

9. WRF-ESMF Integration/Merger Update

WRF Executive Oversight Board

Meeting 2005-2

4th ExOB Meeting

11 August 2005

Relevant ExOB Directives

Action Item 2004-2.4 for PC:

“Convene an interagency team to **define requirements** for a **streamlined WRF software engineering infrastructure** meeting the goals of reduced complexity, low computational overhead, and less-expensive supportability, compared to the current infrastructure. **Produce a design** for meeting the established requirements, estimate time and resources needed to implement, and report results to the ExOB.”

Action Item 3.6-2005 for PC:

“Analyze the whether the **documentation for the WRF software infrastructure** is sufficiently detailed and extensive to meet needs of code developers.”

Action Item 3.9-2005 for PC, DTC Director and Mike Clancy:

“As soon as possible, **prepare for and conduct a planning meeting** to develop a technical plan (with options) **for merging, or integrating, WRF and ESMF infrastructures** and report back to the ExOB.”

Step 1: Establish Format for Workshop

- Discussion among representatives of NCAR/MMM, DTC, FNMOC, and NCEP concluded that a workshop including both managers and technical experts would not work.
- Technical representatives requested opportunity to **assess what is possible** and offer practical technical solution(s) to management.
- PC, DTC Director and FNMOC POC will provide a **charge** to the technical workshop outlining goals and providing **desired outcomes** on behalf of agency managers.

Step 2: Prepare the Charge

- Clancy, Gall and Seaman agreed on draft charge for the technical workshop on WRF-ESMF integration.

Done – July 2005

- The charge:
 - (1) **Review supplemental materials provided with the charge (desired outcomes).**
 - (2) **Identify and compare the functional capabilities that the WRF and the ESMF software frameworks currently support.**
 - (3) **Examine and describe the technical approaches that enable each capability for WRF and ESMF.**
 - (4) **For each WRF and ESMF capability, assess the impact of the implementing these technical approaches on efficiency, flexibility, and ease of use.**
 - (5) **Assess the current state of documentation for both WRF and ESMF, and recommend any needed additions and improvements.**

Step 2: Prepare the Charge – Cont'd.

- (6) Explore and recommend options for merging, integrating and streamlining the WRF and ESMF software infrastructures that:
 - (a) As reasonably as possible address the requirements expressed in supplemental materials.**
 - (b) Allow extension of the community modeling approach to global and regional weather, ocean and wave models; sea ice models; space weather models; and other coupled model applications.**
 - (c) Are backward compatible with the existing WRF infrastructure, ensuring that OPC investment in this infrastructure to date is not lost.****
- (7) Assess the pros and cons of options recommended under (6) above.**
- (8) Produce a written report documenting the resulting options for WRF/ESMF merger/integration/streamlining, along with the associated pros and cons. Produce a briefing summarizing the report, for presentation to the WRF ExOB.**

Step 3: Managerial Feedback

- The draft charge and available supplemental materials were **delivered** to agency POCs for review (July 28th).
- Agency managers (through POCs) asked to **respond** with comments, suggestions by August 19th.
Supplemental materials and/or desired outcomes are also solicited.

Status: On track

Step 4: Finalize Workshop Plans

- Schedule the WRF-ESMF integration workshop.
Probably date: Early October.
- Solicit/select technical experts with software engineering backgrounds, experience in infrastructure design and use, and/or intimate knowledge of WRF or ESMF frameworks.
- Conduct workshop and receive report.
- Deliver report to managers for acceptance or return.

Target for report: Nov-Dec 2005

Target for acceptance of plan: Jan-Feb 2006