# Strategic Implementation Plan (SIP) for a Community-based Unified Modeling System

## *Global Modeling Test Bed (GMTB)*

*Presented by*

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*Presented at NOAA Community Modeling Workshop*

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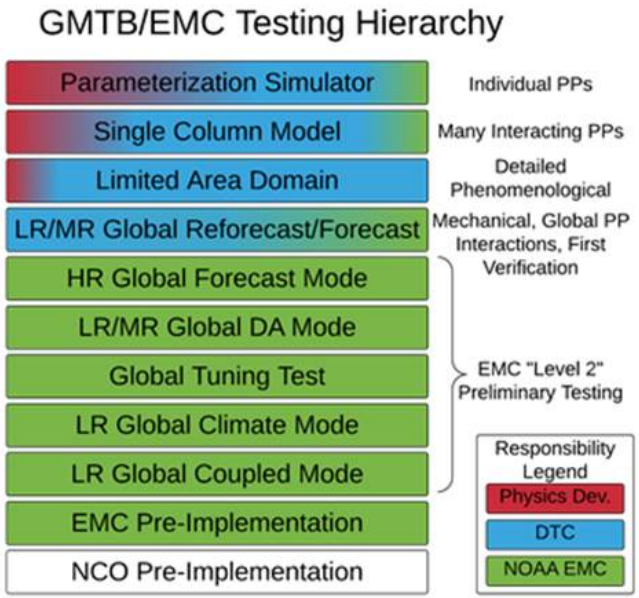
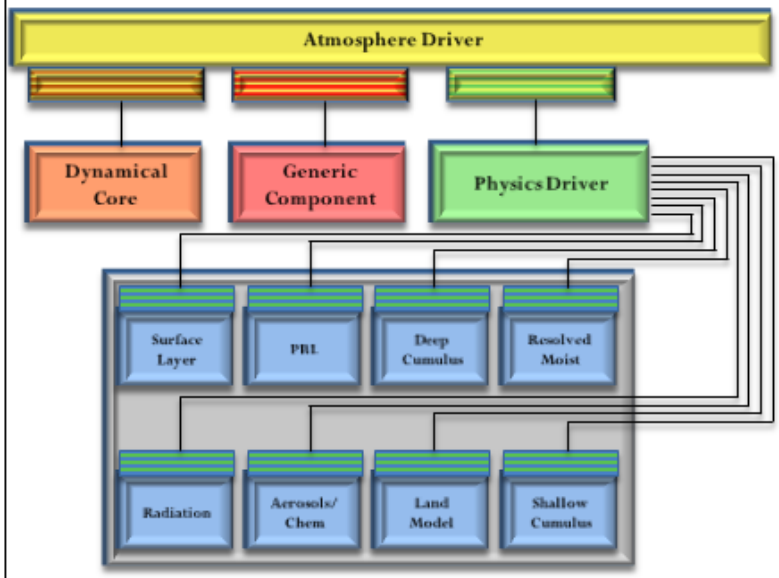
# GMTB activities

1. Development and maintenance of testing infrastructure
   - Single column model, global workflow, verification, diagnostics
2. Testing and evaluation
3. Common Community Physics Package
   - A collection of physical parameterizations, grouped in suites, that can be used with multiple dynamic cores
   - A framework that enables collaborative development and R2O



