

International Symposium on Weather Modification

Recent Progress in Precipitation Enhancement Research

Date :

3 – 4 March, 2011

Venue :

Tsukuba International Congress Center (Conference Room 101)
2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan

* Internet access with DHCP is available.

Registration :

from 09:30 a.m. on Thursday 3 March, 2011,
at the registration desk in front of the "Room 101"

Transportation :

Take the Bus bound for Tsuchiura. It departs at No.8 bus stop of Narita Airport Terminal 1 and No.10 bus stop of the Terminal 2. The ticket is sold at the KEISEI Counter in the Arrival Lobby (ground floor). It takes about an hour and 40 minutes to Tsukuba Center.

Bus ticket from Narita AP to Tsukuba Center (one way) costs 2,540 yen
Tsukuba International Congress Center EPOCHAL TSUKUBA is located within walking distance from Tsukuba Center (5 minute walk).

Organizer :

Secretariat of Japanese Cloud Seeding Experiment for Precipitation Augmentation

<http://jcsepa.mri-jma.go.jp/>

Meteorological Research Institute, Japan Meteorological Agency

<http://www.mri-jma.go.jp/>

Program

International Symposium on Weather Modification Recent Progress in Precipitation Enhancement Research

3– 4 March, 2011

Tsukuba International Congress Center EPOCHAL TSUKUBA, Tsukuba, Japan

Oral Sessions

Thursday, 3 March, 2011

09:30 – Registration

10:00 – 10:10 Opening remarks Room 101

Masataka Murakami, Principal Investigator

JCSEPA (Japanese Cloud Seeding Experiment for Precipitation Augmentation)

10:10 – 16:40 Session I. Weather Modification Projects Room 101

Chairperson **Narihiro Orikasa**

Meteorological Research Institute, Japan

10:10 – 10:40

**S101. Introduction and Scientific Results of the Weather Modification Project
in Thailand**

Warawut Khantiyanan

BRRAA, Thailand

10:40 – 11:10

**S102. Study on Precipitation Enhancement Techniques for the Complex
System of Stratiform and Embedded Convective Clouds**

Zhanyu Yao*, Lei Lin, and Fei Yu

Chinese Academy of Meteorological Sciences, Beijing 100081, China

11:10 – 11:40

S103. Some Results on the Artificial Regulation of Precipitation in Russia

G. Beriulev¹, B. Danelyan*¹, V. Korneev², and B. Koloskov².

¹Central Aerological Observatory, Russia

²Agency of Atmospheric Technologies, Russia

11:40 – 13:40

————— **Lunch and Poster** —————

13:40 – 14:10

S104. Cloud Seeding in Israel: Planning the Israeli-4 Experiment

Amir Givati*¹ and Daniel Rosenfeld²

¹ Israeli Hydrological Service, Water Authority, Jerusalem, Israel

² Institute of Earth Science, Hebrew University of Jerusalem, Israel

14:10 – 14:40

S105. The Current State and Prospects of Weather Modification in Korea

Chulkyu Lee*, Jae-Won Jung, Jin-Yim Jeong, Ha-Young Yang, Jin-Young Bae,
Seong-Kyu Seo, Ki-Ho, Chang, Joo-Wan Cha, and Young-Jean Choi

National Institute of Meteorological Research, Korea Meteorological Administration,
Seoul 156-720, Republic of Korea

14:40 – 15:10

————— **Coffee and Poster** —————

15:10 – 15:40

**S106. Cloud Aerosol Interaction and Precipitation Enhancement Experiment
(CAIPEEX), Indian National Experiment**

J. R. Kulkarni*, R.S. Maheshkumar, S. B. Morwal, B. Padmakumari, M. Konwar,
C.G. Deshpande, R.V. Bhalwankar, R.R. Joshi and B.N. Goswami
Indian Institute of Tropical Meteorology, Pune, India.

15:40 – 16:10

**S107. Current State Cloud Seeding Experiments and Applications in
Indonesia**

Erwin Mulyana* and Samsul Bahri

Weather Modification Technical Service Unit, Agency for the Assessment and Application
of Technology, Indonesia

16:10 – 16:40

**S108. Japanese Cloud Seeding Experiments for Precipitation Augmentation
(JCSEPA) - New Approaches and Some Results from Wintertime and
Summertime Weather Modification Program -**

Masataka Murakami* and JCSEPA research group
Meteorological Research Institute, Japan

Friday, 4 March, 2011

09:20 – 14:20 Session II. Glaciogenic Seeding

Room 101

Chairperson Toshiyuki Nakaegawa

Meteorological Research Institute, Japan

09:20 – 09:50

**S201. Design of the Wyoming Weather Modification Pilot Program
Randomized Seeding Experiment**

Daniel Breed*, Matthew Pocerlich, and Roy Rasmussen

Research Applications Laboratory, National Center for Atmospheric Research, Boulder,
CO 80307 USA

