

**The 3rd International Workshop on
Next-Generation NWP models
29 Aug. – 1 Sep., 2010
Jeju, Korea
KAL Hotel**



WORKSHOP PROGRAM

First Day (30 August 2010, Monday)

AM 08:00-08:40 Registration
AM 08:40-09:00 Opening remarks

Session 1: Current status of high resolution NWP models

Chairs: Kazuo Saito (JMA)

AM 09:00-09:20 1.1 Current status of NCEP operational model system. *Jongil Han*

AM 09:20-09:40 1.2 AROME: a high resolution model for NWP. *Eric Bazile*

AM 09:40-10:00 1.3 Mitigation of Spurious Grid-Scale Precipitation in UM. *Sang-Ok Han*

AM 10:00-10:20 1.4 High resolution atmospheric modeling at the Met Office. *Adrian Lock*

AM 10:20-10:40 Coffee Break

AM 10:40-11:00 1.5 Real-time high-resolution precipitation forecasts over Korea at JHWC-GPP. *Dong-Kyou Lee*

AM 11:00-11:20 1.6 Current studies and future plan on the cloud resolving NWP at MRI/JMA. *Kazuo Saito*

AM 11:20-11:40 1.7 The mesoscale NWP system HARMONIE: the status and Challenges. *Sami Niemelä*

AM 11:40-12:00 1.8 Current status of real-time convective-scale NWP at NCAR. *Jimmy Dudhia, Morris Weisman, Chris Davis, and Wei Wang*

PM 12:00-1:00 LUNCH

Session 2: Multi-scale modeling

Chairs: Wei-Kuo Tao (NASA)

PM 1:00-1:20 2.1 Progresses Weather and Climate Prediction using the Icosahedral-hexagonal Gridpoint Global Model. *Jai-Ho Oh, Sumin Woo, and Ara Koh*

PM 1:20-1:40 2.2 Evaluations of cloud properties of the global cloud-resolving simulations and cloud microphysics. *Masaki Satoh*

<u>PM 1:40-2:00</u>	2.3	A Global/Regional Integrated Model system (GRIMs) <i>Song-You Hong</i>
<u>PM 2:00-2:20</u>	2.4	A Goddard multi-scale modeling system with unified physics. <i>Wei-Kuo Tao</i>
<u>PM 2:20-2:40</u>	2.5	Development of a quasi-3D multi-scale modeling framework. <i>Joon-Hee Jung and Akio Arakawa</i>
<u>PM 2:40-3:00</u>	2.6	Numerical Simulations over Mountains. <i>Wen-Yih Sun, Wu-Ron Hsu, Patrick Haines, Ming-En Hsieh, Shu-Hua Chen, and David Grove</i>
<u>PM 3:00-3:20</u>		Coffee Break
<u>PM 3:20-4:30</u>		Saved for extra presentation or summary of day 1 talks
<u>PM 4:30-5:30</u>		Poster presentation
<u>PM 6:00-</u>		RECEPTION

Second Day (31 August 2010, Tuesday)

Session 3: Precipitation and chemistry physics

Chairs: Georg A Grell (NOAA)

<u>AM 8:40-9:00</u>	3.1	A three-dimensional convective ensemble parameterization for a smooth transition to cloud resolving scales. <i>Georg A Grell</i>
<u>AM 9:00-9:20</u>	3.2	Cumulus parameterization scheme for gray zone resolution. <i>Tae-Young Lee and Yu Xing</i>
<u>AM 9:20-9:40</u>	3.3	Atmospheric chemistry modeling at high resolution. <i>Mary Barth, Alma Hodzic, and Jeff Lee</i>
<u>AM 9:40-10:00</u>	3.4	Effects of aerosols on cloud microphysics simulations with Weather Research Forecasting (WRF) model. <i>Rokjin J. Park, Soo Ya Bae, Kyo-Sun Sunny Lim, and Song-You Hong</i>
<u>AM 10:00-10:20</u>	3.5	Aerosol-induced changes in urban convection and precipitation. <i>Ji-Young Han, Jong-Jin Baik, and Alexander Khain</i>
<u>AM 10:20 - 10:40</u>		Coffee Break

Session 4: Turbulence and subgrid-scale physics

Chairs: Eric Bazile (MetFrance)

<u>AM 10:40-11:00</u>	4.1	Progresses in PBL parameterization in atmospheric models. <i>Song-You Hong</i>
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- AM 11:00-11:20 4.2 PBL parameterization used in the NWP models at Météo-France.
Eric Bazile
- AM 11:20-11:40 4.3 Recent update in convection and vertical diffusion schemes in the NCEP global forecast system.
Jongil Han and Hua-Lu Pan
- AM 11:40-12:00 4.4 Momentum flux spectrum of convective gravity waves: Validation of a parameterization using ensemble mesoscale simulations.
Hye-Yeong Chun and Hyun-Joo Choi
- PM 12:00-12:20 4.5 Impact of typhoon-generated gravity waves in the typhoon development.
So-Young Kim and Hye-Yeong Chun
- PM 12:20 - 1:20 LUNCH

Session 5: Large-eddy modeling and its application

Chairs: Chin-Hoh Moeng (NCAR)

