

TM5 Steering Committee Telecon 13 November 2013, 14:30-17:00 hrs

Attending: Maarten Krol, Folkert Boersma, Twan van Noije, Philippe Le Sager, Wouter Peters, Maria Kanakidou, Andy Jacobson, Peter Bergamaschi

1. Notes TM5 SC Meeting

- The notes were approved.
- Twan's suggestion to label action items and appoint a responsible actionee was adopted.

2. Development Team status

Since code sprint of 30 August, TM5 v4 has been released. TM5 v4 now includes a different way to update the x- and y-slopes in convective cells (by WP), and AJ+PLS fixed user_output.f90 and documented this on the wiki. Reduced grid issue has also been resolved and documented on the wiki.

3. Towards TM5 v5

A number of issues in need of development has been identified over the last months.

- CO-bias in TM5 v4. It was shown that CO concentrations are biased low in TM5 v4, especially in the NH. This can be due to too low CO emissions, too little CO production from VOCs, or issues in HOx.
Action 1: PLS will follow up with Vincent on implementation HO₂-uptake on aerosols.
Action 2: FB will ask Marly to investigate the impact of CB05 on the CO budget and CH₄ lifetime.
Action 3: MK will ask Nikos to provide the TM4 CO budget, since TM4 has much higher CO emissions.
Action 4: MK will send recommendations on HO₂ uptake coefficient to Vincent.
Action 5: PLS will include option to use anthropogenic emissions from REAS v2.1 in Asia.
- NO_x-chemistry. A number of recent papers (e.g. Stavrou et al., 2013) suggest much slower NO_x loss than modelled
Action 6: FB to discuss with Pepijn if this issue can be investigated in the framework of (TROP)OMI retrieval development efforts at KNMI. Could be a nice job for Jason.
- Convection.
Arjo proposed the use of EI convective fluxes, which are available and should be consistent with the other met-fields (and an improvement over the Tiedtke-scheme). The advantage is that EI would provide directly entrainment and detrainment rates for updrafts and downdrafts so that convection-values can be directly calculated from those. But for OD these fluxes are not available. Implementing a new convective scheme would require significant development. Unlike mass fluxes, diffusivities cannot be directly summed when aggregating to coarser resolution.
SC decided to stick to the Tiedtke-scheme.
Action 7: SC will wait for last test by Arjo and revisit the issue.
- SVN-4D-Var. PB prefers to keep 4D-Var in SVN, as higher complexity of hg (compared to svn) deterred JRC-developers from using it.

Action 8: PLS to investigate whether 4D-Var code can be migrated from sourceforge (including the accompanying website, and ticketing system) to TM5 Redmine project at KNMI.

- Wet removal aerosol. We know what has to be done, but we need resources.

Action 9: MK to plan a meeting with TvN and Narcisa to discuss the too fast loss of aerosols high up in the atmosphere.

- BL mixing scheme. Since the EI would now also provide Kz-values (see Convection discussion above), an improved description of BL mixing in TM5 is anticipated. Kz-values for every hour (in OD) have the potential to improve BL mixing representation. The use of archived Kz-values is limited because they cannot easily be regridded to other resolutions.

Action 10: MK to ask Arjo if he can evaluate the possibilities.

4. Wiki and website

For the website, just a few things happened since last SC meeting. It was agreed that we should now get the program and some presentations of the last ITM5 meetings posted on the webpage (tm5.sourceforge.net). Presenters can decide to include their presentations (or parts of it) on the website or not.

PLS has developed the wiki-page further. Page hits have increased substantially.

Action 11: FB and MK to get together and provide content to website.

Action 12: FB to request TM-users to submit a picture of the month for December 2013.

5. Any other business

- Netcdf4: We will start to process netcdf4 next to hdf in view of the possibilities for speeding up with parallel reading (PLS).

Action 13: PLS will produce the 1x1 archive in HDF and netcdf4 from now on.

Action 14: PLS to convert past 30-year 1x1 archive at ECMWF from HDF to netcdf4.

- TM5 vs TM6. Both models will be existing in parallel, but essentially TM5 v4 is the same as TM6, except for computational speed. For EC-Earth we are going to use TM6. The SC proposed to rename TM6 to TM5-mp (for 'massively parallel') to exploit the strong TM5 brand name, and because TM5-mp provides identical output as TM5 v4.

6. Next SC Meeting and next ITM5 meeting

SC: Wednesday 12 February 2014.

ITM5: 12-13 May 2014 at JRC, Ispra. Room up to 24 participants available at JRC for 12 May from 12:00 hrs onwards and 13 May all day.

Action item table. Action items to be counted from this meeting (1) onwards.

Action #	Responsible	Status
1.1	PLS	Open
1.2	FB	Open
1.3	MK	Open
1.4	MK	Open
1.5	PLS	Open
1.6	FB	Open
1.7	SC (Steering Committee)	Open

1.8	PLS	Open
1.9	MK	Open
1.10	MK	Open
1.11	MK+FB	Open
1.12	FB	Open
1.13	PLS	Open
1.14	PLS	Open

References

Stavrakou, T., J.-F. Müller, K. F. Boersma, R. J. van der A, J. Kurokawa, T. Ohara, and Q. Zhang, Key chemical NO_x sink uncertainties and how they influence top-down emissions of nitrogen oxides, *Atmos. Chem. Phys.*, 13, 9057-9082, 2013.