



19th AeroCom workshop & 8th AeroSAT workshop

October 12 – 16, 2020

web-conference (access details will be sent in week 41 by email)

Three 90 minute sessions every day

EU: 2pm - 7pm / NY: 8am - 1pm / CA : 5am - 10am / JP: 9pm - 2am / CN : 8pm - 1am

host: Kostas Tsigaridis (Columbia Univ. NY)

kostas.tsigaridis@columbia.edu

co-organizers (AeroCom): Michael Schulz / Stefan Kinne / Mian Chin / Kostas Tsigaridis / Bjørn Hallvard Samset /
Duncan Watson-Parris / Gunnar Myhre

co-organizers (AeroSAT): Thomas Popp / Ralph Kahn / Larisa Sogacheva / Andy Sayer

presentations

- **all presentations (plenary and breakout) ...** should be accessible prior to workshops

we request

- for plenaries (Mo - Thu): **the complete talk** *ppt or pdf (or mp4) formats preferred*
- for plenaries (Fri): **the complete talk** and **1-page-slide-for session introduction**
- for breakouts: **1-page-introductory-slide** and **extra (ca 5) backup slides for discussions ...**
the 1-page slide should include (title/main result/your_picture) pdf format preferred

- your contributions should be e-mailed to **stefan.kinne@mpimet.mpg.de**
(if files are larger than the e-mail permitted size, please upload on anonymous ftp
ftp.zmaw.de, cd incoming, mkdir aerocom, cd aerocom, mput 'file', send Stefan a note)
- **upload naming convention for files:**
- AA2020_sessionnumber_lastname&initial_talk.pdf +AA2020_sessionnumber_lastname&initial_slide.pdf
- **examples** AA2020_05_GettelmanA_talk.pdf and AA2020_05_GettelmanA_slide .pdf
(in case of several presentations add '1', '2', ... before '.pdf')

webex-links will be sent out by e-mail to all registered participants

webex-links will open 30 min before the start of a session



AeroCom

Day 1 **Monday, October 12, 2020**

EU:2:00–3:30pm/NY:8:00–9:30am/CA:5:00–6:30am/JP:9:00pm–10:30pm/CN:8:00–9:30pm

Plenary Session 1 - Experiment Status [90 min]

purpose: get an overview per AeroCom experiment of submissions, analysis, papers, participants, plans Intro then 12 talks à 5 minutes then 10 min discussion (further discussion in breakout 1)

Moderator: Philip Stier // Rapporteur: Nick Schutgens

- **Michael Schulz:** Welcome and AeroCom **Overview** [20 min]

Aerocom Experiment Status Summaries

- **Jonas Gliss, Augustin Mortier, Paul Zieger, Mian Chin, Dongchul Kim, Hongbin Yu, Gunnar Myhre, Xiaohua Pan, Wenying Su, Maria Sand, Duncan Watson-Parris, Paul Kim (5 min each)** [60min]

- Discussion of status [10 min]

15 minutes break

EU:3:45–5:15pm/NY:9:45–11:15am/CA:6:45–8:15am/JP:10:45pm–0:15am/CN:9:45–11:15pm

Plenary Session 2 - Aerosol and component life cycle diversity [90 min]

focus on: remaining issue, recommendations for modelling, evaluation issues, proposed AeroCom activities 5 talks 5 minutes + 12 minutes discussion

Moderator: Mian Chin // Rapporteur: Peter Colarco

- **Michael Schulz** aerosol life cycle
- **Hongbin Yu** Dust lifetime and size
- **Maria Sand** BC and absorption
- **Huisheng Bian** Nitrate
- **Kostas Tsigaridis** Organics

15 minutes break

EU:5:30–7pm/NY:11:30am–1pm/CA:8:30–10am/JP:00:30am–02am/CN:11:30pm–1am

Plenary Session 3 - Aerosol optical properties [90 min]

focus on: remaining issue, recommendations for modelling, evaluation issues, proposed AeroCom activities 4 talks 5 minutes + 17 minutes discussion

