Working Agenda

2nd Annual Technical and Strategic Review of the NCEP Production Suite (NPS)

August 9-11, 2016
Silver Spring, MD
NOAA Science Center
Building 4 of the NOAA Silver Spring Metro Center (SSMC4)
1301 East-West Hwy., Silver Spring, MD 20910

AGENDA

Tuesday, Aug. 9

8:30 (15 minutes): Welcome and Introductions (Lapenta, Ji, Carr, Rood)

8:45 (75 minutes): Opening Presentations (Please note that NPS Projects will have time for more detailed introduction. Suggested content for project introductions provided separately.)
- Introduction by EMC Director   (Farrar)
- How response was created   (Schneider)
- Response (Traceability) Matrix   (Schneider)
    - Highlights
    - Organization into projects, related-activities, etc.
    - Gaps / Questions NOAA noticed in UMAC report
- Big picture overview

    NCEP Production Suite (NPS) Projects   (Tolman)

    (Project leads, Purpose & Scope of Projects, Where do activities such as water, ensembles, post-processing fit into projects. More detailed information will be present during project presentations.)

10:00: (20 minutes): Break

10:20 (60 minutes (20/40)): **Strategic Planning**: Towards a useful NOAA-wide strategic plan for model-based guidance. (Tolman, Link)

    What would a useful NOAA-wide strategic plan look like?
    What has been accomplished so far?
    What are the barriers to planning and how could they be overcome?
    How do get started?

11:20 (40 minutes): Project Discussion - **Unified Model Suite**, Application Leads:[1]
Tallapragada, Weather; Zhu, Sub-seasonal; Saha, Seasonal; Akmaev, Space Weather;

Chawla, Marine; Ek, Land Surface; Black, Regional (Nest); Lee, Air Quality; Mehra, Hurricanes; Cosgrove, Hydrology

Introduction of Unified Modeling/NEMS (Chawla/Mehra/Saha, (10 minutes))

Application Leads: 2-minute introduction of your application and its primary purpose/customer. Have you made progress with your application using NEMS? What do you see as the major challenges ahead?

Noon: Lunch

1:00 (90 minutes): Project Discussion - **Unified Model Suite**

Report from Overarching System Team[2] (DeLuca, 45 minutes)

Discussion with Applications Leads, UMAC, DeLuca and Overarching System Team, NOAA Managers: Towards a unified modeling system: What has happened? What needs to happen? How do you plan to make decisions for your application and coordinate across applications? What is needed for a useful strategic plan? (45 minutes)

2:30 (60 minutes): Project Discussion - **Meso-Unification** EMC Management/DiMego/Tolman, (NOAA manager) provide project introduction, Leads or Principals: Rogers, NAM (NMMB); Black NMMB (nested); Carley, NAMRR; Benjamin & Alexander, RAP/HRRR; (WRF ARW); Mehra, HWRF; Du, SREF (NMMB, WRF-ARW); Gopal, Generalized Nesting; Ferrier, Meso Physics; Heinselman, WoF; Carly, Alexander, Tong, Data Assimilation (RAP, NDAS, HWRF); Pyle, HiRes Window; Rogers, Fire Wx; Pondeca, RTMA/URMA; Benjamin & Alexander, RUA; Alves, Great Lakes Waves; Van der Westhuysen, Near-shore Wave Prediction System (NWPS); Cosgrove, Hydrology.

(Possibly reserve time on Wednesday executive session to revisit. Should this project be renamed?)

- EMC Management/Tolman (NOAA manager) provide project introduction (10 minutes)
- Application Leads: 2-minute introduction of your application and its primary purpose/customer. Questions to be addressed: How does your model/application fit into the mesoscale suite? How do you see your model/application evolving in the next 3-5 years? Beyond 5 years? How do you think we can simplify the suite for your given model/application?
- Driving towards an understanding of a broader set of issues: Steps taken towards reducing the complexity of the NCEP Production Suite; and how Leads and Principles make decisions (relation to requirements, what is the

evidence that requirements are being met, coordination of information from their teams, coordination of decisions with other application leads)

- o Issues
    - Cloud-scale modeling systems
    - Ensembles; Post-processing
    - Data Assimilation and Analyses
    - Role of the SSEO in transition
    - Global-Meso Unification
    - Coupling (1- or 2-way)
        - Links to Water
        - Links to other projects

3:30 (20 minutes): Break

3:50 (70 minutes): Project Discussion - **Meso-Unification** (cont.)

UMAC and NOAA: Towards a useful NOAA-wide strategic plan for meso- / regional- modeling. (EMC Management, DiMego, Tolman, Leads and Principals, All)

What would a useful NOAA-wide strategic meso- / regional- modeling plan look like?
What has been accomplished so far?
What are the barriers to planning and how could they be overcome?
How can NOAA reduce the complexity of the meso- / regional- suite?
What are the requirements for meso- / regional- modeling suite?

