8:30 – 9:00 **OPENING AND WELCOME** **HS 9 + HS 8**

1.1 **BASIC CLOUD AND PRECIPITATION PHYSICS** **HS 9 + HS 8**

Chair: Y. Fujiyoshi, R. Cotton

09:00 **1.1-1 | Early Ice Formation in Tropical Maritime Convection:Results from ICE-T (invited talk)**
A. Heymsfield, P. Field

09:15 **1.1-2 | Predicting the Density of Graupel in Bulk Microphysics Schemes**
J. A. Milbrandt, H. Morrison

09:30 **1.1-3 | A new mechanism of droplet size spectra broadening during diffusional growth**
A. Korolev, M. Pinsky, A. Khain

09:45 **1.1-4 | The Growth of Atmospheric Ice from the Vapor: Approximations, Problems, and Possible Improvements**
J. Harrington, K. Sulia, C. Zhang, D. Lamb

10:00 – 10:30 **Coffee break**

1.2 **BASIC CLOUD AND PRECIPITATION PHYSICS** **HS 9 + HS 8**

Chair: Y. Fujiyoshi, R. Cotton

10:30 **1.2-1 | Toward the assessment of the role of cloud turbulence in warm-rain development**
W. W. Grabowski, A. A. Wyszogrodzki, L. - P. Wang, O. Ayala

10:45 **1.2-2 | A comparison of airborne in-situ cloud microphysical measurements with ground C and X Band radar observations in African Squall Lines**
W. Wobrock, E. Drigeard, E. Fontaine, E. Williams, M. Gosset, F. Cazenave

11:00 **1.2-3 | Entrainment and mixing and their effects on cloud droplet size distributions of the stratocumulus clouds observed during VOCALS**
S. S. Yum, J. Wang, P. Daum, G. Senum, S. Springston

11:15 **1.2-4 | Parameterization of turbulent collision statistics of cloud droplets**
L. - P. Wang, O. Ayala, H. Parishani, B. Rosa, W. W. Grabowski, A. A. Wyszogrodzki

11:30 **1.2-5 | High-resolution simulation results of kinematic and dynamic collision statistics of cloud droplets**
B. Rosa, H. Parishani, O. Ayala, L. - P. Wang, W. W. Grabowski

11:45 **1.2-6 | Observational estimates of gross entrainment and detrainment in shallow, non-precipitating Cu**
M. Norgren, J. Small, P. Chuang

12:00 **1.2-7 | Sol-gel transition in a model of warm rain initiation by turbulent collection**
L. Alfonso, G. Raga, D. Baumgardner

12:15 **1.2-8 | Effects of Surface Tension Variations and that of Collision Processes on the Shape and Oscillation of Raindrops**
M. Szakáll, K. Diehl, S. K. Mitra, S. Müller, S. Borrmann, S. Kessler

12:30 – 14:00 **Lunch**

14:00 – 15:30 **POSTER SESSION I**

P.1 **BASIC CLOUD AND PRECIPITATION PHYSICS**

P.1-1 | Phase Differences between Rainfall and Its Sources in the Tropical Deep Convective Regime: A Partitioning Analysis Based on Surface Rainfall Budget
F. Ping, R. Chen, K. Li

P.1-2 | New evidence for liquid amorphous water in cold clouds
A. N. Nevzorov

P.1-3 | Droplet dynamics and microphysical effects in turbulent mixing and entrainment
B. Kumar, J. Schumacher, R. Shaw

P.1-4 | Numerical simulation of melting of graupel particles and snowflakes
N. Sarkadi, I. Geresdi

P.1-5 | Shapes of graupel obtained from videosonde observations during the rainy season in Okinawa
K. Suzuki, K. Yamaguchi, E. Nakakita

P.1-6 | Numerical Study and Observation Contrast of Stratiform Precipitation Cloud in Spring of Shanxi Province
J. Li, P. Li, D. Shen, G. Ren, X. Ren

P.1-7 | Airborne Observation and Study on Characteristics of Spring Stratiform Cloud Particles in Shanxi Province
P. Li, J. Li, D. Shen, G. Ren, L. Jin

P.1-8 | Variation of Precipitational Microphysical Parameters with Rain Intensity in Different Seasons at a Tropical Coastal Site
T. S. Sreekanth, G. Mohan Kumar

P.1-9 | Spatial and temporal variation of rain in different monsoons over Kerala, a tropical coastal state in India using the TRMM satellite Data
T. S. Sreekanth, G. Mohan Kumar

P.1-10 | Evaporation process of a cluster of cloud droplets
N. E. Castellano, E. Avila, G. Aguirre Varela
P.1-11 | Regional Dependence of Microphysical and Radiative Effects of Ice Clouds on Vertical Structures of Tropical Tropospheric Temperature
J. Cai, L. Xu, Q. Liu
P.1-12 | Numerical Investigation of Droplet Collision Kernels in Turbulent Clouds
C. Siewert, R. Kunnen, M. Meinke, W. Schröder
P.1-13 | The temporal and spatial distribution characteristics of the water resources in air of TianJin preliminary analysis
H. Meng, W. Song, X. Guo, W. Wang
P.1-14 | A low Mach number model for moist convection
W. O'Neill, R. Klein
P.1-15 | A revisit to Marshall-Palmer size distribution of raindrops
Y. Fujiyoshi, A. Aoki, N. Nagumo
P.1-16 | New method to prohibit spurious cloud-edge supersaturation in cloud models
J. Sun
P.1-17 | The Effects of Surface Kinetics on Crystal Growth and Nucleation in Cold Clouds
C. Zhang, J. Harrington
P.1-18 | Are Raindrop Size Distributions Obtained with Electro-Mechanical Disdrometers Real?
G. Montero-Martínez, F. García-García
P.1-19 | Wind Shear and the Southern Ocean Buffer Layer
L. Hande
P.1-20 | The Cloud Structure and Precipitation Mechanism of a Frontal Stratiform Cloud System
Y. - C. Hong, H. - Y. Li
P.1-21 | Investigation of effective peak supersaturations in liquid-phase clouds at the high-alpine site Jungfraujoch
E. Hammer, N. Bukowiecki, Z. Jurányi, M. Gysel, C. Hoyle, U. Baltensperger, E. Weingartner
P.1-22 | The effective density of small ice particles obtained from in-situ aircraft observations of cirrus during the Constrain field program
R. Cotton, P. Field
P.1-23 | Effect of dilution on drop size distribution and rain formation
T. Prabhakaran, K. Alexander, M. Pinsky, J. Kulkarni, B. N. Goswami
P.1-24 | The skill of cumulus parameterization and explicit microphysics in predicting heavy rains in the northern Andes Cordillera
G. D. J. Montoya Gaviria, A. Uribe
P.1-25 | The characterization of hydrometeor size distributions fit to gamma functions as surfaces in $N_0/\lambda/\mu$ phase space: implications for microphysical process rates
G. McFarquhar, T. - L. Hsieh, M. Freer, B. Jewett
P.1-26 | The treatment of subgrid-scale clouds and precipitation for two-moment microphysics schemes in NWP models.
F. Chosson, M. K. Yau, J. A. Milbrandt, P. A. Vaillancourt
P.1-27 | Sensitivity of microphysical processes to the precipitation phase transition during a winter storm during the Vancouver 2010 Winter Olympics
J. M. Thériault, J. A. Milbrandt, R. Mo
P.1-28 | Raindrop Size Distribution Observation with Different Altitudes
P. Jiangping, Z. Hui, Y. Xiaolan, L. Peiren, C. Dingjun
P.1-29 | Dynamical and microphysical property of cloud droplets simulated by a new Lagrangian cloud model
Y. Noh, J. J. Lee, T. Riechelmann, S. Raasch
P.1-30 | Statistical analysis of aircraft observation on stratiform cloud microphysics in North China
H. Sun, P. Li, L. Jin, G. Sun, D. Shen
P.1-31 | Analysis to characteristics of raindrop size distributions at surface influenced by a low vortex cloud systems
Y. Li
P.1-32 | On the theory of cloud droplet diffusion growth: adiabatic case
M. Pinsky, I. Mazin, A. Korolev, A. Khain
P.1-33 | Cloud-clear air mixing in a laboratory cloud chamber: temperature inversion and overshooting updrafts
A. Górska, S. P. Malinowski, S. Blónski, T. A. Kowalewski, P. K. Korczyk, W. Kumala
P.1-34 | Laboratory simulation of spontaneous breakup of polluted water drops in the horizontal electric field
R. Bhalwankar, S. Subramanian, A. K. Kamra
P.1-35 | Laboratory Investigations into Immersion Freezing and the Hallett-Mossop Process
C. Emersic, P. Connolly, G. Lloyd, T. Choularton
P.1-36 | Evaluation of the West African monsoon vertical cloud structure in high-resolution models using CloudSat and CALIPSO
T. Stein, R. Hogan, D. Parker, J. Delanoë, G. Lister
P.1-37 | A Case Analysis on Microphysical Characteristics of Summer Stratocumulus Cloud Precipitation in Shanxi Province
Q. Feng, L. Peiren
P.1-38 | A new parameterisation for the sedimentation of hydrometeor ensembles using a finite maximum particle diameter
C. Ziemer, U. Wacker

P.1-40 | Micro-macro parameter characteristics of "shear line on the bottom of high pressure" clouds in Beijing
Q. Wei
P.1-41 | Relating particle hygroscopicity and CCN activity to chemical composition during HCCT-2010 field campaign
Z. Wu, L. Poulain, M. Merkel, K. Dieckmann, W. Birmili, F. Stratmann, H. Herrmann, A. Wiedensohler
P.1-42 | Dynamics of electrically charged cloud droplets in turbulence
J. Lu, R. Shaw
P.1-43 | Multiscale LES with Sub-Grid-Scale Turbulence and Microphysics: Preliminary Results
S. N. Stechmann, B. Stevens
P.1-44 | The Clouds Microstructure and the Rain Stimulation by Acoustic Waves
O. Nalbandyan
P.1-45 | Tropical Cloud Processes : First Results from CHUVA Project
L. A. Machado, A. Calheiros, E. Mattos, I. Costa, R. Albrecht, D. Vila, C. Morales, C. Angelis, M. Silva Dias, G. Fisch
P.1-46 | The Development and Evaluation of the Explicit Cloud Physical Schemes for AREM Model
Y. - P. Xu, W. Cheng, R. - C. Yu, G. - X. Wu, H. Xiao, R. Cheng
P.1-47 | Quantification of drizzle fraction using Large Eddy Simulation model output - the multi-purpose of the EarthCARE Simulator
I. Stepanov, S. Placidi, H. Russchenberg
P.1-48 | Micro and macro-physical characterizations of precipitations in continental and Mediterranean environments
G. Depuydt
P.1-49 | The link of hygroscopic properties and chemical composition of the marine aerosol over Atlantic Ocean
S. Huang, L. Poulain, Z. Wu, F. Höpner, H. Herrmann, A. Wiedensohler
P.1-50 | An improved representation of the rain drop size distribution for single-moment microphysics schemes
S. Abel, I. Boutle
P.1-51 | Integrated Rain and Cloud Liquid Water over Brazil during CHUVA Campaign
A. Calheiros, L. A. Machado
P.1-53 | The influence of temperature and cloud droplets on the growth of dendritic snow crystals
T. Takahashi
P.1-54 | Radar- and satellite derived descriptors as proxies of the precipitation process
S. Trömel, M. Diederich, C. Simmer, J. L. Simon, A. Horvath, F. Senf, H. Deneke, K. Wapler
P.1-55 | Nonlinear effects in a conceptual multilayer cloud model
U. Wacker
P.1-56 | Estimation of maximum precipitation for different catchment areas in Saxony
M. Barth, L. Schenk, A. Raabe
P.1-57 | Cloud Physics and UFOs, a historic-modern note
R. List
P.1-58 | A new method for large-eddy simulations of clouds with Lagrangian droplets including the effects of turbulent collision
T. Riechelmann, Y. Noh, S. Raasch
P.1-59 | The estimation of equivalent supersaturation during three fog events in the North China Plain
N. Ma, C. Zhao, Z. Deng
P.1-60 | Linear relation between number of activated CCN and depth for rain initiation in deep convective clouds
E. Freud, D. Rosenfeld
P.1-61 | The relationship between the power released by phase transitions in cloud and black body radiation
A. Baran, A. Hill
P.1-62 | Statistics of radar-derived DSD parameters during the North Australian Wet Season
G. Penide, V. Kumar, A. Protat, P. May
P.1-63 | Direct Numerical Simulations of radiatively-driven cloud top entrainment
A. de Lozar, J. P. Mellado
P.1-64 | A Diffusion Chamber Design to study Effects of Temperature, Ambient Pressure and Water Vapour Saturation on the Fine Structure of Ice Crystals using Scanning Electron Microscopy.
G. Ritter, J. Z. Ulanowski, E. Hesse, P. H. Kaye
P.1-65 | Turbulence induced 'cloud holes' in mountain-top clouds at Schneefernerhaus research station
H. Xu, S. Risius, H. - D. Xi, J. Bodenschatz, S. P. Malinowski, R. Shaw, H. Siebert, E. Bodenschatz
P.1-67 | Accurate approximation of complete and incomplete collision integrals for use in bulk ice phase schemes and application to the riming parameterization
U. Blahak
P.1-68 | The temporal and spatial distribution characteristics of the water resources in air of TianJin preliminary analysis
H. Meng, W. Song, X. Guo, W. Wang

P.2 WARM BOUNDARY LAYER CLOUDS

P.2-1 | Aerosol-cloud interactions in the marine boundary layer
J. Kazil

P.2-2 | Observed Microphysical Structure of an Autumn Warm Cloud
W. Wang

P.2-3 | The Relationship between Fog Microphysics and Precursor Aerosol Properties during the Paris Fog 2010 Project
G. Raga, D. Baumgardner, M. Haeffelin, J. - C. Dupont, G. Roberts, F. Burnet

P.2-4 | Homogeneity of subgrid-scale turbulent mixing in a large-eddy simulation of boundary-layer clouds
D. Jarecka, W. W. Grabowski, H. Pawlowska, H. Morrison

P.2-5 | A study on the low-elevation clouds over the Southern Ocean with A-Train observation and WRF simulations
Y. Huang, S. Siems, M. Manton, A. Protat, J. Delanoë

P.2-6 | Fine-scale turbulence at the edges of trade wind cumuli
J. Katzwinkel, H. Siebert

P.2-7 | Real-case Stratocumulus-topped Planetary Boundary Layer in the Bay of Biscay simulated by a limited-area model
A. Possner, E. Zubler, U. Lohmann, C. Schär

P.2-8 | Large-eddy simulations of stratocumulus to cumulus transition
M. J. Kurowski, D. Jarecka, H. Pawlowska, W. W. Grabowski

P.2-9 | Cloud microphysics and turbulence statistics of the nocturnal stratocumulus-capped boundary layer: New approaches to model evaluation based on ship-borne data
T. Yamaguchi, A. Brewer, G. Feingold

P.2-10 | Investigation of local, mean shear effects at the stratocumulus top using direct numerical simulations
J. P. Mellado, B. Stevens, H. Schmidt

P.2-12 | Turbulent inversion and entrainment into stratocumulus topped boundary layer
S. P. Malinowski, N. Katarzyna, M. K. Kopeæ, W. Kumala, H. Gerber, D. Khelif

P.2-13 | A counterexample of the development of pocket of open cells over SE Pacific during VOCALS-Rex
Z. Cui, **S. J. Lock**, A. Gadian, A. Blyth, J. Crosier, I. Crawford

P.2-14 | Synoptic influence on shallow cumulus clouds
H. M. Brueck, L. Nuijens, B. Stevens

