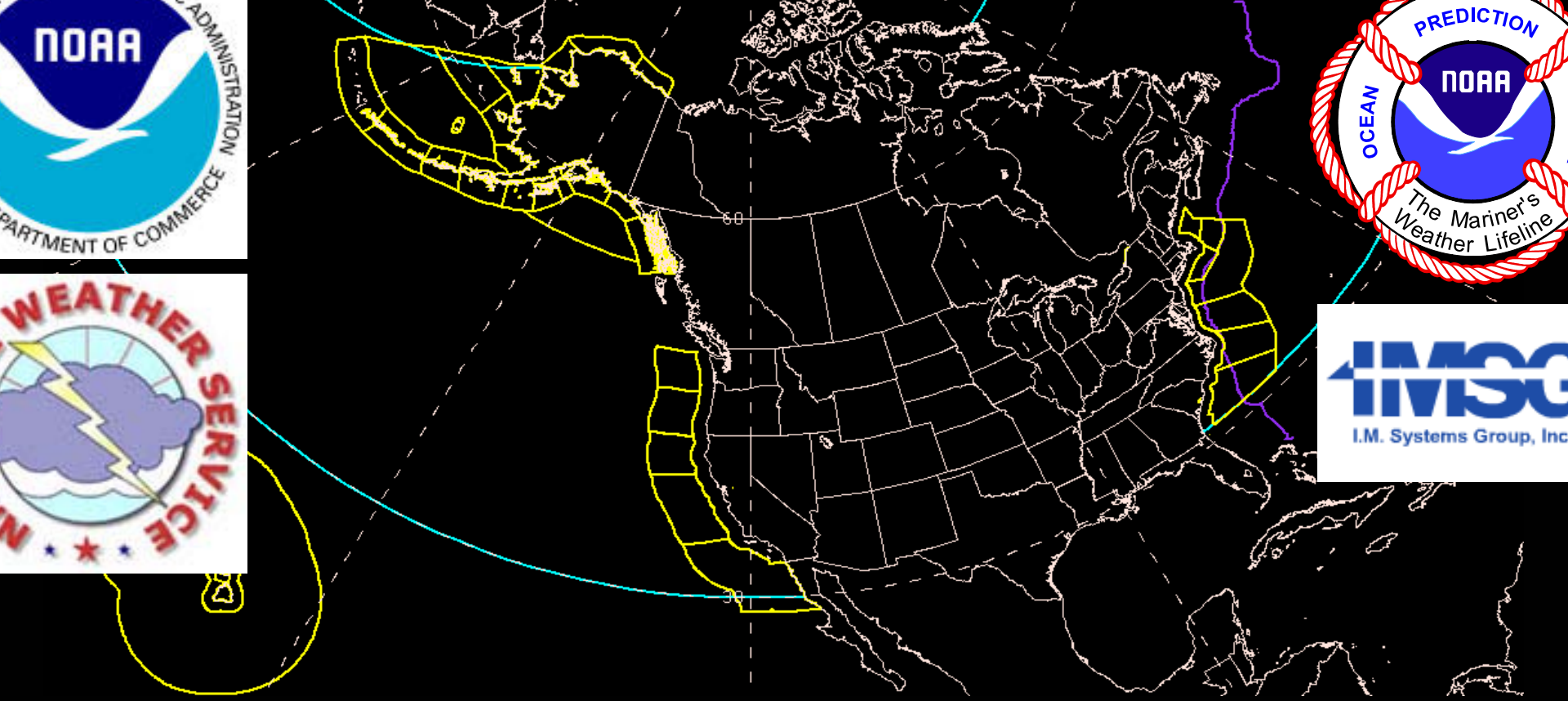


J.M. Sienkiewicz (OPC) and
J.A. Morgan (I.M. Systems Group, Inc.)

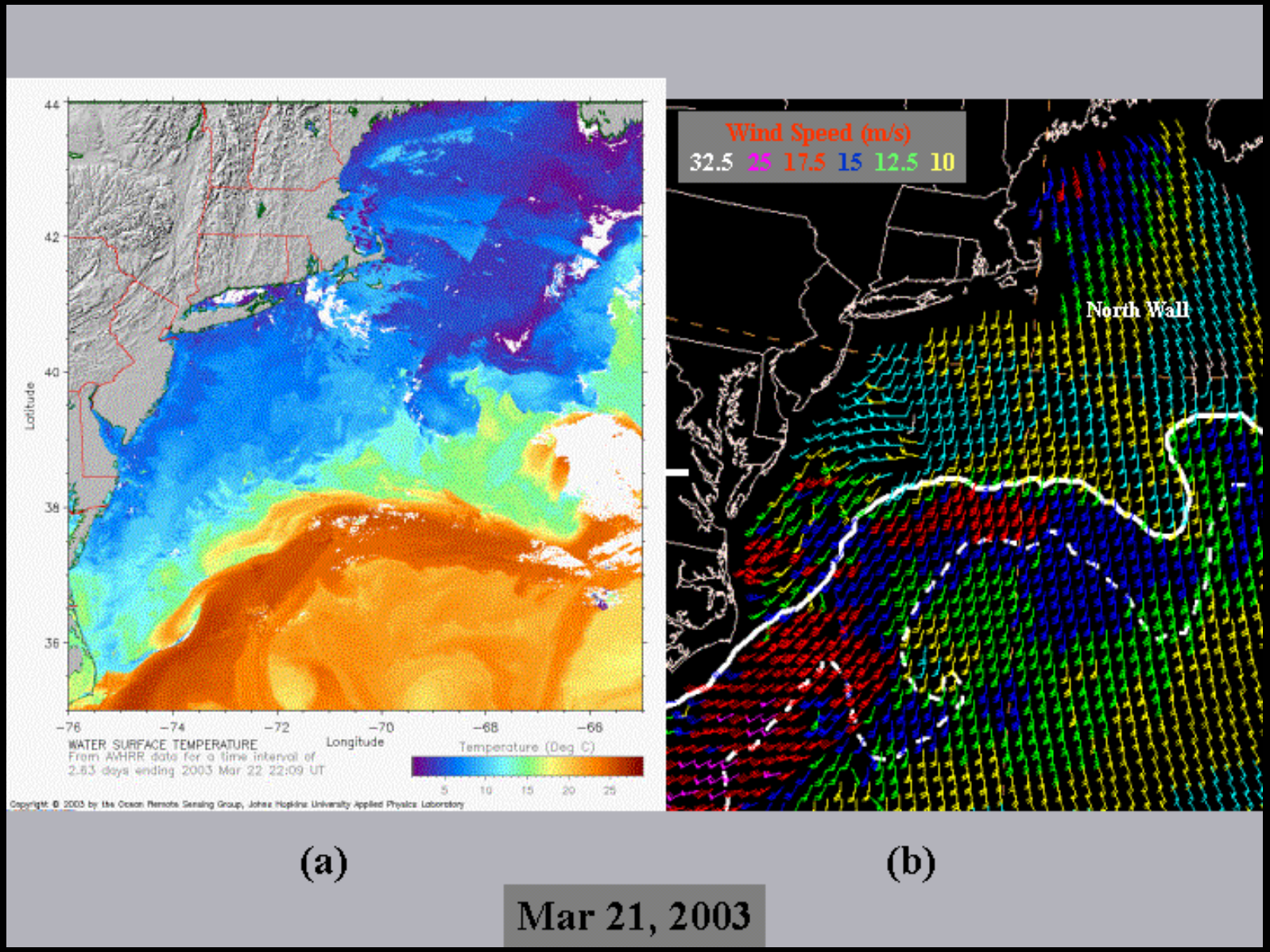
HYCOM Meeting, Oct. 27-29, 2004, RSMAS, Miami, FL

