

10th AeroCom Workshop

October 3 – 6, 2011

Chikushi Campus, Kyushu University, Japan



host & organizer Toshihiko Takemura
co-organizers Michael Schulz, Stefan Kinne, and Mian Chin
co-host Research Institute for Applied Mechanics
Kyushu University



program

Monday, October 3, 2011

Session 0: introduction

- 11:30 – 11:30 all
registration
- 11:30 – 11:45 Michael Schulz
welcome
- 11:45 – 12:00 Toshihiko Takemura
logistics
- 12:00 – 12:15 Stefan Kinne
review of new AeroCom emission data

Keynote - Presentation

- 12:15 – 13:00 Teruyuki Nakajima
detecting aerosol effects from satellites and their limitations
- 13:00 – 14:00 *Lunch*

Session 1: AeroCom Phase II activities (1)

- 14:00 – 14:30 Olivier Boucher
AeroCom and the 5th Assessment Report of the IPCC
- 14:30 – 15:00 Gunnar Myhre
Direct aerosol effect from multimodel simulations in AeroCom Phase II
- 15:00 – 15:30 Michael Schulz
Constraining the AeroCom radiative forcing estimate with observations
- 15:30 – 16:00 *Coffee break*

Session 2: AeroCom Phase II activities (2)

- 16:00 – 16:30 Graham Mann
comparison of CCN and size-distribution among AeroCom models and plans
- 16:30 – 17:00 Kostas Tsigaridis
organic aerosol modeling and comparison with measurements
- 17:00 – 17:15 Nicolas Bellouin (for Philip Stier)
aerosol radiative forcing for the 'prescribed aerosol' experiment
- 17:15 – 17:30 Stefan Kinne (for Cynthia Randles)
accuracy of Radiative Transfer Schemes in global modeling
- 17:30 – 18:00 Charles Ichoku
Coherent evaluation of aerosol data products from multiple satellite sensors
- 18:00 – 18:30 Michael Schulz
summary of issues, plans and activities

Tuesday, October 4, 2011

Session 3: Vertical profiles

- 9:00 – 9:40 Nobuo Sugimoto
Detection of vertical aerosol distribution with active remote sensing
- 9:40 – 10:00 Michal Schulz (for Brigitte Koffi)
Application of the CALIOP Layer Product 3.01 to evaluate the vertical distribution of aerosols estimated by global models (AeroCom I & AeroCom II)
- 10:00 – 10:20 David Winker
A global 3D aerosol climatology from CALIPSO/CALIOP
- 10:20 – 10:40 Gao Chen
Highlights of DISCOVER-AQ airborne observations of aerosol optical, microphysical, and chemical properties
- 10:40 – 11:10 *Coffee break*

Session 4: Indirect effect and Panel discussion

- 11:10 – 11:30 Kari Alterskjær
Susceptibility of marine clouds to emission increases — observations and model simulations
- 11:30 – 11:50 Yi Ming
Dissecting aerosol indirect effects on the process level — A proposal for model inter-comparison

- 11:50 – 13:00 panel / group discussion on indirect effect experiments in AeroCom II
- 13:00 – 14:00 *Lunch*
- 14:00 – 22:00 Excursion & Workshop dinner

Wednesday, October 5, 2011

Session 5: Black Carbon

- 9:30 – 9:50 Bjørn H. Samset
Model intercomparison of BC vertical direct forcing profiles
- 9:50 – 10:10 Elisabetta Vignati
Use of surface concentrations and absorption measurements for evaluation of modelled BC
- 10:10 – 10:30 Naga Oshima
Wet removal of black carbon in Asian outflow: Aerosol Radiative Forcing in East Asia (A-FORCE) aircraft campaign
- 10:30 – 10:50 Daisuke Goto
Impact of aging process for black carbon aerosol on its distribution and radiative forcing
- 10:50 – 11:20 *Coffee break*

Session 6: Hindcast and GCM Forcing

- 11:20 – 11:30 Mian Chin
Multi-decadal change of atmospheric aerosols and their effect on surface radiation
- 11:30 – 11:50 Nicolas Bellouin
Comparing CMIP5 and AeroCom hindcast simulations by HadGEM2-ES
- 11:50 – 12:10 Jani Huttunen
Aerosol direct radiative effect efficiency, aerosol optical properties and surface albedo - comparison between simulations of models and results derived with measurements
- 12:10 – 12:30 Hua Zhang
Simulation of direct radiative forcing of aerosols and their effects on East Asian climate using an interactive AGCM-aerosol coupled system
- 12:30 – 12:50 J. Bi
aerosol optical properties and radiative forcing over a Loess Plateau region in NW China