P.2-15 | Observational Relationships Between Vertical Air Motion, LWP and Drizzle Onset in Marine Stratus
E. Luke, P. Kollias, A. McComiskey, G. Feingold

P.2-16 | Adiabaticity in Stratocumulus Clouds
J. Remillard, W. Szyrmer, P. Kollias

P.2-17 | Unraveling the (extra)ordinary nature of marine trade-wind cumulus
L. Nuijens, B. Stevens

P.2-18 | Investigation of Sea Fogs over the Yellow Sea near the Korean Peninsula using the A-Train Satellite Constellation
C. K. Kim, S. S. Yum

P.2-19 | Observational constraints on entrainment and the entrainment interface layer in stratocumulus
J. Carman, D. Rossiter, D. Khelif, H. Jonsson, I. Faloona, P. Chuang

P.2-20 | Is it possible to estimate the age of a cumulus cloud from observations?
M. Witte, H. Jiang, G. Feingold, P. Chuang

P.2-21 | Microphysical properties, mesoscale organization and variability of Stratocumulus clouds in the Southeast Pacific
A. Muhlbauer, R. Wood

P.2-22 | Improved drizzle and fog prediction for high-resolution versions of the Met Office Unified Model
J. Wilkinson, S. Abel, S. Osborne, I. Boutle

P.2-23 | Microphysical controls on the stratocumulus topped boundary layer structure during VOCALS-REx
S. Abel, I. Boutle

P.2-24 | Analysis of Boundary Layer Cloud Structure over Beijing, China
D. Lu, **S. Duan**, Y. Bi, Y. Yang

P.2-25 | ANALYSIS OF THE MICROPHYSICAL STRUCTURES OF FOG DURING THE PARISFOG PROJECT
F. Burnet, L. Gomes, M. Haeffelin, J. - C. Dupont, T. Elias

P.2-26 | Observational Study of Microphysics and Dynamics in Entrainment-Mixing Processes in Cumulus during RACORO
C. Lu, Y. Liu, S. S. Yum, S. Niu, A. Vogelmann, S. Endo, G. Senum, H. Jonsson

P.2-27 | A refined statistical cloud closure using double-gaussian probability density functions
A. K. Naumann, A. Seifert, J. P. Mellado

P.2-28 | What controls the structure of rain in shallow cumulus convection?
A. Jaruga, L. Nuijens, H. Pawlowska

P.2-29 | Marine boundary-layer cloud feedbacks in a constant relative humidity atmosphere
M. Rieck, L. Nuijens, B. Stevens

P.2-30 | Resolution and domain size requirements for the large-eddy simulation of precipitating trade wind cumulus.
A. Seifert, M. Sakradzija, T. Heus, B. Stevens

P.2-31 | Life cycles of precipitating shallow convection
A. Seifert, T. Heus

P.2-32 | Virtual aircraft: a new approach to compare airborne in-cloud measurements and LES simulations
M. K. Kopeæ, S. P. Malinowski, W. W. Grabowski
P.2-34 | The isotopic signature of moistening by low-level clouds
A. Raudzens Bailey, D. Noone, D. Toohey
P.2-35 | How do subcloud thermals grow to become shallow cumulus clouds?
T. Heus
P.2-36 | Daytime cycle in marine stratocumulus clouds microphysics inferred from GOES satellite
D. Painemal, P. Minnis
P.2-37 | On Simulated Trade-wind Cumulus Cold Pools
Z. Li, P. Zuidema, P. Zhu
P.2-38 | Correcting underprediction biases in autoconversion rates in warm boundary layer clouds by including subgrid variability of cloud droplet number concentration
R. Morales Betancourt, A. Nenes, D. Barahona, X. Liu
P.2-39 | An Economical PDF-Based Turbulence Closure Model for Cloud-Resolving Models and Global Climate Models
P. A. Bogenschutz, S. K. Krueger
P.2-40 | Entrainment and Mixing in Stratocumulus-Topped Boundary Layers during POST
S. A. Hill, S. K. Krueger, H. Gerber, S. P. Malinowski

P.4 MIXED PHASE CLOUDS (INCLUDING ARCTIC STRATUS, MID-LEVEL CLOUDS)

P.4-1 | Three-Aircraft Measurements of the Microphysical Characteristics of Stratiform Cloud in Hebei Province: the Size Spectra and Microphysical Processes
J. Yang, H. Lei, Z. Hu
P.4-2 | Can Ice Crystal Vapor Growth Effects on Ripening Broaden Liquid Drop Size Spectra?
K. Sulia, H. Morrison, Z. Lebo
P.4-3 | The analysis of high ice particle concentrations and related growth mechanisms associated with stratiform clouds in Northern China
T. Hou, H. Lei
P.4-4 | Understanding the Influence of Aerosol Properties on Mixed-Phase Stratiform Clouds through Liquid-Dependent Processes
G. de Boer, T. Hashino, G. Tripoli
P.4-5 | Investigation of the influence of up- and downdrafts on the microphysics of layered clouds
J. Bühl, R. Engelmann, A. Ansmann
P.4-6 | Model Intercomparison of Aerosol Effects on Mixed-phase Clouds
T. Storelvmo, U. Lohmann
P.4-7 | Ice forms primarily in supercooled clouds at temperatures > -27C
C. Westbrook, A. Illingworth
P.4-8 | On the Influence of Ice Habit on The Lifetime of Arctic Mixed-Phase Clouds
K. Sulia, H. Morrison, J. Harrington
P.4-9 | Measurement of glaciation in mixed-phase clouds at sub- and supersaturated relative humidity conditions
M. Krämer, J. Meyer, A. Afchine, O. Möhler, S. Benz, M. Gallagher, J. Dorsey, P. Brown, A. Wooley, R. Newton, G. Granger, D. Baumgardner, M. Schnaiter
P.4-10 | WRF-SBM simulation upon LPVEx field campaign for development of the synthetic GPM simulator
T. Iguchi, T. Matsui, W. - K. Tao
P.4-11 | Studies of Cloud Microphysics in Arctic Mixed-Phase Cloud: Long ARM Data Time-Series Take Us Beyond Case Studies
J. Muelmenstaedt, D. Lubin, L. Russell, A. Vogelmann
P.4-12 | Statistic of Cloud Vertical Structure over Beijing, China
J. Liu, D. Lu, S. Duan, Y. Bi, Y. Li
P.4-13 | Analytic treatment of turbulent mixed-phase cloud
P. Field, A. Hill, K. Furtado
P.4-14 | Investigation of super-cooled liquid clouds at the Zugspitze mountain using long-term observations of high frequency passive microwave radiometers
S. Kneifel, S. Redl, U. Löhnert, S. Crewell
P.4-15 | Moisture and dynamical interactions maintaining decoupled Arctic mixed-phase stratocumulus in the presence of a humidity inversion
A. Solomon, M. Shupe, O. Persson, H. Morrison
P.4-16 | Observations of turbulent processes in mixed phase stratiform cloud
P. Barrett, A. Blyth, P. Brown
P.4-17 | Detection of First Ice in Maritime Cumulus Clouds
A. Johnson, S. Lasher-Trapp, A. Bansemer, D. C. Rogers, D. Leon, Z. Wang, A. Heymsfield
P.4-18 | Mixed-phase cloud distribution and its ice generation: A new global perspective from A-train satellite measurements
Z. Wang, D. Zhang, M. Deng, T. Luo
P.4-19 | Analysis of Large-scale Precipitation Process in Spring in Tianjin area
R. Jin, W. Song, H. Meng, Z. Wang
P.4-20 | Glaciation temperatures of convective clouds ingesting desert dust, air pollution and smoke from forest fires

D. Rosenfeld, X. Yu, G. Liu, X. Xu, Y. Zhu, Z. Yue, J. Dai, Z. Dong, Y. Dong, Y. Peng

P.4-21 | Vertical distributions of supercooled liquid water on winter stratiform clouds in northern Japan
T. Ohigashi, K. Tsuboki, M. Oue, R. Furihata

P.4-22 | Microphyisical Properties of Boundary layer Mixed-phase Cloud observed in Ny-Alesund, Svalbard on June 9, 2011
A. Uchiyama, M. Shiobara, A. Yamazaki, H. Kobayashi

P.4-23 | The first comprehensive in-cloud aircraft observations over Antarctica for over 20 years
D. Grosvenor, T. Choularton, G. Martin, T. Lachlan-Cope, J. Crosier

P.4-24 | A new LES model with applications to arctic stratiform mixed-phase clouds
J. Savre, A. Ekman, G. Svensson, M. Tjernström

P.4-25 | Why can't current large-scale models predict mixed-phase clouds properly?
A. Barrett, R. Hogan, R. Forbes

P.4-26 | Ice formation in altocumulus clouds
M. Simmel, J. Bühl, A. Ansmann, I. Tegen

P.4-27 | How important is the time dependence of ice nucleation in cloud glaciation?
R. Herbert

P.4-28 | New parameterizations necessary to model mixed-phase clouds
A. Barrett, R. Hogan, R. Forbes

P.4-29 | Challenges in Simulating the Phase Partitioning of Water in Mixed-Phase Clouds: Influences of the Representation of Ice Processes
M. Komurcu, T. Storelvmo

P.4-30 | Aggregation growth of snowflakes observed by radar and ground-based particle video imager
D. Moisseev, L. Bliven, S. Lautaportti, V. Chandrasekar, M. Kulmala

P.4-31 | Aerosol influences on decoupled Arctic mixed-phase stratocumulus
A. Avramov, C. Wang

P.4-32 | Dynamical, microphysical, and radiative processes in mixed phase stratiform clouds
M. Ovchinnikov, A. Korolev

P.4-33 | Implementation of a time-dependent melting process in a 3D cloud model using a bin microphysics scheme
C. Planche, W. Wobrock, A. Flossmann

P.4-34 | Sensitivity of aerosol indirect effects to IN spectrum in mixed-phase clouds of global circulation models
R. Morales Betancourt, A. Nenes, D. Barahona, D. Lee, L. Oreopoulos

1.3 BASIC CLOUD AND PRECIPITATION PHYSICS — HS 9 + HS 8

Chair: G. McFarquhar

15:30 **1.3-1 | Report from the 8th WMO International Cloud Modeling Workshop**
W. W. Grabowski, A. Muhlbauer

15:45 **1.3-2 | Entrainment in Unbroken Stratocumulus**
H. Gerber, G. Frick, S. P. Malinowski, H. Jonsson

16:00 **1.3-3 | An Novel Approach for Simulating Droplet Microphysics in Turbulent Clouds**
S. K. Krueger, A. R. Kerstein

16:15 **1.3-4 | Evaluation of ice clouds in COSMO-DE with satellite observations**
S. Reitter, S. Crewell, A. Seifert, C. Köhler, R. Faulwetter

16:30 **1.3-5 | Experimental and Numerical investigation of droplet preferential concentration due to turbulence and its influence on droplet collisions and growth**
A. Aliseda, C. Bateson, O. Ayala, H. Parishani, L. - P. Wang, B. Rosa

16:45 – 17:00 Coffee break

17:00 **1.3-6 | Direct numerical simulation of evaporative cooling at the lateral boundary of shallow cumulus clouds**
D. Abma, T. Heus, J. P. Mellado

17:15 **1.3-7 | The structure of ice crystallised from supercooled water**
B. Murray, T. Malkin, A. Brukhno, J. Anwar, C. Salzmann

17:30 **1.3-8 | Self-aggregation of moist convection in a conditionally unstable environment**
J. Schumacher, T. Weidauer, O. Pauluis

11.1 CLOUD AND PRECIPITATION CHEMISTRY — HS 9

Chair: Y. Yin

08:30 **11.1-1 | Wind tunnel experiments on the retention of sulfur dioxide, hydrogen peroxide, and ammonia during riming (invited talk)**
K. Diehl, N. von Blohn, A. Nölscher, A. Jost, S. K. Mitra, S. Borrmann

08:45 **11.1-2 | Reactions of important VOC oxidation products with hydrogen peroxide and ozone in the tropospheric aqueous phase**
L. Schöne, H. Herrmann

09:00 **11.1-3 | Cloud Processing of Gases and Aerosols in Air Quality Modeling: A Review and Sensitivity Study**
C. Stroud, W. Gong, L. Zhang

09:15 **11.1-4 | Simulation and evaluation of rain scavenging chemistry**
T. I-Chun, C. Jen-Ping, H. Shih-Chieh

09:30 **11.1-5 | In-cloud photooxidation of biogenic organic compounds: a way to produce oligomers and secondary organic aerosols**
P. Renard, F. Siekmann, G. Salque, Y. Liu, S. Ravier, D. Voisin, R. Thissen, M. Traika, A. - M. Delort, A. Monod

09:45 **11.1-6 | The chemical composition of clouds and their interactions with pollutants at Mt. Tai in eastern China**
J. Collett, X. Shen, Y. Sun, T. Lee, Y. Desyaterik, X. Wang, W. Wang, T. Wang

6.1 OROGRAPHIC CLOUDS — HS 8

Chair: G. A. Isaac

08:30 **6.1-1 | Single particle mass spectrometric analysis of cloud residual and background aerosol particles during the hill cap cloud experiment HCCT 2010 (invited talk)**
A. Roth, S. Mertes, D. van Pinxteren, T. Klimach, J. Schneider, H. Herrmann, S. Borrmann

08:45 **6.1-2 | Are aerosol impacts on water resources in the Colorado River Basin a major problem?**
W. Cotton

09:00 **6.1-3 | Lagrangian Perspective and Damköhler concept applied to Warm-Rain Orographic Precipitation in Idealized Simulations**
A. Miltenberger, H. Joos, A. Seifert, H. Wernli

09:15 **6.1-4 | Influence of Cloud Processing on CCN Activation Behaviour in the Thuringian Forest, Germany**
K. Dieckmann, M. Schäfer, P. Zedler, H. Herrmann, D. van Pinxteren, W. Birmili, M. Merkel, Z. Wu, A. Wiedensohler, T. Mentel, S. Henning, H. Wex, F. Stratmann

09:30 **6.1-5 | Clouds and Precipitation and the 2010 Winter Olympics**
G. A. Isaac, P. Joe, M. Bailey, F. Boudala, M. Brugman, S. Cober, C. Doyle, I. Gultepe, L. X. Huang, J. A. Milbrandt, R. Mo, R. M. Rasmussen, R. E. Stewart

09:45 **6.1-6 | The Role of Microphysics in Changing Future snowfall over the Colorado Headwaters region**
R. M. Rasmussen, K. Ikeda, C. Liu, D. Gochis, F. Chen, M. Tewari, G. Thompson, V. Grubisic, J. Dudhia

10:00 – 10:30 Coffee break

2.1 WARM BOUNDARY LAYER CLOUDS — HS 9

Chair: G. Raga

10:30 **2.1-1 | The bifurcation of open and closed cells steady state vs. oscillations (invited talk)**
I. Koren, G. Feingold

10:45 **2.1-2 | The effect of shallow cumulus precipitation on boundary layer development**
G. Chen, H. Xue, X. Zhou

11:00 **2.1-3 | Droplet activation and entrainment/mixing in large-eddy simulation of a shallow cumulus field**
J. Slawinska, W. W. Grabowski, H. Pawlowska, H. Morrison

11:15 **2.1-4 | The CARRIBA-project: Clouds, aerosol, radiation and turbulence in the trade wind regime over Barbados A campaign overview**
H. Siebert, J. Bethke, F. Ditas, J. Katzwinkel, L. Nuijens, T. Schmeissner, R. Shaw, B. Stevens, F. Stratmann, B. Wehner, H. Wex

11:30 **2.1-5 | Modelling the effects of gravity waves on stratocumulus clouds observed during VOCALS-UK**
P. Connolly, G. Allen, H. Coe, G. Vaughan, J. Crosier, J. Crosier