Moderator: Bjørn Samset // Rapporteur: Betsy Andrews

- **Mian Chin** Vertical profiles
- **Peter Colarco** biomass burning, ageing and brown carbon
- **Jonas Gliss** Mass extinction coefficient / AE / fine-mode AOD / coarse-mode AOD
- **Maria Burgos** Hygroscopicity plus



AeroCom

Day 2

Tuesday, October 13, 2020

EU:2:00–3:30pm/NY:8:00–9:30am/CA:5:00–6:30am/JP:9:00pm–10:30pm/CN:8:00–9:30pm

Plenary Session 4 - other modeling results (90 min)

6 talks 12 minutes + 3 minutes discussion

Moderator: Stefan Kinne // Rapporteur: Nicolas Bellouin

- **Yves Balkanski:** Aerosol absorption: how dust absorption causes Sahel precipitation
- **Claire Ryder:** Aircraft observations of Coarse Dust: Radiative Significance and Model Evaluation
- **David Neubauer:** Soot aging by ozone/sulfuric acid enhances future warming and reduces shortwave aerosol cooling by changing cloud formation
- **Ross Herbert:** Understanding the Asian summer monsoon response to a future dipole in aerosol emissions across India and China using an intermediate-complexity GCM
- **Christoph Bruehl:** Model simulations of the Pinatubo volcanic eruption: direct and indirect effects on stratospheric chemistry and dynamics
- **Kai Zhang:** Intercomparison of aerosol microphysics parameterizations in the MAM aerosol box model

15 minutes break

EU:3:45–5:15pm/NY:9:45–11:15am/CA:6:45–8:15am/JP:10:45pm–0:15am/CN:9:45–11:15pm

Plenary Session 5 - new activities and link to ESMs/CMIP6 [90 min]

8 talks 9 minutes / 3 minutes discussion

Moderator: Duncan Watson-Parris // Rapporteur: Ben Johnson

- **Andrew Gettelman:** Natural Laboratories for Aerosol Cloud Interactions- Simulating Aerosol Cloud Precipitation and Climate interactions (ACPC)
- **Kostas Tsigaridis:** US aerosol coding initiative
- **Fangqun Yu:** Use of machine learning to improve global models on aerosol-cloud interactions without compromising their computing efficiency
- **Pierre Nabat:** Evaluation of aerosol absorption in CMIP6 simulations
- **Bjørn Samset:** Aerosol absorption in CMIP6 and its implications for projected precipitations
- **David Winker:** An update on the NASA_Cloud_Convection_precipitation study
- **Ilona Riipinen:** EU FORCES project
- **Harri Kokkola:** Identifying the model properties contributing to aerosol forcing uncertainty

5 minutes break

EU:5:20–7pm/NY:11:20am–1pm/CA:8:20–10am/JP:00:20am–02am/CN:11:20pm–1am

Introduction and Breakout Discussion Session A [100 min]

- **1. Plenary-Introduction:** 1 slide introductions from breakouts 1-3 of non plenary talks (ca 15 minutes altogether)

10 minutes break

- **2. Breakouts 1-3:** discussions in 3 parallel sessions by topic - extra attention to non-plenary talks

Moderators: Philip Stier, Stefan Kinne, Duncan Watson-Parris (see more info in break.pdf)

Rapporteurs: Hebert Ross, Laura Wilcox, Ben Johnson

1: AeroCom experiment status / 2: Modelling and methods I / 3: Modelling and methods II



AeroCom / AeroSAT

Day 3 **Wednesday, October 14, 2020**

EU:2:00–3:30pm/NY:8:00–9:30am/CA:5:00–6:30am/JP:9:00pm–10:30pm/CN:8:00– 9:30pm

Plenary Session 6 - Covid impact on aerosol loads, air quality and forcing [90 min]

one slide by moderator with main issues + key questions / 5 min presentations of recent work

