Preface

This special issue of Atmospheric Research is comprised of selected contributions presented at the 6th International Conference on Fog, Fog Collection and Dew, held in Yokohama, Japan from May 19 to 24, 2013.

A total of 109 scientists from 26 countries participated in the meeting with 130 presentations. The contributions covered the full breadth of the theme, focusing on fog and dew that includes its collection, chemistry, physics, dynamics, numerical modeling, detection by remote sensing and ground based measurements, interaction with vegetation and ecosystems, and impacts on aviation and transportation systems. The diversity of the oral and poster presentations, in terms of topics and geographical origin, reflects the importance of this field and the breadth and dynamism of a growing community of fog and dew researchers.

The local organizing committee was chaired by Prof. Manabu Igawa (Kanagawa University) and co-chaired by Profs. Mitsuo Uematsu (University of Tokyo), Norimichi Takenaka (Osaka Prefecture University) and Hiroshi Okochi (Waseda University). The scientific committee was headed by Prof. Jeffrey L. Collett, Jr. (Colorado State University). His leadership was highly appreciated and was instrumental to the success of the conference organization and special issue success.

The conference was under the auspices of the Ministry of the Environment of Japan, the Kanagawa Prefecture, Yokohama City, the Science Council of Japan, the Japan Society of Atmospheric Environment, and the Meteorological Society of Japan. The conference was sponsored by the following institutions: the Commemorative Organization for the Japan World Exposition (‘70), the Obayashi Foundation, the Inoue Foundation for Science, the Kajima Foundation, the Tokyo Ohka Foundation for the Promotion of Science and Technology, the Asahi Glass Foundation, the MIKIYA Science And Technology Foundation, the Yokohama Convention & Visitors Bureau, H. Ikeuchi & Corporation Limited, Kimoto Electric Company, and Horiba Limited.

This present special issue features 20 original papers and 2 invited reviews that we believe capture the diversity of the presentations given during the conference. The review articles provide an overview of our current knowledge on a) ice fog that is a major prediction and observational issue in the northern latitudes, including the Arctic, and b) three decades of observational fog analyses in the Central Valley of California that reflect changes in regional air quality and climate. Original articles describe novel instrumentation and their measurements for fog microphysics and dynamic processes in fog layers, chemistry, and radiative properties. Fog chemistry through laboratory, modeling and observational studies, focusing on nitrogen compounds (amines and nitrosamines) as well as secondary organic aerosol generation, is presented in several articles. One of the studies discusses the variability of fog composition with altitude in mountainous terrain while another study presents observations of radionuclides in fog water after the Fukushima Dai-ichi nuclear accident. Several manuscripts provide new insights into hydrological, nutrient, and pollutant inputs to terrestrial ecosystems by fog and cloud water deposition. The novel approaches such as the use of stable isotopes advance our understanding of dew effect in particular on water budget estimates of ecosystems in critical climatic environments.

Fog collection for water use has been a topic of research for many years; two manuscripts in this issue deal with the design of fog collectors. This area is a major challenge not only for scientists but mainly for practitioners.

Overall, several articles focus on fog climatology, and fog numerical modeling and forecasting. These articles address the issues related to fog physics and chemistry and their microphysical presentation in numerical weather prediction and climate models.

The following conference on the same subject with new scientific and operational issues is already planned. The 7th International Conference on Fog, Fog Collection and Dew will be held in 2016 in Wroclaw, Poland.

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Guest Editors of the Special Issue

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