Ocean Prediction Center

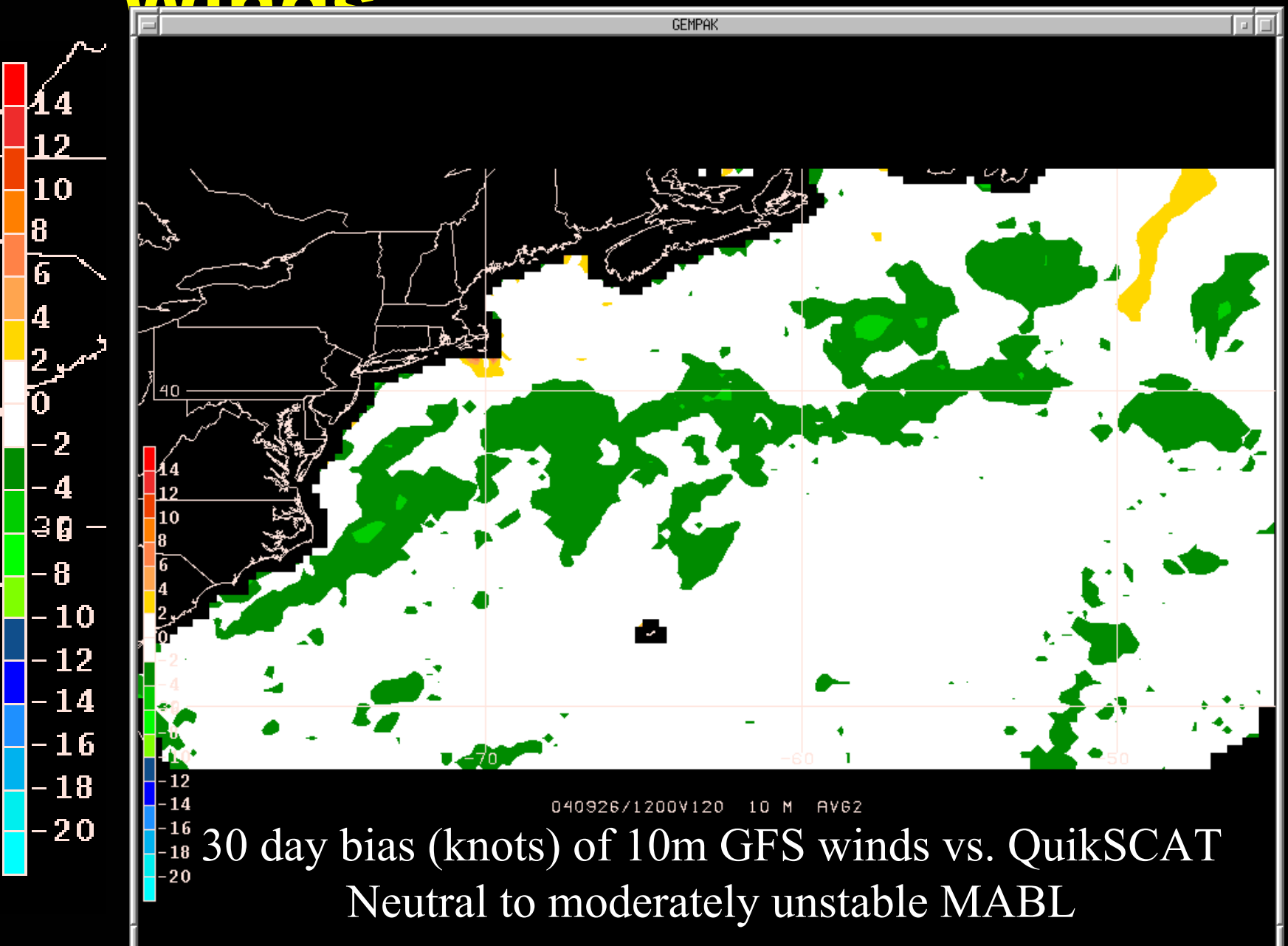
- *Responsibility, Motivation, Mission*
  - *Operational forecast center*
  - *Wind and waves*
- *Forecasting and Analyses to 5 Days*
  - *High Seas and Offshore Zones*
  - *Weather Fax Products*
  - *Storm, Gale, Hurricane Warnings*