11:45 **2.1-6 | Large Eddy Simulations of aerosol and resolution dependence of open cell structures in stratocumulus cloud layers using GPUs**
S. Horn, O. Knoth

12:00 **2.1-7 | Synthesis of in-situ cloud microphysics and aerosol measurements in marine stratocumulus over the South East Pacific during VOCALS-Rex**
I. Crawford, G. Allen, P. Connolly, J. Crosier, T. Choularton, H. Coe, P. Williams, K. Bower, M. Gallagher

12:15 **2.1-8 | Turbulent Mixing in Stratocumulus Cloud**
L. Magaritz[1], M. Pinsky, A. Korolev, A. Khain

5.1 CIRRUS CLOUDS — HS 8

Chair: D. Starr, H. Jones

10:30 **5.1-1 | Using Statistical Comparisons Between Simulations and Observations to Understand Physical Processes Controlling Midlatitude Cirrus Ice Size Distributions (invited talk)**
E. Jensen, P. Leonhard, P. Lawson

10:45 **5.1-2 | Hammock Effect of Atmospheric Boundary Layer for Downdraft Associated with New-type of Organized Turbulent Air Motion**
Y. Fujiyoshi, C. Fujiwara, A. Umehara

11:00 **5.1-3 | Impact of enhanced stratospheric aerosol loadings on cirrus clouds in ECHAM5-HAM**
M. Kuebbeler, U. Lohmann, J. Feichter

11:15 **5.1-4 | A Doppler radar based cloud-scale dynamics climatology of cirrus**
H. Kalesse, P. Kollias, M. Gruber

11:30 **5.1-5 | The Composition of Cirrus Ice Residuals**
D. Cziczo, K. Froyd

11:45 **5.1-6 | High-resolution large-eddy simulations (LES) of the interaction of cirrus and contrail-cirrus**
S. Unterstrasser

12:00 **5.1-7 | Tropical tropopause ice clouds: a new approach to answer the mystery of low crystal numbers**
P. Spichtinger, M. Krämer, S. Borrmann

12:15 **5.1-8 | Impacts of dynamics on the microphysical properties and radiative effects of mid-latitude cirrus**
A. Muhlbauer, T. Ackerman

12:30 – 14:00 LUNCH

14:00 – 15:30 POSTER SESSION II

P.5 CIRRUS CLOUDS

P.5-1 | Laboratory study of the deformation of micrometer-size frozen droplets
M. L. Lopez, E. Avila

P.5-2 | Lidar observation and model simulation of cirrus clouds over Jülich, Germany
C. Rolf, M. Krämer, C. Schiller

P.5-3 | Characterization of cirrus heterogeneities: optical depth, effective radius and variation of surface albedo.
C. Fricke, M. Wendisch, A. Ehrlich, B. Bohn, M. Wirth

P.5-4 | Global diurnal and seasonal variability of cirrus with small ice crystals
A. Devasthale

P.5-5 | Spatially inhomogeneous cirrus: Influence on atmospheric radiation
F. Finger, M. Wendisch, S. Borrmann, P. Spichtinger, M. Klingebiel

P.5-6 | Coated Wall Flow Tube Reactor (CWFTR) Studies of the Interaction of Acetic Acid with Ice Surfaces: Adsorption, Condensation and Hydrogen/Deuterium Exchange
P. Behr, P. Scheiff, R. Zellner

P.5-7 | Influence of heterogeneous freezing on the microphysical and radiative properties of orographic cirrus clouds
H. Joos, P. Spichtinger, F. Fusina

P.5-8 | A new parameterization for calculating cirrus ice water content in atmospheric models
A. Luebke, L. Avallone, C. Schiller, M. Krämer

P.5-9 | Observation of the Daily Variation of Cirrus
H. Mannstein, S. Kox

P.5-10 | Ice crystal growth from vapor phase experiments in an electrodynamic balance
C. Wender, D. Rzesanke, T. Leisner

P.5-11 | Homogeneous vs. heterogeneous ice nucleation in high-resolution global and regional models
C. Koehler, A. Seifert

P.5-12 | Comparing the representation of cirrus clouds in a high resolution operational forecast model to observations
K. Furtado, P. Field, R. Cotton

P.5-13 | Comparison of lidar, radiation and cloud microphysical measurements during the COntrail Spreading Into Cirrus (COSIC) campaign.
H. Jones, J. Haywood, F. Marenco, D. O'Sullivan, R. Thorpe, J. Meyer, M. Krämer, M. Gallagher, P. Forster, G. Radel, H. Coe

P.5-14 | Microphysical and depolarization properties of small ice crystals A laboratory study at the cloud simulation chamber AIDA
M. Schnaiter, A. Abdelmonem, O. Möhler, J. Skrotzki, E. Hirst, C. Schmitt

P.5-15 | In-situ measurements of Polar Stratospheric Clouds (PSC) and non-volatile aerosol particles in the 2010 and 2011 Arctic winter stratosphere
R. Weigel, S. Borrmann, M. Ebert, K. Kandler, S. Molleker, W. Frey, M. Klingebiel, R. Müller, G. Günther, C. M. Volk, H. Schlager, C. Voigt, F. Cairo

P.5-16 | Surface roughness properties of small ice crystals A laboratory study at the cloud simulation chamber AIDA
M. Schnaiter, A. Abdelmonem, O. Möhler, J. Skrotzki, E. Hirst, P. H. Kaye, J. Z. Ulanowski, C. Schmitt

P.5-17 | Ice cloud microphysical properties measured during MACPEX.
C. Schmitt, A. Heymsfield, M. Schnaiter, E. Hirst

P.5-18 | Climate impact of contrail cirrus
U. Burkhardt, B. Kärcher
P.5-19 | Influence of the presence of ethanol on the homogeneous freezing of ice particles investigated by optical microscopy and micro-Raman scattering
S. Facq, B. Chazallon
P.5-20 | New Findings on Ice Nucleation in Mid-latitude Cirrus from SPARTICUS
S. Mishra, D. Mitchell, B. Baker, P. Lawson
P.5-21 | Mineral dust effects on ice particle concentrations in cirrus and mixed-phase clouds
A. Meyer, V. Pinti, B. Luo, C. Marcolli, T. Peter
P.5-22 | Lidar measurements of cirrus cloud properties at the high alpine research station Jungfraujoch
E. Kienast-Sjögren, F. G. Wienhold, U. K. Krieger, B. P. Luo, T. Peter

P.6 OROGRAPHIC CLOUDS

P.6-1 | Physico-chemical properties of cloud drop residual and interstitial particles sampled inside hill capped clouds during the HCCT-2010 field experiment in Central Europe
S. Mertes, J. Schneider, M. Merkel, L. Schenk, D. van Pinxteren, A. Roth, W. Alfred, H. Herrmann
P.6-2 | Development of Orographic Clouds over the Snowy Mountains Range
L. Osburn
P.6-3 | Cloud residual composition analysis during the hill cap cloud experiment HCCT2010: Enrichment of nitrate in submicron cloud residuals
J. Schneider, A. Roth, S. Mertes, D. van Pinxteren, H. Herrmann, S. Borrmann
P.6-4 | Factors influencing ice formation and growth in simulations of an orographic mixed-phase wave cloud
C. Dearden, P. Connolly, T. Choularton, P. Field, A. Heymsfield
P.6-5 | A modeling study of a warm clouds extreme event of precipitation in the state of Santa Catarina, Brazil
T. Pauliquevis, H. Barbosa, M. A. Silva-Dias
P.6-6 | Structure of precipitation system enhanced around Mt. Halla, Jeju Island, Korea on 6 July 2007
K. - O. Lee, H. Uyeda, S. Shimizu, D. - I. Lee
P.6-7 | Structure of precipitation system enhanced around Mt. Halla, Jeju Island, Korea on 6 July 2007
L. Keun-Ok, H. Uyeda, S. Shimizu, D. - I. Lee
P.6-8 | Influences of terrain height, airflow speed and CCN concentration on orographic mixed-phase clouds and precipitation process in a stable atmosphere
X. Guo, X. Guo, D. Fu, S. Niu
P.6-9 | Case study on first echo associated with cumulonimbus development observed by Ka-band Doppler radar in the summer season in the Kanto region, Japan
N. Sakurai, K. Iwanami, T. Maesaka, S. - I. Suzuki, S. Shimizu, R. Misumi, D. - S. Kim, M. Maki

P.7 MESOSCALE CLOUD SYSTEMS (INCLUDING SEVERE STORMS)

P.7-3 | High Resolution In-Situ and Remote Sensing Observations of Banded Precipitation in Cold-Season Extratropical Cyclones
D. Plummer, G. McFarquhar, R. Rauber, B. Jewett, D. Leon, Z. Wang
P.7-4 | Sensitivity of a mid-latitude squall line to representation of the raindrop size distribution under different low-level vertical wind shears
H. Morrison, S. Tessendorf, T. Eidhammer, G. Thompson, K. Ikeda
P.7-5 | The Microphysical and Radiative Heating Properties of Simulated and Observed Clouds in Tropical MCSs
S. W. Powell, R. A. Houze, Jr., A. Kumar, S. A. McFarlane
P.7-6 | A numerical study of the sensitivity of tornadogenesis in subtropical supercell storms to microphysical drop size distribution
K. Zheng, B. Chen
P.7-7 | The Role of Topography and Cold pool - Shear Interaction in Quasi-stationary Line-shaped Rainfall Systems over Shikoku Island Japan.
T. Unuma, F. Murata, T. Takemi
P.7-9 | PHYSICAL PROCESSES and CHANGES in Cb CHARACTERISTICS due to FEEDER CLOUD MERGING
A. Sinkevich, T. Krauss
P.7-10 | Composite Characteristics of thunderstorm events over Bangladesh in 2008 Pre-monsoon season using RADAR and TRMM products
M. M. Rahman
P.7-11 | Comparative verification of different nowcasting systems to support optimization of severe weather warnings
K. Wapler, S. Trepte, M. Goeber, P. James
P.7-12 | Study of the association of environmental parameters with echo top heights of mesoscale convective systems
D. Dutta, S. Sharma, R. M. Gairola
P.7-13 | Radar and disdrometer observations and idealized simulations of a mid-latitude squall line
S. Tessendorf, H. Morrison, K. Ikeda, G. Thompson
P.7-15 | Quantitative precipitation estimation for Mesoscale Convective Systems by using multi sensor satellite imageries
D. Dutta, S. Sharma, R. M. Gairola

P.7-16 | Impacts of the cloud microphysics on monsoon convective system and the precipitation over the South China Sea
D. Fu, X. Guo
P.7-18 | WRF modelling of an elevated mesoscale convective system (MCS) observed during the Convective Storm Initiation Project (CSIP)
B. White
P.7-19 | Nocturnal Elevated Convection Initiation Leading to a Daytime Surface-Based Squall Line during 13 June IHOP_2002
J. Marsham, S. Trier, C. Davis, T. Weckwerth, J. Wilson, D. Ahijevych
P.7-22 | On the thunderstorms morphology observed in Brazil
E. Anselmo, C. Morales

P.10 ICE NUCLEI AND CLOUD CONDENSATION NUCLEI

P.10-2 | Bacterial ice nuclei effects on cloud radiative properties inferred by the BRAMS model
F. Goncalves, T. Costa, M. Yamasoe, J. A. Martins, C. Morris
P.10-3 | Ice Nuclei concentration at the South Pole station, Antarctica
Z. Levin, K. Ardon-Dryer, P. Lawson
P.10-4 | Hole-punch clouds over Helsinki, Finland: a case study
A. Hirsikko, E. O'Connor, P. Jokinen, D. Meisseev, J. Leinonen
P.10-5 | Dust Mixture Effect on Cloud Microphysics
L. Yi-Chiu, C. Jen-Ping, T. I-Chun
P.10-6 | CCN ability of soot and mineral dust particles
K. Yamashita, T. Tajiri, A. Saito, M. Murakami
P.10-7 | Re-examination on the performance of Continuous-Flow Diffusion-Chamber type Ice Nucleus Counter
A. Saito, N. Orikasa, T. Tajiri, K. Yamashita, M. Murakami
P.10-8 | Fast Imaging of Freezing Drops: Further Studies of Contact Nucleation
C. Gurganus, A. Kostinski, R. Shaw
P.10-9 | Vertical and horizontal distribution of aerosol and cloud condensation nuclei number concentrations measured using an aircraft in and around the Korean Peninsula
J. Kim, S. S. Yum, M. - S. Park
P.10-10 | Laboratory studies of ice formation by soot and mineral dust particles
T. Tajiri, K. Yamashita, A. Saito, M. Murakami
P.10-11 | Size-resolved and bulk activation properties of aerosol at highly elevated location in Southeast China
K. Chen, Y. Yin, X. Gu, H. Tan
P.10-12 | A summary of results from laboratory ice nucleation experiments: current state of scientific understanding and parameterization developments
C. Hoose, O. Möhler, I. Steinke
P.10-13 | Search for biogenic ice nucleation activity (INA) a study on Snomax, pollen, moulds and mushrooms
B. G. Pummer, L. Atanasova, H. Bauer, J. Bernardi, I. Druzhinina, H. Grothe
P.10-14 | Water adsorption around organic aggregates: a molecular dynamics simulation of water nucleation on organic aerosols
M. Darvas
P.10-15 | Evidence for a clear aerosol impact on heterogeneous ice nucleation: Southern versus northern hemisphere.
T. Kanitz, P. Seifert, A. Ansmann, R. Engelmann, D. Althausen
P.10-16 | Ice nucleation in the deposition regime above and below homogeneous freezing temperatures
A. Welti, Z. Kanji, O. Stetzer, U. Lohmann
P.10-17 | Comparing ice nucleation ability of different kaolinite types in the contact freezing mode
B. Nagare, O. Stetzer, U. Lohmann
P.10-18 | Ice nucleation properties of two living bacteria in the deposition nucleation mode
C. Chou, C. Oehm, P. Amato, L. Ladino, C. Morris, O. Stetzer, O. Möhler
P.10-19 | The immersion freezing behavior of size-segregated soot and kaolinite particles
S. Hartmann, S. Augustin, T. Clauss, D. Niedermeier, M. Raddatz, H. Wex, A. Kiselev, R. Shaw, F. Stratmann
P.10-20 | CCN Activation Behaviour of Aerosol Particles above the North and South Atlantic Ocean Measured during a Ship Cruise from Cape Town to Bremerhaven
K. Dieckmann, M. Schäfer, M. Merkel, Z. Wu, A. Wiedensohler, S. Henning, H. Wex, F. Stratmann
P.10-21 | Ice nucleation properties of soil dust particles
I. Steinke, O. Möhler, A. Kiselev, M. Niemand, H. Saathoff, M. Schnaiter, J. Skrotzki, E. Toprak, C. Hoose, M. Hummel, T. Leisner
P.10-22 | Laboratory investigation of the contact freezing of supercooled cloud droplets levitated in the electrodynamic trap
N. Hoffmann, D. Rzesanke, D. Duft, A. Kiselev, T. Leisner
P.10-23 | Ice nucleation efficiency of clay minerals in the immersion mode
V. Pinti, C. Marcolli, B. Zobrist, C. Hoyle, T. Peter
P.10-24 | Expansion chamber experiments on the ice nucleation properties of pollen and their washing water
S. Bleicher, C. Zetzsch