Moderator: Kostas Tsigaridis // Rapporteur: Jonathan Hickman

- **Johannes Quaas:** Assessing aviation-induced cirrus from satellite during COVID-19 (5 min)
- **Nicolas Bellouin:** Impact of Chinese Covid-19 lockdown on aerosol and radiative fluxes over East Asia Seas (5 min)
- **Shobha Kondragunta:** China and Taiwan: A Tale of Two COVID-19 Lockdown Measures and Air Quality (5 min)
- **Xiaohong Liu:** Impacts of COVID-19 on Aerosol Direct and Indirect Radiative Forcing (5 min)
- **Ragnhild Skeie:** Changes in aerosol composition and radiative forcing due to COVID-19 in OsloCTM3 (5 min)
- **Augustin Mortier:** COVID-19: Impact on AOD and European Air Quality (5 min)
- **Svetlana Tsyro:** Impacts of COVID-19 lockdown on European air quality (5 min)

Discussion 60 (min): What have we learnt so far from the Covid-19 natural experiment?

Best practices to analyze the various data of such an exceptional situation against the long-term background

15 minutes break

EU:3:45–5:15pm/NY:9:45–11:15am/CA:6:45–8:15am/JP:10:45pm–0:15am/CN:9:45–11:15pm

Plenary Session 7 - indirect effects and observational constrains [90min]

one slide by moderator with main issues + key questions / five 10 min presentations

Moderator: Johannes Quaas // Rapporteur: Edward Gryspeerd

1 slide by moderator with main issues + key questions

- **Paquita Zuidema:** Oracles overview [10min]
- **Edward Gryspeerd:** Indirect effect - Identifying observational constraints (10min)
- **Velle Toll:** constraint on cloud water response to aerosols (10min)
- **Otto Hasekamp:** Retrieval of Cloud Condensation Nuclei to Quantify Radiative Forcing due to ACI (10 min)
- **Marta Lufarelli:** Aerosol retrieval in presence of clouds (10 min)

Discussion (40 min): Ways forward to better constrain aerosol-cloud effects with observations

5 minutes break

EU:5:20–7pm/NY:11:20am–1pm/CA:8:20–10am/JP:00:20am–02am/CN:11:20pm–1am

Introduction and Breakout Discussion Session B [100 min]

- **1. Plenary-Introduction:** 1 slide introductions from breakouts 4-6 of non plenary talks (ca 15 minutes altogether)

10 minutes break

- **2. Breakouts 4-6:** discussions in 3 parallel sessions by topic - extra attention to non-plenary talks

Moderators: Kostas Tsigaridis, Johannes Quaas, Andrew Sayer (see more info in break.pdf)

Rapporteurs: Jonathan Hickman, Ed Gryspeert, Athanasios Tsikerdekis

4: Suborbital observations & biomass burning & COVID / 5: Aerosol and clouds, indirect effect / 6: Aerosol trends

60 minutes break

EU:8:00–9:30pm/NY:2:00–3:30pm/CA:11:00–12:30am/JP: 3:00am–4:30am/CN:2:00– 3:30am

Icebreaker mingling on wonder.com / see technical info for link



AeroCom / AeroSAT

Day 4 **Thursday, October 15, 2020**

EU:2:00–3:30pm/NY:8:00–9:30am/CA:5:00–6:30am/JP:9:00pm–10:30pm/CN:8:00–9:30pm

Plenary Session 8 - compare model and satellite data: treating clouds, derived trends [90min]

one slide by moderator with main issues + key questions / 4 presentations

Moderator: Andrew Sayer // Rapporteur: Larisa Sogacheva

- **Gunnar Myhre:** model simulated historical (HIST) forcing and trends [7min]
- **Wenyng Su:** comparing historical (HIST) trends with (CERES) observations [7min]
- **Yang Yang:** modeled 1980-2018 trends over E.Asia [7min]
- **Ryan Kramer:** Observed aerosol forcing trends over the A-Train satellite era (7 min)
- **Nick Schutgens:** An AEROCOM/AEROSAT study: evaluation of global models with satellite AOD and SSA (7 min)
- **Sebastien Garrigues:** AOD monitoring within the CAMS data assimilation (7 min)

Discussion (50 min): Best practices to integrate information from satellites and modeling

What are conditions of high / low consistency within satellite data / modeling and between both?

