	Joint MPAS and WRF Users Workshop Program		
	3 – 6 June 2025, Boulder Colorado USA		
DAY 1 **Tues June 3**	**Session 1A: Model Development Updates**		**Presentation Number**
8:30 - 8:45	Opening Remarks		
8:45 – 9:05	Model for Prediction Across Scale - Atmosphere: Update	Bill Skamarock, NSF-NCAR	1
9:05 – 9:25	The Weather Research and Forecasting Model: 2025 Annual Update	Jimy Dudhia, Ming Chen, Wei Wang, Anthony Islas and Kelly Werner	2
9:25 – 9:45	WRFDA and MPAS-JEDI: 2025 Annual Update	Zhiquan (Jake) Liu, NSF NCAR	3
09:45 – 10:15	**Coffee Break**		
	Session 1B: Model Development Updates		
10:15 – 10:30	MPAS-LES: Extending MPAS Across More Scales	Jimy Dudhia and Bill Skamarock	4
10:30 - 10:45	Developing and Evaluating the MPAS-Urban Modeling System	Yeer Cao, Wanliang Zhang, Fei Chen, Cenlin He, Yanyan Cheng, Alexis Kai Hon Lau, Jimmy Chi Hung FUNG, and Junhao Hu	5
10:45 – 11:00	Effect of Soil Organic Matter on WRF/Noah-MP Simulated Surface Air Temperature	1Tzu-Shun Lin, 1Cenlin He, 1Changhai Liu, 1Ronnie Abolafia-Rosenzweig, 1Zhe Zhang, 1Jimy Dudhia, 2Michael Barlage, and 1Andrew Newman 1NSF National Center for Atmospheric Research, Boulder, Colorado, United States 2NOAA/Global Systems Laboratory, Boulder, Colorado, United States	6
11:00 – 11:15	Implementation of the GOCART-2G aerosol model in MPAS-Atmosphere	Laura D Fowler, NSF NCAR/MMM Mary Barth, NSF NCAR/ACOM Soyoung Ha, NSF NCAR/MMM Rajesh Kumar, NSF NCAR/RAL Gabriele Pfister, NSF NCAR/ACOM Chris Snyder, NSF NCAR/MMM	7
11:15 – 11:30	An update on the coupling the Community Fire Behavior model to WRF	Pedro A. Jimenez, Anthony Islas, Daniel Rosen, M. Eghdami, and J. Dudhia	8
11:30 – 11:45	INTEGRATION OF A WILDFIRE SMOKE PLUME RISE SCHEME INTO MPAS-A: A CASE STUDY OF THE 2019 WILLIAMS FLATS FIRE	Jaqueline Pereira - INPE National Institute for Space Research, S√£o Jos√© dos Campos, Brazil Saulo Freitas - INPE National Institute for Space Research, S√£o Jos√© dos Campos, Brazil Mary Barth - NCAR National Center for Atmospheric Research, Boulder, United States William Skamarock - NCAR National Center for Atmospheric Research, Boulder, United States	9
11:45 - 12:00	Toward Global Convection-Permitting Simulations in an Earth System Model	Mary Barth (NSF NCAR), Adam Herrington (NSF NCAR), and Brian Dobbins (NSF NCAR)	10
12:00 - 1:00	**Lunch Break**		
	Session 2: Data Assimilation		
1:00 - 1:15	Future FORUM satellite radiances and their impact on atmospheric forecasts	Alberto Ortolani (CNR-IBE; LaMMA), Samantha Melani (CNR-IBE; LaMMA), Cristina Sgattoni (CNR-IBE), Luca Rovai (CNR-IBE; LaMMA), Luca Fibbi (CNR-IBE; LaMMA), Marco Ridolfi (CNR-INO), Stefano della Fera (CNR-IFAC), Elisa Butali (IUSS-Pavia; CNR-IBE), Antonio Sandroni (CNR-IFAC), Ugo Cortesi (CNR-IFAC)	11
1:15 - 1:30	Working Towards Rapid-Refresh Regional Modeling using MPAS-JEDI at the U. S. Air Force's 16th Weather Squadron	Samantha Baker, Matthew Vaughan, Jamie Brown, Maresa Searls, Andrew Elliott, Reid Strickler, Burkely Gallo, Jason Martinelli, and Evan Kuchera; 16 WS, OQutt AFB, NE	12
1:30 - 1:45	Offline estimation of VarBC coefficients and covariances for radiance DA in MPAS-JEDI	Lipeng Jiang, Zhiquan (Jake) Liu, Junmei Ban, Tao Sun, and Xuewei Zhang; NSF National Center for Atmospheric Research, Boulder, Colorado 80301, USA	13
1:45 - 2:00	Data Assimilation Using Mixture of Experts with ConvLSTM Networks for Global Weather Prediction	Otavio Medeiros Feitosa¬π, Haroldo F. de Campos Velho¬π, Saulo R. Freitas¬π, Juliana Aparecida Anochi¬π, Angel Dom√≠nguez Chovert¬≤, C√©sar Magno Leite de Oliveira Junior¬≥ - ¬πNational Institute for Space Research (INPE), S√£o Jos√© dos Campos (SP), Brazil; ¬≤Instituto Federal Goiano, Rio Verde (GO), Brazil; ¬≥Universidade de S√£o Paulo (USP), S√£o Paulo, Brazil	14