P.10-25 | Activation diameters, hygroscopicity parameters (ê) and chemical composition of „synthetic ambient" aerosols < 100nm
J. Burkart, R. Hitzenberger, G. Reischl, H. Bauer, K. Leder, H. Puxbaum
P.10-26 | NUCLEATION, MECHANISMS OF PHASE TRANSITIONS IN COLD CLOUDS, AND SPECTRA OF TEMPERATURE ACTIVATION OF ICE NUCLEI
V. Smorodin
P.10-27 | Characterization of a new designed Pumped Counterflow Virtual Impactor
M. Raddatz, S. Mertes, H. Wex, S. Hartmann, T. Clauss, J. Bethke, F. Stratmann
P.10-28 | Ice Nucleation Instrumentation for Studying the Ice Nucleating Properties of Aerosols
G. Kok
P.10-29 | Is ice nucleation by mineral dust dominated by just a few minerals?
B. Murray, J. Atkinson
P.10-30 | Vertical structure and the evolution of aerosol and CCN properties in the sub-tropical ocean (CARRIBA)
G. Roberts, H. Wex, K. Dieckmann, B. Wehner, F. Ditas, H. Siebert, G. Cayez

P.11 CLOUD AND PRECIPITATION CHEMISTRY

P.11-1 | Acid rain in central India
K. S. Patel, B. L. Ambade, B. Blazhev, E. Yubero
P.11-2 | Precipitation chemistry at Maldives Climate Observatory at Hanimaadhoo (MCOH)
R. Das, L. Granat, C. Leck, H. Rodhe
P.11-3 | Laboratory study of the uptake of acetic acid by cloud droplets
M. L. Asar, R. Taccone, S. Lane, E. Avila
P.11-4 | Water soluble ions in bulk cloud water and droplet size fractionated samples during HCCT 2010
K. Müller, D. van Pinxteren, T. Lee, J. Collett, H. Herrmann
P.11-5 | CAPRAM mechanism development: Model results from an extended C3 and C4 organic aqueous phase chemistry
P. Bräuer, A. Tilgner, R. Wolke, H. Herrmann
P.11-6 | Characterisation of biological and biomass burning monosaccharides during Hill Cap Cloud Thuringia 2010 (HCCT 2010) campaign
Y. Iinuma, H. Herrmann
P.11-7 | Size-resolved Water-soluble Ionic Compositions of Aerosol Particles at a High Mountain in Southeast China
Y. Qin, Y. Yin, K. Chen, C. Kui
P.11-8 | Iron (III) carboxylate complex photolysis in aqueous particles and cloud droplets
C. Weller, A. Tilgner, P. Bräuer, H. Herrmann
P.11-9 | SPACCIM simulations of the multiphase chemistry occurring in orographic hill cap clouds during the HCCT2010 field campaign
A. Tilgner, P. Bräuer, R. Wolke, H. Herrmann
P.11-10 | Organic acids in bulk and size-resolved cloud water from HCCT-2010
D. van Pinxteren, S. Mertes, T. Lee, J. Collett, H. Herrmann
P.11-11 | Laboratory and model investigations on the multiphase chemical processing of emitted amines from industrial CCS processes in tropospheric aqueous particles and clouds
A. Tilgner, C. Weller, P. Bräuer, H. Herrmann
P.11-12 | Water soluble organic carbon in bulk and size-resolved cloud water from HCCT-2010
D. van Pinxteren, S. Mertes, J. Schneider, S. Borrmann, T. Lee, J. Collett, H. Herrmann
P.11-13 | Cloud chemistry and in-cloud tracer concentrations in global modelling
H. Tost
P.11-14 | The aqueous chemistry in the atmosphere: Explicit modelling of organics oxidation
C. Mouchel-Vallon, P. Bräuer, R. Valorso, M. Camredon, H. Herrmann, B. Aumont
P.11-15 | Laboratory kinetic and mechanistic studies on the OH-initiated oxidation of acetone in the aqueous phase
T. Schaefer, J. Schindelka, H. Herrmann
P.11-16 | Hydroxyl radical reactions with halogenated organic acids in cloud droplets or deliquescent particles
I. Morozov, D. Hoffmann, Y. Lazarou, H. Herrmann, E. Vasiliev
P.11-17 | Silver enrichment in rain from clouds in Israel under different seeding and cloud microstructure conditions
A. Zipori, D. Rosenfeld
P.11-18 | Regional modelling of the tropospheric multiphase system using COSMO-MUSCAT
R. Schrödner, R. Wolke, A. Tilgner
P.11-19 | Treatment of non-ideality in the multiphase parcel model SPACCIM
R. Wolke, A. J. Rusumdar, A. Tilgner, H. Herrmann
P.11-20 | CHEMICAL COMPOSITION OF RAINWATER AND AEROSOL INTEGRATED-COLUMN PROPERTIES BEFORE AND AFTER RAINFALL AT SELECTED EUROPEAN SITES
R. Fraile, M. Sorribas, I. San Martin, A. I. Calvo, E. Alonso-Blanco, M. Fernandez-Raga, A. Castro
P.11-21 | Simulation of chemical species in clouds
D. Vujoviæ, V. Vuèkoviæ
P.11-22 | Meso-scale modelling of SOA Precursors from cloud processes
A. Berger, M. Leriche, L. Deguillaume, D. Gazen, J. Escobar, P. Tulet
P.11-23 | Absorption of soluble trace gases by atmospheric nanoaerosols
T. Elperin, A. Fominykh, B. Krasovitov, A. Lushnikov

4.1 MIXED PHASE CLOUDS (INCLUDING ARCTIC STRATUS, MID-LEVEL CLOUDS) HS 9

Chair: T. Storelvmo

15:30 **4.1-1 | The dependence of single-layer arctic stratus ice microphysical properties on aerosol properties observed during ISDAC and M-PACE (invited talk)**
G. McFarquhar, R. Jackson, A. Korolev, M. Earle, P. Liu, P. Lawson, A. Laskin, S. Brooks, M. Freer

15:45 **4.1-2 | Microphysical Structure of a Nimbostratus over Jilin Province Provided by Airborne Observations**
Z. Zhao, H. Lei

16:00 **4.1-3 | A Prolific Warm Rain Process and its Influence on Ice Nucleation in Tropical Maritime Cumuli**
S. Lasher-Trapp, D. Leon, C. Twohy, P. DeMott, G. McMeeking, A. Johnson, D. C. Rogers, D. Toohey, A. Heymsfield

16:15 **4.1-4 | Microphysical properties of frontal clouds**
J. Crosier, T. Choularton, K. Bower, C. Westbrook, Z. Cui, A. Blyth

16:30 **4.1-5 | Bulk Parameterization of Ice Crystal Shape Effects in WRF Model**
J. - P. Chen, T. - C. Tsai

16:45 – 17:00 Coffee break

17:00 **4.1-6 | A modeling study of ice nucleation affected by aerosols**
Z. Li, H. Xue

17:15 **4.1-7 I Field measurements of the micro structure of mixed-phase clouds**
J. Henneberger, O. Stetzer, U. Lohmann

17:30 **4.1-8 | Representing mixed-phase cloud in weather prediction and climate models**
R. Forbes, M. Ahlgrimm

7.1 MESOSCALE CLOUD SYSTEMS (INCLUDING SEVERE STORMS) HS 8

Chair: S. Tessendorf

15:30 **7.1-1 | Observations of the microphysics and dynamics of an active cold front (invited talk)**
T. Choularton, K. Bower, J. Crosier, M. Gallagher, C. Dearden, G. Vaughan, P. Connolly, J. Dorsey, G. Lloyd

15:45 **7.1-2 | Diurnal Variation of Precipitation: Simulated and Observed During MC3E**
W. - K. Tao, D. Wu, T. Matsui, C. Peters-Lidard, A. Hou

16:00 **7.1-3 | Constraining calculations of latent heat release in simulations of extratropical weather systems using in-situ microphysics data**
C. Dearden, P. Connolly, T. Choularton

16:15 **7.1-4 | Satellite perspective on the severe convective storm over Central Europe on 22 June 2011**
F. Senf, A. Horvath, H. Deneke, M. Diederich, C. Simmer, J. Simon, S. Trömel, K. Wapler

16:30 **7.1-5 | Sensitivity of mesoscale simulation of tropical cyclone AILA to cloud microphysical parameterization schemes**
K. S. Singh

16:45 – 17:00 Coffee break

17:00 **7.1-6 | Convection and precipitation under various stability and shear conditions: numerical experiments for mesoscale convective systems**
T. Takemi

17:15 **7.1-7 | Meteorological study of the devastating Local Severe Storms of Bangladesh**
F. Akter, H. Ishikawa, F. Akter, F. Akter

17:30 **7.1-8 | Deep tropical convection forming over the continent and over the Ocean: A comparison of their dynamics and microphysics by means of detailed cloud modeling**
E. Drigeard, W. Wobrock, A. Flossmann

8.1 AEROSOL-CLOUD-PRECIPITATION-INTERACTIONS — HS 9

Chair: R. Wood, S. Seims

08:30 **8.1-1 | Cloud processing of aerosol particles: consequences for precipitation? (invited talk)**
A. Flossmann, W. Wobrock

08:45 **8.1-2 | Aerosol size distribution variability near Caribbean trade cumulus cloudseffects of humidity, cloud processing, and implications for lidar backscatter measurements**
R. Rauber, L. Di Girolamo, G. Zhao, M. Colon-Robles

09:00 **8.1-3 | Impacts of Emission Controls and Perturbations on an Intense Convective Precipitation Event during the 2008 Beijing Olympic Games**
Y. Cheng, W. Cao, P. Marrupu, P. Saide, S. Kulkarni, M. Lin, Q. Zhang, D. G. Streets, H. Su, A. Wiedensohler, G. R. Carmichael

09:15 **8.1-4 | Multi-component aerosol activation and their impact on the cloud physics and precipitation in a heavy polluted episode**
C. Zhou, X. Zhang, S. Gong

09:30 **8.1-5 | Regime-dependent, observationally-based assessment of aerosol-cloud forcing**
A. McComiskey, G. Feingold, E. Luke, P. Kollias

09:45 **8.1-6 | Effect of aerosols on shallow cumuli sampled during RACORO**
H. - J. Yang, G. McFarquhar

10.1 ICE NUCLEI AND CLOUD CONDENSATION NUCLEI — HS 8

Chair: P. DeMott, C. Hoose

08:30 **10.1-1 | Cloud chamber and modeling studies on the ice nucleation activity of pollen (invited talk)**
O. Möhler, C. Oehm, S. Jäger, M. Hummel, C. Hoose

08:45 **10.1-2 | Can insoluble particles act as good CCN?**
A. Nenes, P. Kumar, K. Vlassios, I. Sokolik

09:00 **10.1-3 | Measurements of Ice Nuclei in the Eastern Mediterranean**
K. Ardon-Dryer, Z. Levin, A. Teller

09:15 **10.1-4 | Ambient and Laboratory measurements of ice nuclei and their biological fraction with the Fast Ice Nuclei Chamber FINCH-HALO**
B. Nillius, U. Bundke, J. Curtius, H. Bingemer

09:30 **10.1-5 | Aerosol hygroscopicity distribution in size-resolved CCN measurements: the concept, validation and applications**
H. Su, D. Rose, Y. Cheng, S. S. Gunthe, G. R. Carmichael, U. Pöschl

09:45 **10.1-6 | Mass spectrometric analysis of individual biological particles a relation between chemical composition and ice-nucleation activity?**
B. Sierau, C. Oehm, O. Möhler, O. Stetzer, C. Chou

10:00 – 10:30 Coffee break

8.2 AEROSOL-CLOUD-PRECIPITATION-INTERACTIONS — HS 9

Chair: R. Wood, S. Seims

10:30 **8.2-1 | Aerosol affects on the microphysics of precipitation development in tropical and sub-tropical convective clouds**
R. Bruintjes, S. Tessendorf, D. Axisa, C. Weeks, J. Kulkarni, P. Kumari, M. Kumar, T. Prabhakaran

10:45 **8.2-2 | Measurements of Regional-Scale Aerosol Impacts on Cloud Microphysics over the East China Sea: Possible Influences of Warm Sea Surface Temperature over the Kuroshio Ocean Current**
M. Koike, N. Takegawa, N. Moteki, H. Nakamura, Y. Kondo, H. Matsui, T. Y. Nakajima, N. Oshima, K. Kita, M. Kajino

11:00 **8.2-3 | Aerosol-cloud interactions in shallow convections embedded in stratified clouds based on multi-aircraft measurements**
X. Guo, D. Fu, G. Lu, C. Feng

11:15 **8.2-4 | On the Stability of Aerosol-Cloud-Precipitation Systems**
G. Feingold, I. Koren

11:30 **8.2-5 | Cloud Effects on Aerosol Optical Properties**
A. Leskinen, A. Arola, H. Portin, S. Romakkaniemi, A. - P. Hyvärinen, A. Laaksonen, K. E. J. Lehtinen, M. Komppula

11:45 **8.2-6 | Hill Cap Cloud Thuringia 2010: A ground-based field study on aerosol cloud interaction**
D. van Pinxteren, W. Birmili, B. Fahlbusch, W. Fomba, T. Gnauk, Y. Iinuma, S. Mertes, K. Dieckmann, M. Merkel, C. Müller, K. Müller, L. Poulain, G. Spindler, M. Schäfer, F. Stratmann, A. Tilgner, L. Schöne, P. Bräuer, K. Weinhold, H. Wex, A. Wiedensohler, W. Zhijun, S. Borrmann, E. Harris, A. Roth, J. Schneider, B. Sinha, I. George, D. Heard, L. Whalley, B. D'Anna, C. George, M. Müller, W. Haunold, A. Engel, A. Weber, D. Amedro, C. Fittschen, C. Schoemaecker, J. Collett, T. Lee, H. Herrmann

12:00 **8.2-7 | Parameterisation of the vertical velocity PDF for the aerosol activation in a large-scale modelling framework**
F. Malavelle, J. Haywood, P. Field, A. Hill, A. Lock

12:15 **8.2-8 | Observations and Modelling of the Microphysics of Precipitating Shallow Mixed-phase Cumulus Clouds**
K. Bower, T. Choularton, J. Crosier, P. Connolly, I. Crawford, M. Gallagher, G. Capes, C. Westbrook, A. Blyth, Z. Cui

10.2 ICE NUCLEI AND CLOUD CONDENSATION NUCLEI — HS 8

Chair: P. DeMott, C. Hoose

10:30 **10.2-1 | Effectiveness of Asian dust particles as ice nuclei in orographic snow clouds (invited talk)**
M. Murakami, N. Orikasa, T. Tajiri, A. Saito, K. Yamashita

10:45 **10.2-2 | The importance of time-dependence of ice nucleation in mixed-phase clouds**
B. Ervens, G. Feingold

11:00 **10.2-3 | Aerosol Activation Properties and Parameterization of CCN Number Concentration in North China**
Z. Deng, C. Zhao, N. Ma

11:15 **10.2-4 | Measurements of ice nuclei concentrations and compositions in the maritime tropics during ICE-T**
G. McMeeking, R. Sullivan, P. DeMott, A. Danielczok, H. Bingemer, H. Klein, T. Hill, G. Franc, J. Anderson, A. Cazorla, K. Suski, K. Prather, C. Twohy

11:30 **10.2-5 | Significance of morphology and chemical composition of aerosol particles for their ice nucleating efficiency in the contact mode**
A. Kiselev, N. Hoffmann, D. Rzesanke, D. Duft, T. Leisner, M. Ebert

11:45 **10.2-6 | Influence of organics on ice formation via deposition mode nucleation: Laboratory studies under conditions relevant to the upper troposphere**
J. B. C. Pettersson, X. Kong, E. S. Thomson, N. Markovic

12:00 **10.2-7 | Quantifying the Dust Impacts on the Ice Generation in Supercooled Stratiform Clouds by Combining Remote Sensing and in situ measurements**
Z. Wang, **D. Zhang**, J. Snider, M. Deng, M. Zhao, A. Heymsfield, D. Liu, J. Fan

12:15 **10.2-8 | Observational Evidence for the Widespread Occurrence of Stochastic Ice Nucleation.**
A. Illingworth, C. Westbrook

