18th **AeroCom** workshop
7th **AeroSAT** workshop

September 23 – 28, 2019
BSC, Barcelona, Spain

hosts: **Carlos Perez and the Atmospheric Composition group**
carlos.perez@bsc.es / alexis.chanthasack@bsc.es

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 presentation**s … will be orally introduced by 1 (power point) slide
      a second slide will be allowed to illustrate the importance to AeroCom
  - o all posters will hang from Monday to Friday

Sunday, September 22, 2019

arrival in town

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

Monday, September 23, 2019   *AeroCom*

  8:00 –   9:00 **AeroCom registration**

  9:00 – 10:30 **WELCOME / workshop introduction**

*chair: **Kinne***

  9:00 –   9:15 **Perez**   *welcome & logistics*
  9:15 –   9:30 **Popp / Kahn**   *AeroSAT perspective on collaborations with modeling*
  9:30 – 10:00 **Schulz / Chin**   *observations and modeling in AeroCom and workshop goals*

10:00 – 10:30 coffee-break

*chair: **Tsigaridis***

10:30 – 12.30 **SESSION 1   experiments (radiative effects)**

10:30 – 10:50 **Myhre**   *AeroCom historical experiment*
10:50 – 11:10 **Schulz**   *historical aerosol forcing diagnosis (CMIP6, AerChemMIP and AeroCom)*
11:10 – 11:30 **Samset**   *The AeroCom Phase III Absorption experiment: First results*
11:30 – 11:50 **Deaconu**   *Constraining aerosol radiative forcing using aerosol absorption*
11:50 – 12:30   *general discussions*

12:30 – 14:00 lunch

*chair: **Samset***

14:00 – 15.30 **SESSION 2   experiments (vs observations)**

14:00 – 14:20 **Schutgens** *AEROCOM/AEROSAT remote sensing experiment*
14:20 – 14:40 **Gliß**   *AeroCom 2019 control exp. vs AERONET, EBAS, MODIS and ENVISAT*
14:40 – 15:00 **Mortier**   *Do AeroCom phase III models reproduce observed trends in aerosols?*
15:00 – 15:30   *general discussions*

15:30 – 16:00 coffee-break **/ hang-up posters**

16:00 – 17:30 **poster introductions (part 1)**
                    1 ppt slide … to explain the poster content   *in alphabetic order*
                    2 ppt slides … if relevance to AeroCom is explained *(of authors present)*

17:30 – 18:30   **poster viewing**

Tuesday, September 24, 2019

AeroCom

chair: Schuster

8:30 – 10:00   SESSION 3   experiments (aerosol type and process)

8:30 – 8:50 **Burgos**   *water uptake on aerosol light scattering: comparison: six climate models*
8:50 – 9:10 **Ginoux**   *analysis of the simulations associated to the AeroCom anthro-dust exp.*
9:10 – 9:30 **Chin**   *aerosols in the UTLS: a powerful diagnostic tool for model processes*
9:30 – 9:50 **Pan**   *Biomass Burning Emission Injection Height Experiment (BBEIH)*
9:50 – 10:20   *general discussions*

10:20 – 10:50 coffee-break

chair: Perez

10:50 – 12:30   SESSION 4   experiments (updates)

10:50 – 11:10 **Malavelle**   *update on the Volcanic ACI experiment (VolcACI)*
11:10 – 11:30 **Kim, P**   *AeroCom Trajectory Experiment (GCMTraj): Progress and Initial Results*
11:10 – 11:25 **Watson-Paris**   *state of the AeroCom general aircraft experiment*
11:25 – 11:40 **Bian**   *(state of) the aircraft Atom experiment*
11:40 – 12:00 **Williamson**   *New Particle Formation: AeroCom models vs NASA's Atom mission*
12:00 – 12:30   *general discussions*

12:30 – 14:00 lunch   (lunch served) + **poster viewing**

chair: Schulz

14:00 – 14:30   SESSION 5   key presentation

14:00 – 14:30 **Perez**   *Perspectives on modeling dust mineralogical composition and its effects upon climate*

14:30 – 15:00 coffee-break

COMMON EXCURSION

15:00   *leaving by bus:* **Carrer Jordi Girona 1, 08034 Barcelona**

15:30 – 17:00 fabra observatory of Barcelona (400m above Barcelona)

17:00   *leaving by bus … or … walking back down to town*

Wednesday, September 25, 2019   *AeroCom*

8:30 – 10:00   SESSION 6   new experiments

8:30 – 8:50	**Kim, D.**	*dust source attributions*
8:50 – 9:05	**Tsigaridis**	*modeling clear-sky vs. all-sky aerosol optical depth and radiative effects*
9:05 – 9:20	**Myhre**	*aerosol radiative effects in cloudy-skies*
9:20 – 10:00		*general discussions*

