



**NATIONAL
WEATHER
SERVICE**

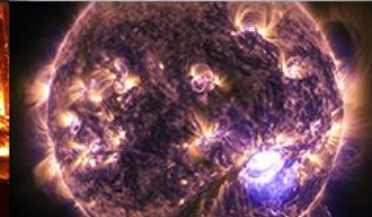
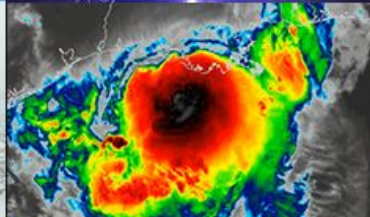
EMC Review Structure, Roles, Timeline, and Key Messages

April 05, 2023

Dr. Stephan Smith Director OSTI

Dr. Brian Gross Director EMC

OSTI-Modeling: Kevin Garrett (Director), Aaron Poyer, Dr. Youngsun Jung, Dr. Yan Xue





Outline



- Opening Remarks
 - Dr Stephan Smith (Director OSTI)
 - Dr Brian Gross (Director EMC)
- Purpose of the Review
- Scope of the Review
- Roles and Responsibilities
- EMC Review Themes
- Key Messages from the Charge to Reviewers
- Timeline
- Draft Daily Agendas





Purpose of the Review

- To assess:
 - EMC's operations and short- and long-term plans
 - EMC's alignment with NCEP's strategic plan and the UFS strategic plan
 - Simplifying NOAA's Operational Forecast Suite
 - Productivity and quality of science activities
 - Balance of resources and staff between development and operational system maintenance
 - Effectiveness of activities in research-to-operations (R2O), testing and evaluation, transition-to-operations (T2O), operation-to-research (O2R)
 - Organization's health and culture



Scope of the Review



- The review will cover EMC's activities over the last several years (2019-2022)
- Activities toward the following goals will be reviewed:
 - a. Multi-year plan to use the UFS as the basis for the future NCEP Production Suite
 - b. A simplified production suite under this unified framework using a single dynamic core for all temporal and spatial model scales, which is fully coupled and ensemble-based
 - c. Engagement with the nation's weather/water/climate community in all aspects of the project, from research/development to testing and validation
- Reviewers will consider whether each focus area is a strength, and provide recommendations for improvement





Roles and Responsibilities



- Each reviewer is asked to independently prepare their written evaluations and provide these to the review panel Chair and co-Chair
- Chair and co-Chair
 - Create a report summarizing the individual evaluations
 - Chair will create a final report
- OSTI-Modeling
 - Provides resources necessary for the review team to complete its work, including travel arrangements, on-site review team support, posting information on a public review website





EMC Review Themes

1. Organization and Management

- a. Overview of EMC
- b. Staffing, Budget, and Contract Management
- c. Overview of Project Management

2. Applied Research and Development

- a. Development Priorities
- b. Coupled Systems
- c. Data Assimilation
- d. Physics and Dynamics

3. Operational Implementation

- a. Model Verification and Products
- b. Post Processing and Product Generation
- c. Evaluation and Verification
- d. The Implementation Process
- e. Engineering and Implementation
- f. HPC



Key Messages

- Our mission is to maintain, enhance, and transition-to-operations (T2O) numerical forecast systems for weather, ocean, climate, land surface and hydrology, hurricanes, and air quality for the nation, the global community, and for the protection of life and property and the enhancement of the economy
- EMC is responsible for a large number of operational numerical prediction systems
- EMC is committed to a multi-year plan to upgrade and unify its modeling capability across different applications using the Unified Forecast System (UFS)
- The migration to the UFS-based applications will allow simplification of the NCEP Production Suite and improvement of scientific excellence
- OSTI-M is organizing an EMC Review that will assess EMC's operations and short- and long-term plans as well as their alignment with NCEP's strategic plan and UFS's strategic plan.



Timeline



- Review will be held in person June 6-8, 2023 at the NOAA Center for Weather and Climate Prediction (NCWCP) in College Park, Maryland
- OSTI-Modeling and EMC will hold two teleconferences for the review panel in advance of the review
- Presentation slides will be posted on the review website approximately two weeks prior to the review
- Individual evaluations are due within 45 days after the review
- OSTI-Modeling will send any technical comments within 14 days of receiving the draft report
- Panel chair will send a final report no later than 30 days after technical comments are received





Draft Day 1 Agenda



Pre-Review Morning Activities

7:30 am - 8:30 am Breakfast with NCEP Leadership, STI Leadership and Review Panel (Closed)



8:30 am - 9:00 am Travel to NCWCP

9:00 am - 9:15 am Logistics (Ivanka Stajner, EMC Deputy Director)