12:30 – 14:00 Lunch

14:00 – 15:30 POSTER SESSION III

P.3 CONVECTIVE CLOUDS (INCLUDING CLOUD ELECTRIFICATION)

P.3-1 | Aerosol particle activation and cloud drop charges observed inside trade wind cumuli during the Puerto Rican African Dust And Cloud Study (PRADACS)
S. Mertes, L. Schenk, J. Schneider, J. Schmale, A. Roth, F. Zurcher, O. Mayol-Bracero

P.3-2 | Characterization of "Catatumbo Lightning"
R. Bürgesser, G. Nicora, E. Avila

P.3-3 | Numerical Simulation about Initial Part of Cloud Merger
L. Yanwei, N. Shengjie

P.3-4 | Estimation of the effect of cloud liquid water content on calculations of the spectral characteristics of horizontal turbulent exchange between a cumulus cloud and ambient atmosphere based on aircraft observations
A. Strunin, D. Zhivoglotov

P.3-5 | The effects of the valley on vortical characteristics of a hailstorm
M. Curic, D. Janc

P.3-6 | Analyses of lightning and radar data for summer thunderstorms over northeast Bulgaria and Black sea
R. Mitzeva, B. Markova, S. Petrova, N. Bratkov, V. Kotroni

P.3-7 | A numerical case study of convective clouds over mountainous terrain during COPS
Y. Huang, A. Blyth, A. Gadian, Z. Cui, S. J. Lock

P.3-8 | Do anomalous zones of non-inductive charging influence the electrical state of the thunderstorms: numerical experiments with MesoNH
T. Boryana, P. Jean-Pierre, M. Rumjana, B. Christelle

P.3-10 | A stochastic model for tropical precipitation and extreme events
S. N. Stechmann, J. D. Neelin

P.3-11 | Variability of convective cloud top heights and lightning during the North Australian Wet Season
V. Kumar, A. Protat, P. May, G. Penide, C. Jakob

P.3-12 | Influence of aerosol concentration on mixed phase convective cloud development: a modeling study
H. Lee, S. S. Yum, Y. Song

P.3-13 | A new mixed-phase bin microphysical cloud model used to simulated the non-inductive eletrification process
G. Almeida, C. Mota Menezes, J. B. Leal Junior

P.3-14 | Examination of Radar data for a cold air outbreak case in the North West approaches
K. McBeath, P. Field

P.3-15 | Towards operational lightning prediction in high-resolution versions of the Met Office Unified Model
J. Wilkinson, P. Field

P.3-16 | Observation of key parameters for the development of convective cloud systems over the CESAR observatory
Y. Dufournet, C. Unal, T. Otto, H. Russchenberg

P.3-17 | Aerosol effects on convective clouds in ECHAM-HAM
T. Wagner, P. Stier

P.3-18 | An Observational Evaluation of the Bigg Parameterization for Immersion Freezing of Raindrops and Implications for Numerically-Simulated Convective Rainfall
D. Arthur, S. Lasher-Trapp, A. Johnson, C. Villanueva-Birriel
P.3-19 | The role of cold pools in promoting deep convection
L. Schlemmer, C. Hohenegger
P.3-20 | PHENOMENON of "WARM THUNDERSTORM"
L. Kashleva, Y. Mikhalovsky, V. Mikhalovsky
P.3-21 | Convection permitting version of NWP model HIRLAM
A. Luhamaa
P.3-22 | Tracking, analysis, and nowcasting of Cuban convective cells as seen by radar: first results
S. Novo, O. Ledesma, D. Martinez
P.3-23 | Radar-based estimates of ground rainfall over Central Mexico by using neural networks
S. Novo, D. Baumgardner, G. Raga
P.3-24 | Convective and stratiform clouds over Russia: analysis of changes in the last decades
A. V. Chernokulsky, O. N. Bulygina, I. I. Mokhov
P.3-25 | Collision Efficiency of Cloud Droplets in the Presence of Electric Field
N. Klimin, L. Kashleva
P.3-26 | Understanding the eletrification process
C. Morales, M. Lacerda, E. Anselmo, J. R. Neves, R. Albrecht
P.3-27 | Improving bulk microphysics schemes in deep convective systems using observations
A. Varble, E. Zipser
P.3-28 | Numerical simulation of macro- and micro-structures of intense convective clouds with a spectral bin microphysics model
L. Xiaoli
P.3-29 | Microphysical Properties of Winter Lake-Effect Convective Clouds
W. Strapp, A. Korolev, D. Hudak, H. Barker, M. Wolde
P.3-30 | The evolution of convective storms in high-resolution radar and model data
T. Stein, R. Hogan, J. Nicol
P.3-31 | Precipitating systems microphysics and 3D Lightning Mapper Array
E. Vieira Mattos, L. Augusto T. Machado
P.3-32 | Causes of the Z_{DR} Arc Signature
M. Heitz, A. Mark, G. Matt
P.3-33 | Characteristics of polarimetric parameters in the thunderstorms observed by X-band dual polarization radar in the summer season in the Kanto region, Japan
N. Sakurai, K. Iwanami, S. - I. Suzuki, T. Maesaka, S. Shimizu, A. Kato, K. Kieda, R. Misumi, M. Maki
P.3-34 | Estimating the magnitude of electric charge inside isolated convective clouds
M. Lacerda, C. Morales, E. Anselmo, J. R. Neves, R. Albrecht
P.3-35 | A modeling study of the tropical tropopause layer
D. Henz, G. Tripoli, T. Hashino, E. Smith
P.3-36 | Analysis of Hailstone and Thunderstorm Characteristics in Tianjin During Recent Years
W. Song, R. Jin, H. Meng, X. Guo
P.3-38 | Evaluation of instability indices computed using ALADIN-BG output and their relation with thunderstorm activity over Bulgaria
B. Tsenova, A. Bogatchev

P.8 AEROSOL-CLOUD-PRECIPITATION-INTERACTIONS

P.8-1 | Observation of the first indirect effect at Mt. Brocken in Germany
M. I. A. Berghof, G. P. Frank, S. Sjogren, B. Martinsson, K. Acker, W. Wieprecht, D. Kalass
P.8-2 | Airborne Measurements of Aerosol, Cloud Droplet and CCN Distribution Characteristic over Hebei Area, Northern China
Y. Duan, J. Duan, Y. Yin
P.8-4 | What have we learned from HaChi (HAZE IN CHINA) project?
Z. Chunsheng, N. Ma, A. Wiedensohler, F. Stratmann
P.8-5 | The Effect of Giant Cloud Condensation Nuclei on Warm-Cloud Precipitation
W. Fang
P.8-6 | Phoretic forces on aerosol particles surrounding an evaporating droplet in microgravity conditions
F. Prodi, G. Santachiara, F. Belosi, A. Vedernikov, D. Balapanov
P.8-7 | Large-scale thermodynamic and dynamic controls on aerosol-induced invigoration of tropical deep convection
H. Morrison, W. W. Grabowski
P.8-8 | The VOCALS Regional Experiment: aerosol-cloud-precipitation interactions in marine boundary layer cloud
R. Wood
P.8-9 | Studying the aerosol-cloud-precipitation interaction in the transition from closed to open mesoscale cellular convection using aircraft observations
C. Terai, R. Wood
P.8-10 | Effect of hygroscopic seeding on warm rain clouds
N. Kuba, M. Murakami

P.8-11 | Black carbon mass concentration measurements at the Environmental Research Station Schneefernerhaus in varying contact with clouds
C. Linke, B. Altstädter, A. Riehl, L. Ries, E. Schlosser, M. Schnaiter

P.8-12 | Historical and future simulations of aerosol climate effects with a global climate model
T. Takemura

P.8-13 | Influence of different aerosol scavenging approaches in ECHAM5-HAM on the aerosol- and cloud properties in high latitudes
P. Reutter, S. Ferrachat, U. Lohmann

P.8-14 | On the Estimated Impact of Anthropogenic Cloud Condensation Nuclei on the Initiation of Precipitation in the Mexico City Region
M. L. Frias-Cisneros, D. Baumgardner, F. García-García

P.8-15 | Cloud Condensation Nuclei (CCN) in tropical airmasses ground based and airborne measurements on Barbados
H. Wex, G. Roberts, F. Ditas, K. Dieckmann, S. Hartmann, M. Schäfer, M. A. Izaguirre, G. Cayez, B. Wehner, F. Stratmann, H. Siebert

P.8-16 | Super-Droplet Approach to Simulate Precipitating Trade-Wind Cumuli - Comparison of Model Results with RICO Aircraft Observations
S. Arabas, S. - I. Shima

P.8-17 | Numerical simulation of heavy snowfalls
G. Pirnach, T. Romash

P.8-18 | Evolution of warm cumulus clouds described in a new thermodynamic phase space
O. Altaratz, I. Koren, A. Kostinski, G. Feingold

P.8-19 | A new aerosol cloud microphysics for use in the LES-type model ATHAM
P. Griffiths, M. Herzog

P.8-20 | A Numerical Study of Aerosol Effects on Cloud Microphysical Processes of Hailstorm Clouds
H. - L. Yang, H. Xiao, Y. - C. Hong

P.8-22 | Aerosol influences on shallow cumulus convection
S. - S. Lee, G. Feingold, P. Chuang

P.8-23 | Effect of CCN spectra on droplet spectral width
J. Hudson, S. Noble, J. Vandana

P.8-24 | Observations of in-cloud new particle formation events in the tropical upper troposphere
W. Frey, R. Weigel, S. Borrmann, D. Kunkel, M. de Reus, F. Cairo, M. Krämer, C. Schiller, N. M. Sitnikov, C. M. Volk, G. V. Belyaev

P.8-25 | Do stronger surface winds produce more precipitation in Shallow Cumulus over the Ocean?
Y. Kogan, D. Mechem, K. Choi

P.8-26 | Glaciogenic cloud seeding in a high supercooled liquid water environment: new insight into 60 years of cloud seeding over Southeast Australia and Tasmania
S. Siems, A. Morrison, M. Manton

P.8-27 | Evaluating Aerosol Impact on Precipitation with CLR Double-Moment Microphysical Schemes in WRF Model
T. - C. Tsai, J. - P. Chen, W. - K. Tao

P.8-28 | Are simulated aerosol-induced effects on deep convective clouds strongly dependent on saturation adjustment?
Z. Lebo, H. Morrison, J. Seinfeld

P.8-29 | Aerosol effects in a PDF-based parameterization
H. Guo, C. Golaz, L. Donner

P.8-30 | Revisiting the bi-stability of CCN concentrations in the stratocumulus-topped marine boundary layer using an improved WRF-Chem model
G. - D. Hwang, I. - C. Tsai, J. - P. Chen

P.8-31 | Dust semi-direct radiative effects over East Asia: Theimpacts on clouds and precipitation
H. Wang

P.8-32 | Measurement of collection efficiencies between aerosol particles and millimetric drops
A. Quérel, P. Lemaitre, M. Monier, E. Porcheron, A. Flossmann

P.8-33 | Microphysical characteristics of low-level clouds and fogs in a mountainous region of South Korea
J. Jin-Yim, L. Chulkyu, C. Ki-Ho, C. Joo-Wan, C. Young-Jean

P.8-34 | Aerosol, their effect on boundary layer clouds and comparison of the MODIS observations to ground based in-situ measurement
I. Ahmad, T. Mielonen, H. Portin, A. Arola, A. Leskinen, M. Komppula, K. E. J. Lehtinen, A. Laaksonen, S. Romakkaniemi

P.8-35 | The aerosol particles scavenging by rain performed by the DESCAM model
A. Quérel, M. Monier, A. Flossmann, P. Lemaitre, E. Porcheron

P.8-36 | Urban Snowfall From Slightly Supercooled Fog
G. Lloyd, J. Crosier, P. Connolly, T. Choularton

P.8-37 | Exploring wind-induced aerosol effects on shallow cumulus clouds in the trade wind region
D. Buettner, L. Nuijens, I. Serikov, H. Linne, B. Stevens

P.8-38 | WRF-Chem Simulations of Aerosol-Cloud-Water Vapor Interactions
M. A. Pfeffer, J. E. Kristjansson, F. Stordal, T. Berntsen, C. Zhao, J. Fast

P.8-39 | Trace metal analysis in cloud water during HCCT2010
W. Fomba, K. Müller, H. Herrmann

P.8-41 | Coordinating Observational Analyses and Cloud-Resolving Modeling to Understand Aerosol-Precipitation Interactions on Global Scales
T. L'ecuyer

P.8-42 | Partition of the first aerosol indirect effect and a new aerosol dispersion effect
Y. Liu, P. Daum, A. Vogelmann, T. Toto
P.8-43 | Sources of variability in southeast Pacific stratocumulus
R. George, R. Wood, C. Bretherton
P.8-44 | A novel scale-aware parameterization of warm rain processes in regional and global climate models
R. Bennartz, A. Lauer
P.8-45 | Aerosol Effects of the Condensation Process on a Tropical Squall Line Simulation
T. Seiki, S. Masaki, N. Teruyuki, H. Tomita
P.8-46 | Observation of aerosol and CCN activation spectra on the semi-arid Region of Northeast Brazil (NEB)
G. Almeida, J. B. Leal Junior, G. Guerra
P.8-47 | Cloud Modification by Controlled Aerosol Release in the Eastern-Pacific Emitted Aerosol Cloud Experiment (E-PEACE)
J. Muelmenstaedt, L. Russell, L. Ahlm, B. Albrecht, A. Sorooshian, J. Seinfeld
P.8-48 | Influence of cloud to the local aerosol chemical composition during the Hill Cap Cloud Thuringia 2010 (HCCT 2010) campaign
L. Poulain, Z. Wu, A. Tilgner, D. van Pinxteren, M. Müller, B. D'Anna, C. George, J. Schneider, S. Mertes, A. Wiedensohler, H. Herrmann
P.8-49 | Impact of mineral dust on cloud formation in a Saharan outflow region
L. Smoydzin, A. Teller, H. Tost, J. Lelieveld
P.8-50 | Testing aerosol-cloud simulations of Caribbean convection with aircraft data: Contrasting dusty with non-dusty days
P. Field, A. Heymsfield, D. Rogers, Z. Wang, J. Snider, P. DeMott, G. McMeeking, B. Shipway, C. Twohy, J. Anderson, M. Dalvi, J. Wilkinson, J. Marsham, C. Planche, A. Hill
P.8-51 | Effect of the summer monsoon on aerosol properties at two measurement stations in northern India
A. - P. Hyvärinen, T. Raatikainen, D. Brus, M. Komppula, T. Mielonen, A. - M. Sundström, T. S. Panwar, R. Hooda, V. P. Sharma, G. de Leeuw, H. Lihavainen
P.8-52 | Aerosol cloud interactions of trade wind cumuli
F. Ditas, B. Wehner, H. Wex, H. Siebert, T. Schmeissner, R. Shaw, G. Roberts, A. Wiedensohler
P.8-53 | Chemical composition and CCN activity of aerosols during cloud events in a semi-urban aerosol-cloud interaction observation station
L. Hao, S. Romakkaniemi, A. Kortelainen
P.8-54 | Regime based investigation of aerosol-cloud interactions
E. Gryspeerdt, P. Stier
P.8-55 | The effects of biomass burning aerosols on the formation of convective mixed-phase clouds and precipitation
D. Chang
P.8-56 | MODELING ATMOSPHERIC AEROSOLS, CHARACTERIZED AT THE PUY DE DOME STATION (FRANCE)
C. Barbet, L. Deguillaume, N. Chaumerliac
P.8-57 | Modeling aerosol indirect effects from shipping emissions in ECHAM5-HAM
J. Quaas, K. Peters, P. Stier, H. Grassl
P.8-58 | Measurements of the microphysical properties of aerosol and cloud particles on a high mountain in Southeast China
Y. Yin, C. Kui, H. Xiao, L. Wang, H. Tan
P.8-59 | Measurements of cloud droplet number concentrations (CDNC) and cloud condensation nuclei (CCN) at the Puy de Dôme, France
E. Asmi, E. Freney, M. Hervo, A. Colomb, D. Picard, L. Bouvier, C. Gourbeyre, J. - M. Pichon, M. Ribeiro, K. Sellegri
P.8-60 | Combining Global Models, Theory and Satellites to Understand Satellite-Retrieved Correlations Between Cloud-Top-Height and Aerosol Optical Depth
P. Stier, T. Wagner, E. Gryspeerdt, B. Grandey
P.8-61 | Impact of Aerosols on Convective Clouds and Precipitation
W. - K. Tao, J. - P. Chen, Z. Li, C. Wang, C. Zhang
P.8-62 | Cloud base aerosol characteristics and implications for cloud microphysics in southeast Queensland
S. Tessendorf, C. Weeks, R. Bruintjes, D. Axisa
P.8-64 | How sensitive are aerosol-cloud interactions to microphysical representation?
A. Hill, B. Shipway
P.8-65 | The importance of aerosol processing in clouds on the European scale
S. Pousse-Nottelmann, E. M. Zubler, C. Knote, U. Lohmann
P.8-66 | What is the cloud radar signature of the interplay between trade cumuli and aerosols?
K. Lonitz, B. Stevens, L. Nuijens, L. Hirsch, D. Büttner, J. Handwerker
P.8-67 | Novel mobile set of aerosol and cloud instrumentation (AIDAmobile) at the Environmental Research Station Schneefernerhaus (UFS)
E. Schlosser, R. Behrendt, K. Bigge, C. Hoose, C. Linke, B. Altstädter, H. Mahlke, O. Möhler, A. Riehl, H. Saathoff, M. Schnaiter, J. Skrotzki, E. Toprak, T. Leisner
P.8-68 | Why can't aerosol size and composition leave each other alone?
D. Topping, G. McFiggans, A. Buchholz
P.8-69 | Satellite identification of indirect aerosol effects over semi-arid and arid land regions
L. Klüser, T. Holzer-Popp
P.8-70 | Changes in precipitation in Mexico City
A. Quintanar, D. Baumgardner, G. Raga

