CCPP Training
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Running NEMSfv3gfs with CCPP

Laurie Carson
Global Model Test Bed

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- Regression tests
- Run a single case
  - Stage the SDF (Suite Definition File)
  - Namelist (input.nml) changes
  - Static vs Dynamic library build differences

NEMSfv3gfs regression tests

- GMTB provides regression tests to exercise the CCPP in various modes
- These are provided in the usual repository location:
  - ***NEMSfv3gfs/tests***
- Each "conf" file contains a set of tests using different modes of CCPP
  - ***rt_ccpp_hybrid.conf***
  - ***rt_ccpp_standalone.conf (dynamic build)***
  - ***rt_ccpp_static.conf***

Run a single case

This will be described in detail in the practical session instructions

- Copy and set up a run directory to run the model
- Stage the Suite Definition File (SDF)
- Edit the namelist file (input.nml) to include the SDF filename
- Run the model

Stage the SDF (Suite Definition File)

- The SDF is used at run-time, and must be specified in the ***input.nml*** namelist
- The default is "***undefined.xml***"!
- In the namelist record, &atmos_model_nml, add

  ccpp_suite = 'ccpp_suite.xml'
- This filename can include a PATH, or the file can be in the local run directory

Static vs Dynamic library build

ccpp_suite = 'ccpp_suite.xml'

- **STATIC** build: this must match the SDF used at compile time
- **DYNAMIC** build: all schemes referenced in the SDF must have been compiled into the CCPP physics lib
- **BOTH**: the physics schemes listed must be consistent with the physics namelist settings! For example:
  - if oz_phys_2015 is used, must set oz_phys=.F. and oz_phys_2015=.T., if none is used must set both to .F. (default is oz_phys=.T. and oz_phys_2015=.F.)
  - If any of the stochastic physics is used, must set the corresponding option to .T. (default is .F. for all): do_sppt, do_shum, do_skeb, do_sfcperts

How-to instructions

- See practical session instructions at:
- https://dtcenter.org/community-code/common-community-physics-package-ccpp/tutorial-practical-instructions

Wrap up

- A good starting point is to run a CCPP-based regression test
- A simple run-directory case will help to illuminate various aspects of CCPP (static, dynamic, SDF files, etc)
- More complex runtime situations, workflows, etc are also possible,– i.e. the recent physics test used CCPP with a workflow for Suite4.

- QUESTIONS?