2:00 - 2:15	Assimilation of Radar Radial Velocity and Reflectivity Observations Using LETKF within MPAS-JEDI: A Case Study of an MCS Event in Taiwan	Rong Kong1, Jake Liu1, Tao Sun1, Hejun Xie1,2 1MMM/NCAR 2Zhejiang University, China	15
2:15 - 2:30	Advancing Nonhydrostatic Radar Data Assimilation for Convective-Scale Forecasting with Regional MPAS	Soyoung Ha and Jun Park (NSF NCAR)	16
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	Session 3: MPAS in NOAA Research and Operations		
3:00 - 3:15	NOAA/GSL Model Development and Forecasting Activities Using MPAS	Clark Evans, Curtis R. Alexander, Ligia R. Bernardet, Terra T. Ladwig, Ming Hu, David C. Dowell, and Trevor I. Alcott (all NOAA/OAR/Global Systems Laboratory)	17

3:15 - 3:30	Progress Towards the Development of MPAS-based Warn-on-Forecast System	Yunheng Wang1,2, Lou Wicker2, Thomas Jones1,2, Craig Schwartz3, Soyoung Ha3 and Nusrat Yussouf 1,2 1 Cooperative Institute for Severe and High-Impact Weather Research and Operations (CIWRO), University of Oklahoma, Norman, OK 73072, 2 NOAA/National Severe Storm Laboratory, Norman, OK 73072, and 3 National Center for Atmospheric Research, Boulder, Colorado	18
3:30 - 3:45	NOAA GSL experimental aerosol forecasting in the MPAS-A	Jordan Schnell (1,2), Haiqin Li (1,2), Ben Koziol (3), Johana Romero-Alvarez (1,2), Sudheer Bhimireddy (1,2), Minsu Choi (1,2), Eric James (2), Ravan Ahmadov (2) 1 Cooperative Institute of Environmental Science, Boulder, Colorado, United States 2 Global System Laboratory, National Oceanic and Atmospheric administration, Boulder, Colorado, United States 3 NOAA/EPIC, College Park, USA	19
3:45 - 4:00	GSL test and evaluation of MPAS-JEDI for implementing it in RRFS version 2	Ming Hu, Guoqing Ge, Chunhua Zhou, Sijie Pan, Junjun Hu, Ruifang Li, Haidao Lin, Keenan Eure	20
4:00 - 4:15	Stochastic physics in MPAS and transition into the UFS	Will Mayfield (1,2); and J. Beck (2,3), M.A. Harrold (1,2), T. Kalb (1,2), M. J. Kavulich Jr. (1,2), G. Ketefian (2,5), and N. Wang (2,4). 1 - NSF NCAR/RAL 2 - DTC 3 - NOAA/GSL 4 - CIRA@NOAA/GSL 5 - CIRES@NOAA/GSL	21
4:15 - 5:00	**Discussion: MPAS in NOAA and the UFS**		
5:30 - 7:00	**Informal gathering at Rayback Collective (2775 Valmont Rd, Boulder, CO)**		
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8:30 – 8:45	Evaluation of High-Resolution MPAS-A Performance in the Maritime Continent	I-Han Chen1, Kalli Furtado1, Patel Pratiman1, Wei Wang 2, Zhiquan Liu2, Dale Barker 1 1Centre for Climate Research Singapore, Singapore. 2National Center for Atmospheric Research, Boulder, CO, U.S.A.	22
8:45 – 9:00	Operational Data Assimilation with MPAS-JEDI for The Weather Company‚Äôs GRAF System	James Cipriani, David Heeps, Brett Wilt, and John Wong	23
9:00 – 9:15	Evaluation of MPAS-A Performance for Regional Forecasting Applications at the Central Weather Administration of Taiwan	Wu, Y.-J., W. Wang, H.-L. Huang, B.-S. Lin, L.-F., Hsiao	24
9:15 – 9:30	WRF Ensemble Updates at the US Air Force's 16th Weather Squadron	Burkely Gallo, Andrew Elliott, Evan Kuchera, Scott Rentschler, Glenn Creighton, Samuel Childs, Gordon Brooks, James Keane, Matthew Vaughan, Christopher Melick, and William Sedlacek; 16 WS, Offutt AFB, NE	25
9:30 - 9:45	MPAS evaluations for severe weather forecasting during the 2025 NOAA/Hazardous Weather Testbed Spring Forecasting Experiment	Adam Clark1,3, Kent Knopfmeier1,2, Yunheng Wang1,2, Nusrat Yussouf1,2, Israel Jirak4, Louis Wicker1,3, Clark Evans5, David Dowell5, Craig Schwartz6, Ryan Sobash6, Michael Duda6, and William Skamarock6 (1) NOAA/OAR National Severe Storms Laboratory, Norman, Oklahoma (2) Cooperative Institute for Severe and High-Impact Weather Research and Operations, University of Oklahoma, Norman, Oklahoma (3) School of Meteorology, University of Oklahoma, Norman, Oklahoma (4) NOAA/NWS Storm Prediction Center, Norman, Oklahoma (5) NOAA/OAR Global Systems Laboratory, Boulder, Colorado (6) National Center for Atmospheric Research, Boulder, Colorado	26
