



**10th WMO Scientific Conference on Weather Modification
(Bali, Indonesia, 4-7 October 2011)**

Conference Program

Tuesday 4 October 2011

09:00 – 10:30 MEETING OPENING

Chairman: Host representative

World Meteorological Organisation Representative: Weather modification research – WMO prospective

Minister of Research and Technology or Chairman of the BPPT: Welcome speech

Permanent Representative of Indonesia with WMO: Welcome speech

Chairman of BPPT: Welcome speech

Chair of the WMO Weather Modification Expert Team: Weather Modification in the Century of Weather, Water and Climate Challenges

Local Organizing Committee Representative: Logistic information

10:30 – 11:00 TEA/COFFEE BREAK

11:00- 12:00 INVITED TALKS

Chairman: M. Murakami

11:00 – 11:20

G. Vali: The race for ice

11:20 – 11:40

R. List: Invigorating and elevating weather modification

11:40 – 12:00

Z. Levin: Lessons learned from 50 years of cloud seeding in Israel

12:00-13:30 LUNCH

ORAL PRESENTATIONS

13:30 – 15:30 OBSERVATIONAL AND LABORATORY STUDIES

Chairman: S. Tessendorf

Ma XinCheng, Huang MengYu, Jin Hua, Zhang Lei, Zhang Qiang: Aircraft Measurements of Aerosols, Clouds and Precipitation Over Beijing

Daniel Martínez, Carlos A. Pérez, Guillermo Puente, Félix Gamboa, Sadiel Novo, Ibis Rivero, Graciela Angulo, Ismael Pomares, Alexei Gamboa, Elsa Velazco, Michel Rodríguez and Ernesto Chang: Artificial rainfall enhancement program in Cuba by convective cloud seeding. Achievements and shortcomings in the period 2005-2010.

Masataka Murakami and JCSEPA research group: Japanese Cloud Seeding Experiments for Precipitation Augmentation (JCSEPA) --- New Approaches and Some Results from Wintertime and Summertime Weather Modification Programs

P. A. Nesmeyanov, V. P. Korneev, M. S. Reznikov, V. N. Yemel'yanov and V. O. Sapozhnikov: Russian Technology for Regulation of the Processes of Atmospheric Precipitation Formation, Prevention of Formation and Fall of Hailstones and Fogs Dispersion

Thara V. Prabha, A. Khain, R. S. Maheshkumar, G. Pandithurai, J. R. Kulkarni, and B. N. Goswami: Microphysical signatures of aerosol-cloud interaction in the monsoon environment during CAIPEEX

Jiangping Pu, Wenhua Zeng, Zhanyu Yao, Wei Zhang and Yongyi Li: Compared Radar Reflectivity with Heavy Rain Droplet Size Distribution

Findy Renggono, Erwin Mulyana, Tri Handoko Seto, Budi Harsoyo, Djazim Syaifullah: Lake and Land Breezes on Lake Towuti and Their Effect on Convection in Larona Catchment Area, Sulawesi, Indonesia

Abdoulaye Sarr: New Development in the Senegalese Rain Enhancement Program "BAWAAN": Investigating key components in support to operations.

15:30 – 16:00 TEA/COFFEE BREAK

16:00 – 17:45 OBSERVATIONAL AND LABORATORY STUDIES

Chairman: Abdoulaye Sarr

Tri Handoko Seto, Samsul Bahri, Halda Aditya, Moch. Muchlis, Mahally Kudsy, Moh. Husni, Yusef Tiansyah, Rino B. Yahya, Heru Widodo, Mimin Karmini and Andi Suntoro: Weather Modification Program using Flare Technique at South Sulawesi, Indonesia – A Technology Transfer

Lijuan Su, Dabuxilatu, Shiqing Lu, Xiaodong Deng and Bing Yan: A Study of the Characteristics of Atmospheric Water Vapor and Its Relationship with Precipitation Using GPS Data

Hongping Sun, Peiren Li and Shiming Yan: A Study of Micro-physical Characteristics and Seedability of Cold Stratiform Clouds in North China

Sarah A. Tessendorf, Courtney E. Weeks, Roelof T. Brientjes and Duncan Axisa: Cloud base aerosol characteristics and implications for microphysics from the Queensland Cloud Seeding Research Program

Xilatu Dabu, Shiqing Lu, Lijuan Su, Chengcai Li and Bin Yan: Monitoring Atmospheric Precipitable Water Using MODIS Satellite

Xueliang Guo and Danhong Fu: Effects of Giant-Particle Seeding on Cloud Microphysics and Precipitation Derived from Mesoscale Cloud-resolving Numerical Simulation

