



17th AeroCom workshop 6th AeroSAT workshop

October 15 – 19, 2018
NOAA, College Park, MD, USA

hosts: Shobha Kondragunta, Lorraine Remer, Mian Chin
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co-organizers (AeroCom): Michael Schulz / Stefan Kinne / Mian Chin
co-organizers (AeroSAT): Thomas Popp / Ralph Kahn

presentations

- **oral presentations** ... are allotted **20 or 15 min** ...but try to finish early
 - o to allow for 5 minutes of discussions
- **poster presentations** ... will be orally introduced by 1 (power point) slide
 - o all posters will hang from Monday to Friday

Sunday, October 14, 2018

arrival in town

poster authors *make sure that S. Kinne has your 1 slide ppt highlight summary of your poster*
please send your ppt slide (NOT pdf) to Stefan.Kinne@mpimet.mpg.de



Monday, October 15, 2018

AeroCom

8:00 – 9:00 AeroCom registration

9:00 – 10:30 WELCOME

S. Kondragunta and L. Remer *welcome & logistics*

M. Schulz *observations and modeling in AeroCom*

T. Popp and R. Kahn *AeroSAT perspective on collaborations with modeling*

10:30 – 11:00 coffee-break

chair: Lorraine Remer

11:00 – 12:30 **SESSION 1 (aerosol→clouds) indirect effects**

11:00 – 11:20 **A. Povey** *quantifying the impact of industrial emissions on clouds*

11:20 – 11:40 **X. Zhao** *sensitive regimes and active regions of indirect effects over oceans*

11:40 – 12:00 **F. Yu** *spatial variations of AOD-CCN correlations & indirect forcing implications*

12:00 – 12:20 **T. Yuan** *Hawaiian volcano impact on aerosols, clouds, and energy budget*

12:20 – 12:30 *general discussions*

12:30 – 13:30 lunch

13:30 – 15:00 **poster introductions (part 1)**

max 1 ppt slides / 1 minute poster introduction

*in alphabetic order
(of authors present)*

15:00 – 15:30 coffee-break / hang-up posters

chair: Shobha Kondragunta

SESSION 2 observational constraints

15:30 – 16:00 **B. Holben** *AERONET-from 1 to 600 (keynote day 1)*

16:00 – 16:20 **H. Bian** *observationally constrained analysis of sea salt aerosol*

16:20 – 16:40 **R. Ferrare** *BB-Aerosol distributions over the SE Atlantic Ocean: CALIOP and HSRL*

16:40 – 17:00 **J. Yorks** *CATS: 33 Months of Aerosol Vertical Profiles from the ISS*

17:00 – 17:20 **D. W-Paris** *the limits of CALIOP for constraining modelled free-tropospheric aerosol*

17:20 – 17:30 *general discussions*

17:30 – 18:30 **poster viewing**



Tuesday, October 16, 2018

AeroCom

chair: Huisheng Bian

SESSION 3 AeroCom modeling experiments (1)

- 8:30 – 8:40 **M. Schulz** *experiment overview*
- 8:40 – 8:55 **M. Schulz** *optical property evaluations in AeroCom*
- 8:55 – 9:10 **M. Burgos** *light scattering coefficient (rel humidity): in-situ vs global model*
- 9:10 – 9:25 **P. Ginoux** *anthropogenic dust experiment: preliminary results*
- 9:25 – 9:40 **M. Petrenko / R. Kahn** *biomass burning experiment: fire emission source and plume height*
- 9:40 – 9:50 **T. Takemura** *Holuhraun ACI experiment (for **F. Malavelle**)*
- 9:50 – 10:00 **D. Neubauer** *Aerosol GCM Trajectory Experiment (for **D. Partridge**)*

10:00 – 10:30 coffee-break

chair: Toshi Takemura

SESSION 4 AeroCom modeling experiments (2)

- 10:30 – 10:45 **N. Schutgens** *Interpreting AeroCom model errors from remote sensing observations*
- 10:45 – 11:00 **W. Su** *evaluating AeroCom phase III TOA fluxes using the CERES product*
- 11:00 – 11:10 **D. W.-Paris** *Multi-Model Perturbed Parameter Ensemble (MMPPE) (for **L. Lee**)*
- 11:10 – 11:25 **D. W.-Paris** *The AeroCom aircraft comparison experiment*
- 11:25 – 11:40 **S. Smith** *emissions data: a multi-model sensitivity evaluation*
- 11:40 – 12:30 **M. Schulz** *general AeroCom (experiment) discussions*

