## v1 Simulation Campaign

<table>
<thead>
<tr>
<th>Simulation</th>
<th>Duration</th>
<th>Resolution</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-industrial (1850) control</td>
<td>500 years</td>
<td>LR</td>
<td>DECK</td>
</tr>
<tr>
<td>Historical transient (1850-2014)</td>
<td>165 years per ensemble member</td>
<td>LR</td>
<td>DECK - minimum of 3, ideally 5 ensemble members.</td>
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<tr>
<td>Abrupt 4xCO2</td>
<td>150 years</td>
<td>LR</td>
<td>DECK</td>
</tr>
<tr>
<td>1%/yr CO2 increase</td>
<td>150 years</td>
<td>LR</td>
<td>DECK</td>
</tr>
<tr>
<td>AMIP (1970-2014)</td>
<td>45 years</td>
<td>LR</td>
<td>DECK - possibility of starting earlier (1870) and performing multiple ensemble members</td>
</tr>
<tr>
<td>1950 control</td>
<td>50 years</td>
<td>LR, HR</td>
<td>HighResMIP like</td>
</tr>
<tr>
<td>1950-2050 (all forcings)</td>
<td>100 years</td>
<td>LR, HR</td>
<td>HighResMIP like - 3 ensemble members</td>
</tr>
<tr>
<td>1950-2050 (GHG-only)</td>
<td>100 years</td>
<td>LR, HR</td>
<td>HighResMIP like - 3 ensemble members</td>
</tr>
<tr>
<td>AMIP (2000-2010)</td>
<td>10 years</td>
<td>¼ degree, global</td>
<td>Atmosphere-only global high-resolution simulation</td>
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<tr>
<td>AMIP (2000-2010)</td>
<td>10 years</td>
<td>¼ degree, RRM</td>
<td>Atmosphere-only high-resolution simulation over North America using RRM</td>
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</tbody>
</table>
v2 Model Developments

Timeline for v2 (from Rob Jacob)

- **30 Jun 2019**: feature freeze for features to be used in v2 simulations. E3SM v2-alpha made after PRs are integrated. Start component-level tuning (F-cases, I-cases, G-cases)

- **30 Sep 2019**: Finish component level tuning. E3SM v2-Beta made. All initial/BC files should be finished and in inputdata server. Start coupled tuning.

- **31 Dec 2019**: Coupled tuning finished. Start coupled runs. May have additional beta tags after this. (Development during this time can't change answers for coupled runs).

- **24 Mar 2021**: v2 data and model release
Priorities: v2

- v2 Model Developments
  - Fairly large number of developments are under consideration for v2.
  - Just because a particular development is under consideration for v2, it doesn’t mean it will be incorporated in v2.
  - To increase chances that a specific development will be in v2, it should:
    - add a demonstrably useful feature or reduce an existing bias,
    - be thoroughly tested and evaluated,
    - be documented in a separate publication,
    - be ready and its author willing to help with v2 integration.
  - We will assembling a v2 integration and testing team.
  - Will proceed incrementally, starting next quarter (April 1).
v2 Model Developments

New RRM grids

Atmosphere

- Semi-Lagrangian transport + QLT for conservation/monotonicity
- NH dynamical core
- Evaluation of alternate physics for consideration in v2
- Minimalist “scale-aware” physics package for RRM (collaboration with CMDV-RRM)
- New faster version of CLUBB
- ZM with ULL (unrestricted launch level)
- Retuning of gravity wave drag for improved MJO
- Improved dust aerosol physics
- ...

...
v2 Model Developments

Ocean
• KPP physics improvements (Langmuir mixing)
• Test and implement KPP implementation port to GPU
• Test and Evaluate Scale-aware Gent-McWilliams mesoscale eddy parameterization
• Redi mixing implementation through University Project

Land
• Water management model and MOSART inundation
• Plant hydraulics
• Should we update the land model beyond satellite phenology (SP)?