- PM 1:20-1:40 5.1 Large-eddy simulation and its applications.
Chin-Hoh Moeng
- PM 1:40-2:00 5.2 Turbulent collision-coalescence of cloud droplets and its impact on warm rain initiation.
Lian-Ping Wang
- PM 2:00-2:20 5.3 How turbulence should be represented in atmospheric models at kilometeric scales.
Rachel Honnert, Valéry Masson, and Fleur Couvreux
- PM 2:20-2:40 5.4 Progress in turbulence parameterization for geophysical flows.
Boris Galperin and Semion Sukoriansky
- PM 2:40-3:00 5.5 LES of the Ocean Mixed Layer and its Application to NWP.
Yign Noh
- PM 3:00-3:20 5.6 Some examples of the use of LES to develop parametrizations at the Met Office.
Adrian Lock
- PM 3:20 - 3:40 Coffee Break
- PM 3:40 - 4:40 **Break-Out Groups**

Chairs: Jimmy Dudhia (NCAR)

- Convection, PBL/LES, ... sub-groups to discuss for their topic
- : what are the different approaches in current NWP models?
 - : what are the grid/subgrid-scale-related problems in current models?
 - : possible solutions and future directions in NWP

Session 6: Plenary Discussion

PM 4:40-6:00

Chairs: Jimmy Dudhia (NCAR) and Song-You Hong (Yonsei Univ.)

6.0 Summary of break-out groups (5 minutes per group).

::: General Discussion

6.1 What are the convection-permitting and cloud-resolving scales?

: What is the parameterization cut-off length scale for each physical process?

6.2 What is the role of sub-grid scale parameterization?

: What is the future of cumulus parameterization?

: What is the future of PBL parameterization?

6.3 What are the prospects and limitations of LES modeling?

: What considerations are needed to use LES for the sub-grid scale parameterization?

: What considerations are needed for embedding LES within an NWP model?

Third Day (1 September 2010, Wednesday)

Session 7: Future efforts and Wrap-up discussion

AM 9:00-10:00

Chairs: Song-You Hong (Yonsei Univ.)

AM 10:00 **Workshop ends**

POSTER SESSION

- 1.1 Sensitivity of dust emission to Asian summer monsoon simulated by HadGEM2-A.
Soo Hyun Park, Young-Hwa Byun, Hyun-Suk Kang, Johan Lee, and Won-Tae Kwon
- 1.2 Development of Numerical Weather Prediction and Ocean Mixed Layer Model and the Prediction of Diurnal Variability of SST.
Eun-Jeong Lee, Yign Noh, and Dong-Hoon Kim
- 1.3 Formation of a Seasonal Thermocline Simulated by Large Eddy Simulation.
Gahyun Goh, Yign Noh, and Siegfried Raasch
- 1.4 Effect of land surface processes in simulation of surface heat fluxes and evapotranspiration in four land surface models.
Kyung-Hee Seol and Song-You Hong
- 1.5 Impacts of surface heterogeneity on near surface climate of the boreal summer monsoon in HadGEM2.
Sung-Bin Park, Hyun-Suk Kang, Young-Hwa Byun, Johan Lee, and Won-Tae Kwon
- 1.6 Large eddy simulation on dust devils in a convective mixed layer.
Junshi Ito, Hiroshi Niino, Mikio Nakanishi
- 1.7 Sensitivity of Performance of PBL Parameterizations to Selection of the Lowest Model Layer Height.
Hyeyum Shin, Song-You Hong, and Jimmy Dudhia
- 1.8 Effects of freshwater forcing on a simulated tropical Pacific climate in the HadGEM2.
Suryun Ham, Song-You Hong, Yign Noh, Soon-Il An, Young-Hwa Byun, Hyun-Suk Kang, Johan Lee, and Won-Tae Kwon
- 1.9 Effects of diurnal cycles on the Asian monsoon : A modeling study.
Jung-Eun Kim, Myung-Seo Koo, Kasao Kanamitsu, and Song-You Hong
- 1.10 Future Climate Change Scenarios over Korea Using a Multi-Nested Downscaling System: A Pilot Study.
Byoung-Kwon Park, Kyo-Sun Sunny Lim, Song-You Hong, Nan-Kyoung Moon, and Jong-Won Kim
- 1.11 Impact of aerosol on the development of a supercell storm : A modeling study.
Kyo-Sun Sunny Lim, Song-You Hong, Seong Soo Yum, Jimmy Dudhia, and Joseph B. Klemp
- 1.12 The role of air-sea interaction over the Indian Ocean in the in-phase transition from the Indian summer monsoon to the Australian boreal-winter monsoon.
Eun-Chul Chang, Sang-Wook Yeh, Song-You Hong, and Renguang Wu
- 1.13 Implications of a Decadal Climate Shift over East Asia in Winter: A Modeling Study.
Yoo-Bin Yhang and Song-You Hong
- 1.14 Current status and developmental direction of operational NWP system in ROKAF.
Jiwoo Lee, Sookjung Ham, and Hyoungwoo Kim

1.15 Current Typhoon prediction with the new Tropical Cyclone Initialization Scheme.

Hyun-Gyu Kang, Hyeong-Bin Cheong, Ja-Rin Park, and Hyun-Jun Han