10:00 – 10:30 coffee break

10:30 – 12.30   SESSION 7   aerosol-cloud (1)

10:30 – 10:45	**Christensen**	*following clouds: seeking relationships in Aerosol-Cloud Interactions*
10:45 – 11:00	**Gryspeerdt**	*decomposing the aerosol radiative forcing in atmospheric models*
11:00 – 11:15	**Muelmenstaedt**	*base state vs susceptibility: which is more important for ERFaci?*
11:15 – 11:30	**Wang**	*cloud water adjustment to anthropogenic aerosols in climate models*
11:30 – 12:15		*general discussions*

12:15 – 13:45 lunch

13:45 – 15:30   SESSION 8   aerosol-cloud (2)

13:45 – 14:00	**McCoy, D.**	*constrain aerosol-cloud adjustments using idealized modeling*
14:00 – 14:15	**McCoy, I.**	*hemispheric contrasts in satellite-derived cloud microphysical properties*
14:15 – 14:30	**Zhang, K.**	*regime-dep. anthropogenic aerosol effects on different types of clouds*
14:30 – 14:45	**Liu**	*aerosol indirect effects by glaciating mixed-phase clouds*
14:45 – 15:30		*general discussions*

15:00 – 16:00 coffee break + **poster viewing**

16:00 – 17:30   SESSION 9   forcing

16:00 – 16:15	**Watson-Parris**	*constraining parametric uncertainty in aerosol direct forcing*
16:15 – 16:30	**Takemura**	*difference in sensitivities to climate change between BC and SU aerosols*
16:30 – 16:45	**Zhang, H.**	*changes in anthr. PM2.5 and resulting climate effects during 1850–2010*
16:45 – 17:00	**Kok**	*climate models miss most of the warming coarse dust in the atmosphere*
17:00 – 17:30		*general discussions*

17:30 – 18:30   poster viewing

8:30 – 10:15   SESSION 10   (constraining) observations

8:30 – 8:45	**Aoki**	*local and long-range transport of dust aerosols over the Japan*
8:45 – 9:00	**Schuster**	*retrieving BC AAOD from refractive indices of AERONET retrievals*
9:00 – 9:15	**Doherty**	*observational constraints on aerosol forcing over the Southeast Atlantic*
9:15 – 9:30	**Hoepfner**	*aircraft/space infrared remote sensing observations of ammonia (NH3)*
9:30 – 9:45	**Torres**	*the OMPS_LP Stratospheric Aerosol Record*
9:45 – 10:00	**Welton**	*the NASA Micro Pulse Lidar Network: Overview of the new Version 3*
10:00 – 10:30		*general discussions*

10:30 – 11:00   coffee-break

11:00 – 12:45   SESSION 11   (supportive) modeling

11:00 – 11:15	**Winker**	*a lidar aerosol simulator for the COSP 2.0 Framework*
11:15 – 11:30	**Bian**	*improve aerosol simulation over Amazon*
11:30 – 11:45	**Mielonen**	*are Biogenic Aerosols Climatically Significant in the Boreal Region?*
11:45 – 12:00	**Bruehl**	*Radiative forcing by volcanic and dust aerosol in the stratosphere*
12:00 – 12:15	**Kipling**	*introducing ECMWF's IFS-CB05-BASCOE-GLOMAP (ICBG)*
12:15 – 12:30		*general discussions*

12:45 – 14:00   lunch

14:00 – 15:00   SESSION 12   observing system and AeroCom

14:00 – 14:20	**Winker/Redemann/Stier**	*NASA's emerging vision for the ACCP mission*
14:20 – 14:10	**Schulz**	*reflections on GCOS and GAW mission*
14:20 – 15:00	*future observing system discussion*	

15:00 – 15:30   coffee-break

15:00 – 16:30   SESSION 13   future AeroCom activities
summary from earlier discussions (session report with 1 or 2 slides of highlights)
action items (deadlines, telecons)
experiment timelines
(topic) papers
next meeting

16:30 – 18:00   poster viewing

AeroCom

19:00 –   **conference dinner**

Restaurant: **Arenal Restaurant** (on the terrance)
Address: Passeig Marítim de la Barceloneta (beach)
Time: **19:00 - 22:00**

only in case of bad weather ….
Restaurant: **Xup-Xup Restaurant** (inside)
Address: south on the beach from **Arenal (see map)**
Time: **19:00 - 22:00**

Arenal dinner choices

{ STARTERS }
- Warm Goats cheese salad with figs, rocket & fresh spinach, with mango and balsamic jelly
- Fried artichokes, thinly sliced & topped with foie
- Mussels in white wine sauce
- Andalusian fried squid with mayonnaise of red berries and sesame
- Coca bread, toasted, with tomatoes and virgin olive oil

