Whats AeroCom

a global modeling community effort with support by data groups

Aerosol Model Intercomparison Project

- Evaluate and compare global aerosol models
- Improve these models
- Derive useful products

MODELS MODELERS: ARQM-GCM/CAM **ARQM Meteorological Service Canda, Toronto, Canada: S. Gong, P. Huang** CAM **NCAR, Boulder,USA, N. Mahowald** DLR-ECHAM-MADE **Institut für Physik der Atmosphäre, DLR, Oberpfaffenhofen, Germany: J. Hendricks, A. Lauer** GISS **Columbia University, GISS, New York, USA: D. Koch, S. Bauer** GOCART **Goddard Space Flight Center, Greenbelt; Goddard Earth Sciences and Technology Center, University of Maryland Baltimore County, USA: T. Diehl, M.Chin** KYU-SPRINTARS **Kyushu University, Fukuoka, Japan: T. Takemura** LSCE-LMDzT-INCA **Laboratoire des Science du Climat et de l'Enivonnement, Gif-sur-Yvette, France: M. Schulz, Y.Balkanski, C. Textor, S. Generoso, S. Guibert, D. Hauglustaine** LOA-LMDzT **Laboratoire d'Optique Atmosphérique, Université des Sciences et Technologies de Lille, CNRS, Villeneuve d'Ascq, France: O. Boucher, S. Reddy** MATCH**, NCAR, Boulder, Colorado, USA: D. Fillmore, P. Rasch, B. Collins** MPI_HAM-ECHAM5-HAM**, Max-Planck-Institut für Meteorologie, Hamburg, Germany: P. Stier , J. Feichter, E.Vignati, J.Wilson, S.Kloster, M.Schulz** MOZGN **NOAA, Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey, USA: L. Horrowitz, P. Ginoux, X. Tie, J.F. Lamarque** PNNL-MIRAGE **Battelle, Pacific Northwest National Laboratory, Richland, USA: S. Ghan, R. Easter** TM5 **Institute for Marine and Atmospheric Research Utrecht (IMAU) Utrecht University, The Netherlands: M. Krol, EC, Joint Research Centre, Institute for Environment and Sustainability, Climate Change Unit, Italy: F.Dentener** UIO_CTM2**, University of Oslo, Department of Geophysics, Oslo, Norway: G. Myhre T. Berntsen,T. Berglen, A. Grini,** UIO_GCM-CCM-Oslo**, University of Oslo, Department of Geophysics, Oslo, Norway: T. Iversen, Ø. Seland, J.E.Kristjansson, A. Kirkevåg,** ULAQ-CCM**, Universita degli Studi L'Aquila, Italy: G. Pitari, V. Montanaro , E. Mancini** UMI-IMPACT/DAO**, University of Michigan, Ann Arbor, MI, USA: J. Penner, X. Liu**

AeroCom

Assembly of data from 2003 on

Open call for model participation (-> ca 20 models),
3 experiments (original model + emissions 2000 + 1750)

Central model output database (~2TB) at LSCE

Satellite data daily on 1°x1°, Aeronet, Earlinet, IMPROVE
GAW, EMEP, AEROCE

Public web interface to image catalogues
So far 5 joint papers

Funding through: EU projects PHOENICS and CREATE,
NASA for indirect effect study, institutes themself,
ACCENT+European science foundation, and EUCAARI+GEOMON in future

AeroCom Scientific findings

Aerosol dynamics formulation in models is not the only problem

Transport & aerosol model & forcing efficiency diversity
dominate over emission assumption diversity

Considerable differences in modelled vertical aerosol profile,
can explain part of life time differences

Model evaluation against multiple observational data sets
allows no simple ranking of models

Median model quality, compensating effects and constraints on optical depth
suggest that the average aerosol forcing is a BEST estimate

Other environmental factors such as humidity fields and
relative position of clouds and aerosol plumes
have significant impact on forcing estimate

Major differences in direct aerosol forcing can be traced back
to treatment of carbonaceous aerosol in models

Objectives for AeroCom workshop

Oversee recent developments in the field
of global aerosol observations and aerosol modeling

Reorganise AeroCom / formation of coordinating committee

Formation of working groups / expression of interest

Redefine short term and longterm goals of AeroCom

Prepare recommendations for the implementation
of work needed to achieve the goals in an AeroCom phase II

Preparation of an AeroCom diagnostic table