09:50 – 10:20

**S202. Observations of Supercooled Liquid Water over Tasmania, Southeast
Australia and the Southern Ocean**

Steven T. Siems*, Michael J. Manton, Anthony E. Morrison, Yi Huang, and Luke B.
Hande

Monash Weather and Climate, Monash University, Melbourne Victoria, Australia

10:20 – 10:50

————— Coffee and Poster —————

10:50 – 11:20

**S203. Ice in Convective Clouds and the Implications for Cloud Seeding
Experiments**

Roelof Bruintjes

Research Applications Laboratory, National Center for Atmospheric Research, Boulder,
CO 80307 USA

11:20 – 11:40

**S204. An Observational Study of Changes in Cloud Microphysical Properties
through Glaciogenic Seeding by Dry Ice During the Japanese
Orographic Snow Cloud Modification Projects**

Narihiro Oriokasa*, Masataka Murakami, Atsushi Saito, Hedeaki Ohtake, Akihiro Ikeda,
and Kazumasa Yoshida

Meteorological Research Institute, Japan

11:40 – 13:40

————— **Lunch and Poster** —————

13:40 – 14:00

**S205. Cloud Seeding Experiment Using the Cloud Resolving Model
JMANHM**

Akihiro Hashimoto* and Masataka Murakami
Meteorological Research Institute, Japan

14:00 – 14:30

**S206. Analysis and Outcomes of a Cloud Seeding Project in the Snowy
Mountains of Australia**

Loredana Warren*¹ and Michael J. Manton²

¹ Snowy Hydro Limited, Sydney, Australia

² School of Mathematical Sciences, Monash University, Melbourne, Australia

14:30 – 15:00

————— Coffee and Poster —————

15:00 – 16:20 Session III. Hygroscopic Seeding

Room 101

Chairperson **Tomoki Koshida**
IDEA Consultants Inc., Japan

15:00 – 15:20

**S301. MRI Cloud Chamber Experiments: A Laboratory Testbed for
Evaluating the Relation between Hygroscopic Seeding Particles,
Its CCN Activity and Droplet Growth**

Takuya Tajiri

Meteorological Research Institute, Japan.

15:20 – 15:50

**S302. Evaluating Hygroscopic Cloud Seeding in Southeast Queensland,
Australia: A Synthesis of Physical and Statistical Analyses**

Sarah A. Tessendorf*, Roelof Bruitjes, Courtney Weeks, James Wilson, Charles Knight, Rita Roberts, Mike Dixon, Matt Pocerlich, Ed Brandes, and Kyoko Ikeda
National Center for Atmospheric Research, Boulder, CO, USA

15:50 – 16:20

**S303. Effect of Hygroscopic Seeding on Warm Rain
-Numerical Study Using a Hybrid Cloud Microphysical Model-**

Naomi Kuba*¹ and Masataka Murakami²

¹Research Institute for Global Change, Japan Agency for Marine-Earth Science and
Technology, Yokohama, Japan

²Meteorological Research Institute, Tsukuba, Japan

Masataka Murakami, Principal Investigator
JCSEPA (Japanese Cloud Seeding Experiment for Precipitation Augmentation)

Posters

11:40 – 13:40, Thursday, 3 March

Room 101

11:40 – 13:40, Friday, 4 March

Room 101

Presenters of odd-numbered posters are required to stand by their posters during an hour within the poster session (11:40 – 13:40) on Thursday, 3 March. For even-numbered posters, presenters are required to do the same but on Friday, 4 March.

P1. Comparison of Automatic Snowfall Measurements by Laser, Ultrasonic, and Imaging Snow Depth Meters

Jin-Young Bae*, Chulkyu Lee, Seong-Kyu Seo, Jae-Won Jeong, Jung-HoLee, Joo-Wan Cha, Ki-Ho Chang, and Young-Jean Choi

Hydrometeorological Resources Research Team, National Institute of Meteorological Research, Korea Meteorological Administration, Korea

P2. Status and Development of Investigation on Fog Dispersion in Russia

Yu. A. Borisov

Central Aerological Observatory, Dolgoprudny, Moscow Region, Russia

P3. Characteristic Analysis of Cloud Water Resources over Jiangxi Province

Yulin LI¹, Wanyou WU¹, Dingjun CAI^{*1}, Xiaohuang HUANG¹, Dejun LI¹, and Honggui HU²

¹ Jiangxi Provincial Weather Modification Office, Nanchang 330046, China

² Lushan Meteorological Office, Jiangxi Province, Lushan 330900, China

P4. Occurrence Frequency of Suitable Clouds for Glaciogenic and Hygroscopic Seedings

Hiroshi Fujita*, Hideshige Iida, Hideo Ikazaki(JWA), Yuji Ohhigashi(MELOS), Yuichi Ohno(NICT), Takuya Tajiri, Tetsu Sakai, Masahisa Nakazato, Hiroshi Ishimoto and Masataka Murakami(MRI)