12:30 – 13:30 lunch

chair: Greg Schuster

SESSION 5 component modeling (Black Carbon)

- 13:30 – 13:50 **H. Matsui** *black carbon radiative effect sensitivity to emitted particle size*
- 13:50 – 14:10 **M. Lund** *black carbon lifetime inferred from a global set of aircraft observations*
- 14:10 – 14:30 **G. Myhre** *rapid adjustments of black carbon dependency on the vertical profile*
- 14:30 – 14:50 **B. Samset** *aerosol absorption: Why is it so hard to constrain?*
- 14:50 – 15:00 *general discussions*

15:00 – 16:00 extended coffee-break with **poster viewing**

chair: Paul Ginoux

SESSION 6 component modeling (Mineral Dust)

- 16:00 – 16:20 **G. Schuster** *linking dust optical properties to African and mid-east source regions*
- 16:20 – 16:40 **B. Pu** *global distribution of threshold of wind erosion from satellite data*
- 16:40 – 17:00 **H. Yu** *African dust and Trans-Atlantic dust transport: satellite vs GEOS-5*
- 17:00 – 17:20 **Z. Zhang** *net radiative effects of dust over the Atlantic: satellite vs in-situ*
- 17:20 – 17:30 *general discussions*

17:30 – 18:00 **poster viewing**

19:00 – **conference dinner**

Restaurant: Franklin's Brewery (301) 927-2740
Address: 5123 Baltimore Ave Hyattsville, MD
Time: 19:00 - 22:00



Wednesday, October 17, 2018

AeroCom

chair: Peter Colarco

SESSION 7 aerosol remote sensing

- 9:00 – 9:30 **PK. Bhartia** *stratospheric and tropospheric aerosol retrievals (**keynote** - day 3)*
9:30 – 9:50 **R. Levy** *developing an integrated aerosol climatology via LEO and GEO satellites*
9:50 – 10:10 **V. Martins** *using small satellite constellations for ACI (Aerosol Cloud Interactions)*
10:10 – 10:30 **S. Kondragunta** *synergetic retrieval of AOD over land from GEO satellite GEOS-R Data*
10:30 – 10:40 *general discussions*

10:40 – 11:10 coffee break

chair: Gunnar Myhre

SESSION 8 aerosol radiative effects

- 11:10 – 11:30 **D. Winker** *global aerosol direct radiative effect estimates based on CALIOP*
11:30 – 11:50 **S. Kinne** *aerosol radiative effects with MACv2*
11:50 – 12:10 **R. Allen** *elevated aerosol pollution in a warmer world (enhanced land aridity)*
12:10 – 12:30 **D. Neubauer** *Impact of marine and shipping aerosol emissions in a warming Arctic*
12:30 – 12:40 *general discussions*

pick-up of your take-along lunch

12:45 **leaving** by public transport **for the common events at Wash. DC**



Thursday, October 18, 2018

AeroCom / AeroSAT

	SESSION 9	AeroCom tasks	
9:00 – 9:15	M. Chin	<i>AeroCom and ACAM – common interests</i>	
9:15 – 10:15	M. Schulz	<i>AeroCom wrap-up and outlook</i>	
		<i>Questions / issues for AEROSAT</i>	
		<i>Experiments: lessons from AEROCOM for AEROSAT</i>	
10:15 – 10:45	coffee-break		
10:45 – 11:00	R.Kahn/T.Popp	introduction to AeroSAT 2018	
			<i>chair: N. Schutgens; rapporteur: E. Nowotnick</i>
	SESSION 10	data and modeling	
11:00 – 11:05	chair	<i>introduction, questions</i>	
11:05 – 11:20	P. Colarco	<i>reflections on modeling needs / integration model + satellite</i>	
11:20 – 12:00	all	<i>AeroCom-AeroSat joint discussion</i>	
12:00 – 12:30	poster introductions (part 2)		
	max 1 ppt slides / 1 minute poster introduction		<i>in alphabetical order</i>
			<i>(of those not present on Monday)</i>
12:30 – 13:30	lunch		
			<i>chair: L. Remer</i>
	SESSION 11	challenges in remote sensing	
13:30 – 14:00	H. Liu	<i>consistent algorithm science across satellite sensors for AOD Retrieval</i>	
		(keynote - day 4)	
			<i>chair: O. Torres; rapporteur: M. Lufarelli</i>
	SESSION 12	working group on climate records	(high-quality, long-term, consistent)
14:00 – 14:05	chair	<i>introduction, questions</i>	
14:05 – 14:20	L. Sogacheva	<i>merging aerosol optical depth from multiple satellite missions</i>	
14:20 – 14:35	H. Jethva	<i>AOD above clouds: 12-year OMI record and others</i>	
14:35 – 14:45	O. Kalashnikova	<i>GCOS aerosol requirements /statement of guidance</i>	
14:45 – 15:30	all	<i>discussions</i>	
		<ul style="list-style-type: none"> ○ <i>Feedback on GCOS requirements and statement of guidance</i> ○ <i>Suitable merging methods</i> ○ <i>Quality assessment</i> 	
15:30 – 16:15	extended coffee-break with poster viewing		
			<i>chair: A. Povey; rapporteur: L. Mei</i>
	SESSION 13	working group on pixel uncertainties	
16:15 – 16:20	chair	<i>introduction, questions</i>	
16:20 – 16:35	A. Sayer	<i>characterizing retrieval uncertainties– interim status</i>	
16:35 – 16:50	F. Patadia	<i>update on MODIS-DT pixel level uncertainties</i>	
16:50 - 17:30	all	<i>discussions</i>	