P.8-71 | Vertical oscillations in monsoon clouds during CAIPEEX and the origin of small droplets
T. Prabhakaran, K. Alexander, G. Pandithurai, J. Kulkarni, B. N. Goswami

P.8-72 | The origin and relevance of airborne *Pseudomonas* spp. for ice nucleation in the atmosphere
M. Sahyoun, T. Santl Temkiv, K. Finster, S. Hartmann, S. Augustin, F. Stratmann, T. Clauss, D. Niedermeier, H. Wex, J. Voigtländer, U. Gosewinkel Karlson, J. Havskov Sørensen, N. Woetmann Nielsen, U. Smith Korsholm

P.8-73 | Impacts of Aerosol Composition on Precipitation Forming Processes in Winter Convective Clouds Over Central California: Contrasting Case Studies
R. Chemke

P.8-74 | Impacts of ice nucleating airborne bacteria on weather and climate
M. Sahyoun, U. Smith Korsholm, J. Havskov Sørensen, N. Woetmann Nielsen, K. Finster, U. Gosewinkel Karlson

P.8-75 | What drives low cloud variability over the Azores?
D. Mechem, S. Yuter, S. de Szoeke

P.8-76 | Quantifying the impact of natural aerosol events on clouds and precipitation in Europe with a regional scale model framework
M. Bangert, B. Vogel, H. Vogel, A. Nenes, D. Barahona

P.8-77 | AeroSol Cloud Interactions in UK weather (ASCI)
C. Planche, J. Marsham, D. Parker, K. Carslaw, G. Mann, A. Blyth, P. Field, B. Shipway, A. Hill, M. Salvi, J. Wilkinson

P.8-78 | Aerosol-Cloud-Precipitation interaction during CAIPEEX: a perspective from mixing in clouds
T. Prabhakaran, S. Patade, D. Sudhakar, G. Pandithurai, A. Duncan, R. S. Maheshkumar, B. Padmakumari, M. Konwar, S. Morwal, C. Deshpande, S. Narkhedkar, P. Safai, K. Dani, R. Joshi, A. Nath, S. Nair, V. Sapre, J. Kulkarni, D. Breed, B. Roelof, B. N. Goswami

P.8-79 | Size dependent CCNC measurements of cloud drop residues and interstitial particles of trade wind cumuli
L. Schenk, S. Mertes, M. Schäfer, F. Stratmann

P.8-80 | A cloud-resolving modeling study of black carbon aerosols scavenging by stratiform clouds and comparison with observations
W. - Y. H. Leung, A. Ekman, A. Kristensson, H. Portin, S. Romakkaniemi, K. J. Noone, M. Komppula

P.8-81 | INFLUENCE OF RAIN ONTO AEROSOL SIZE DISTRIBUTION IN A RURAL AREA
E. Alonso-Blanco, A. Castro, A. I. Calvo, I. San Martin, M. Fernandez-Raga, R. Fraile

P.8-82 | Assessment of aerosol hygroscopic growth using an elastic LIDAR and a Raman LIDAR in urban metropolitan areas
P. Rodrigues, E. Landulfo, F. Lopes, R. da Costa

P.8-84 | The role of precipitation in aerosol-induced changes in northern hemisphere wintertime stationary waves
A. Lewinschal, A. Ekman, H. Körnich

P.8-85 | Aerosol Indirect Effects on Dynamical Aspects of Deep Convective Storms
S. van den Heever

P.8-86 | Atmospheric instability and cloud life-time in the heavily polluted Amazon
J. A. Martins

P.8-87 | Optical modeling of cloud-active sea-salt aerosol in the marine and coastal atmosphere surface layer
G. Kaloshin

P.8-88 | Elucidating the Relative Significance of Aerosol Characteristics and Updraft Velocity on Cloud Droplet and Ice Crystal Number through the use of Cloud Parameterization Adjoints in a 3D Simulation
A. Nenes, S. Capps, K. Vlassios

P.8-90 | Closure study on size-dependent aerosol hygroscopicity / CCN ability and the particles' chemical composition in the North China Plain
S. Henning, B. Nekat, K. Dieckmann, M. Schäfer, A. Nowak, E. Hallbauer, T. Göbel, D. van Pinxteren, Z. Deng, P. Liu, N. Ma, C. Zhao, H. Herrmann, A. Wiedensohler, F. Stratmann

P.8-91 | The Puerto Rico African Dust and Clouds Study (PRADACS) Aerosol and Cloud Measurements at a Caribbean Tropical Montane Cloud Forest
C. J. Valle Diaz, O. Mayol-Bracero, E. Torres Delgado, F. Zurcher, A. Gioda, T. Lee, J. Collett, P. DeMott, G. McMeeking, T. Hill, G. Franc, M. Díaz Martínez, E. M. M. Fitzgerald, M. D. Zauscher, L. A. Cuadra Rodríguez, K. Prather, J. K. Spiegel, W. Eugster, S. Mertes

P.8-92 | Variability in the biases of WRF model predicted orographic precipitation amounts explained by satellite observed cloud top microstructure
D. Rosenfeld, R. Bitton, A. Givati

8.3 AEROSOL-CLOUD-PRECIPITATION-INTERACTIONS — HS 9

Chair: S. C. van Den Heever

15:30 **8.3-1 | Impacts of Saharan Dust on Microphysical Processes in Tropical Convection (invited talk)**
C. Twohy, S. Saleeby, S. van den Heever, P. DeMott

15:45 **8.3-2 | Overview of Puijo Cloud Experiments (PuCE 2010 & 2011)**
H. Portin, A. Leskinen, D. Brus, K. Neitola, A. - P. Hyvärinen, A. Kortelainen, L. Hao, P. Miettinen, A. Jaatinen, H. Lihavainen, S. Romakkaniemi, A. Laaksonen, K. E. J. Lehtinen, M. Komppula

16:00 **8.3-3 | Aerosol processing by drizzling stratocumulus: a modelling study using a novel particle-based approach**
S. Arabas, A. Jaruga, H. Pawlowska

16:15 **8.3-4 | Persistent highly supercooled rain in marine convective and orographic clouds over California**
D. Rosenfeld, R. Chemke, P. DeMott, K. Prather

16:30 **8.3-5 | Towards a more complete representation of cloud-aerosol interactions in operational NWP**
B. Shipway

16:45 – 17:00 Coffee break

17:00 **8.3-6 | Aerosol-cloud relationships as observed during CAIPEEX over India**
G. Pandithurai, D. Sudhakar, T. Prabhakaran, R. S. Maheshkumar, J. P. Kulkarni, B. N. Goswami

17:15 **8.3-7 | Global Assesment of Ice Nuclei Effects on Ice Cloud Formation using the NASA Goddard Earth Observing System (GEOS-5)**
D. Barahona, A. Molod, J. Bacmeister, A. Gettelman, H. Morrison, A. Nenes

17:30 **8.3-8 | Helicopter-borne observations of giant nuclei and their impact on microphysical properties of shallow cumulus convection**
T. Schmeissner, H. Siebert, B. Wehner, H. Wex, F. Ditas, J. Katzwinkel, F. Werner, G. Roberts

10.3 ICE NUCLEI AND CLOUD CONDENSATION NUCLEI — HS 8

Chairs: D. Cziczo, F. Stratmann

15:30 **10.3-1 | Ice Nuclei Sources, Concentrations, and Relation to Aerosol Properties (invited talk)**
P. DeMott, A. Prenni, G. McMeeking, R. Sullivan, T. Hill, G. Franc, A. Sullivan, E. Garcia, Y. Tobo, K. Prather, K. Suski, A. Cazorla, J. Anderson, S. Kreidenweis

15:45 **10.3-2 | Ice Selective Inlet (ISI): A novel tool for ice nucleation measurements**
P. Kupiszewski, P. Vochezer, M. Schnaiter, E. Weingartner

16:00 **10.3-3 | A four year record of atmospheric ice nucleous measurements in Central Europe**
H. Bingemer, H. Klein, M. Ebert, W. Haunold, U. Bundke, T. Herrmann, K. Kandler, D. Müller-Ebert, S. Weinbruch, A. Judt, A. Wéber, B. Nillius, K. Ardon-Dryer, Z. Levin

16:15 **10.3-4 | Can bacteria with ice forming abilities impact on rain formation in a convective cloud?**
M. Monier

16:30 **10.3-5 | Immersion freezing of biological particles investigated at LACIS**
S. Hartmann, S. Augustin, T. Š. Temkiv, U. Gosewinkel Karlson, D. Niedermeier, T. Clauss, H. Wex, J. Voigtländer, F. Stratmann

16:45 – 17:00 Coffee break

17:00 **10.3-6 | Thermodynamic and kinetic theory of deliquescence and efflorescence of soluble condensation nuclei: under- and supersaturated vapors, an interplay of nucleus size and solubility, a crossover in thermodynamically stable and unstable variables**
A. Shchekin, I. Shabaev, O. Hellmuth

17:15 **10.3-7 | MODEL OF CRYSTALLIZATION OF SUPERCOOLED DROPLETS OF AQUEOUS SOLUTIONS**
V. V. Chukin, A. S. Platonova

17:30 **10.3-8 | A Comparison of Dust Concentrations in the Northern and Southern Tropics**
J. Snider, Z. Wang, D. Leon, G. Sever, D. Zhang, P. Field

12.1 MEASUREMENT TECHNIQUES OF CLOUD AND PRECIPITATION PROPERTIES — HS 9

Chair: A. Korolev, P. Seifert

08:30 **12.1-1 | The Cloud Particle Spectrometer with Depolarization (CPSD): A Next Generation Cloud Probe for Distinguishing Cloud Droplet from Ice Crystals (invited talk)**
D. Baumgardner, R. Newton, G. Granger

08:45 **12.1-2 | Calibration of three generations of Cloud Particle Imagers (CPIs) to improve measurements of particle size distributions**
J. Um, G. McFarquhar, P. Connolly, C. Emersic, J. Z. Ulanowski, M. Gallagher

09:00 **12.1-3 | The DYNAMO/AMIE International Field Campaign: Cloud population of the Madden-Julian Oscillation**
S. W. Powell, C. Zhang, R. A. Houze, Jr., S. A. Rutledge, R. H. Johnson, C. N. Long, S. A. McFarlane, C. Schumacher, M. Katsumata, N. Viltard, S. S. Chen, K. Yoneyama

09:15 **12.1-4 | High-resolution wind-protected observations of winter precipitation particles and precipitation intensity**
S. Nakai, M. Fuzita, T. Katsushima, H. Motoyoshi, T. Kumakura, M. Ishizaka, K. Yokoyama, S. Murakami

09:30 **12.1-5 | Performance of the new BIO IN Sensor of the Fast Ice nucleus Chamber FINCH-HALO for ice nucleus measurements and their biological fraction**
U. Bundke, B. Nillius, H. Bingemer, J. Curtius

09:45 **12.1-6 | Small cloud particle detection at the AIDA chamber and over the UK**
J. Meyer, M. Krämer, A. Afchine, M. Schnaiter, O. Möhler, S. Benz, A. Abdelmonem, M. Gallagher, J. Dorsey, P. Brown, A. Woolley, C. Schmitt, R. Newton, D. Baumgardner

8.4 AEROSOL-CLOUD-PRECIPITATION-INTERACTIONS — HS 8

Chair: D. Mechem

08:30 **8.4-1 | Exploring the 2nd indirect Aerosol Effect with remote sensing, geostatistics and the weather research forecasting model**
M. Hewson, H. McGowan, S. Phinn

08:45 **8.4-2 | Influence of aerosol and vertical wind speed on cloud microphysical properties**
J. Schmidt, J. Bühl, A. Malinka, U. Wandinger

09:00 **8.4-3 | BLACK CARBON EFFECTS ON AMAZON PRECIPITATION**
W. Gonçalves, L. A. Machado

09:15 **8.4-4 | Cloud-precipitation-water vapor interactions in warm cumulus clouds**
H. Xue, W. Zhang, G. Chen

09:30 **8.4-5 | Applying an MCMC inverse modelling method to assess aerosol-to-droplet spectrum closure using three different cloud parcel models**
D. Partridge, S. Arabas, H. Pawlowska

09:45 **8.4-6 | Conditions for the fragmentation of supercooled cloud droplets**
T. Pander, K. - U. Nerding, T. Leisner

10:00 – 10:30 Coffee break

12.2 MEASUREMENT TECHNIQUES OF CLOUD AND PRECIPITATION PROPERTIES — HS 9

Chair: A. Korolev, P. Seifert

10:30 **12.2-1 | New approaches towards a better characterization of snowfall microphysics**
U. Löhnert, S. Kneifel, S. Crewell

10:45 **12.2-2 | Comparing Analysis of PARSIVEL and Tipping Bucket Rain Gauge in Different Rainfall Intensity**
Z. Huan, P. Yuntao, L. Yongyi, Z. Hu

11:00 **12.2-3 | Application of the 183-WSL retrieval method during the winter season**
S. Laviola, E. Cattani, V. Levizzani

11:15 **12.2-4 | Investigating clouds and precipitation at the Jülich ObservatorY for Cloud Evolution (JOYCE)**
S. Crewell, K. Ebell, U. Löhnert, B. Bohn

11:30 **12.2-5 | Identification of snow and rain at the surface using polarimetric radar**
M. Hagen, A. Dalphinet

11:45 **12.2-6 | Particle inter-arrival time analysis and shattering removal at high sampling speed and high particle concentration in mesoscale convective system**
R. Dupuy, C. Duroure, A. Schwarzenboeck