# What is the Common Community Physics Package (CCPP)?

The nucleus of an R20 community



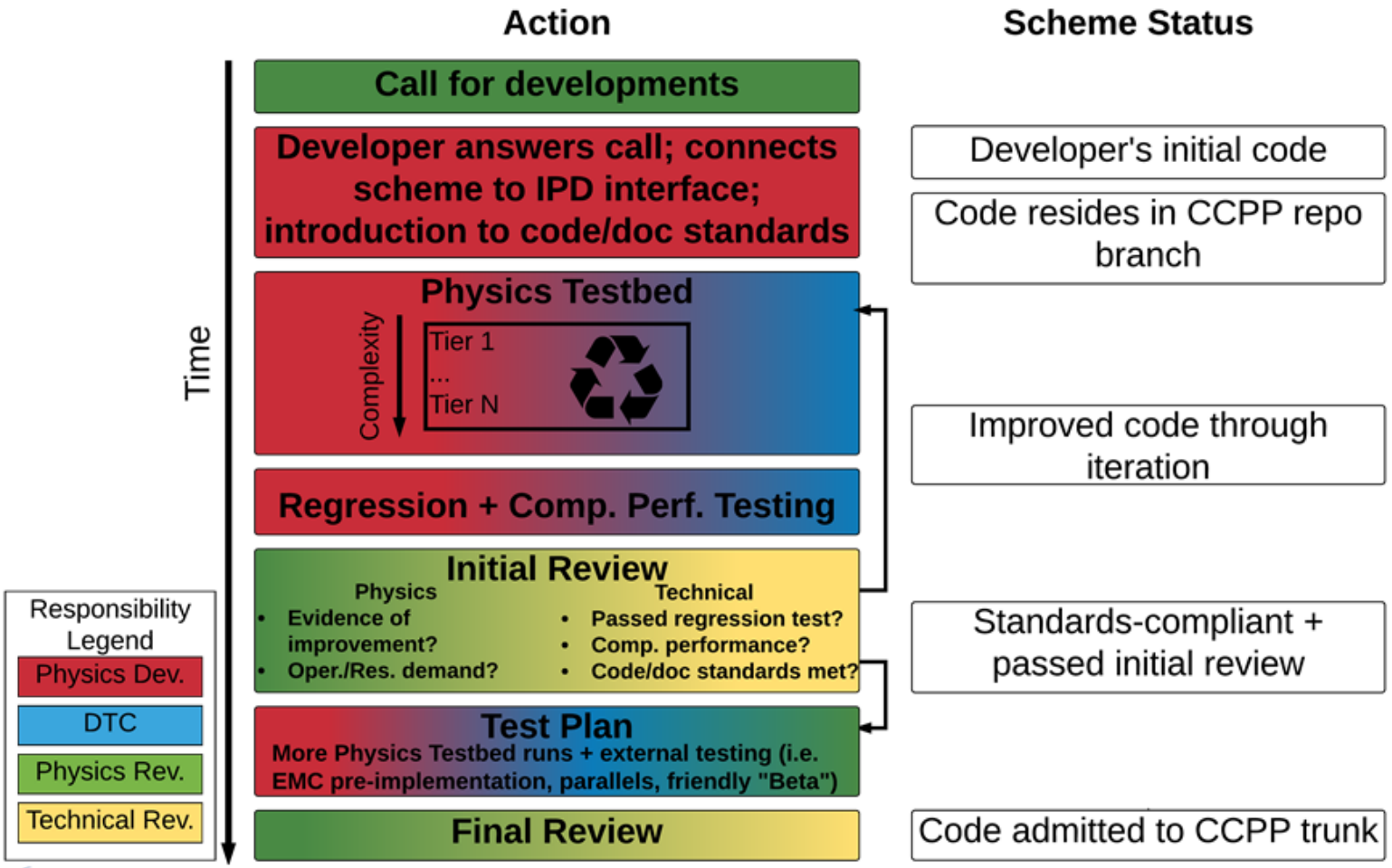

- CCPP is a collection of **dycore-agnostic**, **vetted**, physical parameterizations. There can be multiple of each type (PBL, cumulus etc.) to support various applications (high-res, climate etc.) and maturity level (operational, developmental)
- **Dycore agnostic** means that the parameterizations can be used with any dycore
- **Vetted** means that there is a process to determine what is included in CCPP at each layer

CCPP will be distributed in a community-accessible repository (GitHub)

