Marine Modeling *Working Group*

Presented by
Avichal Mehra, NWS/NCEP/EMC
Pat Burke, NOS/CO-OPS

Presented at SIP Coordination Meeting

January 31, 2018; College Park, MD

Marine Modeling WG
Membership

- Alistair Adcroft (NOAA/GFDL)
- Clarissa Anderson (UCSD)
- Brian Arbic (U. of Michigan)
- Robert Banks (Delft U.)
- Cecelia Bitz (U. of Washington)
- *Patrick Burke (NOAA/NOS) ***
- *Eric Chassignet (FSU) ***
- Arun Chawla (NWS/NCEP)
- Gokhan Danabasoglu (UCAR)
- Bob Grumbine (NWS/NCEP)
- *Bob Hallberg (NOAA/GFDL) ***
- *Pat Hogan (NRL) ***
- Elizabeth Hunke (LANL)
- Rick Luettich (UNC)
- *Avichal Mehra (NWS/NCEP) ***
- Andy Moore (UCSC)
- Shastri Paturi (NWS/NCEP)
- Steve Penny (UMD/ESSIC)
- Todd Ringler (LANL)
- Shan Sun (NOAA/ESRL)
- Sergey Vinogradov (NOAA/NOS)
- Alan Wallcraft (FSU)
- John Wilkin (Rutgers U.)

- *Co-Chair **

Marine Models WG
Project Milestone Accomplishments

- **Project 1: Ocean Data Assimilation (NCODA) to support RTOFS**
  - Run regional HYCOM + NCODA exp in near real time (completed)
  - Test Global HYCOM + NCODA with canned data sets (completed)
  - Setup real time parallel global HYCOM + NCODA (ongoing)

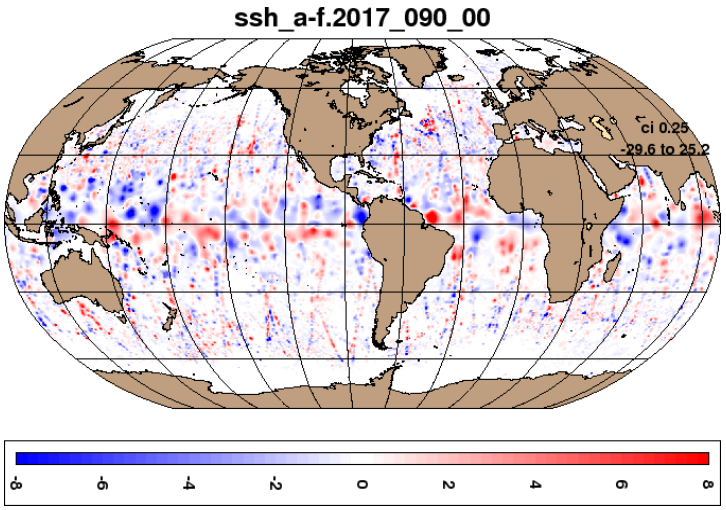
- **SIP project issues:**
  - Processing of marine/ocean observations
  - Monitoring/evaluation of ocean observations

Marine Models WG
Project Milestone Accomplishments

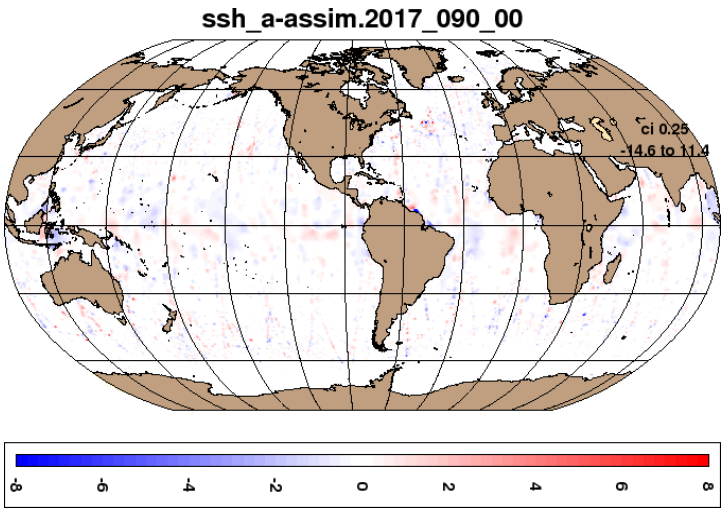
HYCOM+CICE CYCLED WITH NCODA, Day 20170331

SSH analysis and corrections (cm)

Analysis – 24 hr forecast



Model update error (Anal – model)



NCODA produces increments of: Temperature, Salinity, U,V, layer pressure, and ice coverage

Marine Models WG
Project Milestone Accomplishments

- **Project 2(a): FV3 based coupled Hurricane Model developments**
  - (briefed as part of **Dynamics and Nesting WG**)
- **Project 2(b)**: **Development of a Global Coupled Unified Model**
  - (briefed as part of **NGGPS Global Model Suites WG**)

- **Project 2(c): Coupling wave models to Atmosphere systems**
  - FV3 using the C96 cubed-sphere grid is now one-way coupled to WW3 using NEMS
  - WW3 has been added to the GFS workflow and work has begun on the coupled FV3->WW3 for GEFS workflow.
- **SIP project issue:**
  - Two-way coupling degrades skill scores, in which case revert to one-way

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Project Milestone Accomplishments

- **Project 3: Integrated Water Prediction (IWP):**
  - Ongoing investigation of NWM coupling to coastal models
  - Engagement with Community Advisory Committee for Water Prediction (CAC-WP) to define requirements for IWP
  - Transition of DA capabilities along coast for operational testing and evaluation (WCOFS)
- **SIP project issues:**
  - Access to historic NWM output
  - Leverage knowledge and resources with DA WG and across Line Offices (NWS, NOS, NESDIS, OAR) and community

Marine Models WG
Project Milestone Accomplishments

- **Project 4: NextGen Ocean Modeling and Marine Data Assimilation:**
  - Ongoing active discussions on merging HYCOM & MOM6 code base
  - Plan finalized for marine data assimilation using the JEDI framework for marine & coupled applications

- **Project 5: Ecosystems and Eco-Forecasting**
  - Ongoing collection of user requirements and cost-benefit analysis
  - Demonstration of BGC modules in HYCOM/RTOFS, leveraged with NESDIS/JPSS funding.

Marine Models WG
Team Coordination and Dependencies

- List major team coordination/dependency issues
  - NEMS/NUOPC infrastructure for the component models
  - Developments for FV3-GEFS and FV3-GFS physics
  - Progress with FV3 nests
  - Increased coordination and participation with Data Assimilation and Hydrology WGs
  - Recommendations from CAC-WP
  - Development of JEDI framework
  - Development of the NexGen ocean model framework
  - Continued coordination with Eco-Forecasting Roadmap and IWP (Storm Surge and WQ recommendations)
  - Coordination with Testbeds?