P5. Remote Sensing Studies on Artificial Rainfall and Snowfall

Masahito Ishihara

Meteorological Research Institute, Japan

P6. The Vehicle-Based Weather Modification Operation Command System

Weiping Jin

Jiangxi XinYuGuoTai Rocket Technology Co. Ltd, Xinyu 338034, China

P7. Atmospheric Circulation Related to Okinawa Drought

Hiroataka Kamahori* and Fumiaki Fujibe

Meteorological Research Institute/JMA, Tsukuba, Japan

P8. An Attempt to Improve a Statistical Evaluation Method by Introducing a Physical Prediction Factor for Catchment's Precipitation

Katsuyuki Koike*¹, Masataka Murakami², Akihiro Hashimoto²

¹IDEA Consultants Inc., Yokohama, Japan

²Meteorological Research Institute, Tsukuba, Japan

P9. The Occurrence of Seedable Clouds in the Warm Season for Mitigating Water Shortage Problems

Tomoki Koshida

IDEA Consultants Inc., Hayabuchi2-2-2, Tsuzuki-ward, Yokohama, Japan

P10. Potential Applicability of the Seasonal Climate Prediction to Water Resources Managements: A case study for the upper Tone River Basin, Japan

Toshiyuki Nakaegawa* and Seasonal Climate Prediction group

Meteorological Research Institute, Japan

P11. Development of cloud profiling radar for monitoring seedable clouds

Yuji Ohigashi

MELOS, Japan

P12. Statistical Validation of a Cloud Resolving Model Against Aircraft Observations of Orographic Snow Clouds.

Hideaki Ohtake*, M. Murakami, N. Orikasa, A. Saito, T. Kato and A. Hashimoto.

Meteorological Research Institute, Tsukuba, Japan

P13. Study of Cloud Microphysics Using Radar and Lidar

Hajime Okamoto

Kyushu University, Japan

P14. Observation and Comparative Analysis on Precipitation Particle Size Spectrum and Droplet Velocity Distribution

Jiangping Pu*¹, Guoguang Zheng², Mei Lv¹, and Zhanyu Yao²

¹ Institute of Meteorology, PLA University of Science, Nanjing, 211101

² Chinese Academy of Meteorological Sciences, Beijing, China, 100086, China

P15. A New Continuous Flow Diffusion Chamber for Airborne Measurement of Ice Nuclei over Japan

Atsushi Saito* and Masataka Murakami
Meteorological Research Institute, Tsukuba, Japan

P16. Warm Fog Dissipation by the Hygroscopic Seeding and Its Validation

Seong-Kyu Seo*¹, Jae-Won Jeong¹, Jin-Young Bae¹, Chulkyu Lee¹,
Jin-Yim Jeong¹, Ki-Ho Chang¹, Young-Jean Choi¹, and Kyoung-Sik Kim²

¹National Institute of Meteorology Research, Seoul, Korea

²Pukyong National University, Busan, Korea

P17. Nucleation and Droplet Growth of CCN and GCCN Simulated by the Cloud Chamber and the Microphysical Parcel Model

Katsuya Yamashita*, Takuya Tajiri, and Masataka Murakami
Meteorological Research Institute, Tsukuba, Japan

P18. Evaluation of Snow Augmentation by Cloud Seeding for Drought Mitigation

Yuichi Yoshida*¹, Masataka Murakami², Yoshikazu Kurumizawa³, Teruyuki Kato⁴, Akihiro Hashimoto⁴, Takeshi Yamazaki², and Noriyuki Haneda⁶

¹Japan Weather Association, ²Meteorological Research Institute, ³Tonegawa Integrated Dam and Reservoir Group Management Office, ⁴Meteorological Research Institute, ⁵Graduate School of Science, Tohoku University, ⁶Nihon Suido Consultants Co., Ltd, Japan

Instructions to Presentations

Poster presentations

Poster panels will be 2.1 m high and 1.0 m wide. Push tacks are available. Posters should be set up in the morning of March 3 and removed in the late afternoon of March 4. Presenters of odd-numbered posters are required to stand by their posters during an hour within the poster session (11:40 – 13:40) on Thursday, 3 March. For even-numbered posters, presenters are required to do the same but on Friday, 4 March.

Oral presentations

Oral presentation time frame for a invited speaker will be 30 minutes and, for JCSEPA members, will vary but range from 20 to 30 minutes, including discussion for 5 minutes. Chairperson will notify the time left for speakers at 10 and 5 min before the end.

Reception

Reception will be held from 5:30 to 7:30 pm on Thursday, 3 March at the restaurant Espoir in the Tsukuba International Congress Center EPOCHAL TSUKUBA. Charge is 6,000 JPY. Excellent foods and drinks will be served.

Another reception will be held at 6:00 pm on Saturday 5 March. Details will be informed by Saturday.