A.S. Drofa, V.G. Eran'kov, V.N. Ivanov, A.G. Shilin, G.F. Yaskevich: Experimental studies of salt powder efficiency at convective cloud modification for precipitation enhancement

Wednesday 5 October 2011

08:30 – 10:30 OBSERVATIONAL AND LABORATORY STUDIES

Chairman: G. Vali

U. Haryanto, R. D. Goenawan and D. Harsanti: The Development of Hygroscopic Cloud Seeding Flare In Indonesia: Evaluation and Measurement of Distribution Particles

B.P. Koloskov, V.P. Korneev, G.P. Beryulev, B.G. Danelyan, V.N. Stasenko: Twenty-five years of cloud seeding activity to modify weather conditions in cities

J. R. Kulkarni, R. S. Maheshkumar, S. B. Morwal, B. Padma Kumari, Mahen Konwar, C. G. Deshpande, R. Joshi, R. V. Bhalwankar, G. Pandithurai, P.D. Safai, S. G. Narkhedkar, K. K. Dani, A. Nath, Sathy Nair., V. V. Sapre, P. V. Puranik, S. Kandalgaonkar, V. R. Mujumdar, R. M. Khaladkar, R. Vijayakumar, V. P. Thara and B. N. Goswami: Overview of CAIPEEX – Cloud-aerosol interaction experiment over Indian region

Lei Ji, Jianli Ma, Hongyu Li, Wei Zhou, Qiang Zhang, Jianzhong Liu: Analysis of Radar and Airborne Data for Artificial Seeding Effects

Andre A. Sinkevich, Terrence W. Krauss and Ayman S. Ghulam: Radar Investigation of Agl Seeding Efficiency in the Kingdom of Saudi Arabia

Samsul Bahri, Halda Aditya, F. Heru Widodo, Tri Handoko Seto: Weather Modification Activities in Indonesia

Terrence W. Krauss, Duncan Axisa, and Roelof Burger: Observations of Hygroscopic Flare Particles at Various Relative Humidity

Jun Zhou, Hengchi Lei, Hongbin Chen, Yanfei Wang, Zhen Zhao and Lei Ji: Retrieval of Cloud Liquid Water Content Distribution at Vertical Section for Microwave Radiometer Using 2D Tomography

10:30 – 11:00 TEA/COFFEE BREAK

11:00 – 12:45 OBSERVATIONAL AND LABORATORY STUDIES

Chairman: Tri Handoko Seto

Duncan Axisa, Lulin Xue, Roelof Burger, Don Collins, Evelyn Freney, Paul Kucera, Roelof Bruintjes and Peter Buseck: Evolution of boundary layer thermodynamics, aerosol and cloud microphysics during the weather modification assesment program in the southwest region of Saudi Arabia

Hayat Khan Azmat: Qualitative Assessment of the Effectiveness of Summertime Cloud Seeding Experiments in South-eastern Sindh-Pakistan

Siriluk Chumchean and Walairat Bunthai: Testing Efficacy of Rainmaking Activities in the Northeast of Thailand

Ying Duan, Jing Duan, Liling Ju: The Study of Distribution Character on Aerosols, Cloud Droplet and CCN over North China Useing Aircraft Observational Data

Jianli Ma: X-band dual linear polarimetric radar wave attenuation impact on hail identification

Yanwei Li and Niu Shengjie: Initial part discussion of cloud merger

Bart Geerts, Qun Miao, Dan Breed, Roy Rasmussen: Airborne radar and lidar studies of ground-based glaciogenic seeding of orographic clouds: preliminary findings and upcoming field campaign plans in Wyoming

12:45-14:15 LUNCH

14:15- 16:15 MODELLING STUDIES

Chairman: Theodore Karacostas

Mahally Kudsy, Ridwan, Findy Renggono and Faisal Sunarto: The Use of WRF Model To Support Cloud Seeding Operation: A Study in the Citarum Catchments Area

Rabia Merrouchi, Abdalah Mokssit, Jacques Piazzola and Mohamed Chagdali: Impact of natural production of coastal marine aerosols on convective clouds as simulated using cloud model with detailed microphysics: Comparison to cloud seeding with hygroscopic flares

Peiren Li, Junxia Li, Lijun Jin, Dongdong Shen and Gang Ren: A Numerical Study of Macro and Micro Structures of Stratus Precipitation Cloud in Spring of Shanxi Province

Yueqin Shi: Numerical Seeding Experiments on Stratiform Clouds in Spring in North China

Vlado Spiridonov, Zoran Dimitrovski and Mladjen Curic: Strategy of seeding using the results of a modelled hailstorm splitting

Yilin Wang and Zhanyu Yao: The improvement of cannon precipitation enhancement operations