9.1 CLOUDS AND CLIMATE (INCLUDING RADIATIVE PROPERTIES OF CLOUDS) HS 8

Chair: H. Joos

10:30 **9.1-1 | Evaluating the critical relative humidity as a measure of subgrid-scale variability of humidity cloud cover parameterizations (invited talk)**
J. Quaas

10:45 **9.1-2 | The Features of Cloud Overlapping in Eastern Asia and their Effect on Cloud Radiative Forcing**
H. Zhang, J. Peng, X. Jing, J. Li

11:00 **9.1-3 | Investigation of the Surface and Circulation Impacts of Cloud Whitening Geoengineering**
E. Baughman, A. Gnanadesikan, A. Degaetano, A. Adcroft

11:15 **9.1-4 | Mid-tropospheric supercooled liquid water observation consistent with nucleation induced by a mountain lee wave**
F. Madonna, F. Russo, R. Ware, P. Gelsomina

11:30 **9.1-5 | Estimating Uncertainties of the Influence of Clouds on Radiative Energy Transfer in the Atmosphere from Observations and IPCC-Model Data**
E. Raschke, S. Kinne

11:45 **9.1-6 | Effects of marine cloud brightening on polar regions and the meridional heat flux**
B. Parkes, A. Gadian, J. Latham

12:00 AWARD TO KNOLLENBERG HS 9

12:30 – 14:00 Lunch

14:00 – 15:15 POSTER SESSION IV

P.9 CLOUDS AND CLIMATE (INCLUDING RADIATIVE PROPERTIES OF CLOUDS)

P.9-1 | Studies of atmospheric water in industrial environments
W. Wieprecht, K. Acker, D. Möller

P.9-2 | An updated satellite-based climatology of Cloud Effects on global Earth's radiation budget
N. Hatzianastassiou, M. Pyrina, M. Pyrina, M. Pyrina, A. Fotiadi, C. Papadimas, C. Matsoukas, I. Vardavas

P.9-3 | Low-Level Cloud Formation and Its Thermodynamic Effect on the Cloud-Topped Boundary Layer over the Okhtotsk Sea in Summer
S. Koseki, T. Nakamura, H. Mitsudera, Y. Wang

P.9-4 | 3D-visualization of Lunar Variation of Precipitation and Cloudiness
L. Hejkrlík

P.9-5 | Assessment of the Effects of Acid-Coated Ice Nuclei on the Arctic Cloud Microstructure, Atmospheric Dehydration, Radiation and Temperature during Winter
E. Girard

P.9-6 | Radiation Measurements and Microphysical Retrievals of Trade Wind Cumuli
F. Werner, H. Siebert, F. Ditas, T. Schmeissner, A. Macke, M. Wendisch

P.9-7 | Studies of the optical properties of warm clouds by a detailed microphysical scheme
E. Lábó, I. Geresdi

P.9-8 | A Statistical Comparison of the Eastern Pacific Low-level Clouds from Cloud Object Analysis and Upgraded Multiscale Modeling Framework
K. - M. Xu

P.9-9 | Understanding scale-dependence and subgrid variability for numerical model parameterizations
E. Campos, Y. Liu

P.9-10 | Validation of surface downward shortwave radiation of the Japan Meteorological agency meso-scale model for the forecast of photovoltaic power production
H. Ohtake, K. - I. Shimose, Y. Yamada, J. G. D. S. Fonseca Junior, T. Takumi, O. Takashi

P.9-11 | Changes in water vapor, clouds, and precipitation under global warming: Reanalysis and GCM models
C. - J. Shiu, S. C. Liu, J. - P. Chen, J. Chern, W. - K. Tao

P.9-12 | Evaluation and sensitivity of Arctic clouds simulated by the single-column climate model HIRHAM5-SCM
D. Klaus, K. Dethloff, W. Dorn, A. Rinke, M. Mielke

P.9-13 | Cloud retrievals using ship-based spectral transmissivity measurements
M. Brueckner, A. Macke, M. Wendisch, T. Kanitz, B. Pospichal

P.9-14 | Impact of microphysical processes on weather and climate via the amplification and breaking of tropopause-level Rossby waves
H. Joos, H. Wernli

P.9-15 | Microphysical Differences Resulting from Regional Climate Change in Simulated Deep Convective Storms
C. Villanueva-Birriel, S. Lasher-Trapp

P.9-16 | Response of upper clouds in global warming experiments obtained using a global nonhydrostatic model with explicit cloud processes
M. Satoh, S. Iga, T. Hirofumi, Y. Tsushima, A. T. Noda

P.9-19 | available global cloud level 3 data: assessment and access
S. Claudia, S. Kinne

P.9-20 | CONTROLLED HURRICANE WEAKENING VIA MARINE CLOUD BRIGHTENING
A. Gadian, B. Parkes, J. Latham, S. Salter
P.9-21 | Investigation of the significant radiation error case of the Japan Meteorological Agency meso-scale model for the forecasting the photovoltaic power production
K. - I. Shimose, H. Ohtake, Y. Yamada, J. Gari da Silva Fonseca Jr., T. Takashima, T. Oozeki
P.9-22 | Sensitivity and uncertainty of precipitation of an atmospheric general circulation model
L. Zamboni, R. Jacob, V. R. Kotamarthi, T. Williams, I. Held, M. Zhao, J. D. Neelin, J. McWilliams
P.9-23 | 10 years of cloud ground observations around Black Sea, Caspian Sea and Aral Sea
J. Badosa, L. R. Dmitrieva, M. Shatunova, M. Chumakov, V. Khan, J. - A. González, J. Calbó
P.9-24 | Climatology of total cloudiness in the Arctic: comparative analysis of satellite and surface observations and reanalyses data
A. V. Chernokulsky, I. I. Mokhov
P.9-25 | Characterisation of radiative effects of trade wind cumuli in Barbados using a ground based hyper-spectral camera
M. Schäfer, E. Bierwirth, M. Wendisch
P.9-26 | Rough and irregular ice crystals in mid-lattitude clouds
J. Z. Ulanowski, P. H. Kaye, E. Hirst, R. S. Greenaway, R. Cotton
P.9-27 | Cloud Evaluation and Feedbacks in the new Max Planck Institute Earth System Model (MPI-ESM)
M. Salzmann
P.9-28 | A new stochastic approach for representing three-dimensional cloud effects in radiative transfer
D. Huang, Y. Liu, W. Wiscombe
P.9-29 | A modeling analysis of rainfall climate changes in tropical western Pacific
C. - H. Sui, W. Gao
P.9-30 | Scale (in)dependency of statistical cloud cover parametrizations
V. Schemann, B. Stevens, V. Grützun, J. Quaas
P.9-31 | Characterizing the Diurnal Cycle of Clouds using SEVIRI
B. Maddux, J. F. Meirink
P.9-32 | Evaluating statistical cloud schemes - what can we gain from ground based remote sensing?
V. Grützun, F. Ament, O. Henneberg, J. Quaas
P.9-33 | Assessing the sensitivity of moist convection to climate change within an idealized cloud-resolving modeling framework
L. Schlemmer, J. Schmidli, C. Schaer
P.9-34 | An observational analysis of tropical rainfall climate changes
C. - H. Sui
P.9-35 | Inter- and intra-annual variability of Namibian stratocumulus clouds from 9 years of METEOSAT SEVIRI observations
H. Deneke, A. Hünerbein
P.9-36 | Properties of liquid water clouds over the Atlantic Ocean
B. Pospichal, A. Macke, Y. Zoll
P.9-37 | Cloud-aerosol-precipitation interactions and remotely-derived albedo susceptibility
P. Zuidema, D. Painemal, R. Wood, C. Terai
P.9-38 | Investigation of atmospheric light path distributions using GOSAT satellite instrument
B. Kremmling, M. Penning de Vries, T. Wagner
P.9-39 | Evaluation of cloud and precipitation characteristics simulated by a global cloud-resolving model with CloudSat and CALIPSO data
T. Hashino, M. Satoh, Y. Hagihara, T. Kubota, T. Matsui, T. Nasuno, H. Okamoto

P.12 MEASUREMENT TECHNIQUES OF CLOUD AND PRECIPITATION PROPERTIES

P.12-2 | A comparison of bulk ice microphysical properties derived using 2D Cloud Probes with and without shatter reducing tips and correction algorithms
R. Jackson, G. McFarquhar, J. Jensen, J. Stith
P.12-3 | Observation of liquid-water content in the precipitation in melting layer
R. Misumi, H. Motoyoshi, S. Yamaguchi, S. Nakai, M. Ishizaka, Y. Fijiyoshi
P.12-4 | SCONE2012 - Multi-facility solid and melting precipitation observations for GPM
S. Nakai, K. Nakagawa, H. Motoyoshi, M. Nishikawa, H. Hanado, S. Shimizu, M. Honda, T. Kumakura, H. Konishi, M. Ishizaka, Y. Fujiyoshi, H. Minda, K. Nakamura, K. Yokoyama, S. Murakami, Y. Tominaga
P.12-5 | Improved thermometer for high-resolution airborne measurements
W. Kumala, P. Klimczewski, S. P. Malinowski, K. Kwiatkowski, K. Wêdolowski, J. Kopeæ
P.12-6 | Ground-based remote sensing of vertical profiles of cloud thermodynamic phase
J. Walter, M. Wendisch, E. Jäkel, T. Zinner
P.12-7 | A method for identifying types of hydrometeors mainly contributing to precipitation
M. Ishizaka, H. Motoyoshi, S. Nakai, T. Kumakura, T. Shiina, K. - I. Muramoto
P.12-8 | Schneefernerhaus as a cloud-turbulence research station. Part 2: Cloud microphysics and finescale turbulence
J. Katzwinkel, T. Schmeissner, R. Shaw, H. Siebert, E. Bodenschatz, H. Xu
P.12-9 | Calibrations and performance of the Cloud Extinction Probe
A. Korolev, A. Shashkov, H. Barker
P.12-10 | Modification and tests of particle probe tips to mitigate ice shattering effect
A. Korolev, E. Emery, K. Creelman, W. Strapp, S. Cober, G. A. Isaac

P.12-11 | Identification of Hydrometeor Phases by Ku- and Ka-band Spaceborne Radar
L. Liao, R. Meneghini, S. Tanelli
P.12-12 | Lidar investigation of aerosol particle size distribution under cumulus base
T. Stacewicz, M. Posyniak, S. P. Malinowski, A. Jagodnicka, S. Sitarek, S. Arabas
P.12-13 | Influence of instrument temperature on CCN activation measurements and CCN closure studies
J. Voigtländer, P. Herenz, H. Wex, K. Dieckmann, F. Stratmann
P.12-14 | Particle Habit Imaging and Polar Scattering probe (PHIPS): Presentation of an improved particle edge detection method and a 3D reconstruction model
A. Abdelmonem, M. Schnaiter, E. Hesse, J. Meyer, T. Leisner
P.12-15 | Schneefernerhaus as a cloud-turbulence research station. Part 1: Flow conditions and large-scale turbulence
S. Risius, H. Xu, H. Xi, H. Siebert, R. Shaw, E. Bodenschatz
P.12-16 | Using the Backscatter Cloud Probe on the IAGOS Airbus Package 1
K. Beswick, M. Gallagher, J. Dorsey, H. Jones
P.12-17 | Comparing the Cloud Vertical Structure derived from several methods based on atmospheric profiles and surface measurements
M. Costa-Surós, J. Calbó, J. - A. González, C. N. Long
P.12-18 | Inferring cloud microphysical process using stable isotopes
R. Srivastava, R. Ramesh, T. N. Rao
P.12-19 | The Nowcasting SAF Polar Platform System, Version 2012
R. Scheirer, A. Dybbroe, S. Hörnquist, J. Malm, A. Thoss
P.12-20 | Estimation of radar reflectivity from ground-based snow particle observation for comparison with Doppler radar spectrum of Micro Rain Radar
H. Motoyoshi, M. Ishizaka, S. Nakai, T. Shiina, K. - I. Muramoto
P.12-21 | Synergetic use of polarimetric Doppler radars at Ka- and C- band for retrieval of water drop and ice particle size distributions
K. Schmidt, M. Hagen
P.12-22 | snow particle orientation observed by ground-based microwave radiometry
X. Xie, U. Löhnert, S. Kneifel, S. Crewell
P.12-23 | Satellite-based cloud property datasets derived within CM SAF
M. Stengel, F. Kaspar, M. Lockhoff, K. - G. Karlsson, J. F. Meirink, R. Hollmann
P.12-24 | An OE-based retrieval scheme for improved and consistent cloud properties to generate long-term datasets from AVHRR heritage sensors
M. Jerg, C. Poulsen, M. Stengel, R. Hollmann
P.12-25 | A thirty-year space-based climate data record of cloud properties
J. F. Meirink, E. Wolters, R. Roebeling, K. - G. Karlsson, M. Stengel, A. Heidinger
P.12-26 | Observations of cloud droplet size distributions on microphysically relevant scales
M. Beals, J. Fugal, R. Shaw, S. Spuler, J. Stith
P.12-27 | Spectral and Hyperspectral Characterization of Arctic Boundary-Layer Clouds
E. Bierwirth, A. Ehrlich, M. Wendisch, A. Herber, J. - F. Gayet, C. Gourbeyre, A. Lampert
P.12-28 | Comparisons of solid precipitation measurements using optical distrometers and traditional snow gauges in Southern Ontario, Canada
F. Boudala, S. Cober, P. Joe, R. Nitu, I. Gultepe, D. Hudak
P.12-29 | Determination of area-diameter and mass-diameter relationships from ice particle imagery in order to deduce IWC within tropical convective clouds.
E. Fontaine, A. Schwarzenboeck, A. Protat, J. Delanoë, R. Dupuy, W. Wobrock, C. Duroure, C. Gourbeyre
P.12-30 | TOPS-Ice: A novel optical particle spectrometer for the in-situ detection of ice particles and droplets
T. Clauss, A. Kiselev, S. Pfeifer, S. Hartmann, S. Augustin, H. Wex, D. Niedermeier, F. Stratmann
P.12-31 | Validation of satellite derived precipitation with research aircraft HALO - a virtual case study
A. Lammert, F. Ament, C. Klepp
P.12-32 | Estimation of snowfall rate derived from laser disdrometer data
H. Konishi, N. Hirasawa, M. Ishizaka
P.12-33 | RAINFALL MICROSTRUCTURE IN LEÓN, SPAIN (2006-2009)
M. Fernandez-Raga, N. Pichel, A. I. Calvo, C. Tomas, C. Palencia, A. Castro, R. Fraile
P.12-34 | Remote sensing of particle size pro?les from cloud sides
F. Ewald, T. Zinner, B. Mayer
P.12-35 | Z-R RELATIONSHIPS FOR LOW INTENSITY RAINFALLS
A. Castro, N. Pichel, M. Fernandez-Raga, A. I. Calvo, O. Pujol, R. Fraile
P.12-36 | Terra-Aqua change in MODIS-derived stratocumulus cloud droplet number concentration: retrieval artifact or physical reality?
P. Zuidema, D. Painemal
P.12-37 | Comparison of experimentally determined droplet collision rates with theoretical predictions
R. Bordás, R. Shaw, D. Thévenin
P.12-38 | Moistening profile of thin clouds in the Amazon derived with UV Raman Lidar
H. Barbosa, G. Diego, T. Pauliquevis, P. Artaxo
P.12-39 | Ice particle size distributions measured with a holographic airborne instrument
J. Fugal, M. Beals, R. Shaw, S. Spuler, J. Stith
P.12-40 | Statistics of liquid water clouds over Leipzig observed by ground-based remote sensing instruments
B. Pospichal, P. Seifert