9:45 – 10:00	Real-time Convection-Allowing Model Forecasts using Global MPAS Configurations for Springtime Convective Forecasting Applications	Craig Schwartz, Ryan Sobash, and David Ahijevych; NSF NCAR	27
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	Session 5: Post-processing		
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10:45 - 11:00	UXarray: Streamlining Analysis of MPAS Model Output on Native Grids	Authors: Philip Chmielowiec1, Orhan Eroglu1, John Clyne1, Brian Medeiros2, Colin Zarzycki3, Robert Jacob4, Paul Ullrich5, Rajeev Jain4, Robert Jacob4, Aaron Zedwick4, Hongyu Chen5, Cecile Hannay2, Lantao Sun6 1 NSF NCAR, CISL (Computational and Informations Systems Laboratory) 2 NSF NCAR, CGD (Climate & Global Dynamics Laboratory) 3 The Pennsylvania State University 4 Argonne National Laboratory 5 UC Davis 6 Colorado State University	29
11:00 - 11:15	Native Grid Visualization of MPAS Model Data Using Python	Jorge Bravo, Marouane Temimi 1Stevens Institute of Technology	30
	Session 6A: Physics Development and Testing		
11:15 - 11:30	Ending the half century monopoly of similarity functions in meteorology and air quality modeling	Kiran Alapaty1, Jesse Bash1, Rob Gilliam1, Christian Hogrefe1, Daiwen Kang1, Barron Henderson1, Alan Vette1, Chris Nolte1, and Saravanan Arunachalam2	31
11:30 - 11:45	Implementing SHOC+MF PBL scheme in MPAS	Guilherme Tavares Farache, Saulo Ribeiro de Freitas, Paulo Yoshio Kubota	32

11:45 - 12:00	Updates to the MYNN-EDMF PBL Scheme to Improve MPAS- and WRF-based Forecasting Systems	Joseph B. Olson (NOAA-GSL), Wayne M. Angevine (retired), Xia Sun CIRES/NOAA-GSL), Dave Turner (NOAA-GSL), and Clark Evans (NOAA-GSL)	33
12:00 - 1:00	**Lunch Break**		
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1:15 - 1:30	Testing the RCON Warm Rain Scheme in WRF	Cliff Mass, University of Washington, David Ovens, University of Washington, Robert Conrick, Boeing Corporation	35
1:30 - 1:45	Revisions to the Subgrid Orographic Parameterization in GFS/WRF/MPAS	Song-You Hong1, Wei Wang1, Jimy Dudhia1, Jian-Wen Bao2, Sara Michelson2, Evelyn Grell2, Mike Toy3, Joe Olson3, Jongil Han4, Fanglin Yang4, Myung-Seo Koo5 , and Hyun-Joo Choi6 1NCAR/MMM, Boulder, Colorado 2Physical Science Laboratory, Earth System Research Laboratory, NOAA, Boulder, Colorado 3Global System Laboratory, Earth System Research Laboratory, NOAA, Boulder, Colorado 4 Environmental Modeling Center, NCEP, NOAA, College Park, Maryland 5 Korea Institute of Atmospheric Prediction Systems (KIAPS), Seoul, Korea 6 Numerical Modeling Center, Korea Meteorological Administration (KMA), Daejeon, Korea	36
1:45 - 2:00	A new approach to implement scale awareness in convective parameterizations	Georg A Grell (NCAR), Haiqin Li (University of Colorado and NOAA/GSL), Saulo R. Freitas (INPE/CPTEC)	37
2:00 - 2:15	HRRR Physics Validation and Development using WFIP3 Observations over the Northeastern U.S. Coast	Xia Sun, Joseph Olson, David Turner, Laura Bianco, Bianca Adler, Timothy Myers	38
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2:30 - 2:45	Simulation of Tropical Cyclone Batsirai in the South West Indian Ocean: Sensitivities to Planetary Boundary Layer Schemes	Athule James, Babatunde .J Abiodun, Akintunde .I Makinde Department of Environmental and Geographical Science, University of Cape Town, Cape Town, South Africa Nansen-Tutu Centre for Marine Environmental Science, Department of Oceanography, University of Cape Town, South Africa	40
2:45 - 3:00	Comparative Analysis of WRF and MPAS-A Performance in Simulating Extreme Rainfall during Superstorm Ida in the New York City Metropolitan Area	Jorge Bravo, Marouane Temimi - Stevens Institute of Technology	41