Zhanshan Ma and Qijun Liu: Comparisons of Cloud Microphysical Characters between Mesoscale Model for Artificial Precipitation Enhancement and Satellite Observations

Daniel Breed, Lulin Xue and Roy Rasmussen: Numerical modelling studies in support of the Wyoming Weather Modification Pilot Program

16:15 – 16:45 TEA/COFFEE BREAK

16:45 – 17:45 MODELLING STUDIES

Chairman: Junxia Li

Joseph H. Golden, Daniel Rosenfeld, William R. Cotton, William L. Woodley, Isaac Ginis, Alexander Khain: Assessing A New Approach to Tropical Cyclone Modification by Hygroscopic Smoke

Xiaomin Chen: Numerical Simulation Studies with New Double-moment Explicit Microphysical Scheme in GRAPES

B. Sh. Kadyrov and V.P. Kurbatkin: Methods of modelling in controlling the processes in clouds

Theodore Karacostas, Vlado Spiridonov, Dimitrios Bampzelis and Ioannis Pytharoulis: A three-dimensional numerical simulation of supercell hailstorm seeding over Greece using a cloud model

Thursday 6 October 2011

09:00 – 11:00 MODELLING STUDIES

Chairman: B.P. Koloskov

Vlado Spiridonov and Mladjen Curic: Modeling of rainfall enhancement by seeding tropical convective clouds

Kien Truong Ba: Study, choose microphysics and cumulus convection schemes in WRF Model to forecast heavy rain in Vietnam

Steven T. Siems and Michael J. Manton: Recent Progress in Glaciogenic Cloud Seeding over Southeast Australia and Tasmania

Sohaila Javanmard, Mahla Karimpirhayati, Javad BodaghJamali, Yusefali Abedini: Application of numerical cloud model in hail suppression of cold clouds

Xiaofeng Lou, Guanfang He, Zhijin Hu, Xing Zhang: Development of salt-seeding scheme in 3-D convective cloud model and seeding simulations

XiaoLi Liu and ShengJie Niu: Numerical simulation of macro- and micro-structures of intense convective clouds with a spectral bin microphysics model

Hongbin Li, Yuke He, Fansheng Zhao, Wenyao Pu: Applications of Doppler Radar Characteristic Parameters in Artificial Hail Suppression Decision Making

Junxia Li, Peiren Li, Yue Tao, Lijun Jin, Gang Ren: Contrast and Analysis of Numerical Simulation Results with the Airborne Detection Data of Precipitation Clouds

11:00 – 11:30 TEA/COFFEE BREAK

11:30 – 13:00 SEEDING MATERIAL AND METHODS OF DELIVERY

Chairman: V. Stasenko

Sutrisno, Tri Handoko Seto, Samsul Bahri, Tukiya, Heru Widodo, Sunu Tikno, Budi Harsoyo, Djazim Syaifullah, Halda Aditya, Mimin Karmini and Krisna Aditya, Dini Harsanti: Weather Modification Program using Powder at West Java, Indonesia

Sarah A. Tessendorf, Roelof Brintjes, Courtney Weeks, James W. Wilson, Charles A. Knight, Rita D. Roberts, Michael Dixon, Matt Pocernich, Peter R. Buseck, Evelyn Freney, and Duncan Axisa: A synthesis of physical and statistical analyses from the Queensland Cloud Seeding Research Program

M.T. Abshaev, A.M. Abshaev, B.K. Kuznecov, A.F. Kotelevich, T.H. Guzoev, N. Balakova, H.H. Chochaev, B.V. Yakushkin, R.N. Ponomarenko, V.S. Trifonov: New advances in automation of anti-hail rocket technology

Mladjen Ćurić and Dejan Janc: Estimation of the deposited silver-iodide in the Hail Suppression Project in Serbia

Viktor Makitov: Integral radar parameters of hailstorms used on hail suppression projects.

Prapaporn Srisathidtham and Wassana Wongrat: Cloud Seeding Techniques in Eastern Region of Thailand

13:00-14:30 LUNCH

14:30 – 15:30 DATA ANALYSIS AND STATISTICAL METHODS

Chairman: D. Breed

Kianoush Keshavarzian: Assessment of cloud seeding projects using a combination of 'MAX' and 'SRI' radar images

Vlado Spiridonov and Mladjen Curic: A sensitivity study of the hailstorm seeding

M.T. Abshaev, A.M. Abshaev and A.M. Malkarova: Estimation of antihail projects efficiency considering the tendency of hail climatology change

