



Aerosols, Clouds, Precipitation and Climate (ACPC) Workshop, 24–26 April 2019

Lecture Hall D102, School of Atmospheric Sciences, Nanjing University, Nanjing, China

Program

Wednesday, 24 April 2019 – Opening and shallow clouds

8:30 am Opening

Shallow clouds session

8:45 am Robert Wood, Shallow clouds overview

Results from South Oceans

9:05 am Hamish Gordon, Regional modeling of aerosol-cloud interactions in the south-east Atlantic: comparison with CLARIFY campaign measurements

9:17 am Jan Kazil, Lagrangian LES of a pocket of open cells with an overlying biomass burning smoke layer during the CLARIFY field campaign

9:29 am Robert Wood, ORACLES/CLARIFY/LASIC LES case study: Case definition and initial results

9:41 am Michael Diamond, Significant Cloud Brightening from Shipping Observed in South Atlantic Stratocumulus Using a Universal Kriging Method

9:53 am Andrew Gettelman, S. Ocean Clouds, Aerosols and Climate: Simulating a Mixed Phase Tale

10:05 am Discussion

10:30 am Coffee

11:00 am Chunsong Lu: Observations of entrainment-mixing processes in shallow cumulus clouds

11:12 am Youtong Zheng: On the decoupling of cloud-topped marine boundary layer

11:24 am Johannes Muelmenstaedt: Numerical artifacts in stratocumulus-top entrainment across a range of model scales

11:36 am Yannian Zhu, Where did the aerosol effects on cloud fraction and liquid water path were hiding from the climate community?

11:48 am Matthew Christensen, Aerosols and their effect on low-cloud longevity

12:00 pm Discussion

12:30 pm Lunch

Shallow clouds, warm rain processes and observational constraints

14:00 pm Daniel Rosenfeld, Excessive cooling due to LWP and Cloud Cover effects in marine boundary layer clouds

14:12 pm Ken Carslaw, Second aerosol indirect radiative effects are small in the northern North Atlantic, but may dominate subtropical regions

14:24 pm Kenta Suzuki, Linkage of the warm rain process to aerosol indirect forcing

14:36 pm Takuro Michibata, Prognostic Precipitation in the MIROC6-SPRINTARS GCM: Improvements in Precipitation and Radiative Properties

- 14:48 pm Andrew Gettelman, Using effusive volcanoes as a natural laboratory for constraining aerosol cloud interaction
- 15:00 pm Minghuai Wang: Cloud water response to aerosols in satellite observations and models
- 15:12 pm Discussion
- 15:40 pm Coffee
- 16:10 pm Mei Zheng: PM2.5 Source Apportionment: Current Understanding and Challenge
- 16:22 pm Minghuai Wang: Update on the April 23rd workshop
- 16:34 pm Joyce E. Penner, 7 steps needed to solve the aerosol climate forcing problem
- 16:46 pm Robert Wood and others: Vision and next steps on shallow clouds
- 17:05 pm Discussion
- 19:00 pm SSC meeting

Thursday, 25 April 2019 – Deep clouds

- 8:30 am Sue van den Heever, Deep clouds working group overview
- 8:50 am Jiwen Fan, Contributions of urbanization and anthropogenic aerosols to convective intensity and precipitation of a deep convective storm in Houston
- 9:02 am Max Heikenfeld, Cloud tracking and a Lagrangian microphysical pathway analysis for the ACPC Houston case in WRF and RAMS
- 9:14 am Peter, Marinescu, Houston Convection Simulations: The Impacts of including a secondary sub-60nm aerosol mode
- 9:26 am Qian Chen, Aerosol impacts on mesoscale convective systems forming under different vertical wind shear conditions
- 9:38 am Discussion
- 10:10 am Coffee
- 10:40 am Zhanqing Li, Aerosol-PBL interactions and impact on air quality and convective clouds
- 10:52 am Jianping Guo, Non-monotonic aerosol effect on precipitation induced by deep convective clouds over global tropical oceans
- 11:04 am Chuanfeng Zhao, Enlarging of TC rainfall area by aerosols
- 11:16 am Yi Qu, The role of idealized CCN concentration and size distribution on the intensity and structure of Typhoon Saomai (2006)
- 11:28 am Discussion
- 12:00 pm Lunch
- 1:15 pm Tour the SORPES station
- 14:00 pm Daniel Rosenfeld, Can we find the missing warming in the aerosol effect on deep clouds
- 14:10 pm Zhanqing Li, Potential mechanisms of aerosol-induced warming effects through the ACI
- 14:24 pm Philip Stier, Aerosol effects on clouds and climate - beyond the cloud scale
- 14:36 pm Feiyue Mao, Impacts of vertical variations of aerosol and cloud on radiative forcing from 3D observations
- 14:48 pm Jiayi Hu, Insights to the flooding potential of hurricanes by WSR-88D radars, GOES-R satellites, and lightning networks
- 15:00 pm Scott Collis, Towards The Cloud Atlas: Thoughts on identifying and tagging clouds
- 15:12 pm Discussion
- 15:40 pm Coffee
- 16:10 pm Yan Yin, Vertical redistribution of atmospheric components by deep convection
- 16:22 pm Shaocai Yu, Characteristics of cloud condensation nuclei (CCN) over China simulated by the two-way

- coupled WRF-CMAQ model
- 16:34 pm Andreae Meinrat, Plans for an upcoming aircraft experiment on the production of aerosols in the upper troposphere: CAFÉ-Brazil
- 16:46 pm Michael Jensen, TRacking Aerosol Convection InteRactions (TRACER): Latest campaign planning updates and next steps
- 16:58 pm Daniel Rosenfeld and others: Vision and next steps on deep clouds
- 17:15 pm Discussion
- 18.30 pm Group dinner

Friday, 26 April 2018 – ACPC activities in China and next step

ACPC activities in China

- 8:30 am Hua Zhang, Long-term trend of cloud optical thickness in East Asia and its impact on regional radiation budget
- 8:42 am Kai Qin, Continuous measurements of ice nucleating particles in Beijing, China
- 8:54 am Ping Tian, Introduction to Beijing Aerosol and Cloud Interaction Chamber (BACIC) and preliminary results
- 9:06 am Jianping Guo, Introduction of a MOST project on aerosol-convection interactions over North China Plain
- 9:18 am Aijun Ding, Introduction to long-term observations at the SORPES station and results from the iMAPEC Experiment
- 9:30 am Discussion
- 10:00 am Coffee
- 10:30 am Report by Notetakers, shallow and deep clouds
- 11:00 am Discussion
- 11:30 am Planning for next steps
- 12:30 pm End of Meeting/Lunch

Friday afternoon: Possible touristic activity for interested people