

Unified Forecast System Steering Committee (UFS-SC) SIP Coordination Meeting

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for the UFS – SC
August 1, 2018

Outline

- A little background
- What we are doing
- Role of Steering Committee in Guiding
 - How do we steer?



Unified Forecast System – Steering Committee

- Governance Strategy
 - Facilitates community model research, development, and applications (Includes policy, practice, tools, ...)
 - Focuses on near-term projects that have long-term consequences
 - Improves scientific integrity at organizational level
 - Leads towards unified forecast suite with coupled predictive models
 - Define the end-to-end system
- Meeting Weekly since March 2, 2018.
 - Presentations from invited working groups on priority items defined by SIP plan and Steering Committee members
 - Meet Friday at 11 Eastern
 - All presentation materials and minutes are posted ([link](#))

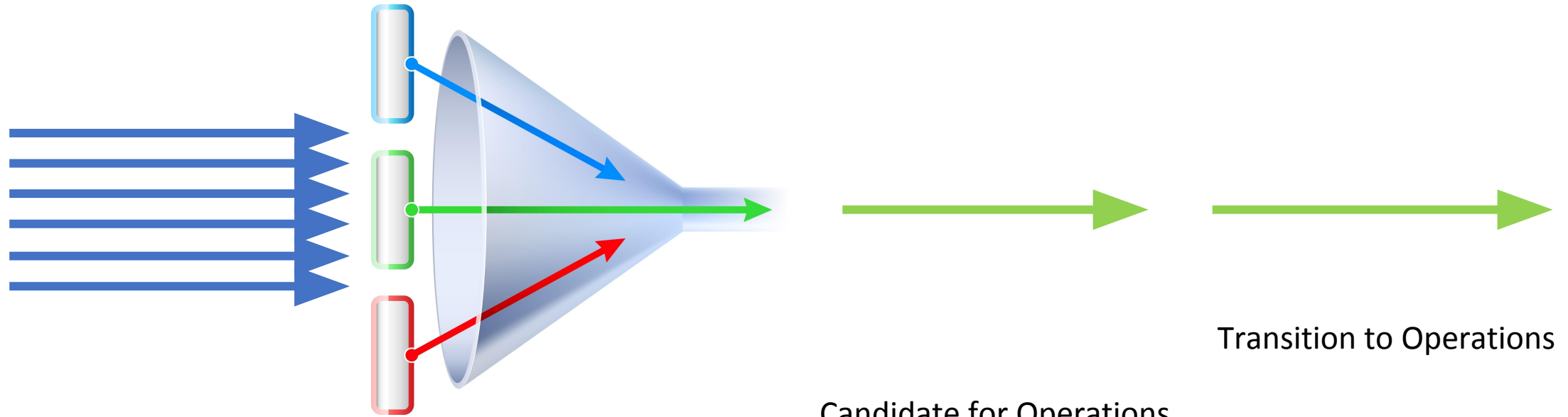
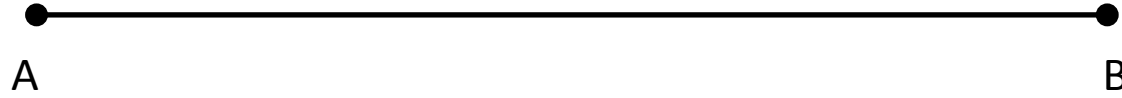
Unified Forecast System – Definition

- *The Unified Forecast System (UFS) is a community-based, coupled comprehensive Earth system modeling system. The UFS numerical applications span local to global domains and predictive time scales from sub-hourly analyses to seasonal predictions. It is designed to support the Weather Enterprise and to be the source system for NOAA's operational numerical weather prediction applications.*
- *Further description is found here:*
https://www.earthsystemcoq.org/projects/ufs-sc/definition_ufs

UFS – SC Updates: “Describe” r2o process

- Define the scope of the activities of the UFS – SC
- Provide the foundation for improving the transition of research to operations (r2o)
 - Define current process
 - Identify barriers
 - Identify gaps
 - Common language
- Materials and Community Document
 - https://www.earthsystemcog.org/site_media/projects/ufs-sc/20180525_Background_UFS_SC.pdf
 - <https://docs.google.com/document/d/1qcRwEWVaInN7YywVrV5nwmU5dqyX2kWiliB3IYi6nyc/edit#>

r2o



Integration into UFS Candidate Systems

Candidates for Inclusion in UFS Repositories

UFS – SC: Updates: Convective Allowing Model

- Convective Allowing Model: Updates from Spring Experiment
 - Can we move from exploratory experiments to verifiable experimental design?
 - Can we advance the deployment of an FV-3 CAM system by 1 year?
 - Can we develop a UFS strategy for experimentation with physics?
 - How do we integrate CAM physics experiments with the activities of the Physics Working Group?
 - Are we ready for controlled experiments with the stand alone FV3?
 - Where does this fit with operational systems and variable resolution grids?
 - How do we handle the code management of the different versions of FV-3 with multiple physics.
 - Where does the stand alone FV3 reside in the repository strategy?
 - Do the CAM experiments and verification strategy adequately consider the role of convection in the tropics?
 - Situations other than severe weather in the continental U.S.?
 - How do we integrate (unify?) CAM with Hurricane?
 - What is the role of multi-model ensemble
 - Can we develop a good use case that spans CAM - Global - S2S to develop multi-application verification strategies? (MJO > Atmospheric Rivers?)
 - CAM panel on Thursday morning

UFS – SC: Updates: Data Assimilation

- What is status of current data assimilation?
- What is the scientific plan for data assimilation?
 - Coupled Data Assimilation
 - Requirements for coupled model to support assimilation development
- What are the highest risks and the risk management strategies?
- How are the interests of applications suite being considered?