Ocean Prediction Center

The Gulf Stream: Data



The Gulf Stream: GFS 10m Winds

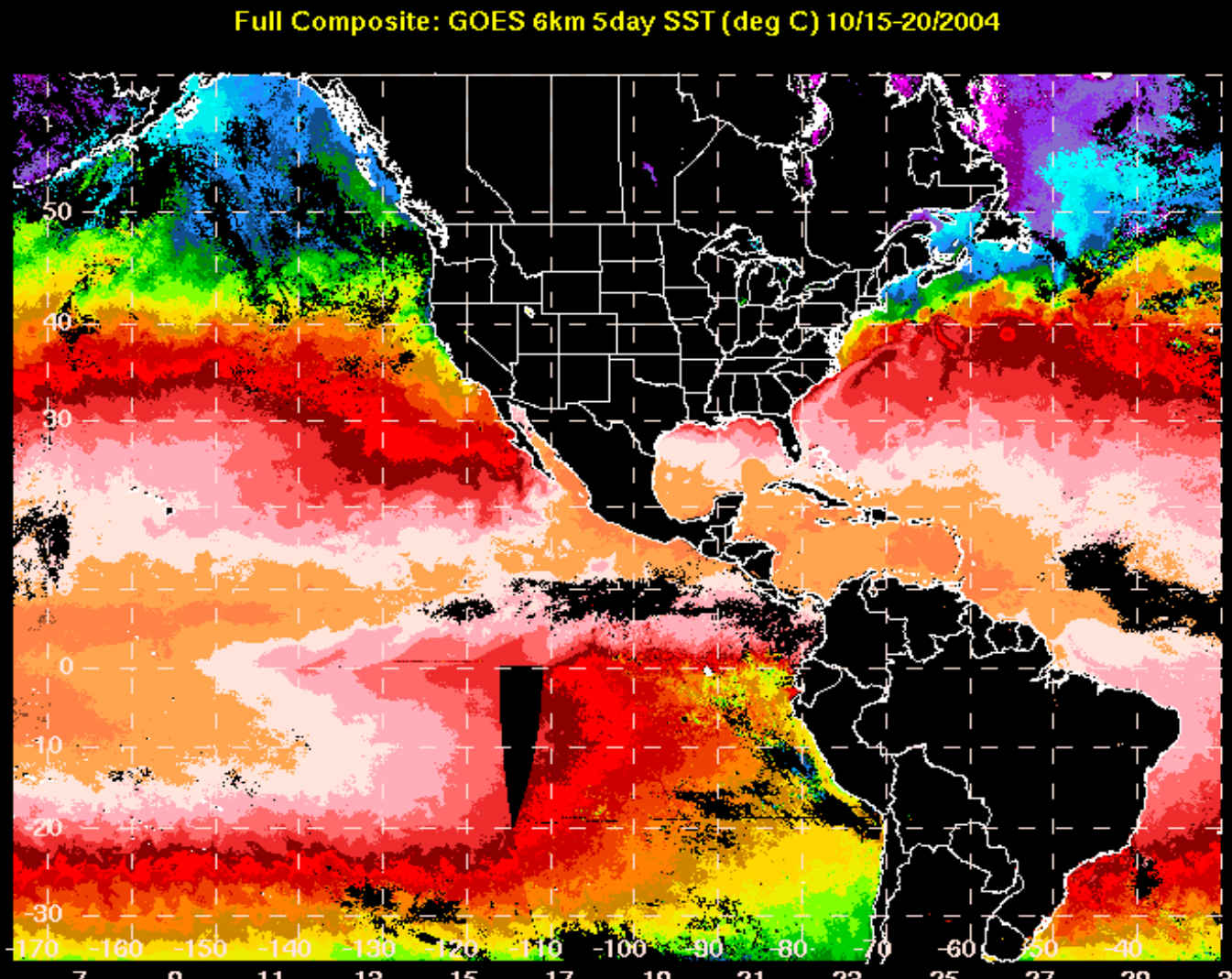


30 day bias (knots) of 10m GFS winds vs. QuikSCAT

Neutral to moderately unstable MABL

Current Status: SST

- *GOES (6km resolution), Infrared*



Future SST Products

- *POES (1km or 4km), Advanced Very High Resolution Radiometer (AVHRR)*
- *MODIS (1km), Moderate Resolution Imaging Spectroradiometer (MODIS), NASA AQUA/TERRA*
- *TMI (30 km), TRMM's Microwave Imager (TMI), NASA Tropical Rainfall Measuring Mission (TRMM)*
- *Mixed GOES/POES, IR/Microwave products*

Current Status: Models

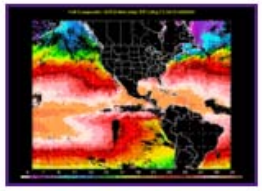
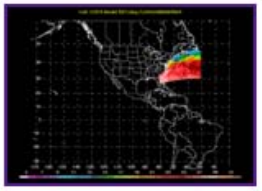
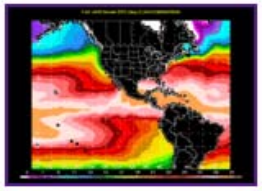
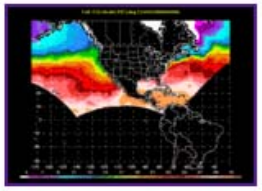
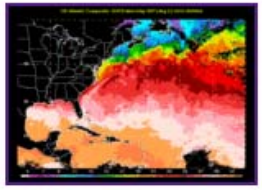
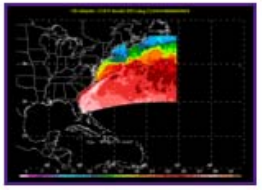
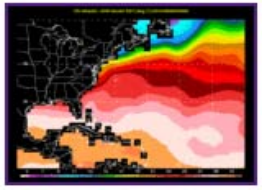
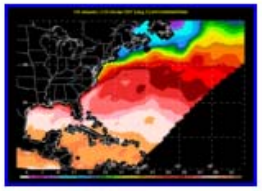
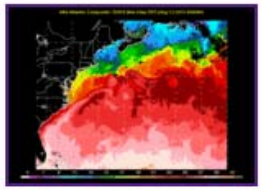
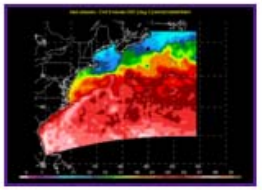
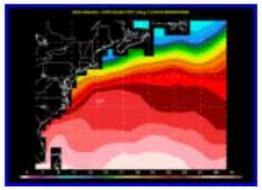
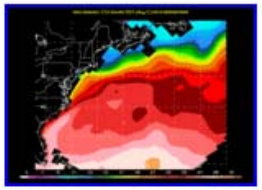
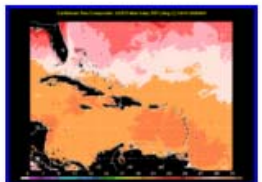
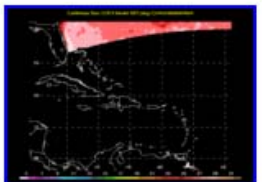
- *Accurate forecast model fields are needed for the protection of life and property at sea and the enhancement of economic opportunity*
- *Comparison of HYCOM (NCEP AOFS) output to:*
  - *Observational data*
  - *NCEP Regional Ocean Forecast System (ROFS)*
  - *NCEP Global Forecast System (GFS)*
  - *Eta*