Development priorities to improve on some of them

Best way to compare different products and resolve differences for data assimilation

15 minutes break

EU:3:45–5:15pm/NY:9:45–11:15am/CA:6:45–8:15am/JP:10:45pm–0:15am/CN:9:45–11:15pm

Plenary Session 9 - Spectral dependence of AOD / constraining aerosol type [90 min]

one slide by moderator with main issues + key questions / 3 presentations

Moderator: Thomas Popp // Rapporteur: Marta Luffarelli

- **Kostas Tsigaridis / Lucia Mona:** Simulating instrumentally-defined aerosol type(10min)
- **Tero Mielonen:** Comparing aerosol types in climate models and satellite retrievals (5 min)
- **Larisa Sogacheva:** Comparisons of satellite AOD at multiple wavelengths (5 min)

Discussion (70 min): How can we progress on constraining aerosol type with satellite observations?

How can satellite AOD at multiple wavelengths be used in modeling?

How far can satellite interpretation schemes for aerosol type be applied to models?

5 minutes break

EU:5:20–7pm/NY:11:20am–1pm/CA:8:20–10am/JP:00:20am–02am/CN:11:20pm–1am

Introduction and Breakout Discussion Session C [100 min]

- **1. Plenary-Introduction: 1 slide introductions from breakouts 7-9** of non Thu plenary talks (ca 20 minutes)

5 minutes break

- **2. Breakouts 7-9: discussions in 3 parallel sessions by topic** - extra attention to non-plenary talks

Moderators: Thomas Popp, Ralph Kahn/Larisa Sogacheva, Adam Povey (see more info in break.pdf)

Rapporteurs: Hongbin Yu, Andrew Sayer, TBD

7: *Aerosol type from satellite* / 8: *Aerosol Representation Beyond AOD* / 9: *New retrievals*



AeroSAT

Day5

Friday, October 16, 2020

EU:2:00–3:30pm/NY:8:00–9:30am/CA:5:00–6:30am/JP:9:00pm–10:30pm/CN:8:00– 9:30pm

Plenary Session 10 - breakout-group summaries days 2-4 [45 min]

| | | | |
|------------------------------|-------------------------|--------------------------------|--------|
| - breakout session 1 summary | Ross, Herbert | (Philip Stier) | [5min] |
| - breakout session 2 summary | Laura Wilcox | (Stefan Kinne) | [5min] |
| - breakout session 3 summary | Ben Johnson | (Duncan Watson-Parris) | [5min] |
| - breakout session 4 summary | Jonathan Hickman | (Kostas Tsigaridis) | [5min] |
| - breakout session 5 summary | Ed Gryspeert | (Johannes Quaas) | [5min] |
| - breakout session 6 summary | Larisa Sogacheva | (Andrew Sayer) | [5min] |
| - breakout session 7 summary | Hongbin Yu | (Thomas Popp) | [5min] |
| - breakout session 8 summary | Andrew Sayer | (Ralph Kahn, Larisa Sogacheva) | [5min] |
| - breakout session 9 summary | TBD | (Adam Povey) | [5min] |

5 minutes break

Plenary Session 11 – requirements “new OPAC” (‘a-priori choices’) in-situ / lab meas. [40min]

one slide by moderator with main issues + key questions

Moderator: Ralph Kahn // Rapporteur: Lucia Mona

- **Claudia Di Biagio (ACTRIS representative):** Update on lab experiments, how to define new experiments (5 min)

Discussion (35 min): concrete requirements for “new OPAC”

15 minutes break

EU:3:45–5:15pm/NY:9:45–11:15am/CA:6:45–8:15am/JP:10:45pm–0:15am/CN:9:45–11:15pm

Plenary Session 12 - new retrievals: strengths, limitations, new developments [90min]

one slide by moderator with main issues + key questions

Moderator: Adam Povey // Rapporteur: Roy Grainger

- **Robert Levy:** GEO-LEO synergy of different groups (5 min)