Friday, October 19, 2018

AeroSAT

chair: F. Seidel

SESSION 14 new opportunities

- 9:00 – 9:15 **F. Seidel** *introduction, NASA to 'aerosol' in 2017 Earth Science Decadal Survey*
9:15 – 9:45 **C. Williamson** *NASA's Atmospheric Tomography Mission (**keynote** - day 5)*
9:45 – 10:00 **K. Knobelspiesse** *aerosol remote sensing with the upcoming NASA PACE mission*

chair: R. Levy; rapporteur: J. Limbacher

SESSION 15 working group on inter-comparisons

- 10:00 – 10:05 **chair** *introduction, questions*
10:05 – 10:10 **S. Kinne** *GEWEX-GDAP inter-comparisons*
10:10 – 10:25 **A. Lipponen** *can we improve satellite retrievals of Angström exponent over land?*
10:25 – 10:55 **all** *discussions*
○ ...

10:55 – 11:15 coffee-break

chair: G. Schuster; rapporteur: G. Schuster

SESSION 16 working group on aerosol typing

- 11:00 – 11:05 **chair** *introduction, questions*
11:05 – 11:20 **L. Mona** *connecting model – satellite aerosol type (via remote)*
11:20 – 11:35 **S. Kinne** *components derived from MAC v2 optics (modal AOD, AAOD, re)*
11:35 – 11:50 **N. Meskhidze** *global aerosol types for assessment of direct radiative effects*

- 11:50 – 12:30 **all** *discussions*
○ *How link aerosol type definitions in models and retrievals*
○ *How best use satellite constraints*
○ *What to use as "ground truth"*

12:30 – 13:30 lunch

chair: B. Lefer; rapporteur: Z. Zhang

SESSION 17 focus: aerosol cloud interactions

- 13:30 – 13:35 **chair** *introduction, questions*
13:35 – 13:50 **Y. Shinozuka** *satellite-based ACI estimates with refined CCN approximations*
13:50 – 14:05 **G. Luo** *droplet number concentrations: GEOS-Chem/CAM vs MODIS retrievals*

- 14:05 – 15:00 **all** *discussions*
○ *How best use satellite constraints*
○ *What to use as "ground truth"*

SESSION 18 AeroSAT tasks

- 15:00 – 16:00 **T. Popp / R. Kahn** *AeroSAT wrap-up and outlook*
Way forward with AEROSAT experiments
all *Final discussion*



poster-presentations

01 Andrews, Betsy

What is dry? The effect of aerosol water on particle light scattering at low relative humidity

02 Aoki, Kazuma

Long-term measurements of aerosol optical properties in Japan

03 Aquila, Valentina

Changes in upper troposphere/lower stratosphere aerosol since 1980 in the Goddard Earth Observing System (GEOS) model

04 Brown, Hunter

Improvement of Biomass Burning Aerosol Optical Properties in CAM5.4 and Comparison of AeroCom Model Optical Properties to Observations

05 Ciren, Pubu

NOAA JPSS Enterprise Aerosol Detection Product

06 Cohen, Jason

Modeling of Polluted Aerosol Conditions: Quantifying Emissions and Improving Physical Understanding using a New Co-Variability Approach across Multiple Satellites, Models, and Measurements

07 Colarco, Pete

Toward a Sectional Aerosol Representation in the NASA Goddard Earth Observing System (GEOS) Model