Current Status: Model SST

MODEL SEA SURFACE TEMPERATURE: COMPARISON and EVALUATION

*** Experimental Product ***

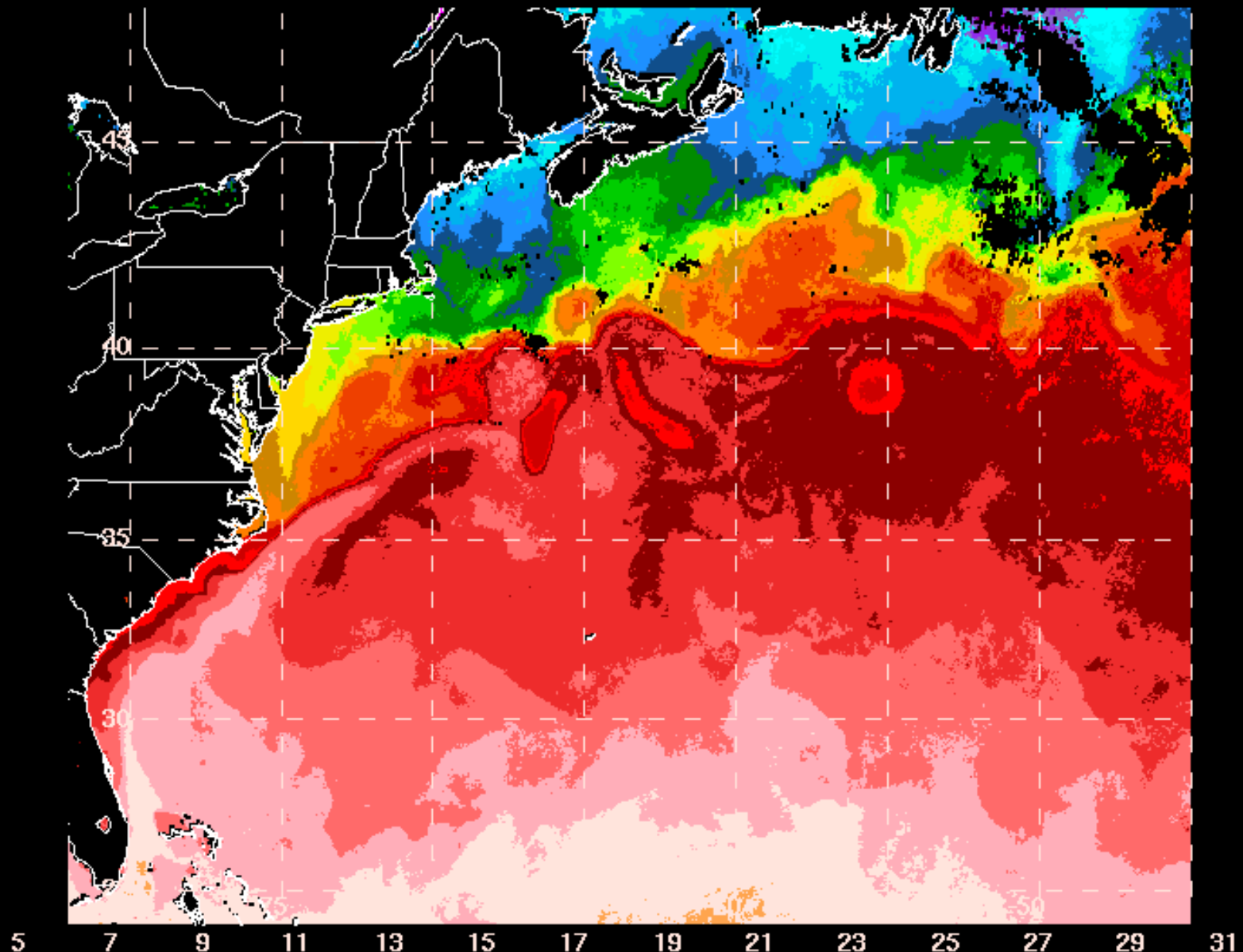
Displaying data for **October 21, 2004**. Click on thumbnail for larger image.

Region	GoesSST Model	ROFS Model	GFS Model	ETA Model	HYCOM Model
All Regions					
US Atlantic					
Mid Atlantic					
Caribbean Sea					

