5.6 Community infrastructure for facilitating improvement and testing of physical parameterizations: the Common Community Physics Package (CCPP).

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After years of independent development work that has led to largely incompatible models between and within the different U.S. agencies, model unification has become a central effort of the near future. NOAA is engaged in the development of a Unified Forecast System (UFS) for operational predictions and NCAR recently launched the Singletrack Atmospheric Model Unification Project for WRF, MPAS and CESM. Often misunderstood, the term unification does not imply a monolithic model but having a software infrastructure that permits the exchange of components between models.

A central aspect in this process is the interoperability of the physical parameterizations across different models. The Global Model Test Bed (GMTB) has been tasked to develop a collection of physical parameterizations and a software framework, called the Common Community Physics Package (CCPP), which facilitates the inclusion of these physics innovations within earth-system model components. The CCPP framework is a well-documented, freely-available code supported to the community designed with a model-agnostic approach.

In this contribution, we will present the general concept and technical design of the CCPP, describe the requirements for CCPP-compliant physical parameterizations and demonstrate the integration of CCPP with different host models. We will further give an update on the progress towards a common NOAA-NCAR physics software infrastructure.