08 Deaconu, Lucia

Bounding aerosol properties and radiative effects using observations

09 Descloitres, Jacques

A validation tool for satellite aerosol data sets

10 Espinosa, Reed

Airborne classification of aerosols over the contiguous United States: an in situ light scattering perspective

11 Gao, Chloe

The Impact of Organic Aerosol Volatility on Aerosol Microphysics for Global Climate Modeling Applications

12 Garay, Mike

The MISR Version 23 Operational Aerosol Products Over Land and Ocean

13 Hasekamp, Otto

Aerosol Measurements from the NASA PACE mission

14 Ickes, Louisa

Arctic climate responses to mid-latitude aerosol emissions: Investigating the role of meridional heat transport and local cloud characteristics.



15 Kayetha, Vinay

Characterization of UV-Visible aerosol absorption properties using combined satellite and ground measurements

16 Kim, Dongchul

Observations and Modeling of Asian and Northern Pacific Dust Sources and Transports

17 Kokkola, Harri

Cloud activation in the presence of semi-volatile compounds

18 Kuehn, Thomas

The Volatility Basis Set in ECHAM-HAM-SALSA

19 Lee, Huikyo

How long should the MISR record be when evaluating aerosol optical depth climatology in climate models

20 Limbacher, James

A Pixel-Level Aerosol Retrieval Algorithm for Turbid, Shallow, and Eutrophic Waters

21 Litvinov, Pavel

New possibilities of classification and global aerosol sources identification with GRASP

22 Liu, Hongqing

Evaluation of NOAA VIIRS Enterprise Aerosol Optical Depth Product

23 Liu, Yawen

Investigating model response to multi-decadal variations of aerosol emissions: the role of cloud and aerosol radiative effects

24 Luffarelli, Marta

Aerosol properties retrieval with the CISAR algorithm applied to geostationary and polar orbiting satellite observations

25 McBride, Brent

Wide field-of-view observations of aerosol and clouds from Hyper-Angular Rainbow Polarimeter (HARP) measurements

26 McGraw, Zachary

Sensitivity study of mineral dust impacts on global clouds and climate

27 Mei, Linlu

The recent progress of aerosol retrieval over the Arctic regions

28 Mulcahy, Jane

Impact of natural aerosol emissions on the aerosol ERF in UK CMIP6 models

29 Neubauer, David

MPI-ESM1.2-HAM: Evaluation of preliminary CMIP6 simulations

30 Nowottnick, Ed

CATS Version 3 Aerosol Products and Retrievals of Aerosol Extinction and Surface Air Quality using the



NASA GEOS AGCM

31 Olayinka, Kafayat

Remote sensing climatology of cirrus cloud distribution within the United States

32 Xiaohua Pan

Multiple Global Biomass Burning Emission Datasets: comparison and application in one global aerosol model

33 Puthukkudy, Anin

Measurements of Microphysical and Optical Properties of Volcanic Ash

34 Remer, Lorraine

The PACE mission: Focus on aerosols and clouds

35 Shi, Yingxi

Quantifying the Haze Aerosol Optical Depth Over East Asia Using Modified Modis Dark Target Algorithm

36 Smith, Steve

Impact of SO₂ Injection Height On Satellite Inferences of Emission Trends

37 Taha, Ghassan

OMPS LP observations of the Asian tropopause aerosol layer

38 Torres, Omar

Stratospheric Injection of Massive Smoke Plume from Canadian Boreal Fires in 2017 as seen by DSCOVR-EPIC, CALIOP and OMPS-LP Observations

39 Vandebussche, Sophie

MAPIR version 4 dust 3D retrievals from IASI: improved algorithm, validation and applications

40 Vandebussche, Sophie

InDust: International Network to Encourage the Use of Monitoring and Forecasting Dust Products

41 Von Salzen, Knut

Validation of PAM on Regional and Global Scales

42 Witek, Marcin

how to get pixel-level uncertainties from satellite aerosol retrievals with MISR v23

43 Yu, Yan

Is Bodélé depression the dominant source of North African dust transported to the Americas? Insights from MISR observations and trajectory modeling

44 Zheng, Youtong

Towards satellite inference of the decoupling degree and cloud-base updrafts of marine stratocumulus and application to aerosol-cloud interactions

45 Zhou, Yaping

Implementing Non-Spherical Dust Aerosol Model in the MODIS Dark Target Aerosol Retrieval Algorithm Over Oceans