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	Future projections of heatwave events using high-resolution WRF downscaling based on the Pseudo Global Warming method	Shuhua Lu1, Khanh Do1, Yang Zhang1, Xiaodong Chen2,3,4, Ruby Leung2, and Michelle Bell5 1 Department of Civil and Environmental Engineering, Northeastern University, 02115, Boston, MA, U.S. 2 Atmospheric, Climate, and Earth Sciences Division, Pacific Northwest National Laboratory, 99352, Richland, WA, U.S. 3 School of Meteorology, University of Oklahoma, 73072, Norman, OK, U.S. 4 School of Civil Engineering and Environmental Science, University of Oklahoma, 73019, Norman, OK, U.S. 5 School of the Environment, Yale University, 06511, New Haven, CT, U.S.	P02
	Using WRF-based LES to understand microenvironments over Idaho‚Äôs Camas Prairie region	Michelle Harrold (NSF NCAR/RAL), Sarah Tessendorf (NSF NCAR/RAL), Sisi Chen (NSF NCAR/RAL), Lulin Xue (NSF NCAR/RAL), Jamie Wolff (NSF NCAR/RAL), Nick Dawson (NSF NCAR/RAL), and Hans-Peter Marshall (CryoToolbox, LLC)	P03
	Water Yield and Ecosystem Productivity Prediction over the Conterminous United States under Energy Transition Scenarios in a Changing Climate	Libo Zhang and Yang Zhang, Department of Civil and Environmental Engineering, Northeastern University, Boston, MA 02115	P04
	On the Use of Spectral Filters for Terrain Modification in WRF-ARW: A Sensitivity Study	Duboc, Nicolas / Chui, Timothy C. Y. / White, Rachel H. / West, Gregory / Stull, Roland B.	P05
	A Case Study Comparison of MPAS-A and WRF During a January 2024 Cyclone	Cameron H. Cousino- University of Wyoming, Melissa S. Bukovsky- University of Wyoming	P06
	The Impacts of Lake Spray Aerosol on Cloud Formation in the Great Lakes Region	Jennifer B. Seth and Allison L. Steiner, Department of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, MI	P07
	Evaluation and improvement of offshore atmospheric stability in WRF simulation	Yuma Shimatani, Meteorological Engineering Center, Inc., Japan Teruo Ohsawa, Graduate School of Maritime Sciences, Kobe University, Japan	P08
	A Comparison of Real-Time MPAS and WRF Forecasts Over Antarctica	Jordan G. Powers (NCAR) and Kevin W. Manning (NCAR)	P09
	Minimizing the MPAS-NoahMP 2-m air temperature cold bias over Antarctica	David H. Bromwich, Lesheng Bai, Brian Rakoczy, and Sheng-Hung Wang Polar Meteorology Group, Byrd Polar and Climate Research Center, The Ohio State University, Columbus, Ohio.	P10
	Towards the implementation of MPAS in a numerical weather prediction model	Sho Kawazoe, Atsushi Hashimoto, Yuki Kanno, and Masamichi Ohba (CRIEPI)	P11

	Recent Advances in METplus Verification and Diagnostic Capabilities	Authors: John Halley Gotway1,2, Michelle Harrold1,2, Tara Jensen1,2, Molly Smith2,3, Dan Adriaansen1,2, Mrinal Biswas1,2, Tracy Hertneky1,2, Christina Kalb1,2, Will Mayfield1,2, George McCabe1,2, Brianne Nelson1,2, Kathryn Newman1,2, John Opatz1,2, Julie Prestopnik1,2, Howard Soh1,2, Jonathan Vigh1,2, and Minna Win-Gildenmeister1,2 1NSF NCAR/RAL, 2DTC, 3CIRES@NOAA/GSL	P12
	Demonstrating command-line plotting for MPAS unstructured grids using UXarray and MatPlotLib	Michael J. Kavulich, Jr., Will Mayfield (NSF-NCAR/DTC) Gerard Ketefian (NOAA-GSL/DTC)	P13
	A High-Resolution Leaf Area Index Product for Tropical Ecosystems derived from MODIS using a Random Forest Algorithm	David Carchipulla-Morales (1,2) and Lauren E. L. Lowman (1,2) / 1Department of Engineering, Wake Forest University, Winston-Salem, NC, USA; 2Department of Physics, Wake Forest University, Winston-Salem, NC, USA`	P14
	Learned Meshless Gradient Operators	Jorge Guerra and Louis Wicker, NSSL	P15
	Incorporation of Observed Urban Morphological Characteristics into the Weather Research and Forecasting WRF-Urban Modeling System	Francisco Salamanca-Palou (Florida Institute of Technology), Fengqi Li (Oak Ridge National Laboratory), Joshua R. New (Oak Ridge National Laboratory), Melissa Dumas (Oak Ridge National Laboratory), Matei Georgescu (Arizona State University)	P16