- **Felix Seidel:** “Beyond AOD”, quantify vertically resolved aerosol absorption (5 min)

- **Oleg Dubovik:** Assessment of multi-angular polarimetry potential (5 min)

- **Bertrand Fougnie:** How consider the geometry of acquisition on the aerosol retrieval performance (5 min)

- **Kirk Knobelspiesse:** Analysis of simultaneous aerosol / ocean glint retrieval using multiangle observations (5 min)

Discussion (65 min): Most promising breakthrough potentials to improve aerosol retrieval information?

15 minutes break

EU:5:30–7pm/NY:11:30am–1pm/CA:8:30–10am/JP:00:30am–02am/CN:11:30pm–1am

Plenary Session 13 - recent extreme events [40min]

One slide by moderator with main issues + key questions

Moderator: Larisa Sogacheva // Rapporteur: Adam Povey

- **Andrew Sayer:** How consistent are satellite retrievals of smoke from the 2019-2020 Australian fires? (5 min)

- **Hongbin Yu:** Gigantic African Dust Intrusion into the Caribbean Basin and southern U.S. in June 2020 (5 min)

Discussion (30 min): How improve representation of extreme events with limited sampling in extreme events?

Plenary Session 14 - closing remarks [20min]

- **Thomas Popp** AeroSAT

- **Michael Schulz** AeroCom



Introduction and Breakout Discussion Session Format

- **1. Plenary-Introduction:** 1 slide introductions from breakouts of non plenary talks (ca 15 minutes altogether)
- **2. Breakouts (3 in parallel):** discussions in breakout groups by topic - extra attention to non-plenary talks

For better preparation presentations and discussion material have been **uploaded prior to the workshop**

- 1-page summaries for all non-plenary and all Friday presentations
ftp://ftp-projects.zmaw.de/aerocom/meetings/ny2020/one_pager/
- Plenary talks and poster-talks for breakout-discussions
<ftp://ftp-projects.zmaw.de/aerocom/meetings/ny2020/presentations>

for all contributions (for ALL requested orals or posters) **we had requested**

- **the complete talk** (for a 10 minute presentation) *ppt or pdf (or mp4) formats preferred*
- **1 introductory slide** (title/main result/your_picture) *pdf format preferred*

upload procedure:

your contributions should be sent to stefan.kinne@mpimet.mpg.de

(if files are larger than the e-mail permitted size, please upload on ftp

[ftp.zmaw.de](ftp://ftp.zmaw.de), cd incoming, mkdir aerocom, cd aerocom, mput 'file', send Stefan a note of arrival)

Upload naming convention for files:

- AA2020_sessionnumber_lastname&initial_talk.pdf +AA2020_sessionnumber_lastname&initial_slide.pdf
- **examples** AA2020_05_GettelmanA_talk.pdf and AA2020_05_GettelmanA_slide .pdf
(in case of several presentations add '1', '2', ... before '.pdf')

upload access

All received presentations will be placed on anonymous ftp

and will be available for download 7 days before the workshop start

In the following subdirectory

<ftp://ftp-projects.zmaw.de/aerocom/meetings/ny2020>

discussion session procedure:

- Presentations will be bundled by topic in breakout sessions and discussion sessions on Tue, Wed and Thu
- after 1 slide introductions in plenary of "non-plenary" presentations, discussion breakouts are opened
- Moderators for each breakout room/session are assigned
- Contributions in each breakout room will be discussed in a preset order
- Links to each break out room will be separate webex rooms, see Technical-info-AeroComAerosat.pdf
- All participants can enter and participate in all breakout sessions,
- presenters are asked to remain/stay in their assigned breakout room (to input/answers)
- chats, discussions, questions, replies are kept with board.net online tool, see Technical-info-AeroComAerosat.pdf