Atmospheric Composition and the Asian Monsoon (ACAM)

The 5th ACAM workshop, 8-10 June 2023, Dhaka, Bangladesh

Hosted by Professor Abdus Salam, Dhaka University

Notes:

Oral presentations:

- Please save your oral presentation as pdf or pptx. File name convention: *Oral#_lastname.pdf (or pptx).* The oral # is listed in front of the presentation title in the agenda. Example: **O1.01_Stroh.pptx**.
- Please upload your presentation to the meeting room computer at least 30 min before your session starts.

Posters:

- Poster introduction: Please save your poster introduction file (1 page) as pdf. File name convention: *PosterID_intro_lastname.pdf.* The poster ID # is listed at the end of the agenda. Example: **P1_intro_Tao.pdf**.
- **Important:** Please email your 1-page poster introduction to mian.chin@nasa.gov by 7 June in order to assemble all slides together for the poster intro session on 8 June.
- Poster: The size of poster is A0 (841 x 1189 mm or 33.1 x 46.8 inches) with portrait orientation. Please use the name convention of PosterID_lastname.pdf (e.g., **P1_Tao.pdf**) for your poster that can be shared electronically.

Agenda for the 5th Workshop on Atmospheric Composition and the Asian Monsoon (ACAM), 8-10 June 2023, Dhaka, Bangladesh

Thursday, 8 June 2023			
08:00-08:40			Registration
Opening Session (Session Chairs - Ritesh Gautam and Michelle Santee)			
08:40-08:50		Welcome Address	Abdus Salam
08:50-09:20		Meeting Sponsors	IGAC, SPARC, EDF, ICIMOD, IAP, NASA, FutureEarth, NCAR
09:20-09:30		Meeting Logistics	Local Committee member
09:30-09:45		ACAM Co-Chair Address	Hans Schlager and Mian Chin
09:45-10:20	Group Photo/Tea Break		
Session 1: Recent developments in UTLS Measurements and Research (Session Chairs - Jianchun Bian and Jonathon Wright)			
10:20-10:40	O1.01	(***Invited)*** Overview and Selected Results of the 2017 StratoClim field campaign: Airborne and balloon measurements of microphysical, dynamical, and chemical processes in the Asian Summer Monsoon Anticyclone	Fred Stroh, Forschungszentrum Julich, Germany
10:40-11:00	O1.02	(***Invited)*** Science and Operations Highlights of the ACCLIP Campaign 2022	Laura Pan, National Center for Atmospheric Research, USA
11:00-11:15	O1.03	Characterizing intraseasonal and interannual variability in the composition of the Asian summer monsoon anticyclone using Aura Microwave Limb Sounder measurements	Michelle Santee, NASA Jet Propulsion Laboratory, USA
11:15-11:30	O1.04	Sub-seasonal to Interannual variability of aerosols and CO in the UTLS linked to the Asian summer monsoon dynamics and surface emission	Mian Chin, NASA Goddard Space Flight Center, USA
11:30-11:45	O1.05	Contributions of Various Sources to the Higher-Concentration Center of CO within the ASM Anticyclone	Qian Li, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
11:45-12:00	O1.06	The Balloon measurement campaigns of the Asian Tropopause Aerosol Layer	Jean-Paul Vernier, National Institute of Aerospace, USA
12:00-12:20	O1.07	(***Invited)*** Radiative Forcing from the 2014-2022 Volcanic and Wildfire Injections	Pengfei Yu, Jinan University, Guangzhou, China

12:20-13:40	Lunch Break		
Session 2: Emissions and Air Quality in the Asia Monsoon Region (Session Chairs - Abdus Salam and Jim Crawford)			
13:40-14:00	O2.01	(***Invited)*** India's pathways to reduce air pollution exposure and associated health burden: Policy perspectives	Sagnik Dey, Indian Institute of Technology Delhi, India
14:00-14:15	O2.02	Evolution of high pollution events in Delhi NCR, Haryana and Punjab during the monsoon to postmonsoon transition	Prabir Patra, JAMSTEC, Japan
14:15-14:35	O2.03	(***Invited)*** Diurnal variation of atmospheric composition in Asia seen from space: GEMS	Jhoon Kim, Yonsei University, South Korea
14:35-14:50	O2.04	Improving aerosol and Clear-Sky Solar Power Prediction by Assimilating geostationary satellite observations	Tie Dai, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
14:50-15:05	O2.05	Ambient Air Pollution and Future Climate Change: Indian Scenario for the middle of 21st Century	Tanya Gupta, Indian Institute of Technology Delhi, India
15:05-15:20	O2.06	Observation-based evaluation of East Asian black carbon emission inventories and its implications for the CMIP6 climate model simulations	Hiroshi Tanimoto, National Institute of Environmental Studies, Japan
15:20-15:35	O2.07	Changes of Southwest monsoon in Western Ghats and its environmental impacts in Devala, Pandlur Taluk, Nilgiris District, Tamil Nadu, India	Sivasakthivel Senthilvel, Bangalore University, India
Poster Session and Tea (Session Chair – Mian Chin)			
15:35-16:00		Poster Introductions (1 min / 1 slide each)	26 posters
16:00-18:00		Poster Viewing	(See poster list at end of agenda)
18:00		Adjourn	

