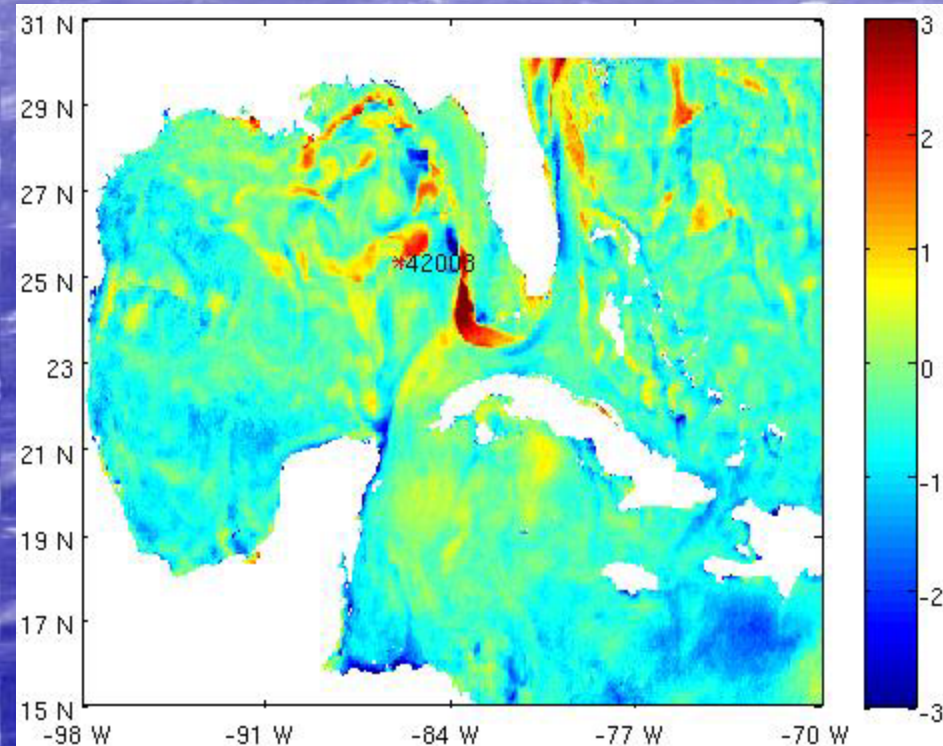
Goes SST April 22, 2007



New Parallel RT_OFS_ATL in the Gulf of Mexico

Parallel RT_OFS – Goes SST April 22, 2007

Parallel RT_OFS – Goes SST April 20, 2007



Conclusions and Future Plans

- Assimilation Problems in Western Atlantic (Gulf Stream Overshoot and Florida Current) and in Gulf of Mexico (Loop Current)
- RT_OFS_ATL shows only small decrease in Forecast Capability out to Five Days
- Compare RT_OFS_ATL with other SST products including the NOAA NCDC Optimum Interpolation 1/4 Degree Daily SST Analysis (Reynolds & Smith)
- Continue Reviewing New Parallel Run of RT_OFS_ATL
- Continue and expand analysis of Water Levels