13:00 – 14:00 *Lunch*

14:00 – 15:50 23 posters (see below for details) ... *with coffee*

Session 7: Optical properties

- 15:50 – 16:10 Kazuma Aoki
Spatial and temporal variation of aerosol climatology over Japan measured by Sky radiometer
- 16:30 – 16:50 Jianrong Bi
Optical properties and radiative forcing of aerosol over Loess Plateau region in Northwestern China — Intercomparison between observations and AeroCom simulations
- 16:50 – 17:10 Ralph Kahn
Aerosol constraints from multi-angle imaging that modelers can use
- 17:10 – 17:30 Si-Chee Tsay
Advancing solar irradiance measurements for climate-related studies: Accurate constraint on direct aerosol radiative effect (DARE)

Thursday, October 6, 2011

Session 8: Assimilation

- 9:00 – 9:45 Nick Schutgens
Data assimilation for aerosol: a primer
- 9:40 – 10:00 Jason Blake Cohen
Optimizing black carbon emissions using a Kalman Filter
- 10:00 – 10:20 Nicolas Huneeus
Estimating aerosol emissions by assimilating observed aerosol optical depth in a global aerosol model
- 10:20 – 10:40 Keiya Yumimoto
Development and Preliminary Results of SPRITNARS/4DVAR Data Assimilation System
- 10:40 – 11:10 *Coffee break*
- 11:20 – 12:30 Michael Schulz
Summary and Wrap up Discussion

Posters

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| Tommi Bergman | Number concentrations modeled with ECHAM5-HAM using SALSA and M7 compared with observations |
| Hishieng Bian | Investigation of atmospheric nitrate and ammonium and their impact on chemistry fields |
| Mian Chin | Anthropogenic and volcanic contributions to the stratospheric aerosols |
| Chul E. Chung | Observationally constrained estimates for global and regional BC and OM radiative forcing |
| Thomas Holzer-Popp | The ESA aerosol-CCI project: Intensive retrieval algorithm characterization |
| G. Janssens-Maenhout | Comparing aerosol emission estimates using different approaches and emission factor datasets in EDGAR |
| Yoshitaka Jin | Spatial distribution of the aerosol acting as ice nuclei over the northwest of China |
| Jung-Yoon Kang | Simulation of Asian dust aerosol using three different dust emission schemes |
| Sang-Woo Kim | Light scattering and absorption properties of aerosols in Asian continental outflow |
| Stefan Kinne | Black carbon in global modeling |
| Alf Kirkevåg | Aerosols and their direct and indirect effects in CAM4-Oslo: On the importance of natural aerosols for estimates of AOD and anthropogenic impacts |
| Harri Kokkola | Improving the accuracy of sectional aerosol microphysics models of coarse size resolution |
| Lindsay Lee | Emulation of a global aerosol model to quantify model sensitivity to uncertain parameters |
| Hitoshi Matsui | Impact of new particle formation on the concentrations of aerosols and cloud condensation nuclei around Beijing |
| Tomoaki Nishizawa | Development of two-wavelength high-spectral resolution lidar (HSRL) for the next-generation aerosol-monitoring lidar network |
| Ali H. Omar | CALIPSO Aerosol Optical Depth Estimates Compared to Ground-based Measurements |
| Gelsomina Pappalardo | ACTRIS for coordinated long-term observation of aerosols, cloud-aerosol interactions, and trace gases in Europe |
| Lorenzo Pezzoli | Reanalysis of tropospheric aerosols for the period 1980-2005 using ECHAM5-HAMMOZ |

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| Kirsty Pringle | Sea-salt geo-engineering: a multi-model assessment |
| Tsuyoshi T. Sekiyama | Object-based verification of aerosol simulations |
| Hiroshi G. Takahashi | Sensitivity study on the impacts of biogenic VOC on the Asian monsoon climate in dry and wet seasons using MIROC5 |
| Taichu Y. Tanaka | Variability of the naturally emitted aerosols in the climate CMIP5 experiments of Meteorological Research Institute |
| Matt Woodhouse | Implementation and evaluation of a microphysical aerosol module in the ECMWF-IPS as a forward model for forecasting and data assimilation |