**Notes Steering Committee TM5**

**January 20, 2015**

**Present**: Maria (Maria), Andy (AJ), Wouter (WP), Maarten (MK), Philippe (PLS), Sander (SH), Twan (TvN)

**Absent**: Folkert (FB), Peter Bergamaschi (PB)

**1. Status action items:**

* 1.1 Heterogeneous uptake of HO2 on aerosols: closed, Vincent paper was not accepted.
* 1.2 Impact of CB05 on CO budget: Remains open for Folkert
* 1.3 TM4 CO budget: Nikos and Maarten will have contact on it.
* 1.4 HO2 uptake recommendation: Still open, Maria will follow up
* 1.5 REAS emissions: Still open, Philippe did not get the code/data. Will ask Jason.
* 1.9 Wet deposition: Twan presented status, but more tests are planned. Once satisfied, to be included. Involve Marco as well.
* 1.10 Use of archived Kz-values for BL: A small test will be done by Ernest (action for Peter Bergamaschi). We suggest to compare two runs: one with the TM5-derived diffusion, the other with the ERA-Interim values First PLS will check if there is enough meteo (one year), and create it if needed. Remains open.
* 1.13 Ongoing meteo processing (1x1). Not an action item, remove. But issue arose: since 2014-04, NetCDF format processing is not working due to missing library (Fortran UDUNITS) on the new CRAY at ECMWF (new issue, see below). AJ: heard that update of ERA-Interim is now monthly. Request: can notification of update be sent? Answer PLS: yes.
* 1.14 Convert past meteo archive from hdf to netCDF. All done for the whole archive, except the new convec files. PLS will complete the archive as soon as the udunits library issue is fixed.
* 2.1 Nudging issues in chemistry version. Resolved, presented by PLS. Close.
* 2.2 Reduced grid along longitudinal MPI decomposition. New suggestion after previous attempt by PLS. Seems easier, to try before release. PLS. Stays open.
* 2.3 KPP. MK did not work on it. Remains open. No speed-up to be expected based on previous experiences (Maria, MK), but it may still useful in the future since it would facilitate coding of an adjoin for the chemistry or/and coding any new chemistry scheme
* 2.4Next release**.** Merging of EC-Earth and TROPOMI developments, and closing issue 2.2 required. **Code sprint** needed before summer to test at least the base code on various machines. Projects ported to new repository can be included in the tests.
	+ Location: Wageningen.
	+ Target date: June 1. MK&WP to organize.
* 2.5 OD convective fluxes. PLS checked, and the answer is “no”. Too much data to store, requires a volunteer with access to ECMWF hpc to process these data on a daily basis, and (most importantly) requires official support of the met office of one of the ECMWF member states (which PLS did not get, since nobody plan to use these data at KNMI).

**2. General discussion**

A discussion ensues on the way to update the project codes to TM5-mp. Special focus is on the user\_output routines, and how hard it is to keep all specific versions ported. Some might not be so hard, although a bit tedious: but anytime there is interpolation in the horizontal direction, it becomes more difficult. Suggestion is that interpolation could be dropped often at 1x1 degrees. Twan’s experience confirms PLS remark: quite straightforward, except for the interpolation to stations. AJ: Flexibility is really nice though, so worth keeping it.

Next discussion is about the development of TM5-zoom and TM5-mp. Some modelers will work on one, others on the other. Development on chemistry/aerosols at KNMI will be done in TM5-MP. NOAA wants to move to TM5-MP as soon as possible. How to maintain the coherence of the group, and of the code base used? PLS: there is not much activity in base, it would not diverge fast. WP: Will TM5-Zoom still be needed beyond 1x1 degrees? Other models have now reached 1x1 degrees plus (GEOS-Chem). MK: we do want to go to 0.5 degree globally too, but we can do this right in TM5-MP and not in the zoom model anymore. Going to higher resolutions will require higher update frequency of the meteo. WP: Should we move the existing TM5-zoom also to the new structure? PLS&MK: no, probably too complex for many users and many people affected.

Twan: you can also run TM5-IFS coupled system of EC-Earth nudged to meteorological data from reanalyses or operational forecasts (which is important since there is no observation assimilation in EC-Earth). EC-Earth can be run on computers outside ECMWF, is not much more expensive than TM5, and will soon change to OpenIFS. Advantages of such a system are that the set of meteorological driving variables can be extended beyond those currently used, the exchange frequency can be increased, and the external data used in the nudging will be limited to a few variables. Interesting way forward.

Followed a discussion about the documentation.

PLS: Should we integrate TM5-mp documentation into the sourceforge website? MK: Currently only TM5-4dvar is on sourceforge. PLS: Will make TM5-mp documentation on the KNMI Wiki, but not throw away the old stuff and keep it available. In the future, TM5-zoom might move somewhere else, once we have a person responsible for documenting it.

AJ: Do we need a documentation sprint for TM5-MP? PLS: Documentation can be handled, but we need test-users that give feedback.

AJ: Google Docs can help, if PLS makes an empty framework we can fill in details. A draft is already available (not on google). PLS to consolidate and make available on google or in the repository (new issue, see below).

Other: AJ: Piece of code available for taking “sounding” of model based on ACOS NetCDF files, so that retrieval can be done offline. Is available, also to be developed for TCONN.

**3. Upcoming new projects with TM5:**

KNMI: H2020 proposal CRESCENDO to couple TM5 with ocean + terrestrial biogeochemistry, to hear about it soon (12 Feb.).

SRON: GO proposal for wetland modeling

UU: Narcisa will start on 4d-VAR modeling of CO/CO2. Marco towards indirect aerosol effect. To get involved with others / EC-Earth

WU: Few proposals pending.

NOAA: none at the moment

**4. Next ITM5 meeting**

5-6 November 2015 at either JRC or Wageningen Univ. TBD.

**5. Open action items summary**

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| Action # | Title | Responsible |
| 1.2 | CB05 impact on CO budget | FB |
| 1.3 | TM4 CO budget | MK |
| 1.4 | HO2 uptake recommendation | MK, Maria |
| 1.5 | REAS emissions | PLS |
| 1.9 | Wet Deposition | TvN, MK |
| 1.10 | Kz for BL | PB |
| 1.14 | Meteo archive in netCDF | PLS |
| 2.2 | Reduced Grid w/ decomposition across longitudes  | PLS |
| 2.3 | KPP | MK |
| 2.4 | TM5-mp release | SC |
| 2.4a | merging TROPOMI developments | PLS |
| 2.4b | merge EC-Earth 3.2 developments | PLS |
| 2.4c | code sprint | MK, WP |
| 3.1 | UDUNITS lib for meteo processing | PLS/DT |
| 3.2 | setup notification of meteo update | PLS |
| 3.3 | setup TM5-mp documentation | PLS |