	Evaluating Aerosol Wet Scavenging and Vertical Transport in Convective Storms with WRF-Chem: A SEAC,Ä¥RS Case Study	Ajay Parottil¬π, Mary Barth¬π, Gustavo Cuchiara¬≤, Jose Jimenez¬≥, Pedro Campuzano-Jost¬≥ ¬π NSF National Center for Atmospheric Research ¬≤ Air pollution Control Division/CDPHE ¬≥ University of Colorado	P17
	Top-down estimates of U.S. NOx emissions using TEMPO and TROPOMI NO2 remote sensing observations with WRF-Chem/Chem-DART	Chia-Hua Hsu1,2,3*, Daven K. Henze1, Arthur P. Mizzi4,5,1, Colin Harkins2,3, Congmeng Lyu2,3, Owen R. Cooper3, Rebecca H. Schwantes3, Jian He2,3, Meng Li2,3, Siyuan Wang2,3, Chelsea E. Stockwell2,3, Carsten Warneke3, Andrew W. Rollins3, Eleanor M. Waxman2,3, Kristen Zuraski2,3, Jeff Peischl3, Shobha Kondragunta6, Fangjun Li7, Chuanyu Xu8, R. Bradley Pierce9, Gonzalo Gonz√°lez Abad10, Caroline R. Nowlan10, Xiong Liu10, and Brian C. McDonald3 1Department of Mechanical Engineering, University of Colorado, Boulder, CO, USA 2Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO, USA 3NOAA Chemical Sciences Laboratory, Boulder, CO, USA 4 NASA Earth Exchange, NASA Ames Research Center, Moffett Field, CA, USA 5Bay Area Environmental Research Institute, Moffett Field, CA, USA 6NOAA/NESDIS/Center for Satellite Applications and Research, College Park, MD, USA 7Geospatial Sciences Center of Excellence, Department of Geography and Geospatial Sciences, South Dakota State University, Brookings, SD, USA 8Science and Technology Corporation at NOAA, College Park, MD, USA 9Space Science and Engineering Center, University of Wisconsin-Madison, Madison, WI, USA 10Atomic and Molecular Physics Division, Center for Astrophysics | Harvard & Smithsonian, Cambridge, MA, USA	P18
	Improving WRF Representation of Coastal, Marine, and Residual Boundary Layers	Ashish Bhattarai, Yuxuan Wang, Shailaja Wasti, Travis Griggs, James Flynn (Department of Earth and Atmospheric Sciences, University of Houston, Houston, TX, USA)	P19
	Assessing the Influence of Anthropogenic Heating and Updated Emissions on Air Pollutants and Greenhouse Gas Predictions with WRF-Chem-GHG	Eeshan Basu and Yang Zhang (Department of Civil and Environmental Engineering, Northeastern University, Boston, MA), Daniel Tong and Siqi Ma (Department of Atmospheric, Oceanic and Earth Sciences, George Mason University, Fairfax, VA) and Ravan Ahmadov (Earth Prediction Advancement Division, Global Systems Laboratory, NOAA, Boulder, Colorado, USA)	P20
	Getting Started with MPAS-DART: Tutorial Materials for Global and Regional DA	Jun Park and Soyoung Ha, NCAR/MMM	P21
	Preliminary Evaluation of Simulated Dual-Pol Radar Variables with NTU and TCWA2 Bulk Microphysics Schemes	Tzu-Chin Tsai1, Jen-Ping Chen2, Siou-Ying Jiang1,2, Ling-Feng Hsiao1, Pao-Liang Chang1 1 Central Weather Administration, Taiwan (R. O. C.) 2 Department of Atmospheric Sciences, National Taiwan University, Taipei, Taiwan (R. O. C.)	P22
	Modifying WRF‚Äôs Radiation Physics for Palaeoclimate simulations	Andrew Lowry (School of the Environment, The University of Queensland, St Lucia, QLD 4072, Australia), Hamish McGowan (School of the Environment, The University of Queensland, St Lucia, QLD 4072, Australia)	P23
	Impact of droplet number concentration on WRF simulated in-cloud icing over a complex terrain site	Pravin Punde - Department of Physics and Technology, UiT The Arctic University of Norway, Troms√∏ / NSF National Center for Atmospheric Research, Boulder, CO, USA Trude Eidhammer - NSF National Center for Atmospheric Research, Boulder, CO, USA Yngve Birkelund - Department of Physics and Technology, UiT The Arctic University of Norway, Troms√∏ Muhammad Shakeel Virk - Department of Industrial Engineering, UiT The Arctic University of Norway, Narvik Pavlo Sokolov - Department of Industrial Engineering, UiT The Arctic University of Norway, Narvik Deepak Waman - Institute of Meteorology and Climate Research, Troposphere Research, Karlsruhe Institute of Technology, Karlsruhe, Germany	P24
