



# 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](mailto: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: tbd*

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 Z. 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: tbd*

**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: *tbd*

**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: *tbd*

**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: *tbd*

**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: *tbd*

**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: tbd*

**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 – 10:40 *general discussions*

10:40 – 11:10 coffee break

*chair: tbd*

**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 – 10:00 M. Schulz** *AeroCom wrap-up and outlook*  
*Questions / issues for AEROSAT*  
*Experiments: lessons from AEROCOM for AEROSAT*
- 10:00 – 10:15 R.Kahn/T.Popp introduction to AeroSAT 2018**
- 10:15 – 10:45** coffee-break  
*chair: N. Schuttgens; rapporteur: E. Nowotnick*
- SESSION 10 data and modeling**  
**10:45 – 11:00 P. Colarco** *reflections on modeling needs / integration model + satellite*  
**11:00 – 11:15 M. Chin** *AeroCom and ACAM – common interests*  
**11:15 – 12:00 all** *AeroCom-AeroSat joint discussion*
- 12:00 – 12:30 poster introductions (part 2)**  
**max 1 ppt slides / 1 minute poster introduction** *in alphabetical order*  
*(of those not present on Monday)*
- 12:30 – 13:30** lunch  
*chair: L. Remer*
- SESSION 11 challenges in remote sensing**  
**13:30 – 14:00 H. Liu** *consistent algorithm science across satellite sensors for AOD Retrieval*  
*(keynote - day 4)*  
*chair: O. Torres; rapporteur: M. Lufarelli*
- SESSION 12 working group on climate records (high-quality, long-term, consistent)**  
**14:00 – 14:05 chair** *introduction, questions*  
**14:05 – 14:20 L. Sogacheva** *merging aerosol optical depth from multiple satellite missions*  
**14:20 – 14:35 H. Jethva** *AOD above clouds: 12-year OMI record and others*  
**14:35 – 14:45 O. Kalashnikova** *GCOS aerosol requirements /statement of guidance (via remote)*
- 14:45 – 15:30 all** *discussions*  
  - *Feedback on GCOS requirements and statement of guidance*
  - *Suitable merging methods*
  - *Quality assessment*
- 15:30 – 16:15** extended coffee-break with poster viewing  
*chair: A. Povey; rapporteur: L. Mei*
- SESSION 13 working group on pixel uncertainties**  
**16:15 – 16:20 chair** *introduction, questions*  
**16:20 – 16:35 A. Sayer** *characterizing retrieval uncertainties– interim status*  
**16:35 – 16:50 F. Patadia** *update on MODIS-DT pixel level uncertainties*
- 16:50 - 17:30 all** *discussions*



**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. Williamsen** *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: S. Bauer; 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 An, Qi**

*Simulation Study of Nitrate AOD and Effective Radiative Forcing*

**02 Andrews, Betsy**

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

**03 Aoki, Kazuma**

**Long-term measurements of aerosol optical properties in Japan**

**04 Aquila, Valentina**

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

**05 Brown, Hunter**

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

**06 Ciren, Pubu**

*NOAA JPSS Enterprise Aerosol Detection Product*

**07 Colarco, Pete**

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

**08 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*

**09 Deaconu, Lucia**

*Bounding aerosol properties and radiative effects using observations*

**10 Descloitres, Jacques**

*A validation tool for satellite aerosol data sets*

**11 Espinosa, Reed**

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

**12 Gao, Chloe**

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

**13 Garay, Mike**

*The MISR Version 23 Operational Aerosol Products Over Land and Ocean*

**14 Hasekamp, Otto**

*Aerosol Measurements from the NASA PACE mission*



**15 Ickes, Louisa**

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

**16 Kayetha, Vinay**

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

**17 Kim, Dongchul**

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

**18 Kokkola, Harri**

*Cloud activation in the presence of semi-volatile compounds*

**19 Kuehn, Thomas**

*The Volatility Basis Set in ECHAM-HAM-SALSA*

**20 Lee, Huikyo**

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

**21 Limbacher, James**

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

**22 Litvinov, Pavel**

*New possibilities of classification and global aerosol sources identification with GRASP*

**23 Liu, Hongqing**

*Evaluation of NOAA VIIRS Enterprise Aerosol Optical Depth Product*

**24 Liu, Yawen**

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

**25 Luffarelli, Marta**

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

**26 McBride, Brent**

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

**27 McGraw, Zachary**

*Sensitivity study of mineral dust impacts on global clouds and climate*

**28 Mie, Linlu**

*The recent progress of aerosol retrieval over the Arctic regions*

**29 Mulcahy, Jane**

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





- 30 Neubauer, David**  
*MPI-ESM1.2-HAM: Evaluation of preliminary CMIP6 simulations*
- 31 Nowottnick, Ed**  
*CATS Version 3 Aerosol Products and Retrievals of Aerosol Extinction and Surface Air Quality using the NASA GEOS AGCM*
- 32 Olayinka, Kafayat**  
*Remote sensing climatology of cirrus cloud distribution within the United States*
- 33 Xiaohua Pan**  
*Multiple Global Biomass Burning Emission Datasets: comparison and application in one global aerosol model*
- 34 Puthukkudy, Anin**  
*Measurements of Microphysical and Optical Properties of Volcanic Ash*
- 35 Remer, Lorraine**  
*The PACE mission: Focus on aerosols and clouds*
- 36 Shi, Yingxi**  
*Quantifying the Haze Aerosol Optical Depth Over East Asia Using Modified Modis Dark Target Algorithm*
- 37 Smith, Steve**  
*Impact of SO<sub>2</sub> Injection Height On Satellite Inferences of Emission Trends*
- 38 Su, Tianning**  
*Methods to Retrieve PBLH from Ground-based and Space-borne Lidars and Application to Air Pollution Studies*
- 39 Taha, Ghassan**  
*OMPS LP observations of the Asian tropopause aerosol layer*
- 40 Torres, Omar**  
*Stratospheric Injection of Massive Smoke Plume from Canadian Boreal Fires in 2017 as seen by DSCOVR-EPIC, CALIOP and OMPS-LP Observations*
- 41 Vandenbussche, Sophie**  
*MAPIR version 4 dust 3D retrievals from IASI: improved algorithm, validation and applications*
- 42 Vandenbussche, Sophie**  
*InDust: International Network to Encourage the Use of Monitoring and Forecasting Dust Products*
- 43 Von Salzen, Knut**  
*Validation of PAM on Regional and Global Scales*
- 44 Yang, Dongdong**  
*The variation of simulated concentration in anthropogenic PM<sub>2.5</sub> and its effects on climate*
- 45 Yu, Yan**  
*Is Bodélé depression the dominant source of North African dust transported to the Americas? Insights from MISR observations and trajectory modeling*



**46 Xie, Bing**

*Effective radiative forcing and climate response to short-lived climate pollutants under different scenarios*

**47 Zhang, Hai**

*An Evaluation of VIIRS Dust Detection Algorithms over Land*

**48 Zheng, Youtong**

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

**49 Zhou, Yaping**

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