Reproduce E3SM simulation

# Introduction

Reproducing a simulation can be useful sometimes for reasons including verifying results, testing the simulation by another scientist etc. In E3SM, reproducing a simulation means capturing the input settings of a simulation including the config xml files, namelist files and various other files; and using these as the input setting for a second simulation.

# Prerequisites

* Python 2.7
* Access to the provenance information from a previous simulation. Refer quick start guide on Retrieve Provenance.
* Basic knowledge to run an E3SM simulation using run\_acme.template.sh script.

# Procedure

## Dependencies on other Quick Start Guides

Refer Retrieve Provenance quick start guide to download provenance from a previous simulation

## Steps

1. Create a new case with the help of run\_acme script.(fetch\_code = false, submit\_run = false)
2. Use the overwrite\_input.py script to replace \*.xml files, user\_nl\_\* files in case\_scripts directory and \*\_in files in run directory with the reconstructed files from old run. The script also edits the CASEROOT and some other xml attribute values in env\_case.xml, env\_build.xml and env\_run.xml to point to the new acme case rather than the old case. The script is located in <https://github.com/pnnl/ProvenanceEnvironment/blob/master/examples/E3SM/overwrite_input.py>

Pass the path to the downloaded provenance information from previous run to the script. Run the overwrite\_input.py script from the new case directory as it uses xmlquery and xmlchange tools from E3SM.

1. Submit the new case using case.submit script

## Next Quick Start Guide

Analyzing ES3M Original and Reproduced ES3M Simulation Differences Quick Start Guide

# Questions?

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