	Coupling MPAS-A and WRF-Hydro Using NUOPC ESMX	Soren Rasmussen, Aubrey Dugger, Ryan Cabell, Arezoo RafieeiNasab	P25

	Implementation of the MPAS Dynamical Core in the Unified Forecast System Weather Model	Dustin Swales1,2, Grant Firl1,2,3, Soren Rasmussen2,4, Vanderlei Vargas1,2,3, Ligia Bernardet1,2, Lulin Xue2,4 1National Oceanic and Atmospheric Administration (NOAA) Global Systems Laboratory 2Developmental Testbed Center 3Colorado State University, Cooperative Institute for Research in the Atmosphere 4NSF National Center for Atmospheric Research, Research Applications Laboratory	P26
	Integration of Additional Community Physics Parameterizations into the MPAS-Atmosphere Model	Clark Evans1, Ligia Bernardet1, Michael D. Toy1,2, Joseph B. Olson1, Anders A. Jensen1, William C. Skamarock3, Michael J. Duda3 1: NOAA/OAR/Global Systems Laboratory, Boulder, CO 2: Cooperative Institute for Research in Environmental Sciences, Univ. of Colorado, Boulder, CO 3: NSF National Center for Atmospheric Research, Boulder, CO	P27
	Assimilation of spaceborne and airborne radio occultation observations within the MPAS-JEDI system	Ivette Hernandez Banos1, Jennifer S. Haase2, Pawel Hordyniec3, Bing Cao2, Zhiquan Liu1, Phuong-Nghi Do2, Junmei Ban1, Byoung-Joo Jung1, Chris Snyder1, Tao Sun1 1NSF NCAR Mesoscale and Microscale Meteorology Laboratory, Boulder, Colorado, USA 2Scripps Institution of Oceanography, University of California San Diego, La Jolla, California, USA 3Institute of Geodesy and Geoinformatics, Wroclaw University of Environmental and Life Sciences, Wroclaw, Poland	P28
	Bringing MPAS-LAM to the Web: A Containerized, User-Friendly Simulation Platform	Pierre Simon Tondreau, Juan Carlos Perez Darias, Juan Pedro Gonzalez Diaz - GOTA (Grupo de Observaci√≥n de la Tierra y Atm√≥sfera)	P29
	Microphysical Parameter Sensitivity in Simulations of Observed Deep Convection	Marilia de A. Gregorio (National Instituo for Space Research - INPE) Enver Ramirez (National Instituo for Space Research - INPE)	P30
	Nowcasting optimization of precipitation extremity in Hong Kong based on PCA-LSTM and WRF simulation	Shiyun Liu and Chun-Ho Liu Department of Mechanical Engineering, The University of Hong Kong.	P31
	Improving meteorological simulations by data assimilation (FDDA) in WRF model for S√£o Paulo (Brazil)	Alejandro Herman Delgado Peralta, Maria de Fatima Andrade	P32
	Assessing the Performance of WRF-ARW Physical Parameterizations at Cloud-Resolving Scale in the Central Amazon Basin	Chetan Gurung, University of Maryland Baltimore County, MD, USA Leandro Alex Moreira Viscardi, University of Hawai'i at Manoa, Honolulu, HI, USA Xiaowen Li, Morgan State University, Towson, MD, USA David Kenton Adams, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico Henrique de Melo Jorge Barbosa, University of Maryland Baltimore County, MD, USA	P33
	Evaluation of Spatiotemporal Variability of Air Pollutants in Metropolitan Lima Using WRF-Chem at 1 km Resolution.	Authors: Llacza Rodr√≠guez, Alan; Huam√°n Bueno, Lorena Affiliation: Subdirectorate of Numerical Modeling of the Atmosphere (SMN)	P34
	Sensitivity of Rainfall Forecasts to Microphysics Parameterizations in WRF: A Case Study over Tamil Nadu during the December 11‚Äì12, 2024	Y. Sujatha, N. Sujatha, L. Srivani, C. V. Srinivas	P35

DAY 3 **Thurs June 5**	**Session 6C: Physics Development and Testing**		
8:30 – 8:45	Exploring the impacts of cold pools dynamics in MONAN: insights from hurricanes	Bianca Fusinato, Saulo R. Freitas, Georg Grell, Haiqin Li	42
