

Minutes AC3 Outbreak session – 21 Feb. 2008

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(Further present: Peter van Velthoven, Michael Gauss, Hubert Teyssedre, Tina Schnadt, Olivier Dessens, Brigitte Koffi, Richard Bintanja)

SPURT Intercomparison and CO results

T Schnadt intercompared model results and found an underestimate of modelled CO in the UTLS.

Possible reasons: Low emission values of QUANTIFY prelim CO emissions, background CO emissions, or chemistry/transport.

Impact: Before new runs are performed this issue should be solved.

AI: Intercomparison of background (biomass burning) CO emissions FastTrack 2000 with

- GFED-van der Weerf (PvV)
- Poet (MGauss)
- Retro (RBintanja)

Better understand global CO values, intercomparison with WGHGDatabase, Mozaic (TSchnadt), are discrepancies also apparent at other locations?

Emission data

Aircraft: Military emissions are missing. Impact? Negative emissions set to zero.

VG talked to Bethan Owen. In principle it is possible to derive them from the AERO2K data (fuel with aircraft and H2O Emissions without).

All emissions as txt files available via Mainz ftp server (MGauss resends email).

Road and air traffic also available as nc. Files.

Others should still be processed. (who?)

PvV asks A1 for totals to check with simulations.

Climate feedback

Two Step approach: Analysis of existing transient simulations (1960-2020) with and without climate change. Focus on impact on transport sectors (DLR).

Additional simulations: Without climate change for 2050. (all transport emissions)

100 % perturbations:

100% RT runs will be performed by UiO and KNMI

Effective emission runs (UiO, KNMI, CNRS):

UiO+KNMI (perhaps postponed) second half year, discussion at June meeting

Detailed presentation at next meeting, report and code would be useful.

Some final simulations for sensitivity tests asked by Cariolle

-> At least two models with fuel-plume.

-> One model with direct intercomparison of two plume models (UiO).

Ship emission observations

T.Schnadt provides Timepos files for simulation 2003-2007. (2007 most important).

HSchlager asks for 50% ship emission variation simulation. Measurement data will be send to TSchnadt by HSchlager. TROCCINOX data are available. INTEX data are not yet included.

Start of simulation after summer. MOZAIC data not available for 2007 – HTeyssedre asks for MOZAIC data + aircraft identification data.

UCAM: 2003, 2007.

UiO: planning 2003-2007 depending on CPU availability

Transport emissions for 2007 scaled with global data (available every 10 years), ask AC7 for yearly numbers to be consistent with their activities.

Biomass burning: interannual variability larger than trend. Possibility GFEDv2 data (PvV asks).

Deadline for runs to be finished: 1st October / Evaluated Feb. 2009.

Priority list / Start of simulations

31. March: Decision on how to proceed with simulations depending on CO discussion.

16 simulations

$(3\text{perturbations}+1\text{background}) \times (2\text{ scenarios; A1B, B1}) \times (2\text{ timeslices; 2000, 2050}) = 16$

Priorities:

P1 present – future (A1B)

P2 present – future (B1)

P3 Effective emission runs all others

MGauss asks P Hoor to do the first analysis to have comparable plots for all models.

Next meeting:

16-17 June (if enough data are available to discuss) backup: 28/29 August

Place: Cambridge, Decision on workshop 16 May

Sulphur impact

ODessens reports that SAD are simulated by SLIMCAT in agreement with ULAQ model.

However, change in aircraft ozone impact small and not negative as in Pitari et al., (2002, GRL). Will be further analysed also in comparison with Pitari et al., (2007).

Deliverable (Plan of simulations I) to be resend in Q-format by ODessens.

ODessens will also contribute with sulphur background variability (Pinatubo case) on aircraft ozone perturbation.

MPI analyzes background sulphur impact on ozone with transient simulation (1990-2005) (not confirmed since MPI unfortunately has to cancel participation) ?

Future runs – climate impact

VG checks if B1-SSTs are available via CCMVal (A1B is). Final decision in June.

Mitigation – Option

B1-ACARE will be performed

Policy failure emission? Discuss with A1 whether data are available or guidance how to use the data (PvP).

Ivar contacts DNV for ship mitigation emission (PvV reminds Ivar).

Runs performed 2nd half

Interaction with AC6

Authors and papers: one modeller for each group on AC6 RF-paper, who delivered data, still to be discussed.

DLR VG proposes to use a transient calculation of CH₄-RF for the Myhre paper, e.g. Grewe&Stenke, ACPD 2007.

Other papers

- Hoor-paper

Revision in preparation. Submission planned soon. Ask PHoor to upload current version of paper. Participants not include should respond within a month.

- paper on effective emissions (Cariolle et al.).

- paper on current impact (LMDz only)

- paper on deposition (Bintanja et al.)

- paper future impact and mitigation options (??)

- Analysis of diagnostics to identify reasons for model differences.

Report

Text + 1 Figure for each group (1 page).

Input from AC3 to AC6

- Dirk Olivie asks for transient information of ozone evolution from different transport sectors. VG will give the input from DLR transient simulation. (NO_x and ozone)

- Timeslice info on NO_x, O₃, CO from transport sectors taken from AC3 simulations. H₂O aircraft available in principle from older simulation DLR, UCAM, (Aero2K) as a backup.