5:00 (Until we drop): **Executive Session** - Possible topics:
- Reactions so far
- Agenda adjustments?
- How to address "Water"
    - o Hydrology
    - o Storm Surge?
    - o Ocean
        - NOS
        - Coupled modeling in NCEP
- Production Suite Issues (HPC allocations)

Wednesday, Aug. 10

8:30 (90 minutes): Project Discussion - **Next Generation Global Prediction System (NGGPS)** (NOAA manager (Tallapragada, Schneider/Toepfer) provide project introduction, Selected Members NGGPS Planning and Development Teams[3])

- Introduction (Tallapragada, Schneider/Toepfer, 20 mins)
- Dycore selection (FV3) Schneider/Toepfer, 5 mins)
    - Community development (tutorials, developing EMC expertise, code management, shared decision-making, etc.)
- Status of physics, assimilation working groups and interface to dynamical core. Physics and data assimilation road maps? (Moorthi, Derber, 5 mins ea., 10 total)
- Dycore integration into NEMS (Design and architecture of NGGPS) (Iredell, 5 mins)
    - How does design of NGGPS interact with production suite
        - Ensembles
        - Meso-Unification Project
        - Coupled applications
- Strategic plan for integration of NGPPS into the NPS (Tallapragada, 5 mins).
- Community is important here – will be discussed below

10:00 (20 minutes):   Break

10:20 (100 minutes): Project Discussion **NPS Requirements** and **Revision of the Implementation Process** (NOAA manager (Tolman, Ek) provide project introduction, DeLuca (These are two NPS projects, about which we have little information.)

Requirements
- Introduction (Tolman, 20 minutes)
- Overarching Systems Team approach to Requirements Management (Deluca, 20 minutes)
- High Performance Computing (HPC) requirements and allocation (Kyger, 15 mins)

Issues
- How to collect requirements
    - Users
    - Community
    - Sponsors
- Schedule for NPS major systems (e.g., When is a Space Weather system required versus 3-D coastal model versus global cloud-resolving model, etc.)
- How to classify requirements

- How to manage requirements
- How to develop technical requirements
- How to develop scientific requirements

Implementation Process Revision
- Introduction (Ek, 20 minutes)

Issues
- Implementation of new systems
- Customer interface
- Phase out

12:15: Lunch

1:15 (85 minutes): Project Discussion - **Governance** and **Community Engagement and Coordination** (Schneider, Tolman, Bernadet, DeLuca, Jasko, Whitaker, Kyger) (These are two NPS projects. Expect much of this to focus on proposed October-November workshop on Community and the role of NGGPS Overarching System Team Code, Data, and Documentation Management Workshop, Sept 1-2, 2016 [4])

- Introduction (Schneider, 6 mins)
- Experience with community (Bernadet, 6 mins)
- NOAA experience with communities (Tolman, 6 mins)
- Code, Data, and Documentation Management Workshop, Sept 1-2, 2016, organized by Overarching System Team (DeLuca, 6 mins)
- Proposed October-November Workshop (Whitaker, 6 mins)
- A social science perspective on community (Jasko, 6 mins)

Issues
- Definition of community
- Need for community (Research, Operations)
- Governance Models and Shared Decision Making
  - Testbeds as a model for community?
- NCEP/EMC as part of community
- Guidance for Community Workshop
- Infrastructure, tools, practices
- How to unify and/or coordinate with other existing communities
  - WRF, CESM, HYCOM, MOM, CICE, WRF-Hydro
  - National Water Model, HWRF, WW3, GSI, CRTM, etc.
- Towards a strategic and informed approach to NOAA and community science

2:40 (20 minutes): Break

(NPS = NCEP Production Suite)

3:00 (105 minutes): Project Discussion – NCEP and the National **Water Center** (NOAA manager (Graziano) (It has been proposed that Water Center augments membership of UMAC and extend UMAC mission.) Subject matter experts (SMEs): Ek, Cosgrove, Clark, Gochis, Schneider, Chawla, Burke

- Introduction / Overview (Graziano, 25 mins)
- Discussion including SMEs

- Issues
    - o HPC Allocation
    - o Community models / Regional models / S2S
    - o Water Center in NEMS and NPC
    - o Links to Storm Surge / Coastal / Water Quality
    - o Links to other projects
    - o NOAA Water Roadmap (finalized October 2016)

        Potential Time Here to Revisit Matrix, Meso-Unification, etc.?

4:45 **Executive Session** - Topics to be discussed:
- Revisit Meso-Unification
- Revisit Matrix
- Additional reactions
- Draft feedback findings and recommendations going forward
- Activities for 2017; How do we address issues we have not adequately addressed?

Thursday, Aug. 11

8:30 (90 minutes): **Executive session** - Topics to be discussed:

- UMAC Membership - address expertise gaps
- Ongoing interactions - How can UMAC members be integrated into projects during year?
- Quarterly calls
- Outreach to community
- Recommendations for plenary session

10:00 (20 minutes): Break

10:20 (100 minutes): **Plenary Session (Outreach to NOAA Leadership)**
Invite NOAA Leadership: Uccellini, Mclean, Brown, Callendar, Spinrad, Volz; NMFS AA; Murphy, Cooley, Stern, Ji, Graziano, Lapenta; Cano, Pica, Michaud; Gross; Werner; Draggon

- Feedback from UMAC - Recommendations going forward
- Next steps
- Other topics?

Noon: Adjourn

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[1] These application leads are those actively participating in NEMS. See https://docs.google.com/spreadsheets/d/1RS-fTBYnfSIWrJYfaID2lAl-bUOGM0frNPEMIO_ND28/ Also, for UMAC, see Kinter email 7/12/16 @ 12:10 PM EDT.
[2] http://cog-esgf.esrl.noaa.gov/projects/nggps-oas/
[3] http://www.weather.gov/sti/stimodeling_nggps_implementation
[4] http://cog-esgf.esrl.noaa.gov/projects/nems-workshop/

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