

—Symposium—

Frontiers of Atmospheric Aerosol Studies: Toward the Understanding of
the Health and Climatic Effects

Atmospheric aerosols affect the local and regional air quality and global climate. Inhaling elevated levels of atmospheric aerosols considerably affects human health. In addition, the aerosols disturb the Earth's radiative balance by scattering and absorbing solar radiation and by acting as cloud condensation nuclei. Understanding the dynamics of atmospheric aerosols from local to global scales and the associated changes in the properties is essential to assess their roles in these environmental issues. The efforts include the analysis of the temporal and spatial variations of the aerosols and their chemical components; the investigation of the mixing state, optical properties, cloud condensation nucleus activity, and ice nucleus activity; development of measurement techniques; and analyses based on model simulations. This symposium aims to exchange knowledge on the recent progress in atmospheric aerosol studies, which will guide the future directions of research for achieving a better understanding of the dynamics and properties of aerosols and their health and climatic effects. We welcome your participation in this symposium for a discussion on these topics.

Date: January 23 and 24, 2018

Venue: Lecture Hall, Environmental Studies Hall, Nagoya University (Higashiyama Campus), Nagoya, Japan [D2(2) in the map available at <http://en.nagoya-u.ac.jp/map/index.html>]

Registration: Participants are requested to check in on arrival. No registration fee is charged.

Dinner: Participants of the symposium are invited to an on-campus buffet-style dinner on January 23 (fee: 4,000 JPY). Please confirm your attendance to Michihiro Mochida (e-mail address: mochida@iar.nagoya-u.ac.jp) by January 15 (Monday).

Organizers:

Michihiro Mochida (Graduate School of Environmental Studies, Nagoya University)

Tomoki Nakayama (Institute for Space-Earth Environmental Research, Nagoya University)

Kimitaka Kawamura (Chubu Institute for Advanced Studies, Chubu University)

Host Institute: Institute for Advanced Research, Nagoya University

Program

January 23 (Tuesday)

13:30-13:35 Opening remarks

13:35-14:15 (*Keynote*) New particle formation in the urban atmosphere
Tareq Hussein (University of Jordan/University of Helsinki)

14:15-14:45 Observation of aerosol and cloud-droplet properties at the summit of Mt. Fuji
(altitude 3776 m)
Yoko Iwamoto (Hiroshima University/Tokyo University of Science), Ayami
Watanabe, Ryota Kataoka, Kazuhiko Miura, and Mitsuo Uematsu

- 14:45-15:15 Laboratory and observational studies on optical properties of carbonaceous particles
Tomoki Nakayama (Nagoya University) and Yutaka Matsumi
- 15:15-15:45 Linkages between marine organic aerosols and surface seawater during phytoplankton blooms
Yuzo Miyazaki (Hokkaido University), Youhei Yamashita, Kaori Kawana, Eri Tachibana, Michihiro Mochida, Sara Kagami, Koji Suzuki, and Jun Nishioka
- 15:45-16:00 Break
- 16:00-16:40 (**Keynote**) Variability in the mixing state of black carbon aerosols in East Asia
Nobuyuki Takegawa (Tokyo Metropolitan University), Cuizhi Sun, Yuya Ozawa, Kouji Adachi, Kentaro Misawa, Kwangyul Lee, Heeju Cho, Hing-Cho Cheung, Kihong Park, and Charles C.-K. Chou
- 16:40-17:10 Seasonal difference of source contributions on black carbon in Nagoya, Japan
Kazuo Osada (Nagoya University), M. Yamagami, F. Ikemori, K. Hisatsune, and S. Chatani
- 17:10-17:40 Observations of atmospheric black carbon mass concentrations from East Asia to the Arctic: Constraining emission strengths and wet deposition rates
Yugo Kanaya (Japan Agency for Marine–Earth Science and Technology), Fumikazu Taketani, Takuma Miyakawa, Yuichi Komazaki, Xiaole Pan, Itsushi Uno, and Yutaka Kondo
- 17:40-18:00 General discussion
- 18:20-20:20 Dinner (on campus)

January 24 (Wednesday)

- 9:30-10:10 (**Keynote**) Simulation of transition metals toward the prediction of oxidative potential and health hazard of aerosols in East Asia
Mizuo Kajino (Meteorological Research Institute), Joseph Ching, Yasuhito Igarashi, Kouji Adachi, Yuji Zaizen, Tsuyoshi Thomas Sekiyama, Hiroyuki Hagino, Tazuko Morikawa, Tetsuo Fukui, Kazunari Onishi, Yuji Fujitani, Akiko Furuyama, Masaki Ohata, Chikako Cheong
- 10:10-10:40 Development of a global aerosol model using a two-dimensional sectional method
Hiroshi Matsui (Nagoya University)
- 10:40-11:10 The impact of aerosol mixing state on aerosol deposition in human respiratory tract and CCN activity
Joseph Ching (Meteorology Research Institute) and Mizuo Kajino
- 11:10-11:25 Break
- 11:25-11:55 Development and applications of a palm-sized optical PM_{2.5} sensor: Personal exposure measurements and installation in Asian countries
Yutaka Matsumi (Nagoya University), Tomoki Nakayama

- 11:55-12:25 Development of measurement techniques of physical and chemical characteristics of ambient aerosols related to their adverse health effect
Tomoaki Okuda (Keio University)
- 12:25-14:00 Lunch Time
- 14:00-14:40 (**Keynote**) Source apportionment of atmospheric aerosols: from chemical characterisation to health impacts
Mar Viana (Institute of Environmental Assessment and Water Research (IDAEA-CSIC)), N. Fann, A. Tobías, X. Querol, D. Rojas-Rueda, G. Aynos, and C. Fernández
- 14:40-15:10 Observations of nitrated aromatic hydrocarbons in PM_{2.5} at day and night in summer and fall in Nagoya city
Fumikazu Ikemori (Nagoya City Institute for Environmental Sciences), Tomoki Nakayama, and Hitomi Hasegawa
- 15:10-15:40 Long-term trends of water-soluble organic aerosols at Chichijima Island in the western North Pacific: Environmental changes in the marine atmosphere
Kimitaka Kawamura (Hokkaido University/Chubu University) and Eri Tachibana
- 15:40-15:55 Break
- 15:55-16:25 Structural characterization of humic-like substances in atmospheric aerosol and their sorption properties of polycyclic aromatic hydrocarbons
Daichi Asakawa (Osaka City Research Center of Environmental Science)
- 16:25-16:55 Characterization of cloud condensation nuclei in a forest in Kii Peninsula, Japan
Michihiro Mochida (Nagoya University), Deng Yange, Kaori Kawana, Yuemei Han, Sara Kagami, Shuhei Ogawa, Yoko Iwamoto, Tomoki Nakayama, Ryo Kubodera, Kouji Adachi, Kimitaka Kawamura, and Tareq Hussein
- 16:55-17:25 Investigation on the ice nucleation activity of Asian dust
Atsushi Matsuki (Kanazawa University), A. Iwata, K. Tadokoro, K. Ito, and T. Mizukami)
- 17:25-17:50 General discussion and closing remarks

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