Analyze ES3M Original and Reproduced ES3M Simulation Differences

# Introduction

It is important to check if the original simulation and reproduced simulation produced same output. We use the cprnc tool within CIME to do this. The cprnc tool analyze the output netcdef file or compares two netcdf files. cprnc is a Fortran-90 application. It relies on netcdf version 3 or later and uses the f90 netcdf interfaces.

# Prerequisites

* Python 2.7
* Access to netcdf files from original simulation and reproduced simulation.

# Procedure

## Dependencies on other Quick Start Guides

## Steps

1. Run the cprnc\_test.py. the script is located at <https://github.com/pnnl/ProvenanceEnvironment/blob/master/examples/E3SM/cprnc_test.py>

e.x.

python cprnc\_test.py --run1=/scratch1/scratchdirs/bibiraju/ACME\_simulations/Try1.Run1.ne4\_ne4/run/ --run2=/scratch1/scratchdirs/bibiraju/ACME\_simulations/Try1.Run3.ne4\_ne4/run/

The script compares all the netcdf files in the run directory to the corresponding netcdf files in the other run directory. You can also compare individual netcdf files using the cprnc tool.

e.x

1. cd /global/project/projectdirs/acme/tools/cprnc.edison
2. ./cprnc -v -m /scratch1/scratchdirs/bibiraju/ACME\_simulations/Try1.Run1.ne4\_ne4\_original/run/Try1.Run1.ne4\_ne4.cam.h0.0001-01-01-00000.nc /scratch1/scratchdirs/bibiraju/ACME\_simulations/Try1.Run3.ne4\_ne4/run/Try1.Run3.ne4\_ne4.cam.h0.0001-01-01-00000.nc

## Notes

The cprnc tool compares two netcdf files and provides a summary of the total fields compared. It provides a summary whether the files are IDENTICAL or DIFFERENT. It provides details of how many fields were found different, how many fields could not be analyzed, how many fields found in one file and not found on the other file etc.

## Next Quick Start Guide

# Questions?

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