Friday, 9 June 2023			
Session 3: Interaction of Emissions, Dynamics, and Atmospheric Composition (Session Chairs - Prabir Patra and Maheswar Rupakheti)			
08:30-08:50	O3.01	(***Invited)*** Growing emissions and Asian monsoon as dominant factors for atmospheric greenhouse gas variations over Asia	Taku Umezawa, National Institute of Environmental Studies, Japan
08:50-09:05	O3.02	Reconstructing high-resolution in-situ vertical carbon dioxide profiles in the sparsely monitored Asian monsoon region	Baerbel Vogel, Forschungszentrum Julich, Germany
09:05-09:25	O3.03	Influence of the South Asian Summer Monsoon Anticyclone on Atmospheric Methane Distribution and Cross-equatorial Transport of Airmass	Dmitry Belikov, Chiba University, Japan
09:25-09:40	O3.04	Vertical Variability of Methane in the UTLS over the Asian Monsoon Anticyclone using Aircore Measurements	Mengchu Tao, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
09:40-09:55	O3.05	Aerosol Effects on Heating in the Asian Monsoon Tropopause Layer	Jonathon Wright, Tsinghua University, China
09:55-10:10	O3.06	Model calculations of the contribution of tropospheric SO2 to the stratospheric aerosol layer	Chiranjeevi Srinivasan Nalapalu, Alfred Wegener Insitute, Germany
10:10-10:30	O3.07	(***Invited)*** Monitoring emissions of very short lived ozone depleting substances and the Asian Monsoon region	Luke Western, Univesity of Bristol, UK
10:30-10:50	Tea Break		
Session 4: Emissions and Air Quality in the Asia Monsoon Region (Session Chairs - Sagnik Dey and Hiroshi Tanimoto)			
10:50-11:10	O4.01	(***Invited)*** Air quality forecasting and decision-support to policymakers in Delhi, India	Gaurav Govardhan, Indian Institute of Tropical Meteorolgy Pune, India
11:10-11:25	O4.02	Development of PM2.5 assimilative capacity forecasting system for effectively reducing PM2.5 emission from biomass burning at local administrative levels in Thailand	Pitchanan Kajonpet, Thammasat University, Thailand
11:25-11:40	O4.03	Performance of Next Five-day PM2.5 Air Quality Forecasting using WRF-Chem Modeling System in Thailand	Sompoke Kingkaew, Thammasat University, Thailand
11:40-11:55	O4.04	Simulating the winter and pre-monsoon aerosol optical depth with new emission inventories over the Indian subcontinent: Implication to dust and anthropogenic contribution	Mukul Kumar, Indian Institute of Technology Delhi, India

11:55-12:15	O4.05	(***Invited)*** Air Quality during COVID-19 Lockdown in the Asian Monsoon Region	Mohd Talib Latif, Universiti Kebangsaan Malaysia, Malaysia
12:15-12:30	O4.06	An update on planning for ASIA-AQ	James Crawford, NASA Langley Research Center, USA
12:30-13:45	Lunch Break		
Session 5: Aerosol Cloud and Radiative Impacts (Session Chairs - Xiaohua Pan and Ritesh Gautam)			
13:45-14:00	O5.01	Trends in aerosol optical and radiative properties in emerging aerosol dipole regions in Asia	Maheswar Rupakheti, Research Institute for Sustainability, Germany
14:00-14:15	O5.02	3D Cloud Condensation Nuclei Concentrations Derived from Spaceborne Lidar Observations	Piyushkumar Patel, MethaneSAT LLC, USA
14:15-14:30	O5.03	Inter-seasonal variation in radiative perturbation due to black carbon (BC) burden over India, simulated in chemistry-transport model with latest emissions	Sanhita Ghosh, Indian Institute of Technology Delhi, India
14:30-14:45	O5.04	Investigating the Effects of Aerosols and Black Carbon on Pre-Monsoon Rainfall in Bangladesh using WRF-Chem Model	Mohan Kumar Das, National Oceanographic and Maritime Institute, Bangladesh
14:45-15:00	O5.05	Quantifying Momentum Flux Exchange in the UTLS region during Deep Convective Processes over the Central Himalayas using VHF radar	Aditya Jaiswal, Aryabhatta Research Institute of Observational Sciences
15:00-15:15	O5.06	Increased lightning activity significantly increases surface ozone concentrations on the Tibetan Plateau	Jingying Mao, China
15:15-15:30	O5.07	Long-term trends and seasonal persistence of the total column ozone over the Tibetan Plateau based on satellite data and model simulations	Yajuan Li, Nanjing XiaoZhuang University, China
15:30-16:00	Tea Break		
Discussion: Future Directions for ACAM (Moderated by ACAM Leadership)			
16:00-17:00		ACAM accomplishments over the last decade and Future Directions	
17:00-18:00		Small group discussions (specific content TBD)	
18:00		Adjourn	
20:00-22:30	Workshop Dinner (FARS Hotel)		