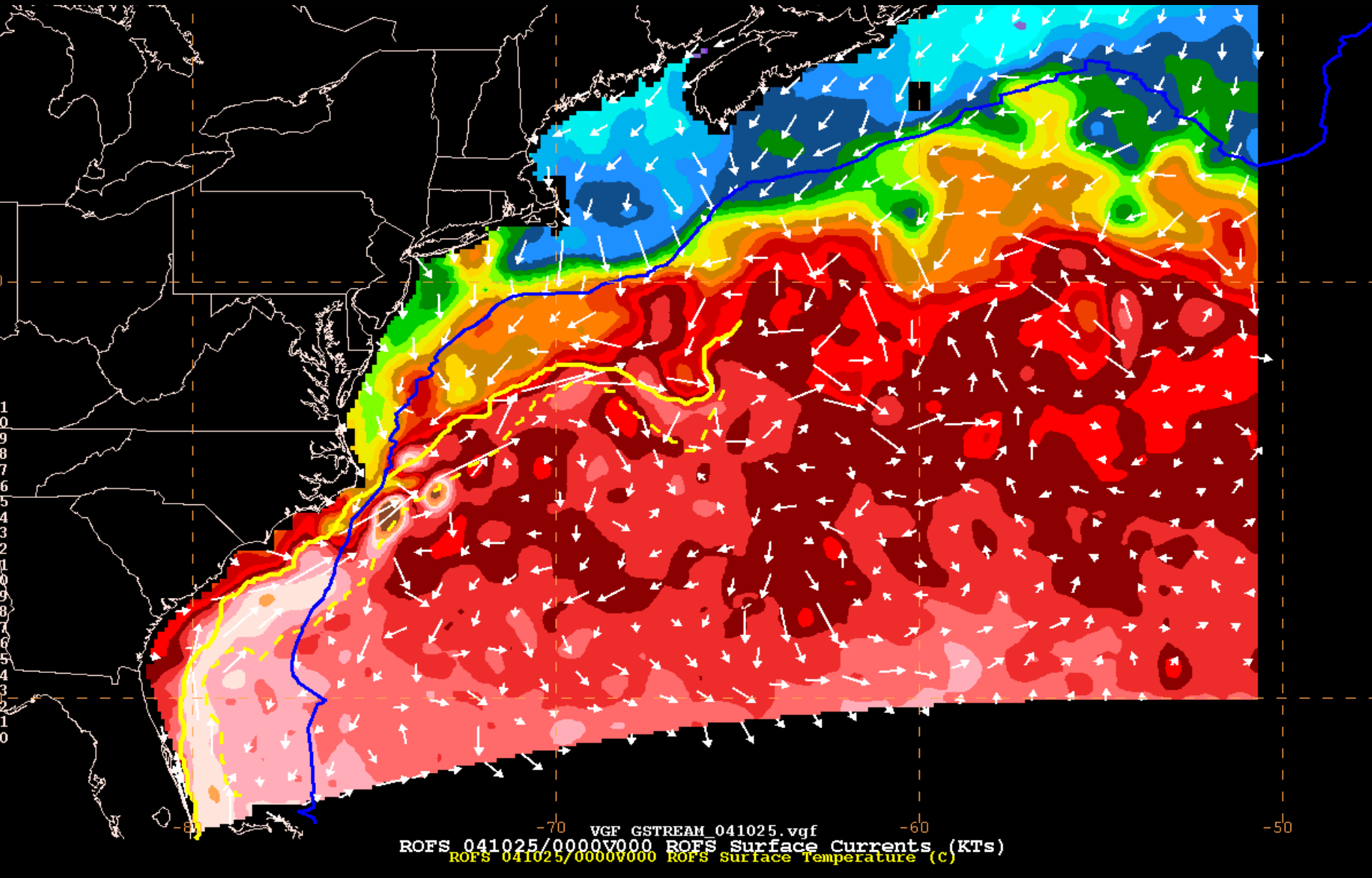
Ocean Features

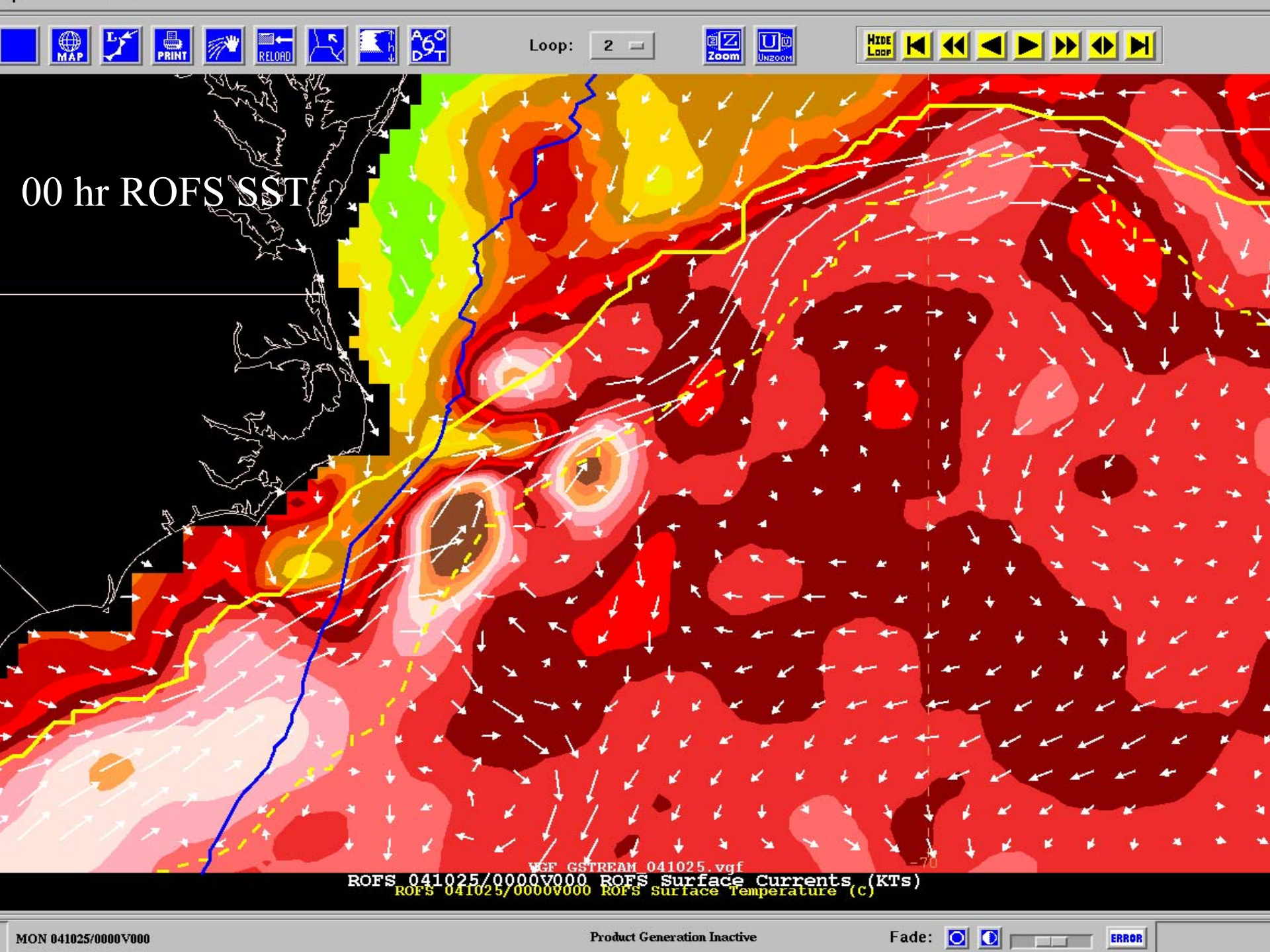
- *Location and strength of persistent ocean features*
  - *Currents*
  - *Fronts*
  - *Eddies and Jets*
  - *Case Study: The Gulf Stream*

