NCAR – NOAA infrastructure MoA

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Background (NCAR)

- NCAR STRATEGIC PLAN 2014 – 2019:
  - A cornerstone of the research strategy over the next decade will be the pursuit of a more unified modeling approach for both physical processes and model dynamics. Implicit in this effort is more common infrastructure that can be shared across NCAR and the community

  - Actionable Conclusion: we should work toward a common infrastructure

- July 28 2017: NOAA/NCAR LOI (signed)
  - More in following slides

- January 30 2018: award of NCAR re-investment funds targeted towards an interoperable physics framework
  - CCPP collaboration in parallel to MoA development
Background (NOAA)

UCACN and UMAC review: plan, simplify and unify!
- Resulted in Strategic Vision for NOAA modeling enterprise

Unified Forecast System

Unified Coupled Model \[\rightarrow\] Unified Data Assimilation

- Year+
  - (decadal centennial)
- Year
  - (seasonal)
- Month
  - (outlook / sub-seas.)
- Week
  - (weather)
- Day
  - (rapid refresh)
- Hour
  - (WoF)
- Now
  - (analyses)

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Unified Forecast System = Coupled Ensemble + Reanalysis + Reforecast
NOAA Production Suite

Starting from the quilt of models and products created by the implementing solutions rather than addressing requirements ....

... we will move to a product based system that covers all present elements of the productions suite in a more systematic and efficient way.
MoA background

Letter of Intent for collaboration between NCAR, NWS and OAR signed July 28, 2017

● “to develop a Memorandum of Agreement (MOA) that will describe how both organizations will work collaboratively toward the design and construction of a community unified modeling infrastructure.”

● Identified benefits include
  ➤ Synergies
  ➤ Common repositories
  ➤ Access to NOAA operational models

Team for writing MoA formed in November 2017

● Full draft agreed upon
● Now in legal and signatory review

Does not include component models of coupled systems

Not ready for full public release
## MoA writing team

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MoA core content

The (draft) MoA identifies 7 areas of common infrastructure:

1) NEMS / CMEPS unification for inter-component coupling
2) CCPP / CPF unification for intra-component coupling
3) CIME – CROW unification for common workflow development
4) Unified testing to assure code is robust and performs as expected
5) Unified model validation through MET development and expansion to application for fully coupled systems
6) Github based repositories for all infrastructure
7) Modeling support; leveraging, creating if necessary, or adapting support capabilities at NCAR and DTC

Even without signing the MoA, work on all unification areas is already ongoing.
MoA additional

Additional principles

- No (new) exchange of funding planned, leveraging existing funding of all parties
- Building upon existing governance, expanding governance per component as needed
- Five year life cycle, with option to renew
- Intended signatories
  - Dr. Antonio J. Busalacchi, President, UCAR
  - Dr. James W. Hurrell, Director, NCAR
  - Dr. Louis W. Uccellini, Assistant Administrator for Weather Services NOAA, and Director, National Weather Service
  - Mr. Craig McLean, Assistant Administrator, NOAA Oceanic and Atmospheric Research
Thank You!