Last days before deadlines

SCREAM
Deliverables, Deadlines, and Opportunities

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Visual Roadmap From Beginning of Project

We are making good progress on all 6 tasks, but haven’t quite finished them.

I’m not freaking out about this because we budgeted all of yr 3 as a buffer.

Get SHOC + P3 working in existing E3SM
Design new Atmosphere Driver
Implement (Unit) Tests
Get E3SM working at ne1024
Evaluate/tune/improve F90 implementation
Evaluate, tune, & improve C++ implementation

Port Parameterizations to C++/Kokkos
Write design documents
Targets Added since Start of Project

Originally, the only external deliverable was C++-SCREAM delivered after 3 yrs… We have accreted some more.

► Promised by July 1, 2019 to enable aerosol proposal:
  ► F90 version of SCREAM (completely untuned and potentially buggy)
    ► hopefully running at ne1024, otherwise running at ne30
    ► will use MAM4 and will potentially use ZM deep convection at ne30
  ► Ability to easily run on new grids and availability of a high res RRM grid or two

► Promised by Dec 1, 2019 for Gordon-Bell submission:
  ► C++ version of SCREAM (completely untuned and potentially buggy)
    ► goal here is performance on Summit – climate skill doesn’t matter
    ► if making this deadline would wreck our lives, I intend to abandon it
Year 1 Roadmap (from 1/7/19)

- P3 fixes (fractional cloudiness, aerosol activation, subgrid condensate) by Apr 1
- F90-NH dycore ready by... ASAP
- Finalize driver plans by Apr 1
- Ability to do untuned ne30 runs with F-90 SCREAM physics package (P3, SHOC, RRTMGP, and F90-NH dycore) by Apr 1
- Ability to easily create new grids by July 1
- Ability to run 1 day w/ F90-SCREAM physics at ne1024 by July 1 (stretch goal)
- Initial evaluation of F90-SCREAM by July 1 (at ne1024 if possible, else at ne30)
- Initial version of driver ready by July 1
- Design docs for all schemes by Apr 1
- Port the rest of P3 to C++ by July 1
- Complete a SHOC C++ micro app by July 1
- Be able to do CAPT-like runs by July 1 (but notes this is unrealistic because we have no staff for this)
Progress on 1/7/19 Roadmap

- P3 fixes (fractional cloudiness, aerosol activation, subgrid condensate) by Apr 1  
  Almost done
- F90-NH dycore ready by... ASAP  
  Requires understanding of which pres to use in physics
- Finalize driver plans by Apr 1  
  Design doc completed, currently out for external review
- Ability to do untuned ne30 runs with F-90 SCREAM physics package (P3, SHOC, RRTMGP, and F90-NH dycore) by Apr 1  
  will be late, but should be on this in ~1 mo
- Ability to easily create new grids by July 1  
  will probably finish early
- Ability to run 1 day w/ F90-SCREAM physics at ne1024 by July 1 (stretch goal)  
  seems on track
- Initial evaluation of F90-SCREAM by July 1 (at ne1024 if possible, else at ne30)  
  deficient in evaluators
- Initial version of driver ready by July 1  
  seem to be ahead of schedule
- Design docs for all schemes by Apr 1  
  AD done, SHOC draft done, P3 not started, NH-dycore ???
- Port the rest of P3 to C++ by July 1  
  New target is Jan with more effort on SHOC now
- Complete a SHOC C++ micro app by July 1  
  Should accomplish more than planned
- Be able to do CAPT-like runs by July 1 (stretch goal)  
  Lacking staff to do this (as expected)
Now What?

- We are slightly lagging our target dates
  - I think this is natural for devel work and the reason for our yr 3 buffer
    - Post-proposal deliverables put more pressure on us
    - Param development lags could roadblock C++ port
- Y1 targets still seem useful and attainable to me
  - Do you agree?
  - Any suggestions for adding/deleting/changing deliverables or shuffling personnel?