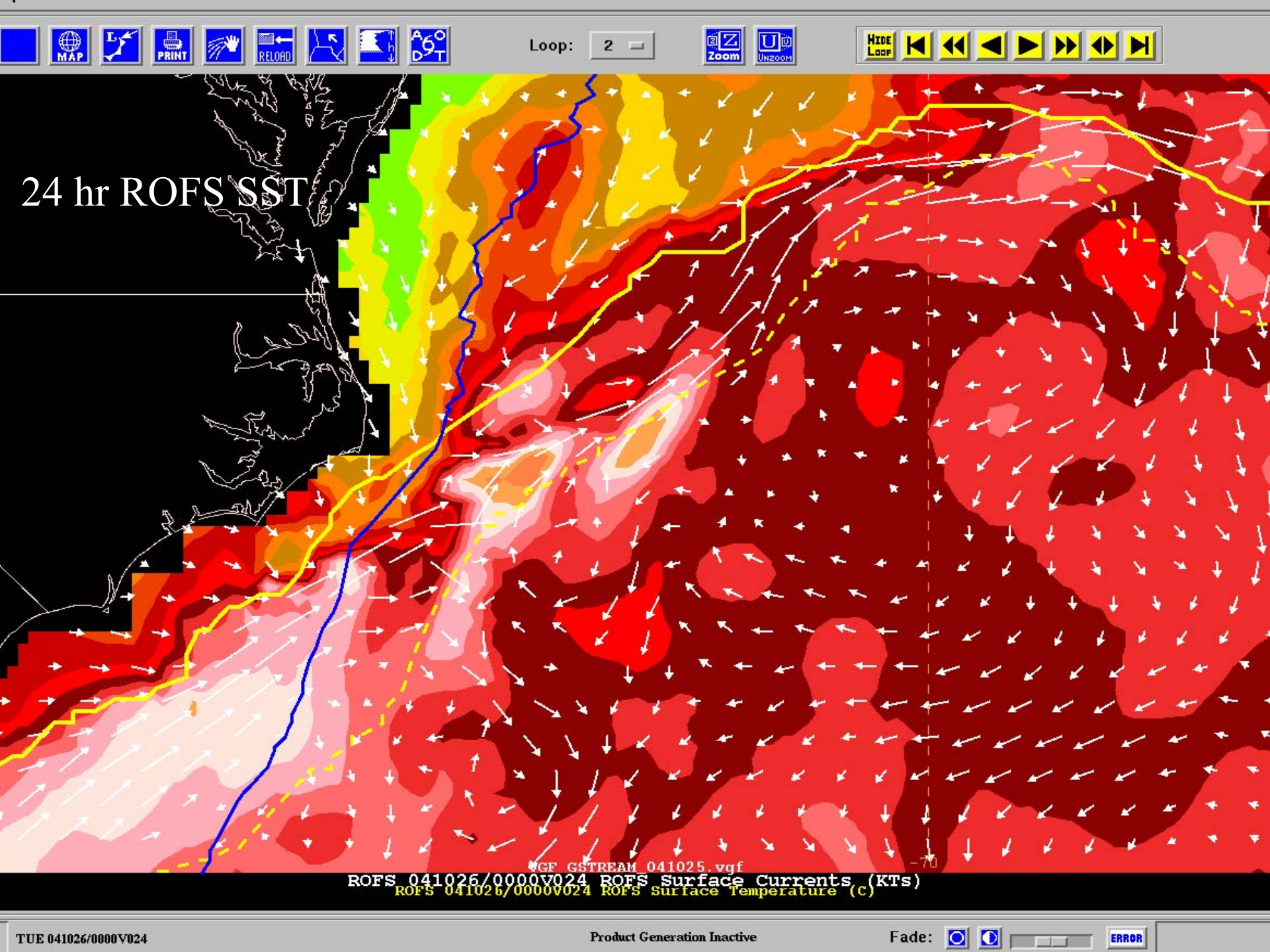
The Gulf Stream: GOES SST

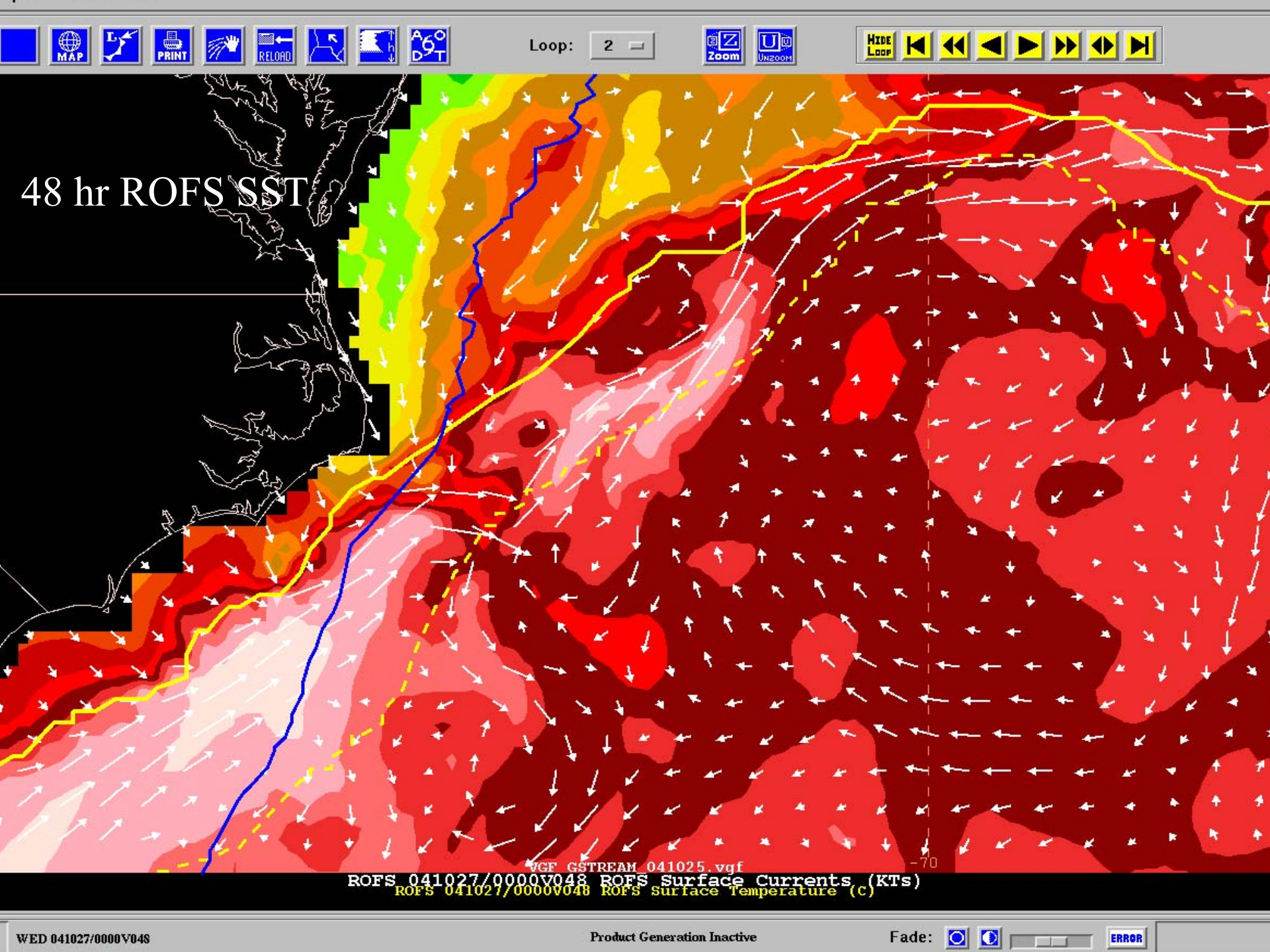


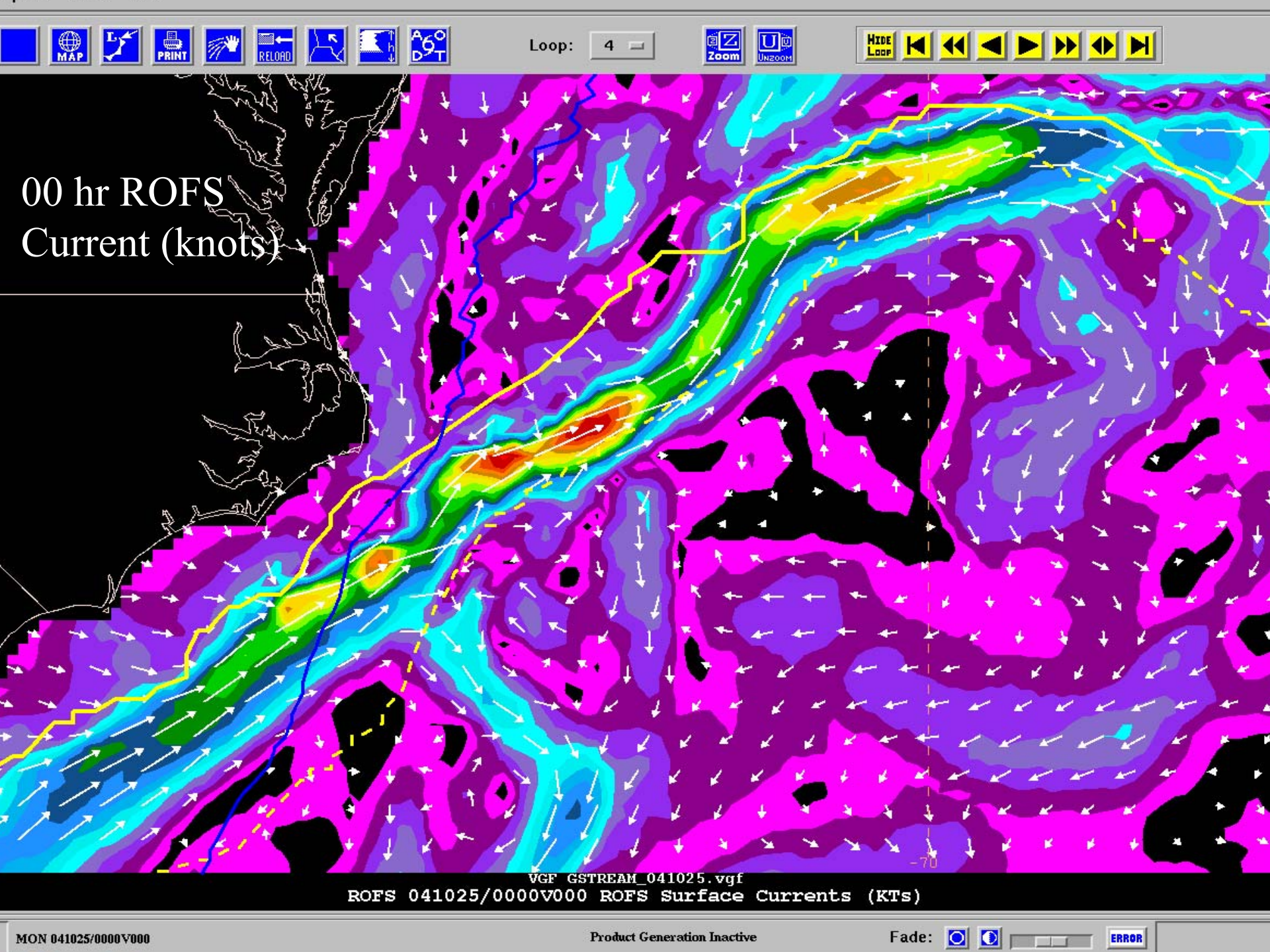
The Gulf Stream: ROFS

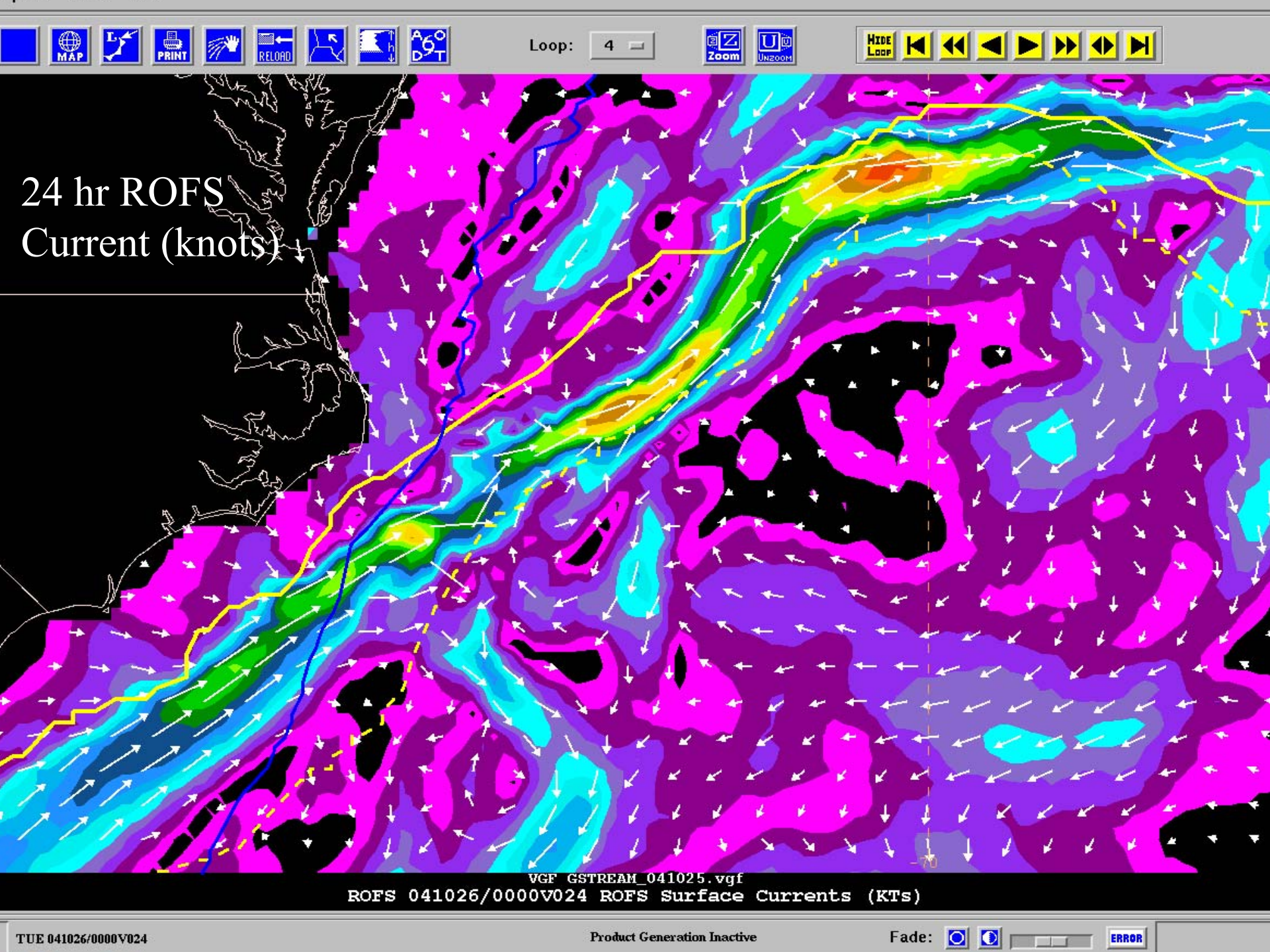


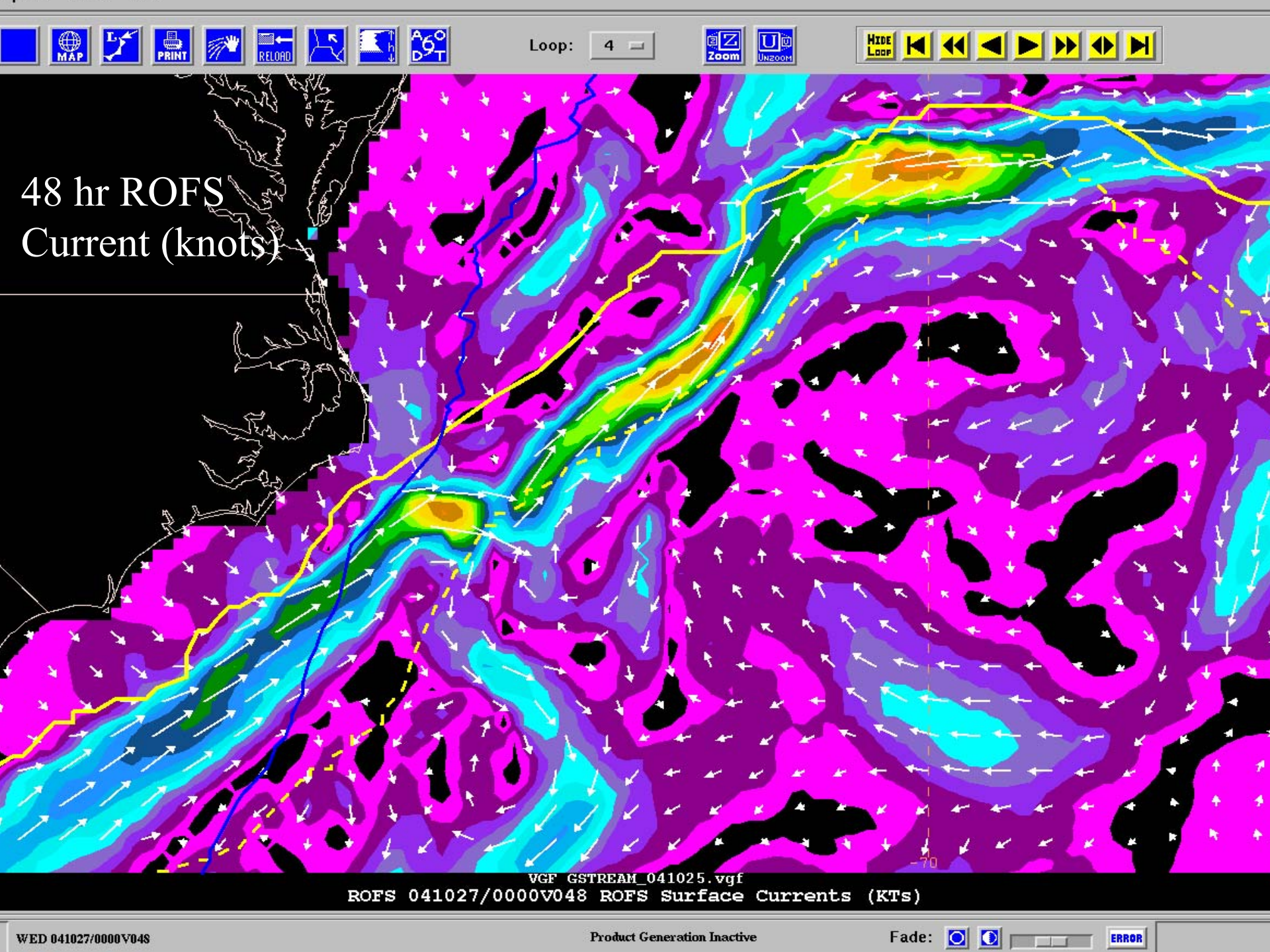

MAP
PRINT
RELOAD
Loop:
2
Zoom
Unzoom
Hide Loop
00 hr ROFS SST
VGF GSTREAM_041025.vgf
ROFS 041025/0000V000 ROFS Surface Currents (KTs)
ROFS 041025/0000V000 ROFS Surface Temperature (C)
MON 041025/0000V000
Product Generation Inactive
Fade:
ERROR


MAP
PRINT
RELOAD
Loop:
2
Zoom
UnZoom
Hide Loop
24 hr ROFS SST
VGF GSTREAM_041025.vgf
ROFS 041026/0000V024 ROFS Surface Currents (KTs)
ROFS 041026/0000V024 ROFS Surface Temperature (C)
TUE 041026/0000V024
Product Generation Inactive
Fade:
ERROR


MAP
PRINT
RELOAD
Loop:
2