8:45 – 9:00	Sensitivity Analysis of WRF Model Microphysics Scheme on the Simulation of Super Typhoon SAOLA, and the Potential Impact of Sea Surface Salinity on Rapid Intensification	Huisi Mo1, Hui Su1, PW Chan2, Jianping Gan3 1Department of Civil and Environmental Engineering, HKUST, Hong Kong, China 2Hong Kong Observatory, Hong Kong, China 3Department of Mathematics, Department of Ocean Science, HKUST, Hong Kong, China	43
9:00 – 9:15	Using large language models to produce literature reviews: Usage and systematic biases of microphysics parameterizations in 2699 publications	Tianhang Zhang,* Shengnan Fu,* David M. Schultz, Zhonghua Zheng	44
9:15– 9:30	Snow cover plays a non-dominant role in the long-standing surface cold bias in WRF/Noah-MP over the western U.S.	Ronnie Abolafia-Rosenzweig (NSF NCAR), Cenlin He (NSF NCAR), Changhai Liu (NSF NCAR), Tzu-Shun Lin (NSF NCAR), David Mocko (NASA Goddard Space Flight Center), Karl Rittger (Institute of Arctic and Alpine Research, University of Colorado at Boulder), William Rudisill (Earth and Environmental Sciences Area, Lawrence Berkeley National Laboratory), Yifan Cheng (University at Buffalo, Department of Earth Sciences), Michael Barlage (NOAA Global Systems Laboratory), Ross Palomaki (Institute of Arctic and Alpine Research, University of Colorado at Boulder), Jerry W. Wegiel (NASA Goddard Space Flight Center), Sujay V. Kumar (NASA Goddard Space Flight Center)	45
9:30 – 9:45	Parameterization of melting snow for bulk cloud microphysics schemes	Yuki Kanno (CRIEPI), Soichiro Sugimoto (CRIEPI), Juanzhen Sun (NSF NCAR/MMM)	46

9:45 – 10:00	Positive bias in surface solar irradiance and missing clouds over CONUS in WRF simulation	Ju-Hye Kim (NCAR RAL), Jimy Dudhia (NCAR MMM), Changhai Liu (NCAR RAL), Roy Rasmussen (NCAR RAL), and Tim Schneider (NCAR RAL)	47
10:00 - 10:20	**Coffee Break**		
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10:20 - 10:35	MELODIES MONET: A User-Friendly, Open-Source Python Tool for Model Evaluation.	Pablo Lichtig1, Louisa K. Emmons1, Rebecca Schwantes2, David Fillmore1, Rebecca R Buchholz1, Gabriele Pfister1, Helen Worden1, Zachary Moon, Benjamin Gaubert1, Shima Shams1, Meng Li3, Colin Harkins3, Quazi Rasool3, Barry Baker2, Beiming Tang3, Edward Strobach3, Margaret Bruckner3 1 NSF NCAR 2 NOAA 3 CIRES	48
10:35 - 10:50	Air Quality Forecasting in Eastern and Southern Africa: Leveraging Satellite Data Assimilation for Improved Predictions	Shima Shams, Rajesh Kumar, Carl Drews, Victor weeks, Wenfu Tang, Forrest Lacey, Roelof Bruintjes (all from NSF NCAR)	49
10:50 - 11:05	NO2 emission adjustment using GEMS satellite data over Thailand	Worapop Thongsame, University of Colorado Boulder Daven K. Henze, University of Colorado Boulder Rajesh Kumar, NSF National Center for Atmospheric Research Mary Barth, NSF National Center for Atmospheric Research Gabriele Pfister, NSF National Center for Atmospheric Research	50
11:05 - 11:20	Sensitivity of dust emissions to meteorological forcings in an agricultural land area: A case study in Sao Paulo	Nilton Rosario: S√£o Paulo Federal University, Brazil Saulo Freitas: National Institute for Space Research, Brazil Danny Leung: The National Center for Atmospheric Research, United States Demerval Moreira: S√£o Paulo State University, Brazil	51
11:20 - 11:35	WRF-Chem and MPAS modeling studies on compound events involving Atlantic tropical cyclones and trans-Atlantic African dust	Min Huang, UMD	52
11:35 - 11:50	Evaluating the Role of EROD parameter in simulating Agricultural Dust Storm	Authors Abhijit Das, Yangyang Xu Affiliations: Department of Atmospheric Science, Texas A&M University	53
11:50 - 12:05	Simulating radiative forcing of wildfire smoke using a coupled high resolution meteorology-chemistry model-HRRR-Chem	Minsu Choi (First, 1,2), Jordan Schnell (1,2), Johana Romero-Alvarez(1,2), Sudheer Bhimireddy(1,2), Haiqin Li(1,2), Ravan Ahmadov (Corresponding,2). 1.Cooperative Institute of Environmental Science, Boulder ,Colorado, United States 2. Global System Laboratory, National Oceanic and Atmospheric administration, Boulder, Colorado, United States	54
