TM5 SC meeting 12/10/2024

Agenda:

1. Action points
2. New Action points

Old action points:

|  |  |  |  |
| --- | --- | --- | --- |
| Action # | Title | Responsible | Tracker id. |
| 12.3 | Check reported issue on 3D OH field (Spivakovsky) used in 4dvar | ND, MK, Rasmus |  |
| 13.1 | SB: What is the status of frozen versions, and do TM5-4DVAR version from SF to GitLab? | SB & MK |  |
| 13.4 | Test the impact of # vertical layers on transport in TM5. Test with e.g. CT fluxes | MK  Jin Ma |  |
| 14.1 | Organize Online Code sprint April 22, 2024. | AS |  |
| 14.2 | MPI I/O task to Master branch | AS |  |
| 14.3 | Follow on dry & wet deposition bug | MK  Anne-Wil, Firmin |  |
| 14.4 | Slopes sampling issue in the vertical (MK) | MK |  |
| 14.5 | Investigate move documentation to Read The Docs https://readthedocs.com | AS |  |

12.3 Wait on the bug report of Rasmus. In the MP version when you use Spivakovsky. Action ND

13.1: MK will send a mail to SB

13.4: MK will send the 68-layer version to AS, who will put it in existing projects (TM5-MP)

14.1: Done

14.2: remains open. Idea is that 1 PE copies meteo-files to SSD-memory (/temp??) while other Pes do calculations.

14.3: Remains open, action MK

14.4: Recommended to use 3D interpolation in TM5-MP, but there is an issue with the halo-updates. New action JH: 15.1: fix the corner cell issue.

14.5: Is an option, but there is also gitlab pages. New action AS 15.2: find out to use gitlab pages on TNO gitlab server.

1. New action points

15.3: TM5-SP-version: PlS, some work was done for CAMS-IFS. There was good speed-up op the chemistry. No speedup of KPP-Rosenbrock3 solver was found. AS will check the speed on the CH4-only version (without chemistry).

15.4: Future TM5(6?)….Challenges are: (1) speed of advection code, options are GPU (2) I/O that is slow.

Globally, there is still a lot to do on 1x1 degree resolution (and with more layers). For now, the IFS-TM5-ERA-clone nudging is a plan, and we need a project. Moreover, OpenIFS develops, and we can try higher resolution, including nudging. So, before we develop TM5 further, we should seriously test OpenIFS. Food for thought. AS + JvP: continue GPU development. This includes BLOSC2 I/O.

15.5: TvN: What Arjo presented looks very promising, and Twan wants to try the eta-dot approach in EC-Earth….(action TvN + AS + PlS).

15.6: Access of NOAA to ECMWF data. JH can push the data to Orion server. Normally the FastTrack NRT processing is available. NOAA would like to have the verified ERA5 data. JH gets the processed data from ECMWF and will establish a pipeline to NOAA server. Action JH & AJ.

15.7: Action Point PlS: commit the MOGUNTIA chemistry to TM5-MP. Forces version with KPP (also used with EC-EARTH3).

15.8: MK action website

New action list:

|  |  |  |  |
| --- | --- | --- | --- |
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| 12.3 | Check reported issue on 3D OH field (Spivakovsky) used in 4dvar | ND |  |
| 13.1 | SB: What is the status of frozen versions, and do TM5-4DVAR version from SF to GitLab? | SB & MK |  |
| 14.2 | MPI I/O task to Master branch | AS |  |
| 14.3 | Follow on dry & wet deposition bug | MK  Anne-Wil, Firmin |  |
| 14.5 | Investigate move documentation to Read The Docs https://readthedocs.com | AS |  |
| 15.1 | Fix the corner cells in MP version needed for linear interpolation | JH |  |
| 15.2 | Find out how to use gitlab pages on TNO gitlab server | AS |  |
| 15.3 | Check the single-precision version on the CH4-only version | AS |  |
| 15.4 | GPU development, including faster I/O (<https://www.blosc.org>) | AS/JvP |  |
| 15.5 | Further test the eta-dot approach presented by AS | TvN, PlS, AS |  |
| 15.6 | Access of NOAA to ECMWF data | JH, AJ |  |
| 15.7 | Test and commit version of MOGUNTIA chemistry to TM5-MP (pending on gitlab) | PlS |  |
| 15.8 | Find a solution to host the website | MK |  |

AS: Arjo Segers, JH: Joram Hooghiem, AJ: Andy Jacobson, PlS: Philippe le Sager, MK: Maarten Krol, SB: Sourish Basu, JvP: Jacob van Peet, ND: Nikos Daskalakis

Projects with TM-models:

CATRINE project launches a model intercomparison for high-resolution global models. TM5-MP will join (CO2, SF6, 222Rn).

Sander has a big EU project (with 26 partners). TM5 global methane analysis with a focus on the chemical lifetime.

VU: ESA-smart methane: OH in TM5-4DVAR.

VU: PhD Pieter, check the MCF version

WU: Oxygen and radiocarbon inverse modelling.

KNMI: HTAP experiments. Nikos will do the perturbation experiments.

NOAA: TM5 will participate in OCO-2 MIP, including SF6…

**Next meeting: 3-4 November 2025, Amsterdam, the Netherlands.**