Ružica Đurić: Efficiency of hail suppression based on radar data analysis

15:30 – 16:00 TEA/COFFEE BREAK

16:00 – 17:00 DATA ANALYSIS AND STATISTICAL METHODS

Chairman: D. Rosenfeld

S.G. Filippov: Estimation of orographic precipitation in the zone of spreading of the river flow in Uzbekistan

Daniel Breed: Design and preliminary results of the Wyoming Weather Modification Pilot Program Randomized Seeding Experiment

Zhanyu Yao, Ling Hou: Weekly Circulation Characteristics of Aerosol and Precipitation and the Possible Influencing Mechanism Analysis in Beijing and Surrounding Areas

Niu Shu-Zhen, Bao Xiang-Dong, Xi Shi-Ping, Yang Min: Analysis Application of Satellite Nephogram and CINRADAR Products in the Precipitation Enhancement Processes

EVENING AFTER DINNER: SESSION ON GEOENGINEERING ISSUES

Chairman: R. Bruntjes

Forum on "GEO-ENGINEERING AND CLIMATE CHANGE".

Friday 7 October 2011

08:00 – 10:00 WEATHER MODIFICATION AND THE PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT

Chairman: R. Bruntjes

Jean-Pierre Chalon: A short review on Geo-engineering proposals to fight against climate change

Roland List: 'Do no harm' geoengineering of climate and hurricanes

Zawiah Mohd Taib: Weather modification in Malaysia

M.V. Belyaeva, A.S. Drofa, V.N. Ivanov: Efficiency of Precipitation Enhancement from Convective Clouds at Salt Powder Modification

Budi Harsoyo, Nora H. Pandjaitan, Dwi Putro Tejo Baskoro: Analysis of Water Balance and Aridity Index to Detect the Effect of Global Warming in Catchment and Irrigation Area of Jatiluhur Dam

Ruijun Jin, Wan Wang, Wei Song, Zhaoyu Wang: Tianjin Precipitation Feature and Analysis of Weather Modification Influence

B.Sh. Kadyrov, V.P. Kurbatkin, V.F. Ushintseva: Demands of users in additional precipitation in Uzbekistan in the limits of their possible supply

Daniel Rosenfeld, Xing Yu, Guihua Liu, Xiaohong Xu, Yannian Zhu, Zhiguo Yue, Jin Dai, Zipeng Dong, Yan Dong, Yan Peng: Glaciation activity of desert dust, air pollution and smoke from forest fires in convective clouds

10:00 – 10:30 TEA/COFFEE BREAK

10:30 – 11:00 WEATHER MODIFICATION AND THE PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT

Chairman: J-P Chalon

Tri Handoko Seto, Samsul Bahri, Heru Widodo, Erwin Mulyana, Budi Harsoyo and Mimin Karmini: Weather Modification for Rain Reduction - A Conceptual Design

Stephen Beare, Ray Chambers, Scott Peak: Uncertainty and the Economic Implications of Weather Modification – Integrating Hypothesis Testing into Benefit-Cost Analysis

POSTER PRESENTATIONS

Qian Gao, Guanghe Wang, Yueqin Shi: Numerical Simulation and Seeding Tests on the Stratiform Precipitation in North China

B.P. Koloskov, V.P. Korneev, A.V. Kleimenova, B.N. Sergeev, A.V. Shapovalov: Numerical simulation of seeding material dispersion by ground-based Agl generators in mountainous terrain

Lixin Shi, Xiaobo Dong, Feng Lu and Xiangfeng Hu: Observations of Haze Aerosols over North China During Autumn 2009

Yuwen Sun, Wei Liu, Zhijun Zhao, Anying Shi, Yan Jiang: Hail types and Distribution of Related Factors

Dianli Gong and Shijun Liu: The Numerical Analysis About Water Vapor Budget and Precipitation Efficiency During July-October, 2003 in Shandong Province in China

M.V. Belyaeva, A.S. Drofa, V.N. Ivanov, Ridwan, M. Kudsy, U. Haryanto and R.D. Goenawan: Efficiency of Precipitation Enhancement from Convective Clouds at Salt Powder Modification

Rifeng Sheng, Zhanshan Ma, Jun Wang, Hongsheng Zhang and Peng Jiang: An analysis of a heavy snow occurred in Shandong Province of China in 2009

Zhen Zhao and Heng-Chi Lei: Numerical Simulation of Seeding Extra-Area Effects of Precipitation Using MM5

O.I. Drivotin, A.S. Drofa, A.V. Savchenko, A.G. Shilin, V.A. Shilin: Numerical Simulation of Heterogeneous Pyrotechnic Compounds Combustion Processes

Sohaila Javanmard, Samane Golestani, Javad BodaghJamali, Yusef A. Abedini: Investigating on Microphysical Clouds Parameters Using Satellite TRMM-TMI