{ MAINS (choose one): }
- Seafood paella
- Fishermans Rice, cooked in Black Squid Ink
- Rice with seasonal vegetables
- Squid and prawn skewer with red quinoa and beansprouts
- Grilled pork loin (D.O Duroc) with tomato chutney and Padrón red peppers

{ DESSERTS (choose one): }
- Cheescake with compote of red fruits
- Marinated pineapple with cinnamon and anis, served with vanilla ice cream
- Oreo cookie ice cream

{ DRINKS }
White wine · Nuviana · D.O. Penedés
Red wine · Nuviana · D.O. Penedés
Rosé wine · Nuviana · D.O. Penedés
Water, coffee or tea

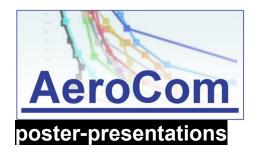**9:00 – 10:00**   **SESSION 14**   **AeroCom tasks / AeroSAT goals**

9:00 – 9:45   **Schulz**   *AeroCom 2019 wrap-up and outlook / link to AeroSAT*
9:45 – 10:00 **Kahn / Popp**   *AEROSAT 2019 introduction / AeroSAT experiments*

10:00 – 10:30   **poster introductions (part 2)**
                        1 ppt slide … to explain the poster content   *in alphabetic order*
                        2 ppt slides … if relevance to AeroCom is explained *(of those not on Monday)*

10:30 – 11:00   coffee-break

                                                  *chair: **Colarco** rapporteur: **Descloitres***

11:00 – 12:30   **SESSION 15**   **data and modeling**

11:00 – 11:05 **Colarco**   *introduction, questions*
11:05 – 11:20 **Christensen**   *reflections on using satellite data as model constraints*
11:20 – 11:30 **Schutgens**   *summary of relevant comparison outcome for the satellite community*
11:30 – 12:30   *joint discussions*

12:30 – 14:00   lunch

                                                  *chair: **Kahn** rapporteur: **Christensen***
14:00 – 15:30   **SESSION 16**   **satellite and sub-orbital data**

14:00 – 14:05   **Kahn**   *introduction, questions*
14:05 – 14:25   **DiBaggio / Mona**   *lab experiments and ACTRIS data for satellite retrievals*
14:25 – 15:30   *joint discussions*
                         -         *new ways in integrate sub-orbital, lab, space and model data*

15:30 – 16:00   coffee-break

                                                  *chair: **DeLeeuw** rapporteur: **Lufarelli***
16:00 – 17:30   **SESSION 17**   **aerosol typing**

16:00 – 16:05   **DeLeeuw**   *introduction, questions*
16:05 – 16:20   **Mona**   *the REDAT aerosol typing database*
16:20 – 16:35   **Lipponen**   *satellite and ground based data for more accurate SSA at low AOD*
16:35 – 17:30   *joint discussions*
                         -         *common definitions?*
                         -         *interpretive particle composition ?*
                         -         *quantitative typing (AOD, AODf, AODc, AAOD) ?*

17:30 – 18:30   **poster viewing**

Saturday, September 28, 2019   *AeroSAT*

*chair: **Tsigaridis** rapporteur: **Mei***

9:00 – 10:30   SESSION 18   climate data records

9:00 – 9:05	**Tsigaridis**	*introduction, questions*
9:05 – 9:20	**Povey**	*A new perspective on satellite data*
9:20 – 9:30	**Sogacheva**	*AOD L3 monthly (1996-2017) extension back to 1979 with TOMS AOD?*
9:30 – 10:30		***joint discussions***

accuracy, usefulness for modelling, how to improve them
best practices for gridding (daily, monthly)

10:30 – 11:00   coffee-break

*chair: **Popp** rapporteur: **Witek***

11:00 – 12:30   SESSION 19   pixel uncertainties

11:00 – 11:05	**Popp**	*introduction, questions*
11:05 – 11:20	**Escribano**	*aerosol data assimilations and uncertainties*
11:20 – 11:30	**Sayer (Popp)**	*a framework for pixel-level uncertainty in aerosol satellite remote sensing*
12:20 – 12:30		***joint discussions***

12:30 – 14:00   lunch   (lunch served) + **poster viewing**

*chair: **Govaerts** rapporteur: **Lipponen***

14:00 – 15:30   SESSION 20   new remote sensing techniques

14:00 – 14:10	**Lee, J**	*aerosol plume height climatology with UV/VIS satellite sensors*
14:10 – 14:20	**Mei**	*a new aerosol optical thickness research product over Cryosphere*
14:20 – 14:30	**Hsu**	*new "Deep Blue" aerosol products from LEO and GEO satellites*
14:30 – 15:30		***joint discussions***

what are major needs for new techniques?
where can AEROSAT experiments help to improve algorithms?

