Nomenclature

Glossary of terms for those that are new to CESM2.

Term	Meaning
branch	A model run-type specified in env_run.xml, in this case it is "branching" off a previous simulation. All model components and the coupler are initialized from restart files generated by a user-specified CESM simulation, the reference case. Start date cannot be modified relative to the reference case, the setting $RUN_STARTDATE is ignored.
CAM-chem	Community Atmosphere Model with chemistry
case	A particular model set-up with a specific compset and configuration that will be compiled and run. Each user typically has their own cases.
CESM	Community Earth System Model
cime	Common Infrastructure for Modeling the Earth - definition of the software infrastructure used by CESM. The CIME folder contains the support scripts (configure, build, run, test), data models, essential utility libraries, a "main" and other tools that are needed to build a single-executable coupled Earth System Model. (https://esmci.github.io/cime/what_cime/index.html#overview)
clone	Make an exact copy of a different case. Can modify the set-up. Often used for sensitivity studies.
compset	Short for "Component Set". This is the set of CESM modules needed for a specific type of run. Components include for example which CAM version to run, what number of model levels to use as well as which aerosol and chemistry schemes are employed.
free run, or, free running	Meteorology is determined by the model, i.e. the CAM-model internal physics is used.
history file	Files that include model output for analysis. Default files are have h0 in their name.
hybrid	Model run-type specified in env_run.xml. In a hybrid run the model is initialized as a startup, but also uses initialization datasets. This is somewhat analogous to a branch run with relaxed restart constraints. No coupler file is needed.
MUSICA	Multi-Scale Infrastructure for Chemistry and Aerosols. A global modeling framework that allows simulation of large-scale atmospheric phenomena, while still resolving chemistry at exposure relevant scales.
namelist variable	A variable that defines some parameter or specifications of the model run.
restart file	The files written out that may be used to restart the model where it left off.
specified dynamics (SD)	Reanalysis fields specify the meteorology that drives the model. Usually these are GEOS5 or MERRA2. Best practice is to use in a nudging at 1% to 10% so that internal model physics is consistent with the dynamics, because 100% nudging may introduce discontinuities.
startup	Model run-type specified in env_run.xml. All components are initialized using baseline states. These baseline states are set independently by each component and can include the use of restart files, initial files, external observed data files, or internal initialization (i.e., a "cold start").