4th AeroCom workshop
in Oslo, Norway June 15-17, 2005

"Integration of aerosol models and observations to understand aerosol impact on global change"

Host: University of Oslo: Jon Egill Kristjannson and Trond Iversen
with organizational support by Michael Schulz (LSCE) and Stefan Kinne (MPI)

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Objective

The major goal of the workshop is to conclude on the findings from the AeroCom experiments A, B, PRE and INDIRECT and their evaluation with observations. The workshop aims to produce a report on aerosol radiative forcing from the submitted AeroCom results.

It shall further ensure that the **integration of observations and model results** benefits an **improved estimate of direct radiative forcing** of aerosols from different source types. It shall provide understanding of the large differences found amongst global aerosol models in order to **guide future model developments**. It shall also investigate the chances to improve our **understanding of the aerosol indirect effects, by taking advantage of an ensemble of aerosol models**. Finally, it shall provide the forum to discuss the consequences of the established aerosol forcing uncertainties for **future work on climate predictions including aerosol emission scenarios**.

AeroCom has now arrived at some mature state of having overseen state-of-the-art global aerosol models and their performance against aerosol observations. The goal of the 4th workshop is thus to put emphasis on extended discussions of these results, especially on

- major achievements (based on the submitted publications and the public AeroCom web site),
- how to improve observation data integration into the AeroCom exercises,
- individual model performance,
- the indirect forcing exercise,
- a future AeroCom strategy,
- intensive studies on specific questions, to be proposed/initiated among participants, to better understand the most significant problems in aerosol modeling documented through the AeroCom exercise.

Workshop Format

The workshop is subdivided into blocks headed by key presentations. Open discussions on aspects related to AeroCom actions are scheduled in the last hour of each block. To detail individual research or important data, workshop **participants are asked to bring along posters**, which will be discussed during the extended lunch break on Day 2.

Wednesday 15. June 2005

9:00-10:00 **Introduction and Workshop Goals**

10’	I. Isaksen	Welcome and ACCENT project overview
10’	J.E. Kristijansson	local organization and planned events
30’	M. Schulz	Workshop goals and Remarks on AeroCom future

10:00-10:15 ***coffee***

10:15-12:30 **AeroCom – and where we are**

40’	C. Textor	Model Intercomparison of AeroCom A and B simulations
30’	S. Kinne	Analysis and evaluation of simulated AeroCom A fields
30’	S. Guibert	Revisit of model validations

12:30-13:30 ***lunch at hotel***

13:30-16:00 **Vertical distributions of aerosols**

20’	C. Textor	vertical distribution differences in the AeroCom simulations
20’	S. Guibert	validation of aerosol vertical profiles in the AeroCom models
20’	A. Jefferson	long term measurements of aerosol optical properties from a light aircraft
20’	R. Ferrare	vertical distribution of aerosols over ARM site: Measured vs. Modeled
20’	O. Seland	vertical aerosol distributions due to different convective parameterizations

17:00-23:00 ***AeroCom excursion (boat trip on Oslo fjord with dinner)***

Thursday 16. June 2005

9:00-11:00	**Radiative forcing from AeroCom A, B and PRE simulations**	
30’	M.Schulz	Discussion of the forcing estimates from AeroCom
20’	P. Stier	Results from ECHAM simulations dedicated to IPCC-FAR
20’	Y.Balkanski	Outstanding issues in mineral dust radiative forcing
20’	O. Boucher	Satellite versus GCM comparison of aerosol direct radiative forcing
10’	S. Kinne	Aerosol Forcing with an AERONET touch
11:00-11:15	***coffee***	
11:15-12:30	**Model and aerosol module development**	
20’	A. Stohl	Transport modeling (CTM) at Nilu
20’	M. Mircea	Impact of organic compounds on the simulated aerosol properties
20’	M. Krol	The European Aerosol Budget
12:30-13:30	***lunch at hotel***	
13:30-15:00	**Poster session** **& Interactive session on AeroCom web tools**	
15:00-16:00	**Model and aerosol module development II**	
20’	A. Kirkevag	Parameterized aerosol optics and cloud droplet properties in CCM-Oslo
10’	J-J. Morcrette	The GEMS-aerosol project
16:00-16:15	***coffee***	
16:15-18:00	**Aerosol Indirect effect**	
30’	J. Penner	Status of Aerosol Indirect Intercomparison
30’	J. Quaas	Estimates of aerosol indirect forcings from combining data and modeling
20’	T. Diehl	Aerosols on McRAS-clouds using sulfate simulated by GOCART
20’	T. Sorelvmo	Predicting Cloud Droplet Number Concentration in CAM-Oslo
19:00	**joint dinner somewhere in town**	

Friday 17. June 2005

9:00-11:00 **Humidification of aerosol**

20’	A. Jefferson	Measurements of aerosol humidification
20’	S. Guibert	Analysis of differences in vertical profiles as a function of RH differences
20’	C. Textor	Humidification aspects in AeroCom A and B
30’	S. Kinne	A new aerosol climatology (merging AERONET into global modeling)

11:30-12:30 **AeroCom products and related projects**

20’	M. Schulz	Future goal, activities and directions of AerCom … and open discussions

12:30-13:30 ***lunch at hotel***

Key questions

Key Model Questions:

- Humidification
- Organic aerosol sources
- Absorption profiles
- Model budget constraints
- Individual deficiencies of each model
- Benchmark tests for model quality
- Understanding differences in regional performance of models
- Constraining uncertainties related to aerosol forcing
- Possible simplifications of aerosol physics for climate models

Key Data Questions:

- What products are available?
- How accurate are products ?
- How representative are derived properties at modeling scales?

Key Cloud-Aerosol Correlation Questions:

- Where and when do we find correlations between aerosol and cloud properties?
- What do correlations tell us and what they cannot tell us?
- Are there differences as we go to larger spatial scales?

Key indirect effect Questions:

- What sign and magnitude has the indirect effect?
- How dependent are model results for the indirect effects on specific assumptions?
- How important are the different components of the indirect effect (1st, 2nd, semi, etc.)?

Participant list

Yves Balkanski / LSCE / France
Alf Kirkevåg / Univ Oslo
Anne Jefferson / CMDL / USA
Axel Lauer / DLR / Germany
Christiane Textor / LSCE / France
Daniela Iachetti / Univ Aquila / Italy
David Fillmore / NCAR / USA
Frode Stordal /Univ Oslo / Norway
Gunnar Myhre / Univ Oslo / Norway
Hans Feichter / MPIM/ Germany
Ivar, Isaksen / Univ. Oslo, Norway
Jean Jaques Morcrette / ECMWF / UK
Johannes Quaas / MPIM / Germany
Jon Egill Kristjansson / Univ Oslo / Norway
Joyce Penner / Univ Mich / USA
Maarten Krol / Univ Utrecht / Netherlands
Michael Schulz / MPIM / Germany
Mihaela Mircea ISAC/CNR/Italy
Olivier Boucher / Hadley Center / UK
Øyvind Seland / Univ Oslo /Norway
Philip Stier / MPIM / Germany
Rich Ferrare / NASA / USA
Sarah Guibert / LSCE / France
Stefan Kinne / MPIM / Germany
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