15:30 – 16:00   coffee-break

SESSION 21   AeroSAT tasks

16:00 – 16:30	**T. Popp / R. Kahn**	*AeroSAT wrap-up and outlook*

Any new AeroSAT or joint AeroCom/AeroSAT experiment?

Bowdalo, Dene
GHOST: A framework for the harmonisation of global surface atmospheric observations

Chin, Mian
Atmospheric Composition and Asian Monsoon: A coordinated modeling and analysis with ACAM, AeroCom, and CCMI communities

Cho, Nayeong
A global perspective on detecting aerosol-cloud interaction signals

Chubarova, Natalia
Aerosol-cloud interaction and its influence on solar irradiance and cloud transmittance according to the INMCM5 climate model

Colarco, Peter
Development of the NASA GEOS Chemical Transport Model (CTM) Capability for Evaluating and Deconvolving Aerosol Simulation Sensitivity to Meteorology and Core Aerosol Physics

Dawson, Matthew
Chemistry Across Multiple Phases (CAMP): A novel flexible treatment for multiphase chemistry in atmospheric models

Descloitres, Jacques
A validation tool for satellite aerosol data sets

DiTomaso, Enza
Towards the production of a high-resolution regional dust reanalysis for Northern Africa, the Middle East and Europe

Gharibzadeh, Maryam
Study of correlation between aerosol optical properties and ozone over Zanjan, Iran

Goncalves, Maria
Modeling dust mineralogy with MONARCH

Grell, Georg
Development and Application of Global Aerosol Forecasts using NCEP's Online Coupled Model GEFS-Aerosol

Guevara, Marc
HERMESv3: a stand-alone multiscale atmospheric emission modelling framework

Julsrud, Ingeborg
Analysis of historical variations in surface solar radiation, cloud cover and aerosol emissions

Khan, Aman Waheed
Real-time forecasting of air pollution using WRF-Chem model over New Delhi

Kalashnikova, Olga

Analysis of L3 MISR V23 aerosol products over the ocean, and comparison with MODIS

Kinne, Stefan
Aerosol radiative effects over time with IPCC6 aerosol emissions

Kinne, Stefan
MPI-M/NASA collaborations to provide aerosol properties of oceans

Kirkevag, Alf
How do clear-sky vs. all-sky assumptions affect aerosol hygroscopic swelling, optical properties and subsequent effective radiative forcing estimates in NorESM2?

Klose, Martina
Soil mineral dust: Natural and anthropogenic aerosol

Kühn, Thomas
The volatility basis set in ECHAM-HAM-SALSA

Lee, Huikyo
Satellite observations of ammonia and aerosol optical properties during the 2015 Southeast Asian haze

Liu, Yawen
Seasonal difference of the long-term trend of aerosols over the Eastern U.S.

Lufarelli, Marta
Towards a consistent retrieval of cloud/aerosol single scattering properties and surface reflectance

Mortier, Augustin
Are the AeroCom phase III models reproducing the observed trends in aerosols over the last two decades?

North, Peter
New Products of Global Atmospheric Aerosol for Sentinel-3

Onsum Moseid, Kristine
Using global dimming to disentangle the aerosol forcing history

Pan, Xiaohua
Six Global Biomass Burning Emission Datasets: Inter-comparison and Application in one Global Aerosol Model

Peng, Yiran
Key processes responsible for uncertainties in aerosol simulation with two aerosol modules in the Community Atmosphere Model version 5.3

Popp, Thomas
Propagating sophisticated FCDR uncertainties for AVHRR to Aerosol Optical Depth CDRs

Povey, Adam
Aerosol and cloud products from SLSTR with ORAC

Tsay, Si-Chee

A satellite-surface-modeling perspective of light-absorbing aerosols over Himalaya-Nepal: Results from the RAJO-MEGHA project

Thanos Tsikerdekis
Assimilating aerosol optical properties related to size (ANG) and species (SSA) from POLDER/PARASOL with an ensemble data assimilation system

Vazquez-Navarro, Margarita
PMAp version 2: synergistic global Aerosol Optical Depth retrieval over land and ocean from Metop.

Yu, Yan
Disproving the Bodélé depression as the primary source of dust fertilizing the Amazon Rainforest

Yu, Yan
A Global Analysis of Dust Diurnal Variability Using CATS Observations

Xue, Young
Hourly Remote Sensing Monitoring of Global Aerosol Optical Depth over Land Using Data from Three Geostationary Satellites: GOES-16, MSG-1, Himawari-8

Zhao, Shuyun
The effects of ENSO on the winter haze pollution of China