Zoom
UnZoom
Hide Loop
48 hr ROFS SST
VGF GSTREAM_041025.vgf
ROFS 041027/0000V048 ROFS Surface Currents (KTs)
ROFS 041027/0000V048 ROFS Surface Temperature (C)
WED 041027/0000V048
Product Generation Inactive
Fade:
ERROR


MAP
PRINT
RELOAD
Loop:
4
Zoom
UnZoom
Hide Loop
00 hr ROFS
Current (knots)
VGF GSTREAM_041025.vgf
ROFS 041025/0000V000 ROFS Surface Currents (KTs)
MON 041025/0000V000
Product Generation Inactive
Fade:
ERROR


MAP
PRINT
RELOAD
Loop:
4
Zoom
UnZoom
Hide Loop
24 hr ROFS
Current (knots)
VGF GSTREAM_041025.vgf
ROFS 041026/0000V024 ROFS Surface Currents (KTs)
TUE 041026/0000V024
Product Generation Inactive
Fade:
ERROR


MAP
PRINT
RELOAD
Loop:
4
Zoom
UnZoom
Hide Loop
48 hr ROFS
Current (knots)
VGF GSTREAM_041025.vgf
ROFS 041027/0000V048 ROFS Surface Currents (KTs)
WED 041027/0000V048
Product Generation Inactive
Fade:
ERROR

NAOFS Evaluation

- For the evaluation, we are developing a variety of products including N-AWIPS fields and web-based image comparisons; these will aid in examining ocean features across multiple datasets.
- The OPC hopes to use the NAOFS output fields to improve existing forecasts of winds and waves, and as a basis for an expanding suite of oceanographic products.

Summary

- Status – Tooling up for evaluation
  - GOES SST (starting place)
  - Additional SST fields (microwave, POES)
- ROFS data assimilation
  - Very positive with AVHRR and GOES SSTs
- NAOFS focus initially on features
  - Analyses
  - Forecasts
- joseph.sienkiewicz@noaa.gov
- Jessica.morgan@noaa.gov
- www.opc.ncep.noaa.gov/sst/goessst.html