P.12-41 | A coupled observationmodeling approach for studying activation kinetics from measurements of CCN activity
T. Raatikainen, T. L. Lathem, R. H. Moore, A. Nenes
P.12-42 | Simulating cloudy thermal infrared radiances with an optimised frequency grid in the radiative transfer model ARTS
G. Holl

P.13 APPLICATIONS OF CLOUD AND PRECIPITATION PHYSICS

P.13-1 | Numerical simulation Of Silver Iodide Diffusion
W. Yilin
P.13-2 | A Cloud-Resolving Model for Weather Modification Operation in China
X. Lou, Y. Shi, J. Sun
P.13-4 | Investigation of the relation between K_{dp} radar signatures in the ice region of precipitating clouds and microphysical snow growth processes
R. Bechini, V. Chandrasekar
P.13-6 | The evaluation of numerical weather prediction forecast models using near real-time CloudSat-CALIPSO observations
A. Protat, S. Young, L. Rikus, M. Whimpey
P.13-7 | A Case Study on Cloud Water Resource and Potential of Precipitation Enhancement of a Frontal Precipitation
Z. Hu, H. Lei, Z. Zhao, Y. Wu
P.13-8 | Radar forward operator for verification of real case cloud simulations in the COSMO-model
D. Epperlein, Y. Zeng, U. Blahak
P.13-9 | A Study on Changes in Cloud Microphysical Properties through Glaciogenic Seeding by Dry Ice during the Japanese Orographic Snow Cloud Modification Projects
N. Orikasa, M. Murakami, A. Saito, A. Ikeda, K. Yoshida, J. Research Group
P.13-10 | Change of microphysical characteristics of fogs (low-level clouds) in a mountainous region by the hygroscopic seeding
C. Lee, J. - Y. Jeong, Y. Choi, K. - H. Chang, J. - W. Cha, J. - W. Jung, H. - Y. Yang, J. - Y. Bae, S. Seo
P.13-11 | Cloud resolving model with three-dimensional parallelization
Z. Piotrowski, A. A. Wyszogrodzki, P. Smolarkiewicz
P.13-12 | Clouds in Environment Canada's Regional Deterministic Prediction System
P. A. Vaillancourt
P.13-13 | Statistical evaluation of convective cloud seeding experiments: An overview
R. Bruintjes, S. Tessendorf, C. Weeks, M. Dixon

12.3 MEASUREMENT TECHNIQUES OF CLOUD AND PRECIPITATION PROPERTIES — HS 9

Chair: P. Lawson

15:15 **12.3-1 | Precipitation and Attenuation Estimates from a High Resolution Weather Radar Network**
N. Feiertag, K. Lengfeld, M. Clemens, H. Münster, F. Ament

15:30 **12.3-2 | Examining a MODIS cloud droplet number concentration climatology.**
D. Grosvenor

15:45 **12.3-3 | An Observation Study of Hailfall Distribution Characteristics of a Spring Hailstorm Event by Using an X-Band Dual-Polarization Radar System**
H. Xiao, Q. Tang, C. - W. Guo, H. - L. Yang, L. Feng, Y. - N. Liu

16:00 **12.3-4 | New Russian aircraft-laboratory Yak-42D «Atmosphere» for environmental research and cloud modification**
Y. Borisov, V. Petrov, M. Strunin, V. Khattatov, B. Danelyan, A. Azarov, B. Fomin, V. Martanov, V. Stasenko, S. Vakulovskiy, A. Sinkevich, L. Sokolenko, B. Lepukhov

16:15 **12.3-5 | LACROS Leipzig Aerosol and Cloud Remote Observations System**
P. Seifert, R. Engelmann, U. Wandinger, A. Ansmann, D. Althausen, B. Heese, J. Bühl, J. Schmidt, A. Macke

16:30 – 16:45 Coffee break

16:45 **12.3-6 | Comparison of experimentally determined droplet collision rates with theoretical predictions**
R. Bordás, R. Shaw, D. Thévenin.

17:00 **12.3-7 | Introducing a new device to study crystal growth and ice nuclei in a supercooled cloud**
J. Burkart, M. Bacher, S. Sokratov, M. Falkensteiner, M. Breiling, F. Best, S. Braito, A. Lettner, H. Schabschneider

17:15 **12.3-8 | Passive remote sensing of cloud sides - assumptions and uncertainties**
T. Zinner, F. Ewald, B. Mayer, A. Ekman

17:30 **12.3-9 | A novel approach to retrieve cloud and rain microphysics using dual-frequency millimeter-wave radars**
D. Huang

9.2 CLOUDS AND CLIMATE (INCLUDING RADIATIVE PROPERTIES OF CLOUDS) HS 8

Chair: C. - H. Sui

15:15 **9.2-1 | MARINE CLOUD BRIGHTENING**
J. Latham, B. Parkes, A. Gadian, S. Salter, K. Bower, T. Choularton, H. Coe, P. Connolly, B. Launder, A. Neukerman, P. Rasch, H. Wang, R. Wood

15:30 **9.2-2 | Sea spray geoengineering of marine stratocumulus clouds**
S. Romakkaniemi, A. - I. Partanen, Z. Maalick, H. Kokkola, K. E. J. Lehtinen, A. Laaksonen, H. Korhonen

15:45 **9.2-3 | Spectral radiative effects and remote sensing of aerosol-immersed cumulus cloud fields**
S. Schmidt, P. Pilewskie, S. Song, G. Feingold, O. Coddington, A. McComiskey

16:00 **9.2-4 | Impact of Climate Change on the Precipitation Extremes Associated with Tropical Cyclones**
C. - T. Chen, T. - P. Tzeng, C. - T. Cheng, A. Kitoh

16:15 **9.2-5 | Quantifying the components of cloud radiative forcing incurred by aerosols-induced transitions between open and closed Marine Stratocumulus**
T. Goren, D. Rosenfeld

16:30 – 16:45 Coffee break

9.3 - CLOUDS AND CLIMATE (INCLUDING RADIATIVE PROPERTIES OF CLOUDS) HS 8

16:45 **9.3-1 | A possible field test for marine cloud brightening geoengineering (invited talk)**
R. Wood

17:00 **9.3-2 | Impact of cloud microphysics on cloud feedback and climate sensitivity**
U. Lohmann, S. Ferrachat

17:15 **9.3-3 | Application of the McICA methodology to represent subgrid-scale cloud variability by cloud type in the meso-scale climate model GEM**
D. Paquin-Ricard, P. A. Vaillancourt, H. Barker, J. N. S. Cole

17:30 **9.3-4 | The response of convective precipitation to warming climate and aerosol abundance**
Z. Cui, **S. J. Lock**, K. Carslaw, A. Blyth

17:45 **9.3-5 | Global distribution and seasonality of optically thin liquid water clouds investigated using 5 years of CALIPSO data**
A. Devasthale

18:00 **9.3-6 | Characterization of frontal cloud systems over Europe**
A. Hünerbein, S. Crewell, H. Deneke, K. Ebell, J. Fischer, U. Löhnert, A. Macke, J. Müller

3.1 CONVECTIVE CLOUDS (INCLUDING CLOUD ELECTRIFICATION) HS 9

Chair: C. Morales, W. J. Strapp

08:30 **3.1-1 | Beyond CAPE: Seeking fundamental explanations for differences in kinematics and microphysics of deep convection over land and ocean (invited talk)**
E. Zipser, A. Varble

08:45 **3.1-2 | Mixture of overshooting airs in the lower stratosphere**
S. Iwasaki, T. Shibata, H. Okamoto, H. Ishimoto, H. Kubota

09:00 **3.1-3 | A unique cumulonimbus producing a localized heavy rainfall in Tokyo Metropolitan during TOMACS**
Y. Yamada

09:15 **3.1-4 | Improving the Parameterization of Entrainment for Convective Clouds and its Impact on Climate Simulations**
M. Herzog, T. Wagner, H. - F. Graf

09:30 **3.1-5 | Explicit simulations of electrified mixed-phase clouds in MesoNH: from semi-idealized to first real-case studies**
J. - P. Pinty, C. Barthe, E. Defer, E. Richard, M. Chong

09:45 **3.1-6 | The microphysical properties of tropical ice cloud anvils from recent airborne cloud radar and in-situ microphysical measurements over Niamey, Niger and Gan Island, Maldives**

13.1 APPLICATIONS OF CLOUD AND PRECIPITATION PHYSICS HS 8

Chair: R. Bruintjes, C. Lee

08:30 **13.1-1 | A numerical modelling study for the issues on the planned and inadvertent weather modification in Japan**
A. Hashimoto, M. Murakami

08:45 **13.1-2 | Charge Modulation of Aerosol Scavenging (CMAS) causing storm invigoration: Possible effects on downstream blocking and European winter circulation**
B. Tinsley

09:00 **13.1-3 | Correlation between cloud characteristic parameters and precipitation**
Z. Yuquan, C. Miao

09:15 **13.1-4 | Cirrus Cloud Climate Engineering**
D. Mitchell, M. Xiao, P. Rasch

09:30 **13.1-5 | ICE FOG (POGONIP) AND FROST IN ARCTIC DURING FRAM-IF PROJECT: AVIATION AND NOWCASTING APPLICATIONS**
I. Gultepe, T. Kuhn, M. Pavolonis, C. Calvert, J. Gurka, G. A. Isaac, A. Heymsfield, P. Liu, J. A. Milbrandt, B. Zhou, R. Ware, J. Sloan, B. Bernstein

09:45 **13.1-6 | Microphysical vertical structure of the melting layer in mesoscale convective systems.**
C. Duroure, R. Dupuy, O. Jourdan, M. Monier, A. Schwarzenboeck, E. Fontaine

10:00 – 10:30 Coffee break

3.2 CONVECTIVE CLOUDS (INCLUDING CLOUD ELECTRIFICATION) HS 9

Chair: C. Morales, W. J. Strapp

10:30 **3.2-1 | Ice Multiplication, Heavy Snowfall and High Electrification of Hokuriku Winter Snow Clouds- Videosonde Observation (invited talk)**
T. Takahashi, S. Sugimoto, K. Suzuki

10:45 **3.2-2 | Comparison of Microphysical Retrievals from Dual-Polarized Airborne Cloud Radar with Coincident In-situ Microphysical Measurements in ICE-T**
P. Lawson, D. Leon, Z. Wang

11:00 **3.2-3 | Thunderstorm characteristics of summer precipitating systems during CHUVA-GLM Vale do Paraiba field campaign**
R. Albrecht, C. Morales, E. Anselmo, J. R. Neves, E. Mattos, T. Biscaro, L. A. Machado

11:15 **3.2-4 | The influence of continental aerosols on lightning over the Eastern Pacific**
B. Kucienska, G. Raga

11:30 **3.2-5 | Overview of microphysical properties of Tropical convective clouds observed in 2010 and 2011 Megha-Tropiques campaigns over West Africa and the Indian Ocean**
E. Fontaine, A. Schwarzenboeck, N. Viltard, A. Protat, J. Delanoë, C. Duroure, W. Wobrock, R. Dupuy, C. Gourbeyre

11:45 **3.2-6 | Development of Ice Hydrometeors in a Tropical Oceanic Deep Convective Cloud System**
P. Willis, P. Willis

12:00 **3.2-7 | Marine cold air outbreaks in a general circulation model: Climatology and convection**
V. Grützun, A. Seifert, B. Stevens

12:15 **3.2-8 | High resolution model simulation of entrainment in a cumulus cloud**
A. Blyth

13.2 APPLICATIONS OF CLOUD AND PRECIPITATION PHYSICS **HS 8**

Chair: R. Bruintjes, C. Lee

10:30 **13.2-1 | Cloud Droplet Closure Investigations from the VOCALS-REx Campaign Using Radar and Lidar**
G. Sever, J. Snider, D. Leon

10:45 **13.2-2 | The Role of Evaporation and Cloud Top Entrainment Instability in Aircraft Seeding Experiments of Supercooled Stratus Clouds**
C. Walcek

11:00 **13.2-3 | Moist physics tests of ICON**
F. Rieper, G. Zängl

11:15 **13.2-4 | Cold season precipitation on the territory of Verhniaya Volga during the last 25 years**
N. Bezrukova, E. Stulov, V. Sokolov, O. Nikitina, A. Oskin, M. Khanchina

11:30 **13.2-5 | Evaluation of Simulation Results of a Cloud-Resolving Model Using Satellite Data and a Satellite Simulator**
T. Shinoda, H. Masunaga, M. K. Yamamoto, M. Kato, A. Higuchi, K. Tsuboki, H. Uyeda

11:45 **13.2-6 | Evaluation of cloud microphysics about vertical properties of cloud systems in a cloud resolving simulation using satellite simulators**
W. Roh, M. Satoh

12:00 **13.2-7 | Model simulations of climate engineering by IN injections into mid-latitude cirrus clouds**
J. E. Kristjansson, H. Muri, T. Storelvmo, D. Mitchell, M. A. Pfeffer

12:15 **13.2-8 | Cloud Assimilation in WRF**
A. Pour Biazar, R. T. McNider, Y. - H. Park, K. Doty, B. Dornblaser, M. Khan

12:30 – 14:00 Lunch

14:00 **PANEL ON GEO-ENGINEERING + POSTER PRIZE AWARD** **HS 9**
David Mitchell (Desert Research Institute, Reno, Nevada, USA), Thomas Leisner (Karlsruhe Institute of Technology), Jón Egill Kristjansson (University of Oslo, Norway), Roland List (University of Toronto, Canada)

14:45 **CONCLUDING COMMENTS** **HS 9**

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Time	Sunday	Monday	Tuesday		Wednesday		Thursday		Friday	
Room		HS 9 + HS 8	HS 9	HS 8	HS 9	HS 8	HS 9	HS 8	HS 9	HS 8
08:30-10:00		Opening/Welcome 1.1	11.1	6.1	8.1	10.1	12.1	8.1	3.1	13.1
10:00-10:30		Coffee break	Coffee break		Coffee break		Coffee break		Coffee break	
10:30-12:30		1.2	2.1	5.1	8.2	10.2	12.2	9.1	3.2	13.2
							Award to Bob Knollenberg HS 9			
12:30-14:00		Lunch	Lunch		Lunch		Lunch		Lunch	
14:00-15:30		Posters Session I	Posters Session II		Posters Session III		Posters Session IV		Panel on geo-engineering + Poster Award Prize HS 9 concluding comments HS 9	
15:30-16:45	Registration 15:00-19:00 ICCP-board 1st meeting (starting at 15:00 board members get their registration material during the meeting) Location: Lecture Hall building (ask at registration desk)	1.3	4.1	7.1	8.3	10.3	12.3	9.2		
							Coffee break			
16:45-17:00		Coffee break	Coffee break		Coffee break		12.3 (cont.)	9.3		
17:00-18:00		1.3 (continued)	4.1 (cont.)	7.1 (cont.)	8.3 (cont.)	10.3 (cont.)				
18:00-19:00	ICE Breaker									
19:00-20:00		Organ recital at Nicolaichurch	Reception and lab-tours at the IfT		ICCP-board 2nd meeting (starting at 19:00) Location: Albertina					
20:00 -23:30							Conference Dinner			

TOPICS:

1	Basic cloud and precipitation physics
2	Warm boundary layer clouds
3	Convective clouds (including cloud electrification)
4	Mixed phase clouds (including Arctic stratus, mid-level clouds)
5	Cirrus clouds
6	Orographic clouds
7	Mesoscale cloud systems (including severe storms)
8	Aerosol-cloud-precipitation-interactions
9	Clouds and climate (including radiative properties of clouds)
10	Ice nuclei and cloud condensation nuclei
11	Cloud and precipitation chemistry
12	Measurement techniques of cloud and precipitation properties
13	Applications of cloud and precipitation physics