GEOS-Chem Steering Committee In-Person Meeting
9 May 2019

Attending/Missing**:**
Becky Alexander, **Kevin Bowman**, **Sebastian Eastham**, **Mathew Evans**, Emily Fischer, **Jenny Fisher**, **Tzung-May Fu, Jeff Geddes**, **Colette Heald**, **Barron Henderson**, **Daven Henze**, **Chris Holmes**, **Lu Hu**, **Daniel Jacob**, **Dylan Jones**, **Prasad Kasibhatla**, **Christoph Keller**, **Hong Liao**, **Jintai Lin**, **Hongyu Liu**, **Jingqiu Mao**, **Eloise Marais**, **Randall Martin**, **Dylan Millet**, **Andrea Molod**, **Lee Murray**, **Jeff Pierce**, **Amos Tai**, **Jun Wang**, **Yuxuan Wang**, **Bob Yantosca**, **Fangqun Yu**, Lin Zhang, **Yanxu Zhang**

1. **Impressions of the meeting**
   - Generally went well
   - Participant feedback will be requested by email
   - Length of WG sessions? Still rushed
   - Can we ask people to do some pre-work? What are people interested in getting out of WG? Could help – do it on day 1 of the meeting when their mind is on this.
   - Clinics?
     - 30min tight but focused. Not really a clinic, more of an introduction to the tool.
     - Might be worth revisiting the idea of holding those on a different day, or even a different meeting. E.g. WRF does this over a week. CMAQ/WRF charge for this so you know people are motivated.
     - One idea is to do webinars by support team.
     - Maybe more advanced clinics just following IGC with beginner clinics on another day.
     - Short e.g. 10-minute screencast videos on specific topics that can be posted.
     - Low stakes opportunity to test: AMS is in Boston this year, could host days before/after at Harvard.

2. **How to train users?**
   - Could do a better job of surveying user base about what support is needed to get up and running, what's missing from the wiki.
     - Sometimes low-end users can take a lot of time from support team with very little return.
     - Would be good to have grad students/postdocs driving this process. Could they talk together about what their issues are, create a survey for the community.
     - Slack channel as a "safe place to ask dumb questions"?
     - Could use features on github, can connect to Slack; could combine with the in-person training so they are trained how to interact
   - ACTION ITEM: we should all talk to our grad students & postdocs about their issues, their ideas, etc.

3. **Structure of working groups?**
   - Seems to be ok.
   - Working group of graduate students? Too much turnover…
   - Software engineering working group? Good idea. Who would chair? Bob.
   - Do we need GCHP WG? Feeling is yes for now. Eventually GCHP WG will dissolve, to be replaced by GCHP Model Scientist.
   - Cross-cutting issues: how do those get facilitated esp when an issue in one WG has implications for other WG.
     - Use newsletter to communicate issues to people
     - On wiki there is a "currently unresolved issues in GEOS-Chem" → plan is to move all of this to github

4. **Performance of the model?**

- Model is getting better but slower. Should we contain this?
- Met fields read through HEMCO are slowing down the model (for example).
- Is there anything on the software engineering side we can do to overcome having more species, more chemistry, etc.? topic for the software engineering WG
- There are lots of places where we can improve the efficiency, just need the time and manpower to do them
- Also important to benchmark on different systems. Moving more towards file I/O limitations which then is more related to system architecture. This is something where a wider "support group" would be good because they can each test on their system.
- As things move to NCAR (CESM, WRF) – many groups can use or apply to use Yellowstone – but requires a NSF grant (similar for NASA), and GEOS-Chem community is much broader than that. What we can do is provide information on the set-up necessary for large multi-user systems.
    - Should discuss with various major computing centers for shared data directories. This is being done already on NASA Pleiades to some extent.
    - Could have a list of known HPC systems worldwide where we know someone has run GEOS-Chem, plus a point of contact, could also add info like what is job scheduler, etc. so that someone on a different system could find nearest equivalent.

5. Any other issues?

- In the past each simulation described by 1 single input/configuration file → good for reproducibility and usability. Now we have more and more individual config files. Would be safer if we had a single file that would auto-generate all the config files.
    - Naturally fits in with the plan to move run directory to code; could do something similar with generating a run configuration.
    - Right now GCHP needs info classic doesn't, so either you end up with an unnecessarily long input file, would be good to have all the info in input.geos that then creates/generates e.g. HEMCO_Config.rc. If you really know what you are doing you could still go into the HEMCO_Config file (for example) to make changes
    - One option is to use github to save all config files, but that relies on the user a lot
    - Two purposes: one is so that you have a record, the other is that there is only one place you need to go to change settings so it is harder to screw up
- Quarterly telecons: could we put major issues that a given WG wants to report up front
    - Should prioritise specific issues rather than going through each WG + any other business
    - Will ask entire list for input