2019-03-19 All-Hands Meeting - Performance Group Breakout

Date
19 Mar 2019 - 19 Mar 2019

Time
- 3p (MT), Tues, 3/19
- 10a (MT), Wed, 3/20

Remote
- Unfortunately, no speaker phone setup, so remote access unavailable.

Attendees
- Philip Jones
- Sarat Sreepathi
- Hongzhang Shan
- Noel Keen
- Peter Caldwell
- Jayesh Krishna
- Luca Bertagna
- Henry R. Moncada
- Mathias Jacquelin
- Andy Salinger
- Mark Taylor
- J. Austin Ellis
- Hyun-Gyu Kang
- Ben Hillman
- Oksana Guba
- Balwinder Singh
- Mark Petersen
- Adrian Turner

Discussion items
Proposed topics, not in order yet...

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<tr>
<th>Time</th>
<th>Item</th>
<th>Who</th>
<th>Notes</th>
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<tr>
<td></td>
<td>GPU accelerated v2 model</td>
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<td>What sims planned for v2? On Summit? Will we need a GPU-enabled code for that (esp. atm physics)?</td>
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<td>Single precision</td>
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<td>Best or most useful way to present benchmark results?</td>
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<td>I/O</td>
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<td>Communication improvements (1-sided, sea-ice)</td>
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<td>Gordon Bell submission, simulations</td>
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<td>MPAS GPU work</td>
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What Actually Happened
**Peter Caldwell** and **Sarat Sreepathi** discussed some PACE functionality

I/O discussion with upcoming PIO2 and ADIOS integration. Issue with restarts and ADIOS when chaining a sequence of jobs.

More discussion on v1/v2 physics. MAM still seems like the best prototyping project - still not clear how much should be ported.

Discussion of Gordon Bell submissions, both this year and next.

Single precision - numbers like 30-40% in other experience, accuracy tests - convergence tests: CLUBB could be run in SP, ocean saw 1.5x improvement with no careful validation

Discussed new load balancing partitions for sea ice that **Adrian Turner** has created - need to understand coupler assumptions.

![Graph](chart.png)

Discussed incremental process for merging MPAS-O mods

**Noel Keen** reports that we have been awarded NESAP, so need to determine benchmark/kernel and potential work for postdoc.

Communication improvements - might still be a low priority if need to run at lower node counts. Still a benefit for ocean/ice.