Saturday, 10 June 2023			
Session 6: Emissions and Air Quality in the Asia Monsoon Region (Session Chairs - Luke Western and Hans Schlager)			
08:30-08:45	O6.01	Contribution of different emission sources over a mountain site in the central Himalaya	Manish Naja, Aryabhatta Research Institute of Observational Sciences
08:45-09:00	O6.02	Carbonaceous aerosol characteristics on the Third Pole: A primary study based on the Atmospheric Pollution and Cryospheric Change (APCC) network	Pengfei Chen, Northwest Institute of Eco-Environment and Resources, China
09:00-09:15	O6.03	Comprehensive Assessment of Aerosol Optical Depths Over Bangladesh: Source Characterization, Radiative Properties, and Impact of Socioeconomic Factors	Shahid Uz Zaman, Bangladesh University of Engineering and Technology, Bangladesh
09:15-09:30	O6.04	Climatological transboundary circulation and outflow of atmospheric monsoonal compositions over Bangladesh	Md Firoz Khan, North South University, Bangladesh
09:30-09:45	O6.05	Characteristic of Particulate Bound Mercury Over the Central Himalayas	Junming Guo, Northwest Institute of Eco-Environment and Resources, China
09:45-10:00	O6.06	Surface ozone at high altitude site in the central Himalayas: Long term trends and role of different sources/factors	Vikrant Tomar, Aryabhatta Research Institute of Observational Sciences
10:00-10:15	O6.07	Methane sources in South Asia inferred from observations of stable carbon isotope ratio of atmospheric methane	Yukio Terao, National Institute of Environmental Studies, Japan
10:15-10:45	Tea Break		
Session 7: Emissions and Air Quality in the Asia Monsoon Region (Session Chairs - Gaurav Govardhan and Jhoon Kim)			
10:45-11:00	O7.01	Role and Challenges of Low-Cost Sensors for Air Pollution Monitoring in South Asia	Muhammad Fahim Khokhar, National University of Scienct and Technology, Pakistan
11:00-11:15	O7.02	Assessment and source apportionment of potential trace elements in PM2.5 with especial emphasis on seasonal variation in the capital city of Bangladesh	M. Safiur Rahman, Bangladesh Atomic Energy Commission, Bangladesh
11:15-11:30	O7.03	Characteristics of carbonaceous compounds in PM2.5 emitted from tropical peatland burning 2019 in central Kalimantan, Indonesia	Puji Lestari, Bandung Institute of Technology, Indonesia

11:30-11:45	O7.04	Fine particulate matter (PM1 AND PM2.5) and carbonaceous composition of PM2.5 from rice straw burning events in Tien Giang Province, Vietnam	To Thi Hien, University of Science, Vietnam National University Ho Chi Minh, Vietnam
11:45-12:00	O7.05	Chemistry of atmospheric ammonia over South-East Asia and IGP region: Measurements and modelling	Pooja Pawar, Indian Institute of Tropical Meteorology Pune, India
12:00-12:15	O7.06	Ammonia Availability Index and Deposition Fluxes of Reactive Nitrogen and Trace Metals during Monsoon in Delhi (India)	Ankita Katoch, Jawaharlal Nehru University, India
12:15-12:30	O7.07	Indoor and outdoor air quality due to Rohingya influx in Cox's Bazar, Bangladesh	Kazi Naimul Islam, University of Dhaka, Bangladesh
12:30-13:40	Lunch Break		
13:40-13:55		Training School Report	Training School Leads
13:55-14:10		Community Modeling Results	Modeling Leads
14:10-15:30		Discussion Group Reports	20 min. each
15:30		Adjourn	