12:05 - 1:00	**Lunch Break**		
	Session 8A: Model Applications and Evaluation		
1:00 - 1:15	Coastal breezes and thermal comfort during a heatwave event in the southwestern Iberian Peninsula: an integrated modelling and observational study.	J. Carbone (1,2), E. Luj√°n (1), P. Ortiz-Corral (2), A. Martilli (3), B. Sanchez (3), M. Sastre (2), C. Yag√ºe (2), M. Bolado-Penagos (1), O. Alvarez (1), C. Rom√°n-Casc√≥n (1). 1. Universidad de C√°diz, Facultad de Ciencias del Mar y Ambientales, INMAR, CEIMAR, Departamento de F√≠sica Aplicada, C√°diz, Spain. 2. Departamento de F√≠sica de la Tierra y Astrof√≠sica, Universidad Complutense de Madrid (UCM), Madrid, Spain. 3. Unidad de Modelizaci√≥n Atmosf√©rica, Departamento de Medio Ambiente, CIEMAT, Spain.	55
1:15 - 1:30	Simulating the Influence of the Agulhas Current on Cut-Off Low-Induced Flooding in KwaZulu-Natal, South Africa	Akintunde I. Makinde (1,2) and Babatunde J. Abiodun (1,2) 1Nansen-Tutu Centre for Marine Environmental Research, Department of Oceanography, University of Cape Town, Cape Town, South Africa 2Department of Environmental and Geographical Science, University of Cape Town, Cape Town, South Africa	56
1:30 - 1:45	Simulating the sensitivity of COLs to the Agulhas Current System over the Western Cape, South Africa using MPAS-A	Chelsey Jansen, Babatunde Abiodun, Akintunde Makinde, Sabina Abba Omar: Climate System and Analysis Group, Department of Geography and Environmental Science, University of Cape Town, South Africa, Nansen-Tutu Centre for Marine Environmental Science, Department of Oceanography, University of Cape Town, South Africa	57
1:45 - 2:00	Comparison of Simulated and Observed Radar Data in a Tropical Maritime Convection Event	Ting-Yu Cha: NSF NCAR MMM Rosimar Rios-Berrios: NSF NCAR MMM Wen-Chau Lee: NSF NCAR EOL Chris Davis: NSF NCAR MMM Jennifer DeHart: Colorado State University	58
2:00 - 2:15	Response of African Easterly Waves and Other High-Impact Weather Events to a Warming Climate: An MPAS Convection-Permitting Approach	Kelly Núñez Ocasio (Texas A&M); Erin M. Dougherty (NCAR); Chris A. Davis (NCAR); Zachary L. Moon (Texas A&M)	59
2:15 - 2:30	Investigating the Forecast Skill of Tropical Waves in MPAS-A Simulations	Quinton A. Lawton(1), Rosimar Rios-Berrios(1), Falko Judt(1), and Linus Magnusson(2) (1)NSF National Center for Atmospheric Research, Boulder, CO (2)European Centre for Medium-Range Weather Forecasts, Reading, UK	60
2:30 - 3:00	**Coffee Break**		
	Session 8B: Model Applications and Evaluation		
3:00 - 3:15	Using MPAS to diagnose operational model forecast errors	Robert G. Fovell, University at Albany, SUNY	61
3:15 - 3:30	Impact of upstream resolution on the medium-range forecast errors over the CONUS	May Wong(1) and Manda Chasteen(1,2), (1) NSF NCAR MMM, (2) Current affiliation: Leidos Engineering	62

3:30 - 3:45	Leveraging AI to Link Weather Regimes and Hydroclimate Extremes over North America using WRF	Swatah Snigdha Borkotoky	63
3:45 - 4:00	Accelerating High-Resolution Downscaling of Meteorological Variables via Supervised Deep Learning	Authors: Khanh Do, Shuhua Lu, Yang Zhang. Affiliation: Northeastern University	64
4:00 - 4:15	Land-Atmosphere Interactions in a long-term MPAS-NoahMP Simulation	1 Zhe Zhang, 1 Cenlin He, 1 Judith Berner, 1 Abby Jaye, 2 Michael Barlage, 1 Changhai Liu , 1 Julia Kukulies, 1 Jimy Dudhia, 1 Meg Fowler, and 1 Yaga Richter 1 NSF National Center for Atmospheric Research, Boulder, Colorado, United States 2 NOAA/Global Systems Laboratory, Boulder, Colorado, United States	65
4:15 - 5:00	**Wrap-up discussion and closing remarks**		
DAY 4 **Fri June 6**	**Mini-Tutorials**		
8:45 – 10:15	A Tutorial: UXarray for MPAS output analysis and model intercomparisons		
10:30 – 12:00	To be confirmed		