

2023

KIAPS

**International Symposium
on the Global NWP System Modeling**

6 (Mon.) ~ 8 (Wed.) November

Park Ballroom (5F), Conrad Seoul Hotel



KIAPS
KOREA INSTITUTE OF
ATMOSPHERIC PREDICTION SYSTEMS

PROGRAM

First Day (6 November 2023, Monday)

10:00~10:20	Opening Remarks		
10:20~10:30	Group Photo		
Session I . Keynote Presentation			
10:30~11:00	1.1	High-Resolution Tropical NWP and Regional Climate Projections at the Centre for Climate Research Singapore	Dale Barker (CCRS)
11:00~11:30	1.2	Research and Development of Long-Range Forecasts at the Met Office	Adam Scaife (UKMO)
11:30~12:00	1.3	Ensemble and coupled data assimilation at ECCO: Recent developments and ongoing research	Mark Buehner (ECCO)
12:00~13:30	Lunch Break		
Session II . Overview of Operational NWP Systems			
13:30~13:50	2.1	Next generation NWP modeling at KIAPS: status report	W.J. Lee (KIAPS)
13:50~14:10	2.2	KMA operational NWP model(KIM) status and plan	Jong-Chul Ha (KMA)
14:10~14:30	2.3	The Global-to-Regional ICON Forecasting System and Digital Twin	Roland Potthast (DWD)
14:30~14:50	2.4	Advancing Operational Modeling Systems at NCEP/EMC within the Unified Forecast System Framework	Vijay Tallapragada (NOAA)
14:50~15:10	2.5	CMA NWP System Recent Developments and Future Plan	Wei Han (CMA)
15:10~15:30	2.6	Current status and future developments for Operational NWP Systems in JMA	Yoshiaki Sato (JMA)
Session III . Poster Presentations			
15:30~17:30	Poster Presentations		
17:30~19:30	Welcome Dinner		

Second Day (7 November 2023, Tuesday)**Session IV. Dynamical Core**

10:40~11:00	4.1	Optimal Configurations for Storm-Resolving Atmospheric Simulations	William C. Skamarock (NCAR)
11:00~11:20	4.2	Dynamical core of the Conformal Cubic Atmospheric Model (CCAM)	John McGregor (CSIRO)
11:20~11:40	4.3	Error Growth Caused by Lateral Boundary Conditions in Global Idealized Baroclinic Wave Simulations	Sang-Hun Park (Yonsei University)
11:40~12:00	4.4	Impacts of increasing vertical resolution in KIM on medium-range forecast performance	Ja-Rin Park (KIAPS)
12:00~13:30	Lunch Break		

Session V. Physics

13:30~13:50	5.1	An Advanced Double-Moment Cloud Microphysics Parameterization Scheme for Global Weather Forecasting	Songyou Hong (NOAA)
13:50~14:10	5.2	On the Development and Evaluation of UFS Atmospheric Model Physics for NCEP Operational Forecast Applications	Fanglin Yang (NCEP)
14:10~14:30	5.3	Evaluation and improvement of scale-aware cumulus parameterization in the KIM	Ji-Young Han (KIAPS)
14:30~14:50	5.4	Improving Earth System Models via Hierarchical System Development	Michael Ek (NCAR)
14:50~15:10	5.5	Evaluation of the middle atmosphere circulation in the Korean Integrated Model	So-Young Kim (KIAPS)
15:10~15:30	5.6	Turbulence effects on drizzling shallow cumuli: Large-eddy simulations	Hyunho Lee (Kongju National University)
15:30~15:50	Coffee Break		

Session VI. Coupled Model and Extended Medium-Range Prediction

15:50~16:10	6.1	Spread and errors in forecast ensembles	Adam Scaife (UKMO)
16:10~16:30	6.2	Current status of the atmosphere-ocean-wave coupling in the Korean Integrated Model	Eunjeong Lee (KIAPS)
16:30~16:50	6.3	Reducing climate models' mean state, variability, and trend biases	Wonsun Park (Pusan National University)
16:50~17:10	6.4	Reducing high-latitude model biases: Insights from the January 2016 Arctic warming event	Baek-Min Kim (Pukyong National University)
17:10~17:30	6.5	Noah-MP coupled in KIM framework and its updates	Hyeon-Ju Gim (KIAPS)

Third Day (8 November 2023, Wednesday)**Session VII. Observation Preprocessing**

10:00~10:20	7.1	Coupled Data Assimilation and treatment of observations at ECMWF	Stephen English (ECMWF)
10:20~10:40	7.2	Efforts to advance the observation processing system in the KIAPS DA system	Jeon-Ho Kang (KIAPS)
10:40~11:00	7.3	Quantifying and Understanding Error Characteristics of Satellite-based Soil Moisture Retrievals	Hyunglok Kim (GIST)
11:00~11:20	7.4	Recent progress in satellite data assimilation at Korean Integrated Model (KIM)	Hyoung-Wook Chun (KMA)
11:20~11:40	7.5	Assimilation of clear-sky radiance observations from the GPM Microwave Imager into the Korea Integrated Model (KIM)	Jihoon Ryu (KIAPS)
11:40~13:10	Lunch Break		

Session VIII. Data Assimilation

13:10~13:30	8.1	A new approach for estimating observation error covariance using ensemble data assimilation	Mark Buehner (ECCC)
13:30~13:50	8.2	Overview of recent work in the Met Office Marine Data assimilation team	Daniel Lea (UKMO)
13:50~14:10	8.3	Development of new DA systems for coupled and high-resolution forecasting	Adam Clayton (KIAPS)
14:10~14:30	8.4	Current status and Future plans in the KMA global data assimilation	Ji-Hyun Ha (KMA)
14:30~14:50	8.5	Land data assimilation development for the Korean Integrated Model (KIM) weather forecast system	Yonghwan Kwon (KIAPS)
14:50~15:10	8.6	The Joint Effort for Data assimilation Integration (JEDI)	Yannick Trémolet (JCSDA)
15:10~15:40	Symposium Summary & Closing		