Poster No.	Title	Author
P1	Improving aerosol representation in NU-WRF in support of MICS-Asia and ACAM activities	Zhining Tao, Morgan State University, USA
P2	Defining the upper boundary of the Asian Tropopause Aerosol Layer (ATAL) using the Static Stability	Akhil Raj S T, National Atmospheric Research Laboratory, India
P3	The NASA MERRA-2 Reanalysis Products: Data and Tools Used for Aerosol and Air Quality Studies	Xiaohua Pan, Goddard Earth Sciences Data and Information Systems, USA
P4	Tethered balloon observation of atmospheric composition over the Tibetan Plateau	Jianchun Bian, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
P5	Aerosol-meteorology feedback diminished the trans-boundary transport of black carbon into the Tibetan Plateau	Yuling Hu, Northwest Institute of Eco-Environment and Resources, China
P6	Investigation of water vapor transport to UTLS region at Third Pole region using convection permitting scale ICON simulation during Indian Summer Monsoon period.	Prashant Singh, Goethe University Frankfurt, Germany
P7	How do soluble gases travel from the troposphere to the stratosphere	Minfan Wu, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
P8	Determination and Distribution Characteristics of Cirrus Occurrence Over the Tibetan Plateau Based on the SWOP Campaign	Zhen Yang, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
P9	Dust and Smoke from crop residue burning deciphering the aerosols over northwest Region (India)	Prity Pippal, Central University of Rajasthan, India
P10	Seasonal variation in tropospheric NO2 and Comparison of Satellite NO2 VCDs with Various Ground-Based Instruments in Islamabad, Pakistan	Rabia Majeed, National University of Science and Technology, Pakistan
P11	Variability of atmospheric black carbon concentration in two urban valleys of the Central Himalaya	Praveen Kumar Singh, Indian Institute of Technology Roorkee, India
P12	Based on the EOF analysis of seasonal changes in ozone concentrations at different altitudes in the Northern Hemisphere.	Huan Zheng, University of Chinese Academy of Sciences, China
P13	Large Amounts of Water Vapor Were Injected into the Stratosphere by the Hunga Tonga Hunga Ha'apai Volcano Eruption	Jingyuan Xu, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

P14	Spatial-temporal variability of air pollutants from year 2018 tom 2021 in selected cities in Malaysia	Murnira Othman, Universiti Kebangsaan Malaysia, Malaysia
P15	Impacts on air quality in Malaysia's industrial zone from the COVID-19 Movement Control Order (MCO)	Nor Diana Abdul Halim, Universiti Kebangsaan Malaysia, Malaysia
P16	Assessment of Methane emissions in Eastern Himalayan region	Arshini Saikia, International Centre for Integrated Mountain Development, Nepal
P17	Spatial variation of PM2.5 in urban locations of Nepal	Hasana Shrestha, International Centre for Integrated Mountain Development, Nepal
P18	Transport of CO from the Asian surface layer to the troposphere and lower stratosphere	Xiaolu Yan, Chinese Academy of Meteorological Sciences, China
P19	Investigating the Influence of Air Pollution Emission Sources on Precipitation Chemistry in Key Sampling Sites in the Philippines	Zenn Marie Cainglet, Ateneo de Manila University, Philippines
P20	Performances of Different Machine Learning Algorithms for Predicting PM2.5. A case study in Ho Chi Minh City, Vietnam	Thi Thanh Le Dang, Vietnam National University Ho Chi Minh City - University of Science, Vietnam
P21	Impacts of Anthropogenic Aerosol Emissions on the East Asian Winter Monsoon	Shenglong Zhang, Tsinghua University, China
P22	OMI derived tropospheric NO2 and O3 trends over urban areas of Bangladesh from 2015-2022	Abdullah Al Nayeem, Wagenen Univarsity, Netherlands
P23	Satellite-assisted Particulate Matter (SAPM) for the Models, In Situ, and Remote Sensing of Aerosols (MIRA) Working Group	Travis Toth, NASA Langley Research Center, USA
P24	Microphysicochemical assessment of stratospheric sulfate aerosols from the 2022 Hunga Tonga-Hunga volcanic eruption	Chenwei Li, China
P25	3D Cloud Condensation Nuclei Concentrations derived from Spaceborne Lidar Observations	Piyushkumar Patel, MethaneSAT LLC, USA
P26	Changes in ambient concentrations and sources of black carbon during the COVID-19 pandemic in the United States	Md. Aynul Bari, University of Albany, USA