9:15 am - 9:30 am Opening Remarks (Mike Farrar, Director, NWS/NCEP)



9:30 am - 9:45 am Opening Remarks (Stephan Smith, Director, NWS/OSTI)



Review Theme 1: Organization and Management

10:00 am - 12:30 pm Presentations on EMC Organization and Management

12:30 pm - 1:45 pm Lunch with EMC staff

Review Theme 2: Applied Research & Development

1:45 pm - 5:30 pm Presentations on Research and Development

5:30 pm - 6:00 pm Transport back to hotel

6:30 pm - 8:30 pm Dinner (open to NCEP, STI, and EMC)





Draft Day 2 Agenda



Pre-Review Morning Activities

8:00 am - 8:30 am Transport from Hotel to NCWCP

8:30 am - 10:00 am Data Assimilation

10:30 am - 12:00 pm Physics and Dynamics

12:00 pm - 1:00 pm Lunch with EMC Staff



Review Theme 3: Operational Implementation

1:00 pm - 2:15 pm Model Verification and Products

2:45 pm - 3:30 pm Evaluation and Verification

3:30 pm - 5:00 pm The Implementation Process

5:00 pm - 5:30 pm HPC

5:30 pm - 6:00 pm Transport back to hotel

6:30 pm - 8:30 pm Dinner (open to NCEP, STI, and EMC)





Draft Day 3 Agenda



Final Day

7:30 am - 8:00 am Transport from Hotel to NCWCP

8:00 am - 9:00 am Review Panel with EMC Leadership



9:00 am - 9:30 am Wrap-up with STI Portfolio Manager, NCEP Director, EMC Director and Deputy Director

9:30 am - 10:00 am Break



10:00 am - 1:00 pm Review Panel internal deliberations (and writing) + Lunch Break

1:00 pm - 2:00 pm Review Panel reflections and report to STI and NCEP Leadership and EMC Director and Deputy Director



2:00 END





“Housekeeping” Information



- Next remote meeting will be in mid to late May 2023

- Will contain pre-read review information and documents



- EMC Review Webpage (under development)

- <https://vlab.noaa.gov/web/osti-modeling/emc-review>



- Travel and Accommodations

- OSTI is working with contract support for booking and logistics:

- Hotel and transportation for all invited reviewers

- We will be in touch for specific reviewer information required for travel

- Local transportation to and from hotel and NCWCP will be provided for reviewers

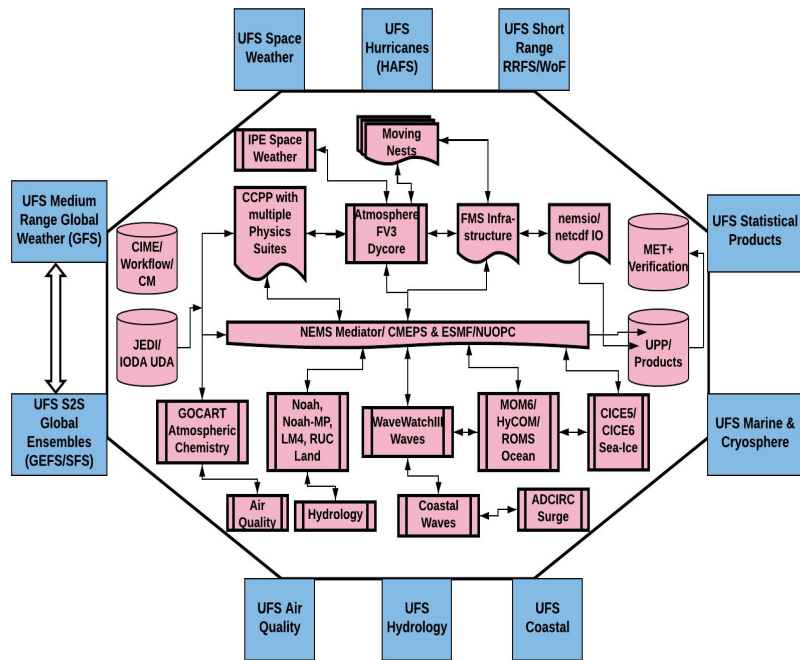




Questions?



Unified Forecast System (UFS)



FOCUS	local regional global				
PREDICTIVE TIME SCALE	hour	day	week	month	year
UFS APPLICATIONS					
short- and medium-range weather through sub-seasonal to seasonal	Warn on Forecast System	Rapid Refresh Forecast Systems	Global Forecast System	Sub-Seasonal Forecast System	Seasonal Forecast System
hurricane		Hurricane Analysis and Forecast System			
space weather		Whole Atmosphere Model			
marine and cryosphere and coastal		Marine and Coastal Modeling Systems			
air quality		Air Quality Systems			
flood and hydrological	National Water Model				