Poster Presentations

Poster No.	Title	Speaker
1	Apply a Positivity-Preserving Limiter to KIM	Hyun Nam (KIAPS)
2	Effect of the Smoothed hybrid sigma-pressure (SMH) coordinate with high-resolution topographic data	Hae-Jin Kong (KIAPS)
3	Development of diagnostic cloud fraction scheme based on cloud hydrometeors	Jung-Yoon Kang (KIAPS)
4	Exploring 3D Radiative Effects with Spherical Harmonic Discrete Ordinate Method	Sunghye Baek (KIAPS)
5	Appliance of Eddy-Diffusivity/Mass-Flux (EDMF) approach in Shin-Hong (SH) scheme	Wonheung Kim (KIAPS)
6	Spin-up of NEMO-SI3 for the KIM coupled model	Junseong Park (KIAPS)
7	Introducing the KIM-CLM coupled model and comparison test with KIM-Noah/NoaMP	Jaeyoung Song (KIAPS)
8	CaMa-Flood river model coupling in KIM	Mee-Hyun Cho (KIAPS)
9	Antarctic sea ice physics in the coupled KIM	Jin-Yun Jeong (KIAPS)
10	Impacts of sea surface parameterizations on wind-wave interactions in the coupled KIM	Yong-Jae Han (KIAPS)
11	MJO simulation in AMIP experiment of KIM: MJO skill and process-oriented diagnosis	Hye-Jin Park (KIAPS)
12	An overview of the AMIP type simulation of KIM and ENSO teleconnection features in subseasonal time scale	Sae-Rim Yeo (KIAPS)
13	Blocking simulations of KIM: From medium-range prediction to AMIP	Keon-Hee Cho (KIAPS)
14	Study on heatwave characteristics and mechanisms in the long-term simulation of KIM	Jiyoung Jung (KIAPS)
15	Evaluation of high-resolution numerical model simulations of rainfall events on the Korean Peninsula during summer 2022	Sujeong Cho (KIAPS)
16	Extended-range performance in KIM hindcasts and characteristics of East Asian summer monsoon	Eun-Hye Lee (KIAPS)
17	A new channel selection method for hyperspectral IR sounders in the KIM DA system	Ahreum Lee (KIAPS)
18	Study on extending the use of microwave satellite data over the land	Hyeyoung Kim (KIAPS)
19	A study on the aircraft temperature bias correction in the KIM based on a deep learning approach	Hui-nae Kwon (KIAPS)
20	AI Approach for Estimating the Forecast Sensitivity and Observation Impact	Hyeon-Ju Jeon (KIAPS)

21	Impact of Augmented Ocean Surface Wind Data by adding the HY-2B	Hyemin Shin (KIAPS)
22	Recent Progress for All-Sky Radiance Assimilation in the KIM Forecast System	Sihye Lee (KIAPS)
23	Development status for KIAPS LETKF-based Convective-scale Data Assimilation System	Dayoung Choi (KIAPS) Hyun-Jun Han (KIAPS)
24	Development of global ocean data assimilation system	Hye-yeong Jang (KIAPS) Eunbyeol Ko (KIAPS)
25	Weakly-coupled atmosphere-ocean data assimilation system for the KIM coupled model	Jiyoun Kim (KIAPS)
26	Adaptation of the Rotated Cubed-Sphere Grid to the KVAR Assimilation System	Ganghan Kim (KIAPS)
27	AMSR2 all-sky data assimilation in the KIM DA system	Han-Byeol Jeong (KIAPS)
28	Development of 3-hourly global NWP cycle system	Wonho Kim (KIAPS)
29	New static background error covariances from the KIM ensemble forecasts	Hanbyul Jang (KIAPS)
30	Lessons from data assimilation system version update processes	Kyung-Hee Seol (KIAPS)
31	Extended-medium-range reforecasts with the Korean Integrated Model (KIM): skill assessment of an early version	Ja-Young Hong (KIAPS)
32	Establishment of a virtual sonde data assimilation system through OSSE	Hyerim Kim (KIAPS)
33	A plan for land data assimilation within the KIM framework and its preliminary results	Sanghee Jun (KIAPS)
34	The Stochastically Perturbed Parameterizations scheme(SPP) sensitivity experiments on spatial scale in the KIM ensemble	Seokmin Hong (KIAPS)
35	Application of KIM data assimilation diagnostic tool (KDAT) to KIM data assimilation	Eunkyu Kim (KIAPS)
36	A Comparison of analysis increments for the Northern Hemisphere summer season between KIM and IFS models	Min-Woo Choi (KIAPS)
37	Characteristics of the extended medium-range prediction performance in the KIM reforecast	Taehyoun Shim (KIAPS)
38	Operation and improvement of seasonal experiments	Youngsu Lee (KIAPS)
39	Limited-area mode of KIM: a nesting experiment with 2D shallow water equation dynamics	Heeje Cho (KIAPS)
40	GPU acceleration of KIM physics	Ilseok Noh (KIAPS)
41	Deep learning model for six hour rainfall prediction	Inchae Na (KIAPS)
42	Development of PBL Parameterization Emulator using Neural Networks	Jiyeon Jang (KIAPS)
43	Evaluation of Radiation Parameterization Emulator for KIM	Wooyeon Park (KIAPS)