- Data Assimilation panel on Thursday afternoon.

UFS – SC: Updates

- Repositories and community
 - major issue in SIP plans and meetings
- End-to-End UFS System: Definition, emergence, coordination
 - *Special Thanks to Systems Architecture, Infrastructure, and EMC*
 - Repositories (Repositories Sub-WG, Coordination with EMC)
 - Graduate Student Test
 - EMC – FV3-GFS Release
 - NGGPS Proposal Cohort
- Communications Working Group (ref. Communications Working Group Plan)
 - UFS – NGGPS Portal
 - Mailing lists: Inventories, tools, span the community (people, groups, meetings)
 - Frequently Asked Questions
 - Glossary

UFS – SC: Updates

- Facilitate formation of Common Community Physics Package (CCPP) Governance model
- Coordinate with Verification and Validation Workshop (July 30 – Aug 1, 2018)
 - Opportunity of Seasonal-to-Sub-seasonal activity to advance the goals of a unified, coupled forecast system.

UFS – SC Role:

Working Groups: From Charter

- Important fact from the Governance Plan:
 - It evolves to meet the needs of the community
- From Governance Charter
 - UFS governance system comprised of a UFS Steering Committee (UFS SC) and a set of Working Groups
 - Steering committee assumes - Oversight of activities of working groups
 - Using input from the NGGPS/SIP working groups, develop a recommended UFS strategic plan

Role of UFS – SC: Learning to Steer

- Steering Committee does not task the Working Groups
- Steering Committee does not have resources or expertise for technical and scientific research and implementation
- The expertise and resources lie in the Working Groups, centers, and laboratories
- Steering Committee: Identify important issues, Get the expertise together, identify and remove barriers, obtain agreements on executable plans –

Working Groups: UFS – SC Prompts Discussion Items

- Steering Committee seeks inputs from Working Groups as Expert content and analysis providers.
- Steering Committee passes to Working Groups issues that require Expert deliberation and implementation.
- Steering Committee works with Program Office to assure alignment WRT the Working Groups

Fundamental issues of r2o

- integrated management of interests of science, technical, engineering, cost, and end user
- management of code in a known and documented matter - repository management, documentation, ...
- hierarchical testing, verification, and validation, with agreed-to metrics and associated targets
- the need to integrate together pieces into a coherent whole - building systems from subsystems
- the need to define and negotiate interfaces and behavior at those interfaces

UFS - SC

- Governance Strategy
 - Facilitates community model research, development, and applications (Includes policy, practice, tools, ...)
 - Focuses on near-term projects that have long-term consequences
 - Improves scientific integrity at organizational level
 - Leads towards unified forecast suite with coupled predictive models
 - Define the end-to-end system
- UFS – SC
 - Identify priority items based on input from WGs, Program Office, Steering Committee Members, EMC, our evaluation of SIP plans ->
 - Those vested in the UFS – SC
 - Risk analysis, integration, facilitate projects that address strategic goals
 - Our goal is to be useful, identify and reduce barriers
 - UFS requires functional, working groups to succeed

UFS - SC

- UFS – SC
 - Focus on describing and defining to develop a systems approach to forecast system development and implementation
 - Identify priority items based on input from WGs, Program Office, Steering Committee Members, EMC, our evaluation of SIP plans ->
 - Those vested in the UFS – SC
 - Risk analysis, gap analysis, integration, facilitate projects that address strategic goals
 - Our goal is to be useful, identify and reduce barriers
 - UFS requires functional, working groups to succeed

Supplemental Slides

UFS – SC

- UFS – SC has outreach meeting to Working Groups on April 20, 2018
 - UFS – SC relies on Co-chairs to communicate and represent the Working Groups
- May 11, 2018 UFS – SC sends questionnaires to Working Groups on current activities
 - Some are active: Some are not. Communications uneven.
- May 18, 2018 and later, SIP – WG Co-chair's invited to all Steering Committee meetings
 - Will continue except for UFS – SC Executive Sessions

Working Groups: UFS – SC Discussion Prompts from Meeting on WGs

- UFS - SC works to keep the Working Groups aligned towards the development of the UFS
- The Working Groups escalate issues to the UFS - SC issues that need resolved or require system-scale consideration
- Steering Committee seeks inputs from Working Groups as Expert content and analysis providers.
- Steering Committee passes to Working Groups issues that require Expert deliberation and implementation.
- Steering Committee works with Program Office to assure alignment WRT the Working Groups
- Communications Working Group Plan describes communication strategy and protocols for Working Groups

Abbreviations

- UFS-SC = Unified Forecast System Steering Committee
- SIP = Strategic Implementation Plan
- WG = Working Group
- NGGPS = Next Generation Global Prediction System
- FV3 = Finite Volume 3 (Dynamical Core)
- GFS = Global Forecast System
- CCPP = Common Community Physics Package
- NOAA = National Oceanic and Atmospheric Administration
- NCEP = National Centers for Environmental Prediction
- EMC = Environmental Modeling Center

Unified Forecast System – Steering Committee

- Given Initial Charter: Includes defining the governance we need as we evolve.
 - Link to charter (pre-signature):
https://www.earthsystemcog.org/site_media/projects/ufs-sc/Draft_UFS_SC_Charter_V8_03072018.pdf
- Governance Strategy
 - Facilitates community model research, development, and applications (Includes policy, practice, tools, and resources)
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SIP WG Questionnaire.

- [Link to Form:](#)

- https://docs.google.com/forms/d/e/1FAIpQLSe9b6PXpCjOYbEGj0F3KfxYQChf9prAHgudTxxE8HAR7HNqtg/viewform?c=0&w=1&usp=mail_form_link

- Do you have any issues that you want to bring to the Steering Committee?