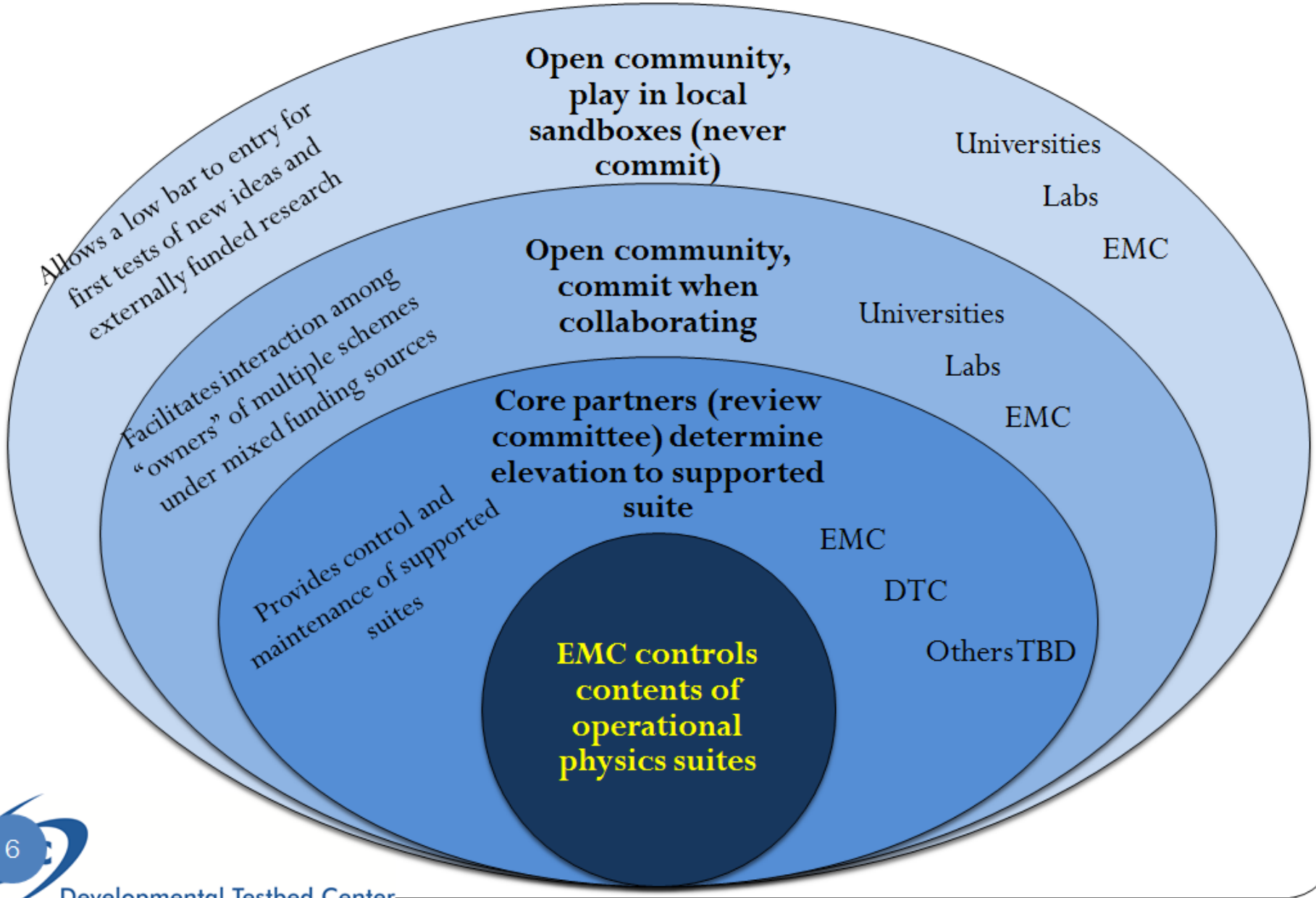
# Why have a CCPP?

- To support the implementation of the best physics suite for NCEP operations
- To tap into intellectual capability outside of NOAA by creating a system that allows scientists in multiple institutions to develop a common set of physics
- To a system that supports both operations and R&D with community involvement, and stimulate development of the priorities listed in the NGGPS Physics Team Plan, with initial focus on recommendations from NGGPS Physics Workshop

# Workflow for Physics Development



# CCPP Ecosystem



# Summary

- GMTB will maintain and support CCPP
- GMTB will maintain a physics testbed for GMTB staff and community scientists to conduct experiments
  - This is on Theia (NOAA R&D) since currently we do not have a more open platform to use
- Additional community support for other components of NGGPS need to be considered:
  - Other component models (land, ocean, ice)
  - Other atmospheric sub-components (i.e., FV3 dycore)
  - DA, ensemble, … etc.